Early Careers

Training Programme

Modules

August 2023

Core Modules

The Early Careers Training Programme features 5 core modules that delegates will attend together, and will involve a blended mix of online, in-person and field-based training.

Introduction to professional practice, professional ethics, ways of working and communication skills (*2 days in-person*) – Sue Bell CEcol CEnv FCIEEM – The first module will provide an introduction to the concepts of behaviours and standards that would be consistent with a professional ecologist / environmental manager. The course will look at the CIEEM Code of Professional Practice and also the CIEEM Competency Framework. It will explore the role of laws, standards and guidance in guiding professionalism

Introduction to UK nature conservation legislation (*2 half days online*) – Dr Alina Congreve & Professor Anthony Gallagher (10:00-13:00) – this module provides an introductory level review of nature conservation legislation, looking at how the current framework translates to practical actions, and considering how effective it is in achieving its aims. Delegates will develop a strong practical understanding of the system of nature conservation governance in England, and how the new laws and policies impact our work on the ground.

Introduction to Preliminary Ecological Appraisal (*2 half days online*) – Mike Dean BSc MSc CEcol CEnv FCIEEM, Director, MD Ecology Limited (09:30-13:00) – this module will focus on providing an introduction to the process of Preliminary Ecological Appraisals (PEA). The module will equip delegates with an understanding of the purpose of PEA; how to set an appropriate scope of work for PEA in different scenarios; being able to differentiate between PEA and Ecological Impact Assessment (EcIA); and to make proportionate recommendations for design changes, further survey, mitigation and enhancement in different scenarios.

Introduction to Ecological Report Writing (*2 half days online*) – Mike Dean BSc MSc CEcol CEnv FCIEEM, Director, MD Ecology Limited (09:30-13:00) – this module will look at how to produce good quality ecological report for species and habitat surveys and PEA. The module will cover a range of topics including: the important of high quality ecological reports and the consequences of poor quality reports; challenges faced in producing ecological reports; the different types of reports, their purposes and target audiences; how to structure the report and what content to include; and top tips on writing a good report.

Habitat survey and mapping (including Phase 1 and UK Hab) (*2 days in-person*) – Paul Losse MCIEEM (Worcester Woods Country Park) – this module provides an introduction to habitat survey and the main principles involved. This includes a look at Phase One habitat survey, mapping protocols, UK Habitat classification survey and field based elements identifying and mapping habitats in the field. At the end of the module delegates will have gained an understanding of: what a habitat survey is and why it is done; the various classification and mapping techniques; how to plan and map a habitat survey; and how to present the results.

Option Modules

In addition to the cores modules, delegates with support from their employer, will be able to select 5 modules from the existing CIEEM training programme.

Once the core modules have been completed, you will be invited to select which modules options you would like to attend and the team at CIEEM will be able to assist with the booking of these.

Sometimes, a course may not be available. This can be due to the availability of the trainer, the demand for the course and the seasonality of the course. If the course is not in our current programme, we will advise you of this and add you to the waiting list for the course so that when the course is next available, you will be notified and we can book for you if the new dates and times are suitable for you. Or alternatively, you can request further details for another course from the programme.

How to select your 5 module options

1. Have a look through this booklet and make a note of the courses that you are interested in.
2. Discuss the options with your employer.
3. Once you have your final 5 options, email us at training@cieem.net and we will check if the course is live in the current programme.
    a. If it is, then we will book the place for you and notify you of this.
    b. If the course is not currently available, then we will add you to the waiting list for the course and notify you once the course is live again. Or you may wish to select another option.

Overview of Courses

ECOLOGICAL ASSESSMENT
An Introduction to Appropriate Assessment in Ireland

MITIGATION AND MANAGEMENT
Badger Impacts and Mitigation
Badger Survey, Impacts and Mitigation
Barn Owl Ecology, Surveying and Mitigation
Bat Impacts and Mitigation
Bats: Assessing the Impact of Development on Bats, Mitigation & Enhancement
Otter Survey, Impacts and Mitigation
Peregrine Falcon: Ecology, Survey and Mitigation
Water Vole Live Trapping
Water Vole Mitigation

PLANNING AND DEVELOPMENT

A Habitat Design Checklist for Biodiversity Net Gain
Biodiversity Metric V4.0 Training
Delivering Environmental Net Gain
Designing for Biodiversity Net Gain
Introduction to the Rivers & Streams Metric for Biodiversity Net Gain
Positive Planning for Biodiversity - First Principles
Using UKHab for Biodiversity Net Gain

SURVEY, ECOLOGY AND IDENTIFICATION

Ancient Woodland Indicators
Aquatic Plants Identification
Botany for Beginners
Breeding Bird Surveys and Checks
Conifer Identification for Ecologists
Eurasian Beaver Ecology and Restoration
Fern Identification for botanical surveying and habitat classification
Grass Identification for Ecologists
Heathland plants identification for botanical surveying and habitat classification
Identification of Grasses, Sedges and Rushes
Indicator Plants of Woodland, Wetland, Heath and Acid Grassland
Introduction to Bat Ecology and Bat Surveys
Introduction to Bats and Bat Survey
Introduction to Fern Identification
Introduction to UK Habitat Classification
Otter Ecology and Surveys
Plant Identification and Botanical Keys
Plant Identification for Ecologists
Reptiles Ecology, Surveys & Mitigation
Soils, Plants and Phytoremediation
UK Habitat Classification for Practitioners
Understanding the Vegetative Key an essential tool for Ecologists for extending the survey season
Using Bioacoustics for Field Survey (Online)
Using Bioacoustics for Field Survey (Field Based)
Using the NVC Plant Communities and Habitats
Vegetation Survey Techniques: Extended Phase 1/Phase 2 Using NVC
Vegetation Surveys Using Phase 1 and NVC Techniques
Water Vole Ecology and Surveys
Wind Farm Bird Collision Risk Modelling
Winter Tree ID: extending the season in ecological surveys

TECHNOLOGIES

QField for Ecologists and Environmental Practitioners
QGIS for Biodiversity Net Gain

ECOLOGICAL ASSESSMENT

An Introduction to Appropriate Assessment in Ireland	
Training provider	Marie-Louise Heffernan CEnv MCIEEM MSc
Course overview	This introduction to Appropriate Assessment for ecologists covers the background to the designations, the legislation and the steps in Appropriate Assessment. This course will provide you with a basic template for assessments and show you how to carry out a basic assessment. We will look at multiple examples of Appropriate Assessment in action and discuss screening, Stage 2 assessments, cumulative impacts and mitigation. The training includes discussions, presentations and case studies to develop understanding.
Delivery mode	Online using Zoom
Course length	2x 3 hours sessions = 6 hours in total
Location	Online
Learning outcomes	• Be able to describe Legal background of Birds and Habitats Directives and the 2010 Planning Act in relation to Natura 2000 sites including aspects such as retention, extension of time and exempt development. • Recognise competent authorities and list their responsibilities. • Detail the various stages in Appropriate Assessment. • Understand how to bring a simple project through the Appropriate Assessment process and decide what additional information (if any) is required and decide how to get this information). • Understand what is meant by mitigation
Example programme	**Day 1:** 10.00 Natura 2000 Background • Habitats and Birds Directives in Ireland (Natura 2000) • Special Areas of Conservation and Special Protection Areas – Qualifying Interests / Special Conservation Interests and Boundary Selection • SPAs/SACs/NHAS • Designation Process 10.30-11.00 Legislation • Habitats and Birds Directive & Legislative background to Appropriate Assessment. • Competent authorities and legal responsibilities

	• 2010 Planning Act (retention, extension of time and exempt development) in relation to AA. • Role of An Bord Pleanala 11.00-11.15 Discussion/short exercise (Match the Mitigation) Break to 11.30 11.30 to 12.00 • Guidelines on AA European and Irish Guidelines • Difference between EIA and AA 12.10-12.30 Species/habitats not covered by the directive 12.30 -13.00 Questions and Answer session **Day 2:** 10.00-12.00 Appropriate Assessment- in Action. • How to carry out an AA (stages in AA) from project description to Decision • Terminology • Direct versus Indirect Impacts • Cumulative Impact • Mitigation • Screening versus NIS 12.30 Short Exercise 13.00 Round up and Discussion
CIEEM Competency Framework	• A2 - Habitat Regulations Assessment, Appropriate Assessment / Natura Impact Statement

MITIGATION AND MANAGEMENT

Badger Impacts and Mitigation	
Training provider	David Denman CEnv MCIEEM
Course overview	This one-day course considers the potential impacts of different phases of development on badgers and the options for mitigation. Relevant legislation and licensing requirements are also covered. This classroom-based training offers seven structured sessions to include planning for survey and reporting, development phases, types of development impacts on badgers (including sett loss, disturbance and impacts

	on foraging habitat) and the design and the practicalities involved in the implementation of mitigation measures. The trainer will also advise on the principles of licensing, when and how to apply for a licence. Natural England badger licence forms will be completed as a class exercise. Delegates will have opportunities to analyse examples of badger mitigation projects. The tutor will facilitate discussions throughout the course so that delegates can raise issues that they have encountered in their work. Each session will close with a Question and Answer session. Delegates are able to contact the tutor after the course to talk through badger cases that they are working on.
Delivery mode	In-person classroom based course / online TBC
Course length	09:30 – 16:30
Location	Whisby Nature Reserve and Natural World Centre, Lincoln
Learning outcomes	• Be able to identify issues of concern in badger surveys and reports • Identify impacts of developments on badgers • Propose mitigation measures in response to development impacts • Prepare a Natural England Badger Licence
Example programme	The sessions will cover: • Legislation • Surveys and Report • Development Impact Phases • Development Impacts • Designing Mitigation Measures • Mitigation Measures - Natural England Licences • Mitigation Measures in Practice
CIEEM Competency Framework	• S1 Habitat / species survey design, planning and fieldwork • M3 Implementation of habitat and / or species management • SM2 Analysis of data
Related courses	• Badger Ecology and Survey Techniques • Badger Ecology and Surveys • Badger Survey, Impacts and Mitigation

Badger Survey, Impacts and Mitigation

Training provider	Beccy Osborn MCIEEM, Principal Ecologist and Director, Direct Ecology Ltd
Course overview	The course will look at key badger legislation in Scotland and the licensing process in Scotland in relation to loss of or disturbance to badger setts through development or forestry work. There will be an overview of badger ecology and a detailed look at badger field signs and how to undertake badger survey (including the use of camera traps and bait marking).

	A range of case studies will be presented to help participants gain a greater understanding of badger mitigation and compensation options. Best practice in (licensed) badger sett destruction will be discussed. Other topics will include best practice guidance to minimize impacts when working close to badger setts and what to include in a toolbox talk. The course should enable delegates to prepare licence applications in Scotland and badger Species Protection Plans with more confidence. Opportunity will be given for questions and discussion. Advice on further reading and key references will be given.
Delivery mode	Online using Zoom
Course length	2x 3 hours sessions = 6 hours in total
Learning outcomes	• Increased knowledge of legislation in relation to badgers. • Increased knowledge of badger ecology and field signs. • Increased knowledge of potential impacts to badger. • Increased knowledge of badger mitigation options.
Example programme	<u>Session 1:</u> • Introductions, aims and objectives of course • Badger legislation and offences – overview England, detail Scotland. • Badger Distribution (UK) and Ecology including setts and different types. • Group exercise- Is it a badger sett? • Badger survey signs and how to survey. • Break out rooms – badger quiz • Round up and Questions <u>Session 2:</u> • Aims and objectives of course, breakout rooms – attendee badger mitigation experience • Badger licensing for development/forestry (primarily Scotland) • Assessing impacts to badger and badger protection plans • Badger mitigation – including sett exclusion and artificial setts, badger fencing, badger tunnels, working practices on site • Group exercise in breakout rooms completing a badger licence form • Round up and Questions
CIEEM Competency Framework	• S1 - Habitat/species survey design, planning and fieldwork • A4 - Ecological assessment including Preliminary Ecological Appraisal and Ecological Impact Assessment and the use of biodiversity metrics as part of the assessment of existing/potential ecological features (eg biodiversity net gain) • S2 - Species identification, handling and population assessment
Related courses	• Badger Ecology and Surveys

	• Badger Ecology Survey Techniques

Barn Owl Ecology, Surveying and Mitigation

Training provider	Dr. Stefan Bodnar MCIEEM
Course overview	This course will cover barn owl ecology, conservation and legal significance. The training will be taught entirely in the field with social distancing observed. An extended field session will enable delegates to review data sources and limitations, survey and methodological considerations and survey protocols. The field session will look at roost features in buildings and in trees and will enable participants to define potential nest sites (PNS), define an active roost site (ARS), define a temporary rest site (TRS) and define potential feeding and dispersal habitats (PFH). Delegates will learn to identify the evidence for confirming an occupied breeding site (OBS) and how data should be recorded.
Delivery mode	In-person field based course
Course length	09:30 – 16:30
Location	West Midlands
Learning outcomes	• An understanding of how to define different roosts of barn owls and active nest sites. • A full understanding of barn owl ecology, the habitat features used and needed, and how to assess the habitat quality of an area. • A full understanding of the legal considerations, and licensing requirements.
Example programme	9.00 - 9.30 Arrival, registration, meet on the Middleton Hall car parking area. 9.30 - 11.00 Field visits focussing on Barn owl ecology 11.00 - 12.15 Field visit focussing on Barn owl survey and mitigation, legal considerations 12.15 - 13.15 Lunch break 13.15 - 16.00 Surveying: a range of site visits in the local area to known and potential roost and breeding sites. Practical task of evaluating habitat suitability and roost/nest evidence 16.00 - 16.30 Return to meeting place, summary, questions
CIEEM Competency Framework	• S1 Habitat / species survey design, planning and fieldwork
Comments	Please note: Barn Owl Licences in the UK are issued by Natural England, SNH and NRW. Two licensed referees are required for any application. As references should be based on the observation of a person's skills over an extended period of time, CIEEM does not provide references. We do however

	provide a certificate confirming completion of the training which will help in the assessment of your application.

Bat Impacts and Mitigation

Training provider	Beccy Osborn MCIEEM, Principal Ecologist and Director, Direct Ecology Ltd
Course overview	The course will look at how and when to apply for a bat development licence (Scotland), writing a Species Protection Plan, potential impacts to bats and mitigation and compensation options. Various development types will be considered including buildings, new roads and wind farms. There will be examples of case studies and participants will be encouraged to take part in group discussion with their own examples. The course will look at when and how a derogation licence can be obtained, primarily looking at the licensing process in Scotland. Potential impacts that could affect bats will be discussed including roost destruction, roost disturbance and other impacts will be considered such as loss of foraging and collision impacts. Various mitigation and compensation options will be reviewed. There will be discussion on best practice methods of working for roost destruction and exclusions. The course should enable delegates to prepare licence applications and bat Species Protection Plans with more confidence. Examples will be primarily of Scottish bat species. Opportunity will be given for questions and discussion. Advice on further reading and key references will be given.
Delivery mode	Online using Zoom
Course length	2x 3 hours sessions = 6 hours in total
Learning outcomes	• Increased knowledge of legislation and licensing relating to bats (Scotland) • Increased knowledge of potential impacts to bats • Increased knowledge of bat mitigation and compensation options • Increased awareness of examples of bat mitigation and compensation
CIEEM Competency Framework	• A4 Ecological Assessment including Ecological Impact Assessment • M3 Implementation of habitat and / or species management • P3 Implementation of policy legislation and standards
Related courses	• Bats: Assessing the Impact of Development on Bats, Mitigation & Enhancement • Introduction to Bat Ecology and Bat Surveys • Introduction to Bats and Bat Survey

Bats: Assessing the Impact of Development on Bats, Mitigation & Enhancement	
Training provider	Dr Katie A. Pollard MCIEEM, Director of KP Ecology Ltd
Course overview	The need for appropriate mitigation and compensation is paramount for successful and continued use of a structure/habitat by bats. This requires a good understanding of bat ecology and how development can impact different species of bats in different ways. This course will focus on the impacts on bats of building/housing development, but also with discussion of impacts on bats of works to roads, bridges and trees and the requirement for appropriate mitigation, compensation and enhancement in line with current legislative requirements. Effective communication with clients will also be discussed to assist practitioners in ensuring clients are aware of, and understand, the laws protecting bats and the requirements for mitigation, compensation and enhancement. The style of training will be a blend of presentation, case studies and scenarios with small group working. It is hoped that delegates will contribute with their own experiences, wherever possible, to encourage discussion on best practice methods to mitigate, compensate and enhance the resources that bats need to survive in our landscape. The course is suitable for those who have some knowledge of bat ecology and surveys (or have attended an Introduction to Bat Ecology and Bat Surveys course). A further reading list will be given out to each participant.
Delivery mode	Online using Zoom
Course length	2x 3 hours sessions = 6 hours in total
Learning outcomes	• Raise knowledge of potential impacts of development on bats. • Develop knowledge of how to assess impacts on bats. • Improve awareness of different types of bat mitigation and compensation. • Increase understanding of how to apply relevant mitigation and compensation to different levels of impact and contexts. • Understand the importance of ecological enhancement to benefit bats.
CIEEM Competency Framework	• P4 - Compliance and enforcement of environmental (and relevant other) legislation, policy and standards
Comments	NB: Bat Licences in the UK are issued by Natural England, NRW, SNH and NIEA. Two licensed referees are required for any application. As references should

	be based on the observation of a person's skills over an extended period of time, CIEEM does not provide references. We do however provide a certificate confirming completion of the training which will help in the assessment of your application. This certificate is not an indication of your competency.
Related courses	Introduction to Bat Ecology and Bat Surveys

Otter Survey, Impacts and Mitigation

Training provider	Beccy Osborn MCIEEM, Principal Ecologist and Director, Direct Ecology Ltd
Course overview	This course will provide cover topics including otter legislation, licensing, ecology, survey, as well as impacts to otter and mitigation and compensation options when impacts to otters are anticipated. This course will provide a look at key otter legislation and the licensing process (in Scotland) and advise will be given on when and how to apply for an otter derogation or survey licence. There will be an overview of otter ecology and a detailed look at how to undertake otter survey and the signs to look out for. This information will be put into practice with a short otter survey on a local river (weather permitting). The course will also look at potential impacts to otter for a range of development types such as loss of or disturbance to otter “resting up sites” . Mitigation and compensation options will be discussed including artificial holts and what to include in an otter toolbox talk. The course should enable delegates to prepare licence applications and otter Species Protection Plans with more confidence. Opportunity will be given for questions and discussion of otter survey or mitigation queries and experiences. Advice on further reading and key references will be given. The course will be primarily based on Scottish legislation and examples, although will be largely relevant to participants throughout the UK.
Delivery mode	In-person course with classroom and field based sessions
Course length	10:00 – 16:30
Location	Perthshire, Scotland
Learning outcomes	• Increased knowledge of legislation in relation to otters • Increased knowledge of otter ecology and survey • Increased knowledge of potential impacts to otter

	• Increase knowledge of mitigation and compensation options for otter
Example programme	10:00: Introductions – course aims and attendees aims 10:15: Otter ecology and survey 12:30: Lunch and walk to field site 13:15: Field visit (unless river in spate- and an alternative site may be visited with vehicles) and walk back 14:45: Impacts, mitigation and group exercise 16:15: Roundup. 16:30: Finish
CIEEM Competency Framework	• S1 - Habitat / species survey design, planning and fieldwork
Related courses	Otter Ecology and Surveys Otter Mitigation

Peregrine Falcon: Ecology, Survey and Mitigation	
Training provider	Dr Stefan Bodnar MCIEEM
Course overview	This course aims to provide an up-to-date understanding of peregrine ecology, current conservation status and threats. In particular the course aims to provide examples of effective survey, timings and precautions in respect of development and mitigation examples. Using a combination of presentations, case studies and field work, participants will see a number of mitigation projects and gain an understanding of the legislative framework surrounding the species. The aim of the course is to provide participants with the skills to undertake competent surveys, produce relevant and rational reports in line with national guidelines, and to advise on developments in respect of ecological constraints and mitigation measures.
Delivery mode	In-person field based course
Course length	09:30 – 16:30
Location	Edgbaston Reservoir, West Midlands
Learning outcomes	• Have a broad understanding of peregrine falcon ecology including signs of presence/differing levels of activity/residence/breeding and current issues/conflicts. • Clearly understand survey requirements and protocol. • Clearly understand the legal framework of protection. • Be aware of the range of mitigation opportunities currently available.

CIEEM Competency Framework	• S1 Habitat / species survey design, planning and fieldwork

Water Vole Live Trapping	
Training provider	Dr Merryl Gelling CEcol MCIEEM
Course overview	This course is designed to be completed in parallel with the CIEEM Water Vole Mitigation course. Delegates should only be allowed to book onto this course if: • They also book on the Water Vole Mitigation course to be run in autumn of the same year; or • They have completed the Water Vole Mitigation course in the past 12 months; or • They can otherwise demonstrate sufficient existing knowledge of water vole mitigation, at the discretion of the trainer. It will provide delegates with experience in choosing equipment and planning a trapping project, setting live-capture traps, trap checking, handling and sexing of animals, subsequent release and biosecurity measures. Based entirely in the field, delivery of material will be via example and demonstration, with participants being guided through setting and checking their own traps, and thereafter handling captured animals*. It provides an opportunity for participants to bring questions regarding their own projects for discussion, so is ideal for those delegates who are planning or need to undertake their own trapping project for water voles. *Note – handling of animals is at the discretion of the trainer and dependent on numbers caught.
Delivery mode	In-person field based course
Course length	Afternoon on day 1 is 5 hours Morning on day 2 is 3 hours = 8 hours
Learning outcomes	• Understand differences in live-capture traps and when each are appropriate • Plan a suitable trapping schedule, appropriate for the site and terrain • Knowledge of suitable trap provisions • Appreciate biosecurity measures required • Experience setting traps for water voles • Experience of checking traps for water voles • Knowledge of handling and sexing water voles (it may also be possible for delegates to gain practical experience of handling animals, but this

	will be at the discretion of the trainer and is dependent on the number of animals captured).
CIEEM Competency Framework	• M3 - Implementation of habitat and/or species management activities • S2 Species identification, handling and evaluation
Related courses	• Water Vole Ecology and Surveys • Water Vole Live Trapping, Care and Restoration • Water Vole Migation

Water Vole Mitigation

Training provider	Mike Dean CEcol CEnv FCIEEM, Director of MD Ecology Limited
Course overview	This course covers the impacts of different types of development on water voles and the options for mitigation. It will have a particular focus on determining the most appropriate approach to relocating water voles, by either trapping or use of the displacement technique, following the Water Vole Mitigation Handbook published in April 2016. The principles of displacement will be discussed in particular detail. The basic principles of trapping will also be discussed though this topic is covered in greater detail on CIEEM's 'Water Vole Live Trapping, Care and Restoration' training course. This course is aimed at experienced practitioners (intermediate or advanced level) which complements our practical training on 'Water Vole Live Trapping, Care and Restoration'. Those attending should have a good understanding of water vole ecology and survey techniques as these topics will not be covered during the course (we recommend attending the Water Vole Ecology and Surveys course first).
Delivery mode	Online using Ms Teams
Course length	2x 3.5 hours sessions = 7 hours in total
Learning outcomes	• Understanding of the legislation relating to water voles. • Ability to assess the impacts of a development proposal on water voles. • Ability to design an appropriate mitigation strategy. • In depth understanding of the displacement technique, its limitations, and practical implementation. • Understanding of the basic principles of live capture and translocation of water voles* (*This Learning Outcome is covered in detail in CIEEM's two-day 'Water Vole Live Trapping, Care and Restoration' Training event).

CIEEM Competency Framework	• M2 - Designing and preparing habitat/species management, mitigation, compensation and/or enhancement plans or projects • M1 - Providing specialist advice on habitat/species management and/or habitat creation or rehabilitation plans or projects • M3 - Implementation of habitat and/or species management activities
Comments	This course is aimed at experienced practitioners (intermediate or advanced level)
Related courses	• Water Vole Ecology and Surveys • Water Vole Live Trapping, Care and Restoration

PLANNING AND DEVELOPMENT

A Habitat Design Checklist for Biodiversity Net Gain

Training provider	Tanith Cook CEcol MCIEEM and Dr Julia Baker CEnv MCIEEM
Course overview	The online session starts by introducing BNG from a design perspective and outlines how the Natural England Biodiversity Metric 'trading rules' influence the types of habitats to create and/or enhance to achieve BNG. This session also covers BNG design deliverables, practical advice on collaborative approaches for BNG, and an overview of the Habitat Design Checklist. The in-person training session then covers the details of the Habitat Design Checklist: a step-by-step approach to key considerations for BNG-led designs of habitat creation and enhancement. The Checklist applies to all developments and BNG habitats and, in the training, is applied to woodland and grassland creation as common habitat types in BNG designs. The training covers gathering baseline information (e.g. soils) to set objectives for habitat creation and enhancement, as well as planting mixes, methods of woodland/grassland creation (e.g. natural colonisation/ regeneration, seeding and planting), and planting patterns. This session includes presentations with case studies, Q&A and practical sessions for delegates to work through habitat creation designs, problem-solve issues and identify win-win opportunities. This course is for Ecologists with good working knowledge of Biodiversity Net Gain and of the Natural England Biodiversity Metric who have yet to fully undertake a habitat design, especially for the creation and enhancement of woodlands and grasslands.
Delivery mode	Half day zoom session and then a full day in-person training
Course length	3 hours on zoom and 6 hours in-person

Learning outcomes	• An understanding of the concept of Biodiversity Net Gain (BNG) from a design perspective • Knowledge of the information required to establish baselines for designing BNG • Knowledge of the key considerations when designing habitat creation and enhancement for BNG, especially for woodland and grassland creation
CIEEM Competency Framework	• A4 Ecological Assessment including Ecological Impact Assessment • M1 Advise on habitat / species management and / or habitat creation projects • M2 Design and preparation of habitat / species management / enhancement plans and projects • M3 Implementation of habitat and / or species management
Comments	A basic-level understanding of UK laws protecting wildlife for development, of habitat classification, and of Biodiversity Net Gain.
Related courses	• Biodiversity Metric V4.0 • Designing for Biodiversity Net Gain • Introduction to the Rivers and Streams Metric for Biodiversity Net Gain • Using UKHab for Biodiversity Net Gain • QGIS for Biodiversity Net Gain

Biodiversity Metric V4.0 Training

Training provider	Various
Course overview	This course is based on the Biodiversity Metric 4 (Natural England, 2023). It provides training on undertaking metric calculations for a development and its direct impacts on habitats. It also provides training on utilising Biodiversity Metric 4.0 to support designs of Biodiversity Net Gain both on and off-site. This training will be covered by three online Zoom sessions (each of three hours). Please note that this course does not cover details on designing Biodiversity Net Gain for a development, or the River and Streams component of Metric V4 or on Habitat Condition Assessments. Other CIEEM training courses are available on these aspects. We understand that the Statutory Biodiversity Metric will be published when mandatory BNG comes into effect (expected late November 2023) and that there might be changes from Metric V4 to the Statutory Metric.
Delivery mode	Online using Zoom
Course length	3x 3 hours sessions = 9 hours in total

Learning outcomes	• Undertake a Biodiversity Metric 4.0 calculation of the baseline of a development site. • Undertake a Biodiversity Metric 4.0 calculation of direct impacts on habitats from a development. • Use Biodiversity Metric 4.0 to support the design of Biodiversity Net Gain.
CIEEM Competency Framework	• S1 Habitat / species survey design, planning and fieldwork • S1 Habitat / species survey design, planning and fieldwork • M5 Outcome monitoring, data management and reporting
Comments	This course is aimed at individuals with no previous experience in or knowledge of biodiversity unit calculation, as well as individuals with some experience who wish to develop their skills and knowledge in biodiversity unit calculations.
Related courses	• A Habitat Design Checklist for Biodiversity Net Gain • Designing for Biodiversity Net Gain • Introduction to the Rivers and Streams Metric for Biodiversity Net Gain • Using UKHab for Biodiversity Net Gain • QGIS for Biodiversity Net Gain

Delivering Environmental Net Gain

Training provider	Dr Martina Girvan CEcol MCIEEM
Course overview	The course would start with a foundation in the natural capital and ecosystem service approach to delivering ENG. It would set out the legislative, policy and strategic context in a UK and Ireland and global setting. It would highlight the tools available to apply the approach and help delegates navigate the many forums, strategies, frameworks, standards and tools that currently exist. Examples of interventions and their ability to deliver ENG would be provided and the necessary KPIs for measurement. There would be a webinar interspersed with opportunities for group working to apply what has been learned, re the identification of appropriate ecosystem services, and worked examples around the quantification and monetisation of benefits. This would include examples of the necessary business cases required to confirm feasibility of interventions, including both capital and operational works. This would also be followed by case studies showing how this has been applied in a project and or plan context. This would end with a Q and A. Materials would be provided such as existing tools, spreadsheets, recommended guidance etc. It would be a mixture of lecture, group activities and discussion. The aim of this training it to support the audience in integrating ENG into their plans and projects in a meaningful way that can be measured to demonstrate benefit delivery.

Delivery mode	Online using Zoom
Course length	2x 3 hours sessions = 6 hours in total
Learning outcomes	• Understand the natural capital approach for delivering environmental net gain and the difference between assets and services • Have awareness of a range of tools that can support assessment of environmental net gain • Apply the approach to plans and projects • Participate in some worked examples for assessing environmental net gain • Understand ENG in a legislative policy and strategic context
CIEEM Competency Framework	• A1 Strategic Environmental Assessment
Comments	Familiarity with the Biodiversity Net Gain process would be desirable but not essential.

Designing for Biodiversity Net Gain

Training provider	Various
Course overview	The course is for individuals wishing to advance their skills in designing biodiversity net gain for development projects. Through presentations, case studies and practical work, the course focuses on designing biodiversity net gain (BNG) for various types, sizes and locations of development projects including small-scale to large-scale, as well as rural and urban locations. The training covers BNG during the early stages of a project through to ecological impact assessments and the design stage. It touches on how BNG can influence core project decisions such as master planning and optioneering, and the role of local planning authorities in embedding BNG within planning functions. The core element of the training is designing BNG: this includes applying the mitigation hierarchy; habitat trading, ecological equivalency, promoting connecting, achieving additionality, and offsetting losses with gains elsewhere as the final stage of the mitigation hierarchy.
Delivery mode	Online using Zoom
Course length	2x 3 hours sessions = 6 hours in total
Learning outcomes	• Understand biodiversity net gain in the context of the UK good practice principles, national strategy and planning policy. • Undertake key aspects of designing biodiversity net gain including trading rules and additionality. • Understand good practice for evidencing biodiversity net gain at consents and planning stage.

CIEEM Competency Framework	• S1 Habitat / species survey design, planning and fieldwork
Comments	A thorough knowledge of ecological impact assessments and ecological mitigation, compensation and enhancement design for development projects is required. Also required is basic knowledge of biodiversity unit calculations or use of other biodiversity metrics for designing Biodiversity Net Gain.
Related courses	• A Habitat Design Checklist for Biodiversity Net Gain • Biodiversity Metric V4.0 Training • Introduction to the Rivers and Streams Metric for Biodiversity Net Gain • Using UKHab for Biodiversity Net Gain • QGIS for Biodiversity Net Gain

Introduction to the Rivers and Streams Metric for Biodiversity Net Gain

Training provider	Dr Lucy Shuker CEnv CWEM
Course overview	This course is based on the Biodiversity Metric 4.0. It provides an introduction to the Rivers and Streams Metric and how to proceed with a River Metric assessment, explaining: • its context as part of the wider Biodiversity Metric 4.0); • the seven individual components that make up the rivers and streams metric; • what information is needed for each component in order to complete the Biodiversity Metric 4.0 River Metric spreadsheet, and how to access it; • how to enter data and generate River Metric Units using worked examples; • how to approach a Rivers and Streams Metric assessment for different types of project and watercourse.
Delivery mode	Online using Zoom
Course length	2x 3 hours sessions = 6 hours in total
Learning outcomes	• Understand what the Biodiversity Metric 4.0 River Metric is, what it includes and how it differs from the other area and linear habitat metrics. • Identify and apply the data and wider information needed to calculate River Metric Units using the Biodiversity Metric 4.0 spreadsheet • Know where to find the necessary guidance and support options for doing the River Condition Assessment • Plan a River Metric assessment at a typical development site (using case study examples)

	• Plan and identify additional support options for a River Metric assessment at a more complex development site (using case study examples)
CIEEM Competency Framework	• A4 Ecological Assessment including Ecological Impact Assessment
Comments	Knowledge of the Biodiversity Metric 4.0 and/or Net Gain will be useful but is not essential.
Related courses	• A Habitat Design Checklist for Biodiversity Net Gain • Biodiversity Metric V4.0 • Designing for Biodiversity Net Gain • Using UKHab for Biodiversity Net Gain • QGIS for Biodiversity Net Gain

Positive Planning for Biodiversity - First Principles

Training provider	Sarah Dale MCIEEM
Course overview	In the first session, the course will provide an overview of biodiversity law and how this interacts with the planning process. The planning system including application processes, planning policy and the role of Local Authority Biodiversity officers and ecological consultees will be explained. This will be in a webinar format. Where there are differences in Wales, Scotland and England, these will be set out. A workshop will follow exploring emerging policies and approaches. This will include District Licensing, planning reform, ecosystem services/green infrastructure, biodiversity net gain and Nature Recovery Networks. Discussion will be welcomed. Any particular approaches could be discussed on more detail if requested by the participants in advance. Links to example planning cases will be provided at the end of the first session with the invitation for attendees to review and decide how they would respond as a Local Authority Ecologist. These cases will be discussed and reviewed in detail in the second session. Participants will also be invited to present and discuss any particular issues or cases they may wish to. The session will close with a webinar covering Top Tips for planning submissions including evidence requirements, reports, use of Supplementary Planning Documents and best practice guidance and protocols.
Delivery mode	Online using Zoom
Course length	2x 3 hours sessions = 6 hours in total
Learning outcomes	• Understanding how biodiversity-relevant legislation and national planning policy are influence the development management process.

	• Understanding of how spatial plans, strategies and policies take account of biodiversity and influence planning decisions. • Understanding of how biodiversity legislation and policy should be applied during the planning application and determination process, including the role of the SNCO and the use of conditions and legal agreements. • Understanding of the impacts of ecological concepts such as green infrastructure and biodiversity enhancement/net gain and how they do/will influence development proposals, spatial plans, strategies and policies. • Understanding the information and evidence requirements of the planning decision-maker at different stages of the planning application process.
CIEEM Competency Framework	• M2 Design and preparation of habitat / species management / enhancement plans and projects
Related courses	• Positive Planning for Biodiversity
Comments	• No prior knowledge necessary. Attendees are welcome to provide examples for discussion if they wish.

Using UKHab for Biodiversity Net Gain

Training provider	Bob Edmonds & Peter Carey
Course overview	This course will introduce environmental practitioners to the interface between Natural England's Biodiversity Metric 4.0 and UKHab. The course focusses upon the design of baseline habitat surveys and condition assessment for BNG and discusses feasibility and design of projects that have made a commitment to biodiversity net gain. The course will be taught in 2 online sessions with plenty of time allowed for discussion. UKHab is the emerging standard for habitat survey across the country and underpins Natural England's Biodiversity Metric, understanding UKHab and how BNG work together will be essential for all ecologists working on development planning projects. Aimed at consultant and local authority ecologists with experience of habitat survey, this course will introduce environmental practitioners to the interface between Natural England's Biodiversity Metric 4.0 and UKHab. The course makes specific reference to UK Good Practice Guidance, including CIEEM-CIRIA-IEMA Good Practice Principles for BNG, British Standard BS8683:2021 and the CIEEM BNG Report Templates. The course focuses on the application of BNG in relation to development and land use planning in terrestrial habitats. Practical experience of UKHab

	surveys and the use of NE's BNG Metric is not strictly required, but would be beneficial. The course focusses upon the design of baseline habitat surveys for BNG and discusses feasibility and design of projects that have made a commitment to biodiversity net gain. There is a short homework exercise introduced at the end of the first session which is discussed on Day 2.
Delivery mode	Online using Zoom
Course length	2x 3 hours sessions = 6 hours in total
Learning outcomes	• Gain knowledge of the structure of UKHab and its resources. • Confidently identify and map UKHab using digital data and in the field. • Understand the importance of the survey planning and design. • Understand approaches to defining habitat condition and how this relates to habitat classification. • Interpret UKHab data and how it relates to Biodiversity Metric 4.0 • Understand limitations and constraints of BNG and how to report them. • Understand how to prepare a UKHab and BNG Report for planning applications. Explore the use of UKHab for monitoring delivery of BNG.
CIEEM Competency Framework	• S3 Habitat identification and evaluation • A4 Ecological Assessment including Ecological Impact Assessment • S1 Habitat / species survey design, planning and fieldwork
Related courses	• Introduction to UK Habitat Classification • UK Habitat Classification for Practitioners

SURVEY, ECOLOGY AND IDENTIFICATION

Ancient Woodland Indicators

Training provider	Neill Talbot ACIEEM
Course overview	This predominantly field-based training course (with an introduction in the classroom) will help delegates to be able to confidently identify ancient woodlands and assess what management is required where ancient woodlands are under threat. The training session is planned to help delegates build the underpinning skills and knowledge required for botanical surveys of woodlands, and will help

	participants to assess whether a site is ancient, secondary or a plantation on ancient woodland. The course takes place at Folly Farm Nature Reserve, which is owned and managed by Avon Wildlife Trust. Folly Farm is a fine example of a traditional farm with wildflower meadows and ancient woodland. This 250-acre nature reserve offers spectacular views over Chew Valley Lake and the Mendips. Delegates will be able to explore plant species in ancient woodland habitats within the reserve. The woodland ground flora is extremely rich with spring flowers such as native English bluebell, yellow pimpernel, wood anemone and early purple orchid. Dowlings Wood is a Site of Special Scientific Interest (SSSI). The course is pitched at beginner level and is suitable for those who have some prior knowledge/understanding of plants, though background information on plants and other features that are indicators of ancient woodland will be sent to all delegates in advance of the course. The training includes group activities, discussion, informal Q&A sessions and a chance to test knowledge gained in a review of ancient woodland features and management factors at the end of the day.
Delivery mode	In-person field based course
Course length	10:00 – 16:30
Location	Folly Farm Nature Reserve Stowey Pensford Bristol BS39 4DW
Learning outcomes	• Learn 15+ x key indicator plant species for ancient woodlands including herbs, trees, sedges and grasses. • Learn common plant species of woodland (non-indicators). • Awareness of other factors that indicate an ancient woodland. • Learn how to tell differences between structure of ancient and secondary woodland and typical features of Plantations on Ancient Woodlands (PAWS). • Understanding of threats to and management issues for AW and PAWS.
Example programme	• 10.15: Arrival at The Burrow, Folly Farm Centre - refreshments • 10.30-11.30: Outline of Ancient Woodland indicators and characteristics in classroom • 11.30-13.00: Show delegates key ID features of plants in the field - focussing on 15 x key indicator plant species for ancient woodlands (Folly Wood) • 13.00-13.30: Lunch including informal question/answer session

	• 13.30-15.30: Further indicator plant ID and group practical exercise in the field which will include groups of 3-4 discussing amongst their group what the key features of a particular area of woodland are including whether this indicates that it is ancient and what threats and management may be applicable (Folly Wood and Dowlings Wood) • 15.30-16.45: Brief test on indicator and non-indicator ancient woodland plant species and feedback/questions/CLOSE
CIEEM Competency Framework	• S2 - Species identification, handling and population assessment • S3 - Habitat identification and evaluation
Comments	A basic knowledge of plant structure and common plant families would be useful, though handouts will be sent in advance of the course to support those with no previous knowledge.
Related courses	Ancient Woodland Indicators and Other Woodland Flora

Ancient Woodland Indicators and Other Woodland Flora

Training provider	Mark Duffell
Course overview	Woodlands are an important UK habitat and being able to accurately identify Ancient Woodland Indicator species (AWIs) can aid in establishing the conservation value and significance of these habitats. The field visit allows you to appreciate the importance of AWIs in situ, see the niches they occupy and some of the challenges you may come across when identifying them. Several AWIs have look-a-like species which can be generalists, garden escapees or even invasives (e.g., Wood Spurge and Yellow Archangel). Knowing which one is which could dramatically alter the ecological value of a site. Time will be spent identifying individual species and understanding their role in the woodland. A range of resources will be used to make identifications from floral/vegetative keys, comparison tables and identification guides. This is a day course aimed at the keen beginner and improver alike, providing an introduction to woodland plant identification. By the end of the course participants will be able to distinguish the major groups of woodland plants and recognise the key characters of those they can't identify. They will also be aware of the different books available to make a successful identification.
Delivery mode	In-person field based course

Course length	10:00 - 17:00
Location	Beechfield Dingle Beechfield Dingle Hampton Beech Worthen Shropshire SY5 9JH
Learning outcomes	• Understand what comprises an Ancient Woodland Indicator (AWI) species, how they might vary over the British Isles and how they can be useful in assessing a woodland. • Recognise and name a wide number of AWIs, including a number of Ferns and grasses. • Distinguish between a number of AWIs and look-a-like species which may include invasive relatives and Schedule 9 species.
CIEEM Competency Framework	• S2 - Species identification, handling and population assessment
Comments	No existing knowledge, or experience is essential, but attendees will gain the most from this course if they have some prior understanding of the parts of a plants and associated terminology, have used a key (not necessarily botanical) and have some prior knowledge of UK flora.
Related courses	• Ancient Woodland Indicators

Aquatic Plants Identification

Training provider	Mark Duffell
Course overview	Aquatic plants occur in complex and dynamic environments. Often they change their growth forms depending on these growing conditions which at times can make identifications particularly challenging. Many species have distinct ecological niches and can be used to indicate water quality (Ellenberg Indicator Values). By being able to identify a suite of species within an area, a clearer understanding of the habitats present is possible. Several species are listed as either Schedule 8 or 9, so if they are found during a survey, accurate identification is essential to enable appropriate assessment and management to take place. We will look at the different niches each species occupies including marginals, floating, and submerged species. Emphasis will be placed on those characters that allow reliable and accurate identification. Later on we will look at determining the more unusual species. Use will be made of several botanical

	keys and other resources, and by the end of the day participants should feel confident in the use of these keys.
Delivery mode	In-person field based course
Course length	10:00 – 17:00
Location	Vyrnwy Aqueduct, south of Llanymynech, Wales
Learning outcomes	• Introduction to a range of different groups of Aquatic plants (submerged, emergent, floaters etc.) and the key features that can help to accurately identify them to genus and species. • Recognise and name a wide number of Aquatic Plants. • Understand the tools required for making an accurate identification and when to get help from referees and other sources. • Understand the use that can be made of Aquatic plant species to help classify habitats e.g., use in Phase 1, UK Hab and NVC.
Example programme	Arriving at Vyrnwy Aqueduct for 10am • Welcome and introduction today. • Travel along canal south, then return and go north, seeing different niches occupied by a variety of aquatic species • In the field all day, with lunch and breaks at suitable intervals. Finish day back at cars at Vyrnwy Aqueduct for 5pm.
CIEEM Competency Framework	• S2 - Species identification, handling and evaluation

Botany for Beginners	
Training provider	Neill Talbot ACIEEM
Course overview	This field-based training course will help delegates understand the key differences between common plant families and recognise the key ID features of plants in the field. The training will also highlight some of the key indicator plant species for grassland habitats and factors which influence where plant species are found. The training sessions are planned to help delegates build the underpinning skills and knowledge required for botanical surveys including Phase 1 Habitat surveys and will help participants to assess whether a site is species-rich botanically. The course takes place at Folly Farm Nature Reserve, which is owned and managed by Avon Wildlife Trust. Folly Farm is a fine example of a traditional farm with wildflower meadows and ancient woodland. This 250-acre nature reserve offers spectacular views over Chew Valley Lake and the Mendips.

	Delegates will be able to explore plant species across a range of grassland and woodland habitats within the reserve. The meadows are unspoilt by pesticides and fertilisers, and are full of indicator plants such as betony, ox-eye daisy and heath spotted orchid. The woodland ground flora is extremely rich with spring flowers such as native English bluebell, yellow pimpernel and early purple orchid. The wildflower meadows and Dowlings Wood are Sites of Special Scientific Interest (SSSI). The course is pitched at beginner level and is suitable for those who have some prior knowledge/understanding of plants, though background information on plant structure and common plant families will be sent to all delegates in advance of the course. The training includes group activities, discussion, informal Q&A sessions and a chance to test knowledge gained in a review of plant families and ID factors at the end of the day.
Delivery mode	In-person field based course
Course length	10:15 to 16:45
Location	Folly Farm Nature Reserve, Bristol
Learning outcomes	• Understanding of key differences between 5+ common plant families. • Understand the differences between herbs and grasses/sedges, ferns and rushes. • Have an understanding of the taxonomic system of classification for plants. • Learn some key indicator plant species for grasslands and woodlands. • Awareness of factors that influence where plant species are found.
Example programme	10.15 – Arrival at The Burrow, Folly Farm Centre - refreshments 10.30-11.30 Arrival/Introduction to plant ID including: • Common plant families • Plant structure • Differences between flowering plants and grasses/sedges • Factors indicating the distribution of different plant species • Indicator species of different grassland types and ancient woodland • Taxonomy 11.30-12.15 Show delegates key identification features of plants in the field (grassland and woodland) - focussing on six common plant families 12.15-1.00 Group practical exercise on plants from a particular family and then discussing amongst their group what the key ID features of this plant and this family are 1.00-1.30 Lunch including informal question/answer session

	1.30-3.30 Further ID practice in grassland and woodland including looking at ancient woodland indicator plant species 3.30-4.45 Brief test on plant families and ID factors and feedback/questions/CLOSE
CIEEM Competency Framework	• S2 Species identification, handling and evaluation • S3 Habitat identification and evaluation

Breeding Bird Surveys and Checks

Training provider	Dr Stefan Bodnar MCIEEM
Course overview	The course aims to provide a baseline for breeding bird surveys and checks on sites. It will cover the relevant legislation and its interpretation and definitions; how this translates into practice, site inspections and approaches; a review of species and habitats that are commonly encountered; understanding of breeding cycles and seasonal timing; what constitutes disturbance and Schedule 1 Species. Exemptions, Licensing, Enforcement. Reporting, Non-licenced method statements. The course will deal with legalities and procedures/processes for undertaking bird surveys in different scenarios and will be field based concentrating on features to examine, the reporting of surveys and provision of advice.
Delivery mode	In-person field based course
Course length	09:30 – 16:30
Location	Hereford, England
Learning outcomes	• Be aware of the key legislation in relation to breeding birds and its practical application. • Be confident in undertaking a breeding bird assessment or check. • Be fully versed with the requirements of a competent and complete report. • Be able to acknowledge the limitations of the survey and to give appropriate caveats in reports. • To be confident in advising clients on any time delays or restrictions and the justifications.
CIEEM Competency Framework	• P4 Compliance and enforcement of legislation, policy and standards • A4 Ecological Assessment including Ecological Impact Assessment • S2 Species identification, handling and evaluation • S3 Habitat identification and evaluation

Conifer Identification for Ecologists

Training provider	Mark Duffell
Course overview	Put off by Conifers, want to go beyond 'Conifer species', even the more experienced Ecologists tend to shy away from tackling what initially looks like a challenging group. This course will develop and support your abilities in recognising the major genera of conifers, and start to separate the many species. Identification will focus on foliage and cones for the different groups within conifers (characters suited to both mature and juvenile material). Key identification features for genera and species will be taught, using a range of handouts, keys and visual presentations. By the end of the course you should be able to identify in the field and laboratory a range of the major genera of conifers, and have had practice looking for appropriate characters to confirm the species. Recent taxonomic changes and how these have affected current naming of Conifers will also be discussed. A recent conifer course had the following feedback by an ecologist. 'I have been collecting bits of conifers to identify ever since the weekend… I feel more confident to have a go. My reports will have all sorts now, not just 'conifer'!'
Delivery mode	In-person field based course
Course length	10:00 – 16:00
Location	Nesscliffe Woods, near Shrewsbury, West Midlands
Learning outcomes	• Distinguish the major vegetative parts of a range of Conifer taxa and identify a range of common plants to genus/species level using a botanical key. • Recognise and name the major parts of a conifer; with reference to how they can be used in practical botanical identification (naming of parts and botanical glossary). • Utilise a standard flora (e.g. Stace 2010/2019), with an understanding of how to use these keys more effectively.
Example programme	• Arriving at Nesscliffe Woods for 10am (see separate map for directions and meeting point). • Welcome and introduction today. • In the field all day, with lunch and breaks at suitable intervals. • Finish day back at cars for approximately 4pm.
CIEEM Competency Framework	• S2 Species identification, handling and evaluation

Eurasian Beaver Ecology and Restoration

Training provider	Roisin Campbell-Palmer
Course overview	The Eurasian beaver is subject to much restoration discussion, from proactive wild and enclosed projects, to the increasing natural spread from unofficial releases. Today, population numbers and distribution are spreading in Scotland and southern England, with high profile trials, such as the Scottish Beaver Trial and the River Otter Beaver Trial, publishing various scientific monitoring reports. This keystone species can have significant benefits to wetland habitats and generate important ecological services. Though often a popular species, this ecosystem engineer can also cause conflicts especially with certain land-use sectors so mitigation is key to minimise impacts. Further reintroduction projects are in development so recognising field signs, the potential positive and negative impacts of their activities, and management options for living alongside this native species are likely to increase.
Delivery mode	Online using Zoom
Course length	2x 3 hours sessions = 6 hours in total
Learning outcomes	• Describe beaver ecology and behaviours. • Identify and age beaver field signs. Discuss mis-identification. • Describe the current legal status of beavers in Britain. • Survey techniques. • Beaver mitigation and management tool box – identifying and prioritising potential conflicts. • Range of mitigation options and licence requirements.
Example programme	Sessions will cover: • Brief background to beaver conservation and the current reintroduction to Britain • Beaver biology, behaviours and ecology • Field sign identification and range • Habitat suitability and potential conflicts, assessing impacts • Current legal situation and relevant • Mitigation/management options
CIEEM Competency Framework	• S2 Species identification, handling and evaluation • S1 Habitat / species survey design, planning and fieldwork

Fern Identification for botanical surveying and habitat classification	
Training provider	Mark Duffell
Course overview	Ferns and their allies (Pteridophytes) have a reputation for being challenging to identify and they can prove daunting to the beginner and improver ecologist or botanist. Part of this is due lack of understanding of the different botanical and reproductive structures from more typical wildflowers. This course provides the beginner and improver the skills required to identify a wide variety of species, recognise a number of species to genus and become familiar with the key identification features. Many Ferns can be used to help determine the underlying geology and/or habitat, so can offer the ecologist another tool in their surveying skillset. Several species are listed as either Schedule 8 or 9, so if they are found during a survey, accurate identification is essential to enable appropriate assessment and management to take place. The day will start with an introduction to Fern structures and terminology, followed by how to identify the commoner fern species. Later on we will look at techniques for determining the more unusual species. Use will be made of the excellent FSC 'Fern Guide', as well as discussion of other resources and by the end of the day participants should feel confident in the use of this key.
Delivery mode	In-person field based course
Course length	10:00 – 17:00
Location	West Midlands
Learning outcomes	• Understand and identify the major parts of a Fern, covering basic morphology, reproductive structures and how these can be used to make accurate identifications. • Learn to recognise the major groups and key species of Ferns. • Learn how to separate some of the more challenging groups of ferns.
CIEEM Competency Framework	• S2 Species identification, handling and evaluation
Related courses	• Introduction to Fern Identification

Grass Identification for Ecologists	
Training provider	Mark Duffell

Course overview	Grasses (along with Sedges and Rushes) form the foundation for many of the UK's plant communities. They are extremely useful botanically as they can tell you much about a site's ecology, both past, present and in the future. Being able to reliably identify which species you have found can aid your identification and classification of plant communities (Phase 1, NVC and UK Hab) as well as aid in conservation decisions for a site. Unfortunately, grasses do not have large obvious 'flowery' bits so many people are put off attempting to identify them. By observing those characters which help identify each species we will be able to understand why a species is what it is; in time we will also learn short-cuts as to how to recognise individual species. The course will cover what a grass is, structures, identification techniques, use of keys and what habitats the individual species occur in. Use of microscopes in the classroom will back up those characters that we have looked at in the field using hand lenses. Given the short duration of the course we will concentrate on the commoner and also more important members of this family and focus mainly on floral rather than vegetative characters. FISC levels 2 and above.
Delivery mode	In-person course with classroom and field sessions
Course length	10:00 – 17:00
Location	West Midlands
Learning outcomes	• Be able to distinguish between Grasses (Poaceae), Sedges (Cyperaceae) and Rushes (Juncaceae), both vegetatively and floral characters. • Distinguish the flowering and vegetative parts of a range of Grass taxa and identify a range of common grasses to genus/species level using a botanical key. • Recognise and name the major parts of a grasses; with reference to how they can be used in practical botanical identification (naming of parts and botanical glossary). • Utilise a standard flora (e.g. Hubbard as revised or Wallace 2019), with an understanding of how to use this and other keys more effectively
Example programme	10:00-12:30: (Classroom) Welcome and introduction to course Presentations and practical workshop on identification of Grasses including naming of parts and identification resources to use. 12:30-13:15: Lunch break 13:15-17:00 (Field based) Using a variety of identification tools (keys and foldout charts) to identify common and more unusual grass species. Using a mixture of specimens and material found within the grounds of Preston Montford.

CIEEM Competency Framework	• S2 - Species identification, handling and evaluation
Related courses	Plant Identification for Ecologists

Heathland plants identification for botanical surveying and habitat classification

Training provider	Mark Duffell
Course overview	Heathlands occur across the British Isles, from sea level to mountainous regions. They vary due to their hydrology and geology, from wet to dry heaths, mires and bogs, and being able to classify them properly relies on accurate identifications of the species they contain. Being able to quickly recognise key species e.g., some members of the Heather family, will enable you to assess the wetness of the site and designate it as dry/wet heath. We will concentrate on the key species indicators for Phase 1, UK Hab and NVC classifications for wet and dry heaths as well as some of the members of the bog/mire communities. Starting with members of the Heather family (including Heathers, Cranberry, Cowberry and Bilberry), we will learn how to identify them correctly and distinguish them from each other. Time will be spent squelching through a wet flush (so bring wellies or stout boots), looking at the gems that are Bog Asphodel, Marsh Violet, Marsh Speedwell and Sundews*. We will also look at sedges, Cottongrass and true grasses, all plants that make up part of the heathland. Hopefully a peculiar member of the fern family will also make a showing on the day. This is a day course aimed at the keen beginner and improver alike, providing an introduction to heathland plant identification. * not all plants can be guaranteed to be found due to previous weather, changes in habitat etc.
Delivery mode	In-person field based course
Course length	10:00 – 17:00
Location	The Stiperstones National Nature Reserve, Shropshire
Learning outcomes	• Recognise and name a wide number of Heathland Plants, including a number of grasses, sedges and rushes. • Have developed tools for identification of a range of species that occur in heathland habitats.

	• Understand the use that can be made of Heathland plant species to help classify habitats used in Phase 1, UK Hab and NVC.
Example programme	Arriving at Stiperstones NNR for 10am • Welcome and introduction today. • In the field all day, with lunch and breaks at suitable intervals. Drop down to Bog Visitors centre (via cars) for approximately 3pm, break and then botanising round location. Finish day back at cars at Bog Visitors centre for 5pm.
CIEEM Competency Framework	• S2 Species identification, handling and evaluation

Identification of Grasses, Sedges and Rushes

Training provider	Ben Averis
Course overview	This one day beginner to intermediate level training course delivered by Ben Averis will equip delegates with the skills to identify common grasses, sedges and rushes. The training course will include some classroom based teach to introduce and explain the plan for the day. A majority of the day will then be spent in the field looking at the identification (and habitats, ecology, etc.) of the grass, sedge and rush species that are present there. There will be a question and answer time at end of day, though questions will also be welcome throughout the day. Ben has over 35 years of experience of professional botanical survey and monitoring work in a wide range of habitats in Britain for a wide range of clients including government agencies, conservation charities and ecological consultancies.
Delivery mode	Online using Zoom
Course length	10:00 - 16:00
Location	Linn Dean Scottish Wildlife Trust Reserve, Scotland
Learning outcomes	• Know how to tell grasses, sedges and rushes apart. • Identify some of the commoner grasses, sedges and rushes. • Understand more about the habitats of some of the commoner grasses, sedges and rushes. • Know more about variation in the palatability of grasses, sedges and rushes to large herbivores. • Know more about graminoid anatomy and growth forms.

CIEEM Competency Framework	• S2 Species identification, handling and evaluation • S3 Habitat identification and evaluation
Related courses	• Indicator Plants of Woodland, Wetland, Heath and Acid Grassland

Indicator Plants of Woodland, Wetland, Heath and Acid Grassland

Training provider	Ben Averis
Course overview	This one day beginner to intermediate level training course delivered by Ben Averis will equip delegates with the skills to be able to recognise which plant species are good indicators of various types of woodland, wetland, heath and acid grassland. A majority of the day will be field based walking through the site looking at different kinds of woodland, wetland, heath and acid grassland, noting the important indicator species within them and discussing what those species tell us about the habitat's ecology, management, etc. There will be a question and answer time at end of day, though questions will also be welcome throughout the day. Ben has over 35 years of experience of professional botanical survey and monitoring work in a wide range of habitats in Britain for a wide range of clients including government agencies, conservation charities and ecological consultancies.
Delivery mode	In-person field based course
Course length	One full day = 6 hours in total
Location	Castle Moffat, Garvald, East Lothian, Scotland, EH41 4LW
Learning outcomes	• Know a good range of plant species that are good indicators of various types of woodland, wetland, heath and acid grassland. • Be able to accurately identify those species. • Understand more about the ecology of those species. • Understand more about variation within each of woodland, wetland, heath and acid grassland. • Understand more about vegetation classification in general.
CIEEM Competency Framework	• S3 - Habitat identification and evaluation • S2 - Species identification, handling and population assessment
Related courses	Identification of Grasses, Sedges and Rushes

Introduction to Bat Ecology and Bat Surveys

Training provider	Dr Katie A. Pollard MCIEEM, Director of KP Ecology Ltd
Course overview	This course will focus on the skills need by ecologists to carry out bat surveys, to a high standard, in line with current legislation and best practice. We will look at key aspects of bat ecology, important bat identification features and primary legislation in relation to bats. We will review key bat survey requirements and methods and how to prepare for surveys and select appropriate survey equipment. A range of roost types for the different species in the UK will be discussed, highlighting key roost signs, to aid roost identification. Throughout the course we will also look at effective communication with clients, a crucial role of an ecologist, to ensure a positive outcome for bats. The style of training will be a blend of presentation, case studies and scenarios with small group working. A second day/more advanced course is offered, on assessing the impact of development on bats, enhancement and mitigation.
Delivery mode	Online using Zoom
Course length	2x 3 hours sessions = 6 hours in total
Learning outcomes	• Expand knowledge of UK bat species, ecology and identification • Increase familiarity of main legislation relating to bats in the UK • Improve ability to recognise different types of bat roosts • Raise understanding of bat survey methods • Develop awareness of how to identify a bat roost
CIEEM Competency Framework	• S1 - Habitat / species survey design, planning and fieldwork
Related courses	Bats: Assessing the Impact of Development on Bats, Mitigation & Enhancement

Introduction to Bats and Bat Survey

Training provider	Beccy Osborn MCIEEM
Course overview	This course will provide a look at the primary legislation in relation to bats (focused on Scotland), important bat identification features and key aspects of bat ecology (Scottish species).

	A range of roost types (in buildings, structures and trees) for different species will be discussed and pointers will be given on what to look out for in roost identification. Key bat survey requirements and methods will be reviewed (for buildings, trees, windfarms etc), to allow delegates to gain a greater understanding of required methods in relation to current good practice guidance. There will be examples of case studies including survey for different types of development (e.g. buildings, wind farm, roads, trees). Reference will primarily be made to Scottish bat species. The course will be interactive and there will be opportunity for questions and discussion of survey queries and experiences. There will be some group exercises in breakout rooms.
Delivery mode	Online using Zoom
Course length	2x 3 hours sessions = 6 hours in total
Learning outcomes	• Increased knowledge of legislation relating to bats (primarily Scotland). • Increased knowledge of Scottish bat species, lifecycle and identification. • Increased knowledge of bat roost types. • Increased understanding of bat survey methods. • Increased awareness of how to identify a bat roost.
CIEEM Competency Framework	• S1 Habitat / species survey design, planning and fieldwork • P3 Implementation of policy legislation and standards • S2 Species identification, handling and evaluation
Related courses	• Bat Impacts and Mitigation • Bats: Assessing the Impact of Development on Bats, Mitigation & Enhancement • Introduction to Bat Ecology and Bat Surveys

Introduction to Fern Identification

Training provider	Neill Talbot ACIEEM
Course overview	The course will focus on identifying native fern species using key features such as fronds, spores, structure and habitat. It will also outline indicator fern species of ancient woodlands.

	The course will be pitched at beginners who have some prior knowledge and understanding of plants including ferns - I will ask about the level of knowledge of participants at the beginning of the course
Delivery mode	In-person field based course
Course length	10:00 – 16:30
Location	Folly Farm Nature Reserve, Bristol
Learning outcomes	• Learn to identify 10+ common native fern species using key features (see below) • Learn some key indicator fern species for ancient woodlands. • Awareness of factors that influence where different fern species are found. • Have an understanding of the taxonomic system of classification for plants. • Have an understanding of the structure/biology of ferns and differences between ferns and other classes of plant.
CIEEM Competency Framework	• S2 Species identification, handling and evaluation • S3 Habitat identification and evaluation
Related courses	• Fern Identification for botanical surveying and habitat classification

Introduction to UK Habitat Classification

Training provider	Bob Edmonds
Course overview	This course will enable delegates to plan for and conduct a UK Habitat Classification Survey. We consider the uses of the UK Habitat Classification survey and best practice. We focus on survey methodology, rather than plant identification. The course covers survey planning, mapping techniques and identifying habitats. Delegates will learn to use the UK Habitat Classification Field Key and how to map polygon, linear and point features using the protocols developed for UKHab. The course is for beginners and no habitat survey experience is necessary although basic knowledge of survey methods as well as some plant identification skills will be an advantage. The UK Habitat Classification is set to replace the Phase One Habitat Survey method as the standard survey method used as part of Preliminary Ecological Appraisals. It is therefore expected that the majority of ecological consultancies will adopt the UKHAB in the near future.

	Knowledge of the UK Habitat Classification system is essential for consultants using the DEFRA Biodiversity Metric. The Metric has the UK Hab at its core and will be used for calculating biodiversity net gain.
Delivery mode	Online using Zoom
Course length	2x 3 hours sessions = 6 hours in total
Learning outcomes	• Understand the structure of UK Hab. • Plan a strategic approach to carrying out a UK Habitat Classification survey. • Understand use of the Habitat Field Key and other UKHab resources. • Identify and describe habitat features using the Secondary Codes. • Confidently identify and map habitat types and understnad how to collect and interpret ecological field dates. • Have an awareness of applications of UKHab in practice.
CIEEM Competency Framework	• S1 Habitat / species survey design, planning and fieldwork • S2 Species identification, handling and evaluation
Related courses	• Using UKHab for Biodiversity Net Gain • UK Habitat Classification for Practitioners

Otter Ecology and Surveys

Training provider	Mike Dean CEcol CEnv FCIEEM
Course overview	The course will cover relevant aspects of the background ecology of otters, focusing on the use of resting sites, field survey techniques, legislation and licensing for surveys. The field visit will allow those attending to put the theory into practice, searching for and identifying field signs of otters in different types of habitat. This course is aimed at beginners and those with some previous experience (intermediate level). A separate course covers mitigation techniques.
Delivery mode	In-person course with classroom and field based sessions
Course length	09:30 – 17:00
Location	South west
Learning outcomes	• Knowledge of otter ecology • Understanding of different types of otter surveys and the relevant approach to each

	• Ability to find and identify field signs, particularly spraint and footprints • Ability to identify resting sites • Knowledge of survey techniques for monitoring resting sites and when this requires a licence
Example programme	09.30 Introductions – course aims and attendees aims 09.40 Otter ecology, status and distribution *Breeding, Habitat preferences / requirements, Diet, Home ranges and movement, Scent marking, Resting sites, Conservation status, Legislation and policy, UK distribution* 10.45 Coffee 11.00 Field signs and resting sites *Spraint, Footprints, Other field signs, Resting sites – holts, couches, lying-up sites, Field signs of other, similar, species* 12.00 Undertaking surveys *Practical considerations, Health and safety, Time of year, weather conditions, time of day, Desk study, Study area/survey corridor, Presence/absence field surveys, Searches for resting sites, Detailed examination or monitoring of resting sites, including legislation/licensing, Current guidance and research on otter surveying, Limitations of survey methods* 12.45 Lunch 13.30 Field visit to local sites *How to conduct a survey, Finding and identifying spraint, Finding and identifying other field signs, Finding and assessing use of resting sites*
CIEEM Competency Framework	• S2 Species identification, handling and evaluation
Related courses	• Otter Mitigation • Otter Survey and Signs • Otter Survey, Impacts and Mitigation

Plant Identification and Botanical Keys

Training provider	Lorna Bointon
Course overview	Key areas of study include plant taxonomy and classification (family, genus, species), plant physiology and biology (including reproduction), identifying plant components (stem, leaf, petals, sepals, bracts, hairs, reproductive organs), identifying at family level (e.g. mint/deadnettle: square stemmed, labiate flower), look-alike plants, understanding the laws surrounding protected species and invasive plants and understanding the habitats and 'niches' in which species grow. At the end of this course you should feel more confident about looking past the obvious features of a plant, such as floral structure and colour, and be able to use different parts of a plant, such as reproductive organs, stem,

	leaves and hairs, as identification features. You should also be able to use a botanical key to narrow down a plant specimen to species level. To identify plants a 10x magnification hand lens is sufficient for identifying most species out in the field. However, for closer inspection, you may want to use a 20x or 30x magnification hand lens. These can be easily and cheaply obtained through online stores such as Amazon. Participants will have the chance to get 'hands on' using a specimen plant recommended by the trainer that is freely available at supermarkets and garden centres. Latex free safety gloves should be worn when handling plants. Set in your own location, training will take place remotely via Zoom at a relaxed pace over two half days. Training will include a talk with illustrated slides by botanist, Lorna Bointon and an opportunity for 'hands-on' identification of one plant species down to family level. If a plant specimen cannot be obtained before training, delegates can still take part in remote on-screen identification of plant specimens.
Delivery mode	Online using Zoom
Course length	2x 3 hours sessions = 6 hours in total
Learning outcomes	• Identify plant species using appropriate tools and techniques. • Understand taxonomy and classification of plant species. • Make assessment of species status. • Use safe, biosecure and legal species handling techniques. • Recognise personal limitations and areas for development and seeking opportunities to develop knowledge, understanding and skills.
Example programme	<u>Session 1:</u> 10:00 - Welcome and introduction 10:15 - Importance of botany in the ecosystem * symbiosis and relationships * terrestrial and aquatic botany * habitat indicators 10:45 - Plant anatomy (illustrated slides) * tools, equipment & safety (personal and biological) * activity 12:45 - Taxonomy 13:00 – End of Session 1 <u>Session 2:</u> 10:00 – Identification: stems, leaves, hairs, bracts, fruits 10:30 - Hybrids and families * lookalikes * specimen activity and using a hand lens 11:00 - Schedule 8 and Schedule 9 species 11:15 - Botanical keys: explanation and examples 11:45 - Botanical keys activity 11:45 - Recording methods 12:45 - Membership information & Feedback

	13:00 - End of session course
CIEEM Competency Framework	• S2 Species identification, handling and evaluation
Related courses	• Plant Identification for Ecologists

Plant Identification for Ecologists

Training provider	Mark Duffell
Course overview	Botanical Surveys (Phase 1, UKHab, Hedgerow and NVC) provide the botanist and ecologist with ways of classifying a wide range of vegetation and habitats. Accurate species identification is critical to correctly identifying the appropriate habitats and then using this information to decide on their ecological value. This course aims to develop the professional surveyor's identification skills, and abilities in using botanical keys. Have you ever struggled to identify a plant, not sure where to begin? Put off by the thought of using 'Stace' or other floras? Then this is the course for you; an introduction to learning how to identify plants using a variety of resources including keys. Starting with an introduction to the basic botanical structures and terminology, we will then concentrate on the key features for a range of wildflowers. Detailed study will be made of individual species and their particular characteristics and how they fit into their families. During this course you will have the opportunity to practice your plant identification skills using a range of identification resources, particularly Stace's New Flora (3rd / 4th editions). By the end of the course you will be familiar with a wide range of botanical terminology and be able to start to place a variety of plants into families. FISC level 1 and above.
Delivery mode	In-person course with classroom and field based sessions
Course length	10:00 – 17:00
Location	West Midlands
Learning outcomes	• Distinguish the flowering and vegetative parts of a range of taxa and identify a range of common plants to genus/species level using a botanical key, including members of the ten major plant families. • Recognise and name the major parts of a plant; with reference to how they can be used in practical botanical identification (naming of parts and botanical glossary).

	• Understand how floral formula can help you to make accurate identifications, breaking down recognition into Families, Genus and eventually species (Particular reference on this course will be on the major plant families). • Utilise a standard flora (e.g. Stace 2010/2019), with an understanding of how to use these keys more effectively. • Understand the need for accurate species identification is essential in identifying and classifying habitats.
Example programme	10:00-12:30 (classroom) Welcome and introduction to course. Presentations and practical workshop on identification of flowering plants including naming of parts, families, and resources to use. 12:30-13:15: Lunch break 13:15-17:00 (field based) Using a variety of identification tools (keys) to identify plant families and show how to get to a genus and species. Using a mixture of specimens and material found within the grounds of Preston Montford.
CIEEM Competency Framework	• S2 Species identification, handling and evaluation
Related courses	• Plant Identification and Botanical Keys

Reptiles Ecology, Surveys & Mitigation

Training provider	Demian Lyle MCIEEM
Course overview	This one day training course, delivered by Demian Lyle, will cover the following key areas: • Identification of the six native UK reptile species and more common non-native reptile species • The ecology, including habitat requirements of reptiles in the UK • The legislation and guidance documents pertaining to reptiles in England and Wales • Designing and undertaking an appropriate reptile survey • Mitigation and enhancement measures. Demian is a Principal Ecologist at Greenspace Ecological Solutions. He has worked in ecological consultancy, specialising in reptiles, since 2009. He holds a Natural England licence to survey and handle the two rare reptile species, sand lizard and smooth snake and is an active member of Surrey Amphibian and Reptile Group (SARG). The training is aimed at beginners but sessions will be designed to cater for a range of experience.

	The training will include classroom based activities and learning as well as a field element where delegates will undertake their own reptile survey as the site supports good populations of three native reptile species, grass snake, slow worm and common lizard.
Delivery mode	In-person course with classroom and field based sessions
Course length	10:00 – 16:00
Location	London
Learning outcomes	• Recognise and name the UK native reptile species and more common non-native reptile species. • Describe the main legislation and guidance relating to UK reptiles. • Recognise and evaluate suitable reptile habitat. • Set up a reptile survey in accordance with relevant guidance. • Propose appropriate reptile mitigation and enhancement measures for a range of circumstances and species.
Example programme	10:00-11:30 – Classroom Session 1 11:30-11:45 – Break 11:45-13:15 – Classroom Session 2 13:15-14:00 – Lunch 14:00-15:45 – Field Session 15:45-16:00 – Summary, questions and wrap-up
CIEEM Competency Framework	• S2 Species identification, handling and evaluation • M3 Implementation of habitat and / or species management • S1 Habitat / species survey design, planning and fieldwork

Soils, Plants and Phytoremediation

Training provider	Lorna Bointon
Course overview	This course will cover soils, plants and phytoremediation. The course will help participants understand soil types, horizons, structures and nutrients and the effects of soil pH balance (acid, neutral, basic/alkaline). We will also look at mycorrhizal fungi and symbiotic relationships between plant species and their importance for biodiversity and the food web. Participants will learn how to identify habitat types and indicator plants and identify plant species that can be used for phytoremediation. We will look at brown sites, pollutants and nutrient enrichment and hyper-accumulators, bioaccumulation and harvesting. Participants will also gain an understanding of the laws surrounding protected species and invasive plants.
Delivery mode	Online using Zoom

Course length	2x 3 hours sessions = 6 hours in total
Learning outcomes	• Identify human impacts (e.g. recreational pressure, pollution) on biodiversity and resolve constraints through remedial actions. • Understand soil types, structure, nutrients, symbiosis and indicator plants. • Identify appropriate remedial actions to achieve positive outcomes for biodiversity (within legislative constraints). • Identify remedial plant species. • Make assessment of species status (native/non-native and/or invasive/protected). • Use safe, biosecure and legal species handling techniques. • Recognise personal limitations and areas for development and seeking opportunities to develop knowledge, understanding and skills.

Example programme	<u>Session 1</u>
	• Welcome & Introductions
	• Identification of human impacts on biodiversity and remedial actions
	• Biosecurity
	  o Tools, equipment & safety (personal and biological)
	  o Schedule 8 and Schedule 9 plant species
	  o The laws surrounding protected species and invasive plants
	• Soil types, structures and nutrients
	  o Soil pH balance (acid, neutral, basic/alkaline)
	  o Soil horizons
	  o Mycorrhizal fungi and symbiotic relationships
	• Soils, habitat types and indicator plants
	
	<u>Session 2</u>
	• Plant species for phytoremediation
	• Brown sites, pollutants and nutrient enrichment. Hyper-accumulators, bioaccumulation and harvesting.
	• Case studies and activity
	• Q&A

CIEEM Competency Framework	• M2 - Designing and preparing habitat/species management, mitigation, compensation and/or enhancement plans or projects • M3 - Implementation of habitat and/or species management activities • S2 - Species identification, handling and population assessment
Comments	No prior knowledge or experience is necessary.
Related courses	Plant Identification and Botanical Keys

UK Habitat Classification for Practitioners

Training provider	Bob Edmonds

Course overview	This course aims to provide ecologists with an introduction to the UK Habitat Classification. UKHab is the base classification for Natural England's Biodiversity Metric and is becoming the accepted standard for habitat surveys supporting development applications in the UK. This course will provide an overview of the architecture of UKHab, including how to use primary and secondary codes. The course will provide training in using the Habitat Field Key (V2.0) to identify habitats and how to prepare habitat maps in the field. The course will provide training on how to plan and design a survey, from pre-survey map preparation and research, setting your Minimum Mapping Unit (MMU) and other meta-data and how to display maps and data collected in UKHab. It will also provide guidance on how to store and share UKHab data and why this is important. The course is aimed at competent habitat surveyors and those with basic skills wishing to expand their knowledge. The correspondence to previous classifications will be discussed and so an understanding of existing classifications, e.g. Phase 1 or UK Broad and Priority Habitat Types would be beneficial. Trainees would be expected to have downloaded and reviewed the UKHab document set (the manual, definitions, field key and hierarchy) from www.ukhab.org before the training sessions.
Delivery mode	Online using Zoom
Course length	2x 3 hours sessions = 6 hours in total
Learning outcomes	• Understand the mechanics of UKHab, it's architecture, and how it differs from other classification systems. • Plan and design a survey, from pre-survey map preparation and the importance of survey meta-data. • Use the Habitat Field Key and other UKHab resources to determine Habitat types within the Primary Classification. • Identify and describe habitat features using the Secondary Codes. • Confidently identify and map broad habitat types using aerial photographs and understand how to collect and interpret ecological field data.
CIEEM Competency Framework	• S3 Habitat identification and evaluation
Comments	Initial training session targeted at ecologists with a degree of competence in ecological habitat survey, i.e. at least basic to competent.
Related courses	• Introduction to UK Habitat Classification • Using UKHab for Biodiversity Net Gain

Understanding the Vegetative Key an essential tool for Ecologists for extending the survey season

Training provider	Mark Duffell
Course overview	In many books and courses the focus of plant identification is on flowers, with foliage taking a back seat. This has changed with the (recently updated) Vegetative Key to the British Flora by John Poland, which relies solely on using vegetative characters for identification. In the time that 'Poland' has been available it has been taken to heart by botanists and ecologists as it enables them to make accurate identifications and effectively extends the botanical field season. Concentrating on the characters used in 'Poland' you will discover the often novel features and characters used in this ground-breaking key and find out how easy it can be to make an accurate identification. Using a hand lens or microscope you will come to marvel at the structures and details to be found in even the commonest species. Working through the 'Flora' together participants will discover a range of characters that regularly crop up in the key and these will be further illustrated with specimens and presentations. Focusing on practical skills, with group and individual keying out in the classroom (and field); this course is ideal for professional botanists/ecologists.
Delivery mode	In-person course with sessions in the classroom and in the field
Course length	One full day = 7 hours in total
Location	Preston Montford Field Centre Brookside Cottage, Preston Montford Montford Bridge Shrewsbury SY4 1DX
Example programme	<u>Morning</u> Welcome and introduction to course. Presentations and practical workshop on identification of plants using vegetative features e.g. leaf arrangement, leaf margins, presence of hairs and types of hairs. <u>Afternoon</u> Using the 'Veg Key' we will work through a series of samples learning how to use the key. Working as a whole group, as well as smaller groups and individually. Depending on weather we may go out into the grounds of Preston Montford Field Centre to use the key on fresh material.
Learning outcomes	• Distinguish the major vegetative parts of a range of taxa and identify a range of common plants to species level using the vegetative key.

	• Recognise and name the major types of characters e.g. leaf arrangement, leaf forms, hair types, and other key identification structures that are widely used within the vegetative key.
CIEEM Competency Framework	• S2 - Species identification, handling and population assessment
Comments	No existing knowledge, or experience is essential, but attendees will gain the most from this course if they have some prior understanding of the parts of a plants, have used a key (not necessarily botanical) and are aware of nomenclature and taxonomy.
Related courses	Plant Identification and Botanical Keys

Using Bioacoustics for Field Survey (Online)	
Training provider	Carlos Abrahams MCIEEM
Course overview	Many ecologists in the UK will be familiar with the use of bioacoustics surveys for bats (and it is envisaged that most people on the course will have this basic knowledge). This course will cover the use of acoustic recording for other species and groups, such as birds, amphibians, invertebrates and mixed animal communities. The training will introduce and explain a range of hardware, software and methodological approaches, that will allow attendees to understand how they might be able to use bioacoustics within their own practice. The training will be delivered by lectures, hand-on workshops with hardware (in the classroom and field if possible), and a computer-based session (which attendees will have to bring their own laptops for - or share with other attendees). This will allow attendees to record, manipulate and analyse sound recordings on the day.
Delivery mode	Online via Zoom
Course length	6 hours
Example programme	09:45-10:00 Log on 10.00-11.00 Session 1 – Introduction to bioacoustics - uses, data and metadata 11.00-12.00 Session 2 – Introduction to hardware, software and surveys (ecoacoustics and bird survey guidance) 12.00-13.00 Lunchbreak and Q&A time 13:00-14:00 Session 4 – Analysing recordings using Audacity (and R) 14:00-15:30 Session 3 – Analysing big data using Kaleidoscope Pro (bats, birds and acoustic indices) 15:30–16:00 Project examples and round-up 16:00 Finish

	**Please note that timings (apart from the start and finish times) are indicative and may be changed at the trainer's discretion.*
Learning outcomes	• Understand the range of surveys that can be undertaken with bioacoustics methods. • Be familiar with a range of hardware and software for bioacoustic survey, and how they can be employed. Download, analyse and report the results of a bioacoustic survey.
CIEEM Competency Framework	• S1 Habitat / species survey design, planning and fieldwork
Comments	Some existing knowledge (of bat survey and data analysis) would be beneficial.
Related courses	• Using Bioacoustics for Field Survey (in-person field based course)

Using Bioacoustics for Field Survey (Field Based)	
Training provider	Carlos Abrahams MCIEEM
Course overview	Many ecologists in the UK will be familiar with the use of bioacoustics surveys for bats (and it is envisaged that most people on the course will have this basic knowledge). This course will cover the use of acoustic recording for other species and groups, such as birds, amphibians, invertebrates and mixed animal communities. The training will introduce and explain a range of hardware, software and methodological approaches, that will allow attendees to understand how they might be able to use bioacoustics within their own practice. The training will be delivered by lectures, hand-on workshops with hardware (in the classroom and field if possible), and a computer-based session (which attendees will have to bring their own laptops for - or share with other attendees). This will allow attendees to record, manipulate and analyse sound recordings on the day.
Delivery mode	In-person field based course
Course length	6 hours
Location	Cromford Railway Station Lea Road Derbyshire DE4 5JJ
Example programme	09:00 – 09:30 Arrival and refreshments

	09:30 – 10:30 Introduction to bioacoustics: why use it, and how to record (hardware) 10:30 - 11:30 Practical field recording session 11:30 - 12:15 Downloading, sorting and displaying data (software) 12:15 - 13:00 Lunch break 13:00 – 14:00 Analysis approaches and demos: species, soundscapes and indices 14:00 – 15:30 Analysis and interpretation 15:30 – 16:00 Round-up 16:00 Finish **Please note that timings (apart from the start and finish times) are indicative and may be changed at the trainer's discretion.*
Learning outcomes	• Understand the range of surveys that can be undertaken with bioacoustics methods. • Be familiar with a range of hardware and software for bioacoustic survey, and how they can be employed. Download, analyse and report the results of a bioacoustic survey.
CIEEM Competency Framework	• S1 Habitat / species survey design, planning and fieldwork • SM1 Scientific method design and implementation • SM2 Analysis of data
Comments	To attend this course, you will need to attend the 'Using Bioacoustics for Field Survey' online course first.
Related courses	• Using Bioacoustics for Field Survey (online)

Using the NVC Plant Communities and Habitats

Training provider	Lorna Bointon
Course overview	This course will cover using NVC classification and indicator species. We will also look at the taxonomy and classification of common plant species and the habitats in which they grow. Participants will also gain an understanding of the laws surrounding protected species and invasive plants. We will cover habitats and biotic/abiotic influences on surveying vegetation, the optimum times for surveying vegetation, techniques to record plant diversity and abundance e.g. using DOMIN/DAFOR scale etc. Course delivery will comprise an illustrated talk, including recognition of common indicator plants and identification of different habitats and plant communities. Training will take place remotely via Zoom at a relaxed pace over two half days.

Delivery mode	Online using Zoom
Course length	2x 3 hours sessions = 6 hours in total
Learning outcomes	• Recognise that some plant species can be useful as habitat indicators and recognise biotic/abiotic influences on surveying vegetation. • Understand taxonomy and classification of common plant species. • Understand the laws surrounding protected species and invasive plants. • Understand biosecurity controls and use safe, biosecure and legal species handling techniques. • Identify, classify and evaluate habitats in accordance with local, national and international classifications (e.g. NVC, DOMIN scale) and at a variety of spatial scales.
Example programme	Session 1 10:00 – Welcome and course introduction 10:15 – What is the NVC? 10:30 – Plant communities and habitat indicators * Succession, bare ground, rank or 'undesirable' plants * Fitting in with UKHabs * Changes to habitat and community vegetation * Growth strategies, niches and Ellenberg Indicators 11:30 – Broad habitats and ecotypes * Ecotones and mosaics * soil types and plants 12:00 – Relationships, hybrids, subspecies 12:30 - Safety and Security * Tools & equipment * Schedule 8 & 9 species, notable species * Distribution and status of plant species 13:00 – End of session 1 Session 2 10:00 – Designations and NVC examples 11:00 – Habitat types and recognising the soil/habitat/environment (activity), National Vegetation Communities (activity) 12:00 - Recording floristic composition (abundance and distribution) 13:00 – Membership opportunities, end of session 2 **Please note that timings (apart from the start and finish times) are indicative and may be changed at the trainer's discretion. We will stop for a short break during each of the sessions.*
CIEEM Competency Framework	• S2 Species identification, handling and evaluation
Related courses	• Vegetation Surveys Using Phase 1 and NVC Techniques • Vegetation Survey Techniques Extended Phase 1 Phase 2 Using NVC

Vegetation Survey Techniques: Extended Phase 1/Phase 2 Using NVC

Training provider	Lorna Bointon
Course overview	This course will cover Phase 2 survey methods using NVC classification and indicator species. We will also look at the taxonomy and classification of common plant species and the habitats in which they grow. Participants will also gain an understanding of the laws surrounding protected species and invasive plants. An important component of surveying is setting objectives and we will cover this alongside identifying the habitat and biotic/abiotic influences on surveying vegetation, the optimum times for surveying vegetation, types of survey techniques (including techniques to record plant diversity and abundance e.g. using DOMIN/DAFOR scale etc), using relevant tools/techniques to conduct a survey and presenting results as an ecological report. Course delivery will comprise an illustrated talk, including recognition of common indicator plants and a virtual survey site to identify and map different habitats.
Delivery mode	Online using Zoom
Course length	2x 3 hours sessions = 6 hours in total
Learning outcomes	• Identify objectives for conducting additional vegetation surveys and select the most appropriate survey technique (e.g. Phase 2). • Understand the laws surrounding protected species and invasive plants. • Understand biosecurity controls and use safe, biosecure and legal species handling techniques. • Recognise that some plant species can be useful as habitat indicators and recognise biotic/abiotic influences on surveying vegetation. • Understand taxonomy and classification of common plant species. • Identify, classify and evaluate habitats and the influence of the physical aspects of the environment. • Identify, classify and evaluate habitats in accordance with local, national and international classifications (e.g. NVC, DOMIN scale) and at a variety of spatial scales. • Understand how to present results as an ecological report (following CIEEM guidance and BS42020).
Example programme	Session 1: 14:00 – Welcome and introduction 14:30 – Safety and Security * Tools & equipment * Schedule 8 & 9 species

	15:00 – Setting survey objectives for additional Phase 2 habitat Survey techniques 16:00 – Habitat specific plant species (indicators) and National Vegetation Communities 17:00 – End of session 1 Session 2: 10:00 – Habitat types and recognising the soil/habitat/environment (including niches and growing strategies) 11:00 – Symbiotic or parasitical relationships with other organisms and the food web. Effects of secondary succession 11:30 – Recording floristic composition (abundance and distribution) 12:00 – Phase 2 Habitat Survey methodology (with NVC) 13:00 – Membership opportunities, end of session 2
CIEEM Competency Framework	• S3 Habitat identification and evaluation • S2 Species identification, handling and evaluation
Related courses	• Vegetation Survey Techniques- Using Phase 1 Habitat and NVC Survey Methods

Vegetation Surveys Using Phase 1 and NVC Techniques

Training provider	Lorna Bointon
Course overview	This one day course will help participants understand how to conduct a vegetation survey using Phase 1 habitat survey techniques and the National Vegetation Classification system. Participants will also learn about floristic composition and the different methods for recording species abundance and biodiversity. The park consists of 400 acres of grasslands, woodlands and riparian habitat (River Alyn). If weather permits, training will include a short field survey within the park. This course will cover Phase 1 survey methods using NVC classification and indicator species. We will also look at the taxonomy and classification of common plant species and the habitats in which they grow. Participants will also gain an understanding of the laws surrounding protected species and invasive plants. An important component of surveying is setting objectives and we will cover this alongside identifying the habitat and biotic/abiotic influences on surveying vegetation, the optimum times for surveying vegetation, types of survey techniques (including techniques to record plant diversity and abundance e.g. using DAFOR scale etc), using relevant tools/techniques to conduct a survey and presenting results as an ecological report. Alyn Waters has undergone many changes over the centuries from a large country estate to a sand and gravel quarry and then a country park. The sand and gravel from the quarry was used to build the Llyn Brenig Dam on the

	Denbigh Moors. In 1966 during quarrying part of a woolly mammoth tusk was discovered and is now exhibited at the Liverpool Museum. The area was designated a country park in 1989 with the development of meadows and woodland. Course delivery will comprise an illustrated talk, followed by identification of common indicator plants and a practical survey session to identify and map different habitats.
Delivery mode	In-person course with classroom and field based sessions
Course length	09:30 – 16:30
Location	Alyn Waters Country Park, Wales
Learning outcomes	• Identify survey objectives for 'standard' surveys, and select the most appropriate survey technique (e.g. Phase 1). • Understand biosecurity controls and use safe, biosecure and legal species handling techniques. • Identify common species. • Understand species ecology and distribution. • Identify, classify and evaluate habitats and the influence of the physical aspects of the environment. • Identify, classify and evaluate habitats in accordance with local, national and international classifications (e.g. NVC) and at a variety of spatial scales. • Recognise personal limitations and areas for development and seeking opportunities to develop knowledge, understanding and skills.
Example programme	09:00 – Arrival and refreshments 09:30 – Safety and Security Tools & equipment Schedule 8 & 9 species 10:00 – Setting survey objectives and understanding Phase 1 habitat Survey techniques 11:00 – Break 11:15 – Habitat specific plant species (indicators) and National Vegetation Communities (with activity) 12:30 – Lunch 13:30 – Phase 1 Habitat Survey methodology in detail (with activity) 15:00 – Break 15:15 - Recording floristic composition (abundance and distribution) 16:00 – Presenting survey results (with activity) 16:30 – Forms, membership opportunities, finish
CIEEM Competency Framework	• S2 Species identification, handling and evaluation • S4 Physical environment survey
Related courses	• Vegetation Survey Techniques: Extended Phase 1/Phase 2 Using NVC

Water Vole Ecology and Surveys

Training provider	Mike Dean CEcol CEnv FCIEEM
Course overview	This is an introductory course on water voles. It will cover the background ecology of, and appropriate survey techniques for, water voles in the context of development projects. The course will have a particular focus on determining the most appropriate approach to surveying for water voles in development scenarios, following the guidance set out in the Water Vole Mitigation Handbook. It will cover identification and recording of field signs, assessing habitat suitability, gathering and using desk study and other contextual information. This course is aimed at beginners and those with some previous experience. Attendance on this course is strongly recommended as preparation for our two intermediate - advanced level courses on Water Vole Mitigation and Water Vole Live Trapping, Care and Restoration.
Delivery mode	Session 1 is online via MS Teams and Session 2 is in-person at a field site in Gloucestershire.
Course length	Session 1: 10:00-13:30 Session 2: 10:00-12:00 or 12:00-14:00
Learning outcomes	• Knowledge of water vole ecology. • Understanding of different types of water vole surveys and the relevant approach to each. • Ability to find and identify field signs, particularly latrines, feeding remains and burrows. • Ability to distinguish water vole field signs from those of other species. • Ability to assess habitat suitability for water voles.
CIEEM Competency Framework	• S2 Species identification, handling and evaluation
Related courses	• Water Vole Mitigation • Water Vole Live Trapping, Care and Restoration

Wind Farm Bird Collision Risk Modelling

Training provider	Chris Cathrine MCIEEM
Course overview	This course will introduce the Band collision risk model, cover survey design and data management, and provide participants with the opportunity to work through an example.

	Bird collision with turbines is a key potential impact of onshore wind farm developments and requires appropriate consideration in any Ecological Impact Assessment for such projects. Wind farm bird collision risk modelling is a standard tool used to inform impact assessments, and is likely to be necessary for the majority of large-scale onshore wind farms, as well as small-scale wind clusters depending on potential sensitivities. In the UK, the Band model is generally adopted for this purpose. However, in order for the model to be effective, flight activity surveys and data management systems must be designed for this purpose. This course will introduce the Band collision risk model, cover survey design and data management, and provide participants with the opportunity to work through an example. Interpretation of results will also be discussed, including limitations of the model.
Delivery mode	In-person classroom based course / possible online (TBC)
Course length	09:30 – 16:00
Location	West Lothian, Scotland
Learning outcomes	• Design bird flight activity surveys to inform collision risk modelling (Band model). • Understand effective methods for managing flight activity data to allow easy use in collision risk modelling (Band model). • Understand theory of bird collision risk modelling (Band model). • Understand how to build and run a bird collision risk model (Band model). • Have a basic understanding of how to interpret bird collision risk model results, including limitations (Band model).
Example programme	09:00 – Arrival and refreshments 09:30 – Introduction Aim of Collision Risk Modelling and Approaches Information Needed and How We Get It Survey Design and Data Management 11:30 – Break 11:45 – Case Study 1: Regular Flights 12:45 – Lunch 13:45 – Case Study 2: Random Flights 15:00 – Break 15:15 – Interpreting Results, Limitations and Challenges 15:45 – Summary and Conclusions 16:00 – End

CIEEM Competency Framework	• S1 Habitat / species survey design, planning and fieldwork • SM3 Interpretation and evidence-based reporting

Winter Tree ID: extending the season in ecological surveys

Training provider	Mark Duffell
Course overview	Winter is seen as a time of year when little useful field botany can be done, but that is not the case with deciduous trees and shrubs. They are in many ways easier to identify when the leaves are out of the way. The course starts with an introduction to the key characters used in the identification of deciduous trees and shrubs, using specimens and illustrated talks. We will use the latest winter tree identification guides including John Poland's new 'The Field Key to Winter Twigs (2019), Bernd Schulz's "Identification of Trees and Shrubs in winter using Buds and Twigs' (2018), and the FSC 'Guide to the identification of deciduous Broad-leaves trees and Shrubs in Winter'. Time may then be spent outdoors using these skills to identify the trees and shrubs that we come across (so wrap up warm). This is a day course aimed at the keen beginner and improver alike, providing an introduction to winter tree identification. Emphasis will be placed on key characters to distinguish each species from similar looking plants. By the end of the course participants will be able to use a key and will be able to recognise the key characters.
Delivery mode	In-person with classroom and field based sessions
Course length	10:00-17:00
Location	West Midlands
Learning outcomes	• Distinguish the major 'vegetative' parts of a range of deciduous tree and shrub taxa and identify a range of common plants to genus/species level using botanical keys. • Recognise and name the major types of characters e.g. leaf bud arrangement, leaf scar forms, different buds types, and other key identification structures that are widely used within the 'Poland' key. • Utilise a standard flora (e.g. Poland 2019), with an understanding of how to use these keys more effectively.
Example programme	10:00-12:30 (classroom) Welcome and introduction to course. Presentations and practical workshop on identification of deciduous trees and shrubs using winter id features e.g. leaf arrangement, form of buds, shapes of leaf scars.

	Introduction to various keys available to field botanists for identification of deciduous trees and shrubs. 12:30-13:30: Lunch break 13:30-17:00 (field based) Using the 'Winter Tree ID Key' we will work through a series of samples learning how to use the key. Working as a whole group, as well as smaller groups and individually. Depending on weather we may go out into the local to use the key on fresh material.
CIEEM Competency Framework	• S2 - Species identification, handling and evaluation

TECHNOLOGIES

QField for Ecologists and Environmental Practitioners

Training provider	Paul Losse MCIEEM
Course overview	This event introduces surveyors to QField, an open-source mobile GIS mapper which works alongside the QGIS GIS program. The application allows for efficient electronic data capture in the field and can be used for habitat mapping as well as capturing species information. We cover the key advantages of capturing habitat and species data electronically as well as considering equipment options. The first part of the event focusses on setting up projects in QGIS for transfer to QField, including the use of the QFieldSync plugin. We demonstrate how to prepare basemaps, configure map themes and transfer projects to a mobile device for use in the field. We then look at QField functionality on a mobile device (android 'phone or tablet), firstly indoors and then in the field. Field work will include capturing point, line and polygon data as well as editing data in the field. Finally, we will cover the transfer of field data back into a QGIS project. The event is suitable for anyone who is proficient at basic map production (e.g. habitat maps) in QGIS and wishes to use QField for capturing data electronically in the field. The event will combine demonstration with exercises to consolidate learning. There will also be an outdoor session during which delegates can capture real data in the field.

	IT equipment, including a PC or Mac (desktop or laptop) pre-loaded with QGIS and a smart phone or tablet running the Android operating system (version 5 or above) will be needed.
Delivery mode	Online using Zoom
Course length	2x 4 hours sessions and 1x 2 hour session = 10 hours in total
Learning outcomes	• List the advantages and disadvantages of capturing field data electronically. • List the equipment needed for electronic field capture. • Prepare a project in QGIS for transfer to QField. • Capture points, lines and polygons in the field using QField. • Edit attribute data and geometry in the field. • Transfer a field project to QGIS.
CIEEM Competency Framework	• IM2 Information Technology • SM2 Analysis of data • SM3 Interpretation and evidence-based reporting
Prior knowledge	Good basic working knowledge of QGIS including the ability to carry out the following operations: • Create projects from existing vector and raster data • Symbolise layers • Digitise points, lines and polygons
Related courses	• Beginners QGIS for Ecologists and Conservation Practitioners • Intermediate QGIS for Ecologists and Environmental Practitioners • QGIS for Biodiversity Net Gain

QGIS for Biodiversity Net Gain

Training provider	Matt Davies
Course overview	Conducting a BNG assessment will soon become mandatory for most new developments. It is a new area of work and one that ecologists, particularly consultants, are having to adopt. Conducting these assessments requires specialist technical skills, and can be carried out using the freely available, open-source mapping software, QGIS. The event is suitable for delegates with a good working knowledge of QGIS. Ideally you will have attended an Introductory QGIS course. You will already be able to confidently carry out the following operations: - Create projects from existing vector and raster data. - Symbolise layers. - Digitise points, lines and polygons.

	- Have a broad awareness of Biodiversity Net Gain and the NE BNG metric. The course builds on delegates QGIS skills, and equips them with the specific skills needed to carry out a BNG assessment. It covers how to integrate pre-development habitat data, that they would have collected via field survey, with proposed development data, often provided by a (landscape) architect. The course will cover working with CAD data in QGIS, which is very often needed in a BNG assessment. It will also enable delegates to confidently use NE's BNG QGIS project, together with NE's Import to BNG Metric Excel tool.
Delivery mode	Online using Zoom
Course length	1 day online = 6.5 hours in total
Learning outcomes	• Set up a QGIS form for ease of data input in the office or field. • Integrate a range of datasets commonly used in BNG assessments. • Geo-reference a raster field survey map for use in QGIS. • Work with CAD data in QGIS (add, symbolise, re-position, covert to other formats). • Create pre and proposed development habitat datasets using advanced digitising tools. • Work with the NE BNG QGIS project, including exporting data to the BNG Metric using NE tools.
CIEEM Competency Framework	• IM2 Information Technology • SM2 Analysis of data • SM3 Interpretation and evidence-based reporting
Prior knowledge	Good basic working knowledge of QGIS including the ability to carry out the following operations: - Create projects from existing vector and raster data - Symbolise layers - Digitise points, lines and polygons - Broad awareness of Biodiversity Net Gain and the NE BNG metric
Related courses	• Beginners QGIS for Ecologists and Conservation Practitioners • Intermediate QGIS for Ecologists and Environmental Practitioners • QField for Ecologists and Environmental Practitioners