



# FSC BioLinks Development Plan for Training Provision

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*Version 3*

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## 1 Introduction

BioLinks is an upcoming Field Studies Council biodiversity project which received development phase funding from the Heritage Lottery Fund. One of the key outcomes of the project is to facilitate the development of volunteers to a high competency level in the **identification and recording** of a selected range of difficult-to-identify and data-deficient species groups. The creation of species records by volunteer biological recorders is vital to understanding, maintaining and conserving our natural heritage. Achieving this goal will strengthen the biological recording community and support the existing volunteer-led schemes and societies that are often under-resourced and provide this critical environmental monitoring service to help safeguard our natural heritage as now formally recognised in the new 25 year environment plan issued in January 2018.

[https://www.gov.uk/government/uploads/system/uploads/attachment\\_data/file/673203/25-year-environment-plan.pdf](https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/673203/25-year-environment-plan.pdf)

## 2 BioLinks Consultation

The BioLinks development phase (April 2016 to January 2017) involved consulting with a range of current volunteer biological recorders, potential volunteer biological recorders and sector professionals. Throughout the consultations volunteer motivations and barriers to participation were discussed and a full summary of the findings can be found in the **FSC BioLinks Consultation Report**. Volunteers indicated that a major barrier to participation is often the lack of opportunities for personal development through structured training. The consultation also indicated that it is essential that activities have clearly labelled difficulty levels so that participants can assess if the activity is suitable for their current competency level.

## 3 Focus species groups

The focus species groups for the BioLinks project were selected using evidence gathered through previous HLF projects (Biodiversity Training Project and Invertebrate Challenge) and feedback received in the BioLinks consultations during the 2016 BioLinks development phase (for more information please see the **FSC BioLinks Consultation Report**). All of the focus species groups are currently data deficient regionally and considered difficult-to-identify as they include species that require the use of a microscope in order to reach a reliable identification.

Eight focus species groups were identified for inclusion in the project:

- **Aculeate Hymenoptera** (bees, ants and wasps)
- **Arachnids** (spiders, harvestmen and false scorpions)
- **Beetles** (ladybirds, longhorn beetles, carrion beetles, ground beetles and seed & leaf beetles)
- **Freshwater invertebrates** (freshwater snails, insect larva and dragonflies & damselflies)
- **Non-marine Molluscs** (slugs, terrestrial snails, freshwater snails and freshwater bivalves)
- **Soil invertebrates** (earthworms, woodlice, centipedes, millipedes and false scorpions)
- **True bugs** (shield bugs, hoppers, plant bugs, water bugs and psyllids)
- **True flies** (hoverflies, craneflies, soldierflies, blowflies, tachinids and picture-wing flies)

Section 8 on page 11 of this document contains structured course pathways incorporating the focus species groups highlighted above (though please note that freshwater invertebrates is replaced by a plan for freshwater insects and other focus freshwater invertebrates are included in the plans for their respective taxonomic group). These taught courses will be complemented by other project activities (see Section 6 on page 6 for further details) and the training course pathway for each focus species group is structured according to the **BioLinks Volunteer Learning Pathway** (see Section 5 on page 4).



## 4 Training Locations

The BioLinks project aims to facilitate training ‘hubs’ that would act as a base for volunteers and a venue for a high proportion of the project activities (including regular drop-in identification support workshops to provide accessible support and mentoring from the project staff and experts).

Two established training hubs have been highlighted for inclusion within the project:

- **FSC Preston Montford Field Centre** Shropshire
- **British Entomological & Natural History Society HQ** Berkshire

Two new training hubs have also been highlighted for inclusion within the project:

- **FSC Bishops Wood Field Centre** Worcestershire
- **FSC Bushy Park Field Centre** London

In addition to training courses and field events, training hubs will host regular drop-in identification support workshops to provide accessible support and mentoring from the project staff.

Residential courses will be delivered at training centres with residential and catering facilities and the following training centres will be included within the project:

- **FSC Preston Montford Field Centre** Shropshire
- **FSC Juniper Hall Field Centre** Surrey

In order to improve the reach of the project beyond the areas serviced by the training hubs, a small number of BioLinks training courses and field events will be planned at additional training facilities (such as Birmingham Museum Collections Centre, RSPB Sandwell Valley, WWT London Wetlands Centre, Tower Hamlets Cemetery Park, Lesnes Abbey Wood and FSC Amersham).

## 5 BioLinks Volunteer Learning Pathway

The BioLinks Development Plan for Training Provision (located on the page 5) has been designed to provide a clear outline of how the project activities will enable development of volunteer participants in four key competencies:

**Knowledge**

**Skills**

**Motivation**

**Confidence**

A range of activities (see Section 6 on page 6 for further details) will be delivered to ensure that progression is facilitated across all four competencies. The **BioLinks Volunteer Learning Pathway** is a tool for volunteers to use to assess their competency level and determine which activities are suitable for them as individuals. This enables volunteers at different competency levels to participate within the BioLinks project by allowing them to determine which activities are suitable for them. The pathway also allows volunteers and assessors to measure the progression of volunteers through the competency levels. This resources was produced in consultation with the Botanical Society of Britain & Ireland regarding their highly regarded Field Identification Skills Certificate (FISC).

**BioLinks aims to complement any existing training provision by signposting participants to equivalent activities provided by other organisations. This will allow the project to concentrate on the delivery of activities that are currently absent from the regional provision and fill any gaps in the learning pathway for volunteer biological recorders and to deliver best value for money. The clearly defined competency levels will assist external tutors and training providers in labelling the difficulty of their training courses to ensure consistency throughout the sector.**

The *BioLinks Volunteer Learning Pathway* is divided into different competency levels down the left-hand side, starting with the lowest competency level at the bottom and rising to the highest competency level at the top.



## 6 Activities for volunteer development

**Taught courses** covering specific subjects and practical skills are key to ensuring that volunteers have access to experts in order to develop their **knowledge** and **skill** competencies. Structured course pathways have been created for each of the focus species groups selected for this project. Each structured course pathway includes courses pitched at the introductory, beginners, intermediate and advanced levels. The project will assess the demand for specific courses within each pathway on an annual basis, considering the existing regional provision and the current competency level of project volunteers with regards to each focus species group. Section 8 provides more detail regarding the focus species group courses that will be considered and Section 9 the predicted number of introductory, beginners, intermediate and advanced level courses that will be delivered during each year of the years within this project.

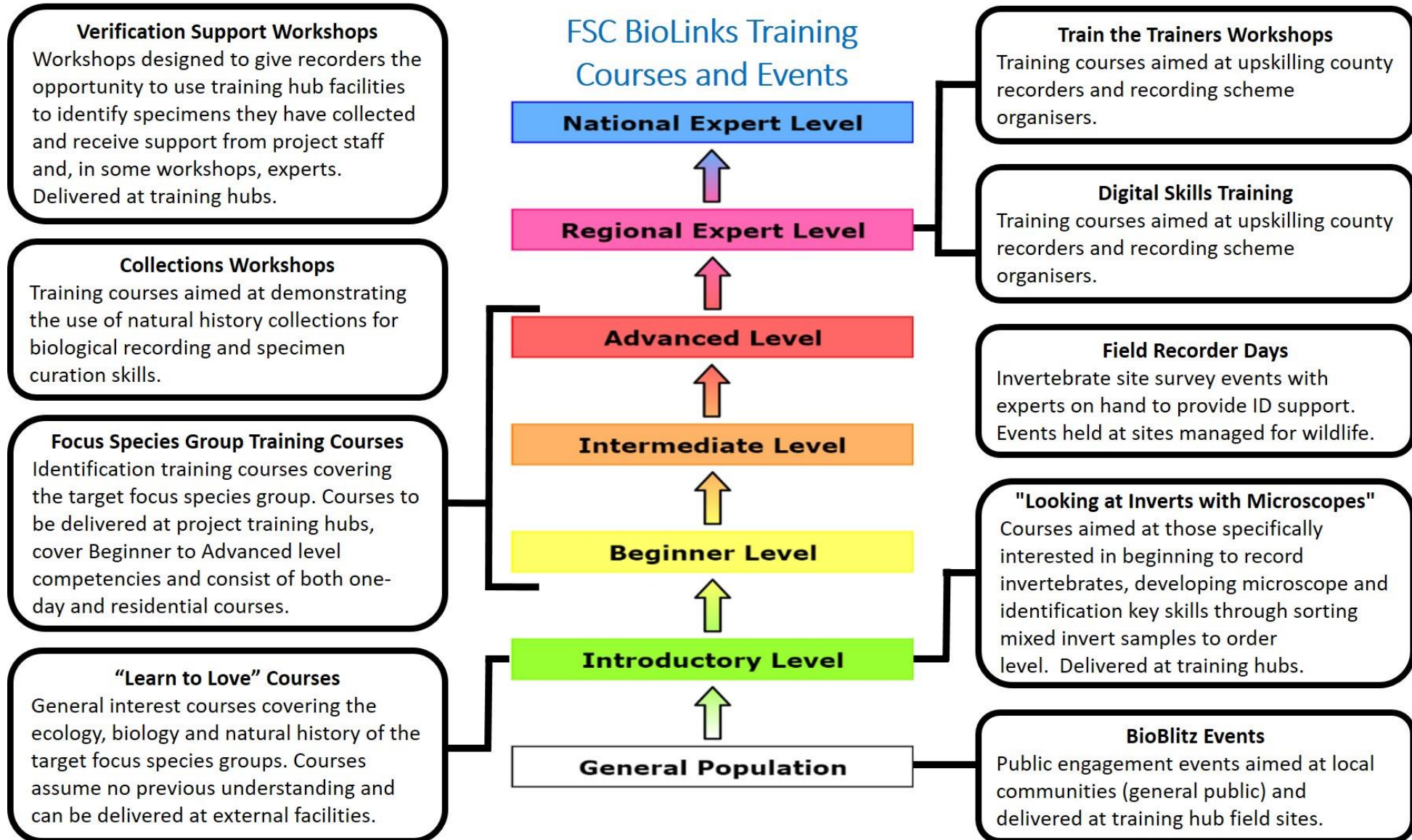
**Field events** improve **knowledge** of wildlife in the field as well as allowing the development of social relationships with mentors and peers, and are therefore key to developing **motivation** and **confidence**. Field recorder days will be hosted by the project and field events hosted by other organisations will be signposted to. Field events are often aimed at a wide variety of competency levels and may incorporate learning about a range of focus species groups (and groups not targeted by the project). Where BioLinks field events are more specialised or aimed at a specific competency level, they will be labelled as such.

**Collections workshops** that engage volunteers with natural history collections are essential for demonstrating how to develop the **skills** needed to use this resource. Workshops will inform volunteers regarding the composition and accessibility of local natural history collections and incorporate practical techniques for using collections and building personal reference collections. Furthermore, the workshops will develop relationships with the collections managers and the biological recording community.

**Local recording initiatives** are a proven method (e.g. regional atlas projects delivered through the Invertebrate Challenge project funded by Heritage Lottery Fund) for **motivating** volunteers to put their skills into practice and encourage self-learning. The BioLinks digital atlas will encourage volunteers to target certain areas within a region that are particularly data deficient or to take ownership of a patch. Other potential initiatives could include the collation of specimens for local collections or photos for online or published identification resources.

**Mentoring and support** is seen by many as the most useful resource for development of **skills** and **knowledge** with regards to species identification and recording, as well as allowing **confidence** to grow through verification of identifications. Mentoring relationships will be encouraged with tutors/experts and online communities (which can facilitate peer-to-peer mentoring) where possible in order to provide support for those at all competency levels. The project will have a regional officer based in each of the two project regions that will also be able to provide mentoring to project volunteers and assist with verification of species (dependant on their personal competency level for that species group). Additional support and resource access will be facilitated on a regular basis by the project officers through drop-in identification support workshops that will be run at the training hubs.





## 7 Focus Species Group training course types

The FSC BioLinks Focus Species Group training programme will deliver training courses across a range of competency levels.

There will be 4 main types of course within the Focus Species Group Training Programme:

- Introductory “Learn To Love” courses
- Beginner “Field Identification” courses
- Intermediate “Identification Using Microscopes” courses
- Advanced Identification/Specialist courses

Advanced Identification/Specialist courses will require course-specific briefs due to the bespoke nature of these courses, though are likely to borrow heavily from the Intermediate “Identification Using Microscopes” course brief.

To prevent unnecessary overlap between courses and ensure that every course is appropriately labelled, courses will be named according to the category they fall within and tutors will be provided with the following information in Table 1 on page 9 to help them design their courses.

Careful planning of content is only the first step to building a suite of integrated but differentiated courses. The differences between the Learn to Love and the Field ID courses, in particular, are in both the *detail* of the content presented and the *manner* in which it is presented. It is very easy for a tutor to forget which course they are addressing, particularly in the Learn to Love courses, and slip into their own comfort zone, for example by using highly technical language which is too far outside the comfort zone of many of the participants. Table 2 on page 10 provides a comparative overview of the different course types.

### Course handouts

In addition to any course handouts that tutors recommend, a one-page ‘Recording Info Sheet’ handout will be supplied to each attendee on every FSC BioLinks Focus Species Group training course (see earthworm example right).

The handout will be specific to the focus of the course and will provide the attendee with the following information:

- Short description of the focus species group
- Details of the relevant recording scheme:
  - Name of recording scheme/society
  - National or regional contact name
  - National or regional contact email
  - Website address
- Details of record submission pathways
- Details of suitable identification resources

FSC BioLinks tutors will be required to produce Recording Info Sheets prior to the date of each course (unless the relevant recording scheme has previously supplied FSC BioLinks with a relevant Recording Info Sheet).

### Earthworm

#### Recording Info Sheet

Earthworms are a small taxonomic group of soil invertebrates situated within the phylum Annelida. There are 29 species known to occur in Great Britain in natural environments. UK earthworms can generally only be reliably identified once preserved and observed under a microscope.



#### National Earthworm Recording Scheme

**Organisation:** Earthworm Society of Britain (ESB)  
**Recording Officer:** Keiron Derek Brown



**Website:** [www.earthwormsoc.org.uk/ners](http://www.earthwormsoc.org.uk/ners)  
**Contact:** [keironderekbrown@gmail.com](mailto:keironderekbrown@gmail.com)

#### Record submission pathways

- 1) Using any iRecord form (though Earthworm Survey form preferred).
- 2) Sending Excel spreadsheet directly to ESB/Keiron (preferred format available from downloads section of the ESB website).

#### Identification Resources

The recommended resource is the **Key to the earthworms of the UK and Ireland** by Emma Sherlock (2012). This provides the most recent published key for British earthworm species. As part of the AIDGAP series, it uses a relatively simple key and suitable language for non-specialists.

Also available is **Earthworms. Synopsis of the British fauna** by Sims & Gerard (1999). Although much more detailed, much of the taxonomy is now out of date and the technical language can be difficult to interpret for non-taxonomists.

Also see the **digital Earthworm Multi-Access Key** available from the ESB website: <http://www.earthwormsoc.org.uk/fullscreen/earthwormkey>





**LOTTERY FUNDED**





Table 1: Briefing notes for tutors for the different Focus Species Group training course types.

### *Learn To Love courses – Introductory level*

- Keep language simple.
- Use scientific names sparingly, avoid wherever possible.
- Inspire with aspects of biology and ecology which fascinate people, e.g. for spiders, web building and other use of silks, silk production, mating behaviour.
- Debunk myths and reveal fascinating truths!
- Use video resources.
- ID should take a back seat.
- Use diversity to inspire by considering ‘different types’, particularly at family level, e.g. for spiders, ‘orb weavers’, ‘wolf spiders’, ‘jumping spiders’ etc.
- Use the field session to find and observe animals in situ and point out their behaviour.
- Encourage people to handle animals if they are happy to do so.
- Use simple literature simply, e.g. fold-out charts to picture match with live animals.
- Don’t kill animals.

### *Field Identification courses – Beginner level*

- Don’t shy away from using technical language but use it carefully, remaining sensitive to the reaction of participants.
- Place the emphasis very firmly on proper ID of live animals.
- Carefully explain the boundaries of what can be reliably identified and recorded from live animals (and photos).
- Include a careful examination of the available literature and identify the best resources for field ID.
- Include a session on the practice of biological recording and make sure that participants know how to take this forward if they want to submit records.
- Don’t kill animals.

### *Identification Using Microscope courses – Intermediate level*

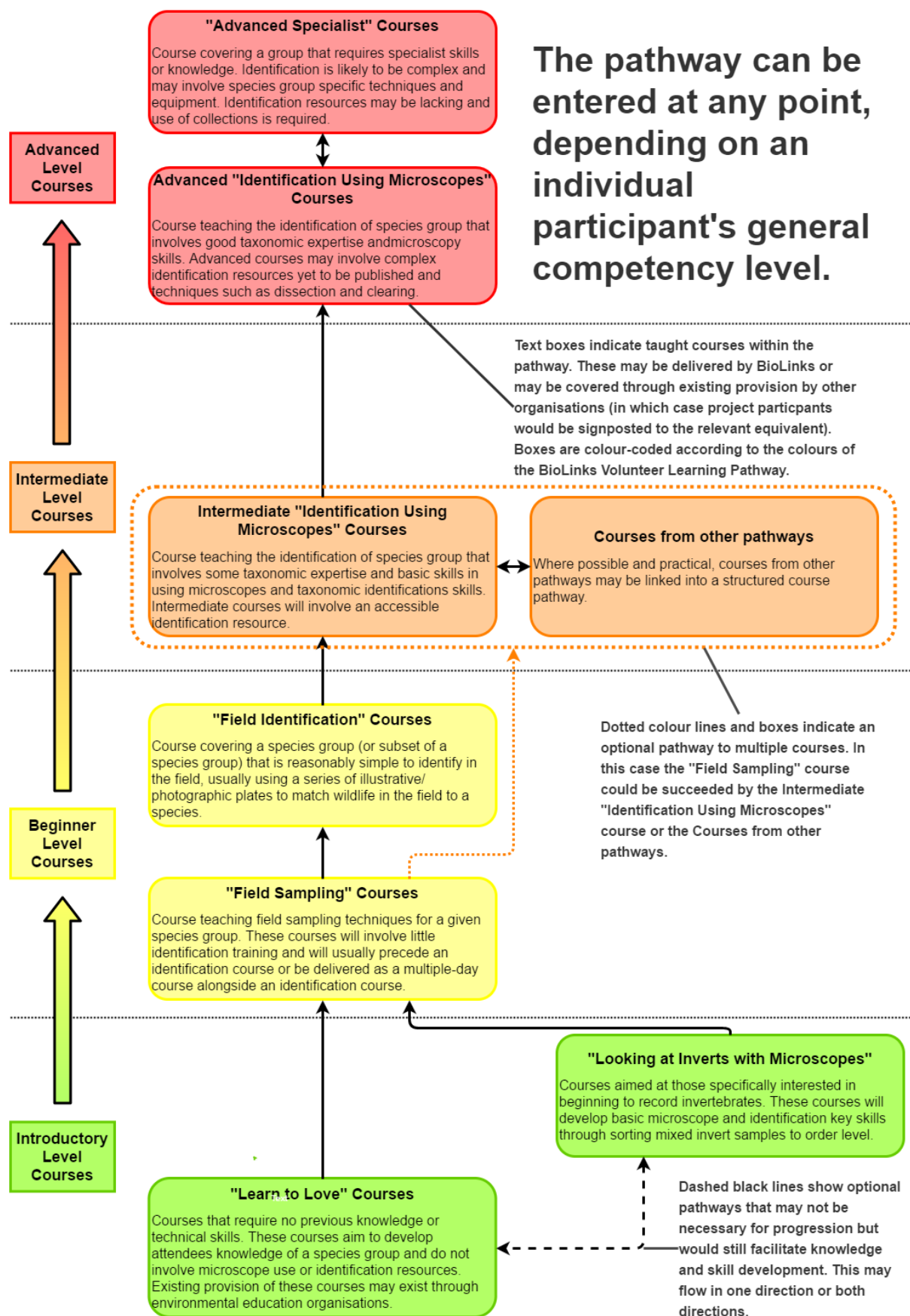
- Use technical language as necessary, but explain it – do not assume that participants already know the vocabulary.
- Don’t assume that participants have all used a microscope before, you may have to explain the basics of using a microscope to some.
- Be aware of the models of microscopes being used on the day and any foibles they might have – and be aware several different models may be being used on the same course.
- Use pre-preserved specimens. On a day course, there is no time for a field session if participants are to have sufficient time at the microscopes.
- Place the emphasis on reaching full identification of all preserved specimens.
- Include a careful examination of the literature required for microscopic ID.
- Demonstrate the use of identification resources before letting the participants loose.
- Explain and/or demonstrate the best procedures for killing and preserving specimens.
- Cover the code of conduct for taking specimens, and explain the legal and ethical considerations and conventions
- Include a session on the practice of biological recording and cover, in particular, the procedure for getting help with specimens that are difficult or which require confirmation.



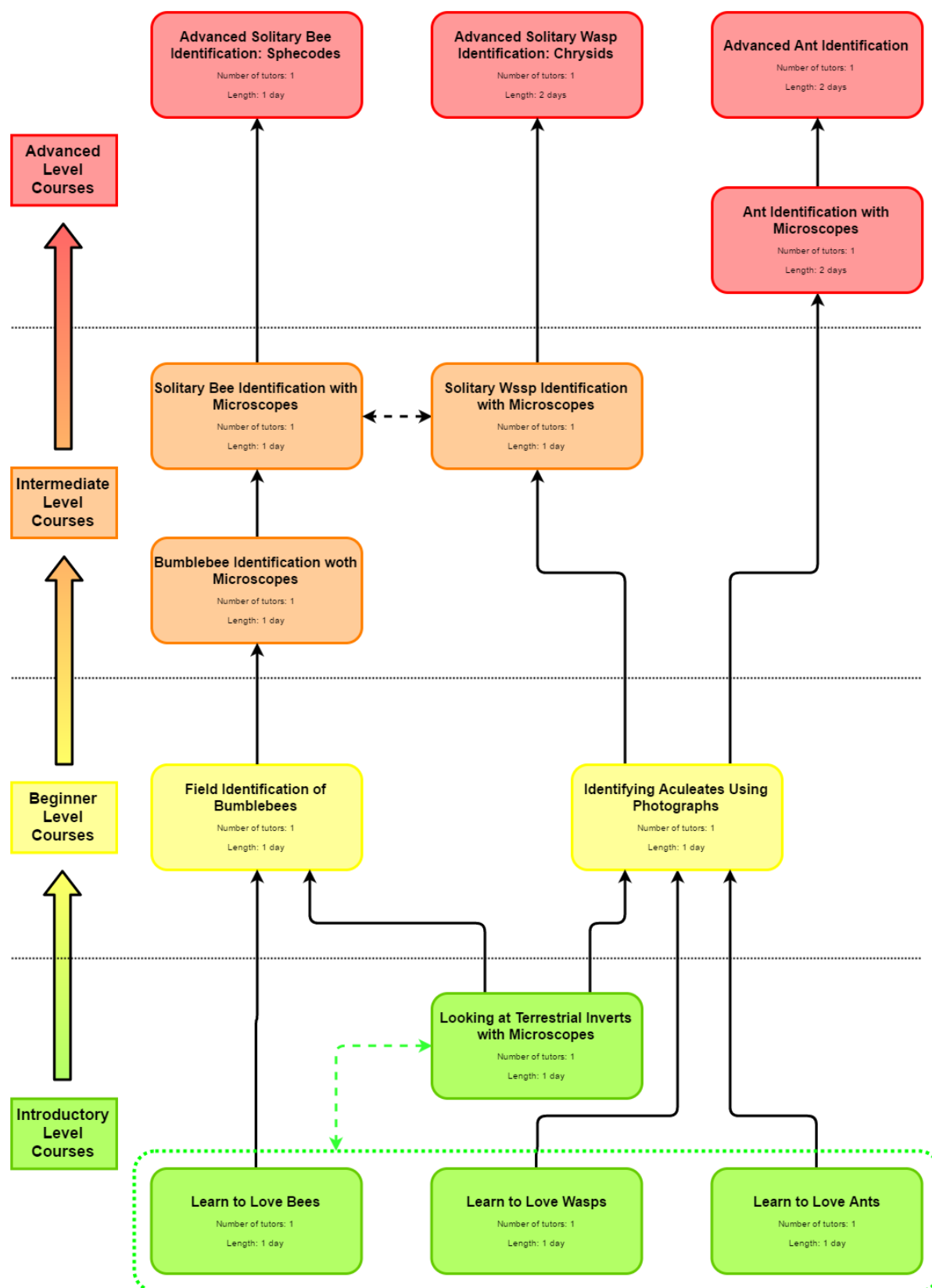
Table 2: Comparative overview of the Focus Species Group training course types.

	<i>Learn to Love</i>	<i>Field Identification</i>	<i>Identification Using Microscopes</i>
Level	• Introductory	• Beginner	• Intermediate
Introductory presentations	<ul style="list-style-type: none"> <li>• Overview of species group basic taxonomy, basic morphology and ecology.</li> <li>• Debunking relevant myths and misinformation.</li> <li>• Inspiring species group stories e.g. spider silk production and uses.</li> </ul>	<ul style="list-style-type: none"> <li>• Overview of species group taxonomy and morphology to level required for ID.</li> <li>• All presentations geared to ID more than 'inspiration'.</li> </ul>	<ul style="list-style-type: none"> <li>• Detailed overview of species group morphology, including detail of features required for microscopic ID</li> <li>• Introduction to keys.</li> <li>• Walk through of family key (where applicable).</li> </ul>
Sampling techniques	<ul style="list-style-type: none"> <li>• Information on how best to 'find &amp; observe' organisms.</li> </ul>	<ul style="list-style-type: none"> <li>• Detailed info on sampling equipment and techniques that can be used to sample and collect live specimens.</li> </ul>	<ul style="list-style-type: none"> <li>• Information on preservation &amp; curation only.</li> </ul>
Field session	<ul style="list-style-type: none"> <li>• Observe live specimens in their natural habitat (or without as the case may be)</li> <li>• Collect some live specimens for a closer look.</li> </ul>	<ul style="list-style-type: none"> <li>• Collect live specimens for ID in the field and back in the classroom.</li> </ul>	<ul style="list-style-type: none"> <li>• None.</li> </ul>
Examine live spiders in classroom	<ul style="list-style-type: none"> <li>• To inspire and illustrate diversity of form and function.</li> </ul>	<ul style="list-style-type: none"> <li>• With attention to identification features.</li> </ul>	<ul style="list-style-type: none"> <li>• No.</li> </ul>
Examine preserved specimens in classroom	<ul style="list-style-type: none"> <li>• Collections of preserved specimens should only be used if they are likely to inspire course participants.</li> <li>• Tutors should be mindful of the likely presence of some course participants who wish to avoid killing and preserving.</li> </ul>	<ul style="list-style-type: none"> <li>• Collections of preserved specimens only used if they are likely to be a useful teaching tool for field ID of live specimens.</li> <li>• Tutors should be mindful of the likely presence of some course participants who wish to avoid killing and preserving specimens.</li> </ul>	<ul style="list-style-type: none"> <li>• Yes – this is the main feature of this course.</li> </ul>
Microscopic examination	<ul style="list-style-type: none"> <li>• No.</li> </ul>	<ul style="list-style-type: none"> <li>• Not individually, but the course tutor may decide to use a teaching microscope and projector to point out certain features on live specimens</li> </ul>	<ul style="list-style-type: none"> <li>• Yes – this is the main feature of this course.</li> </ul>
Level of ID	<ul style="list-style-type: none"> <li>• Teach how to tell difference between easy to recognise groups of species (e.g. ecological groups, life stages, sexes).</li> <li>• Only as much as required to feed people's curiosity.</li> </ul>	<ul style="list-style-type: none"> <li>• Accurate ID of live specimens to the most precise taxonomic rank possible, determined on a case by case basis.</li> </ul>	<ul style="list-style-type: none"> <li>• Full ID to species level in all cases.</li> </ul>
Final presentations	<ul style="list-style-type: none"> <li>• Information on where to go from here to take interest further.</li> <li>• Signposting to future Field ID courses.</li> </ul>	<ul style="list-style-type: none"> <li>• Information on species recording, submitting records and connecting with schemes, societies and groups.</li> <li>• Signposting to future Microscope ID courses.</li> </ul>	<ul style="list-style-type: none"> <li>• Info on species recording, submitting records and connecting with schemes, societies and groups.</li> <li>• Particular reference to verification and specimen checking processes.</li> </ul>

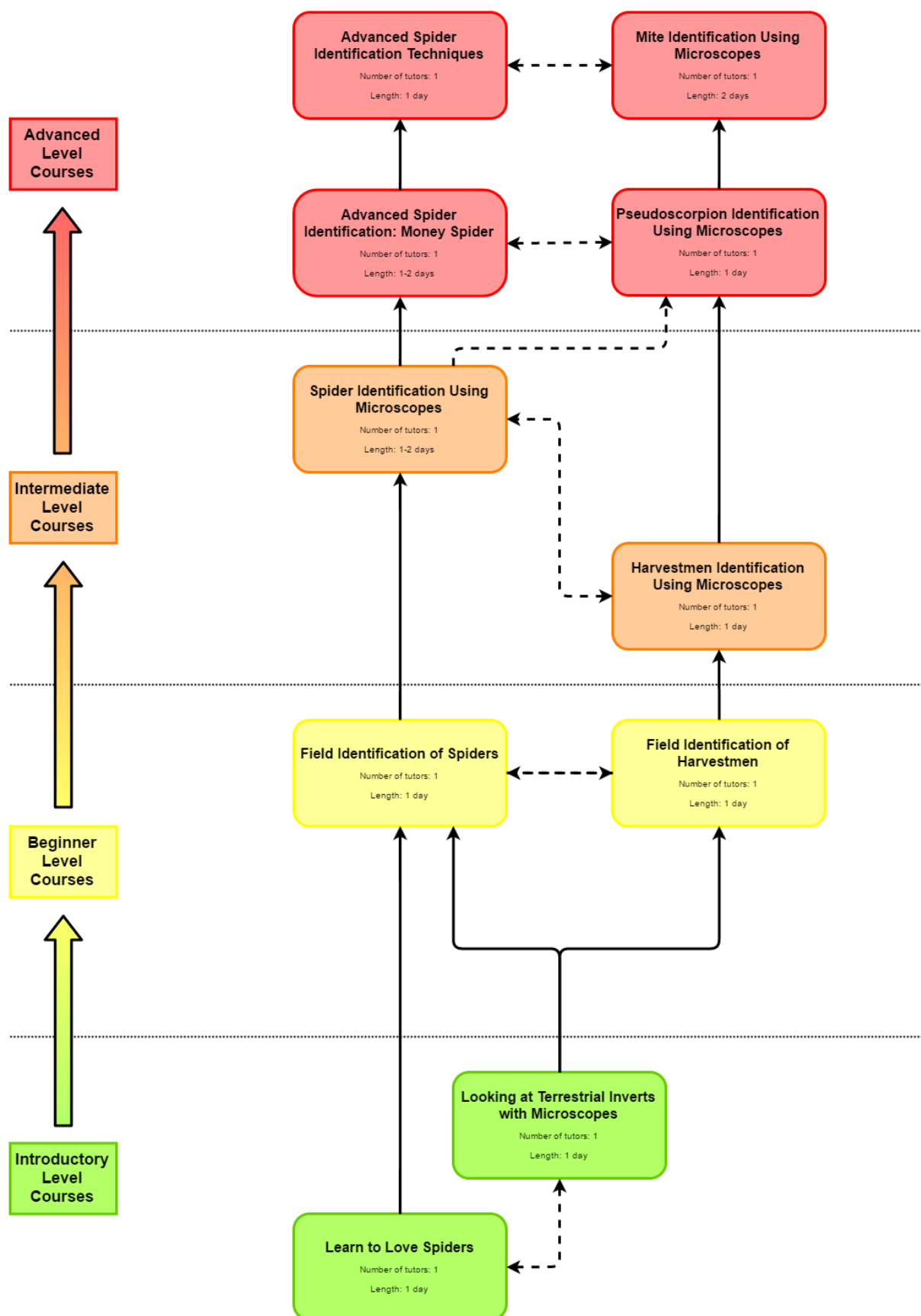
## 8 Focus Species Groups Structured Course Pathways



## 8.1 Structured Course Pathway for Aculeate Hymenoptera

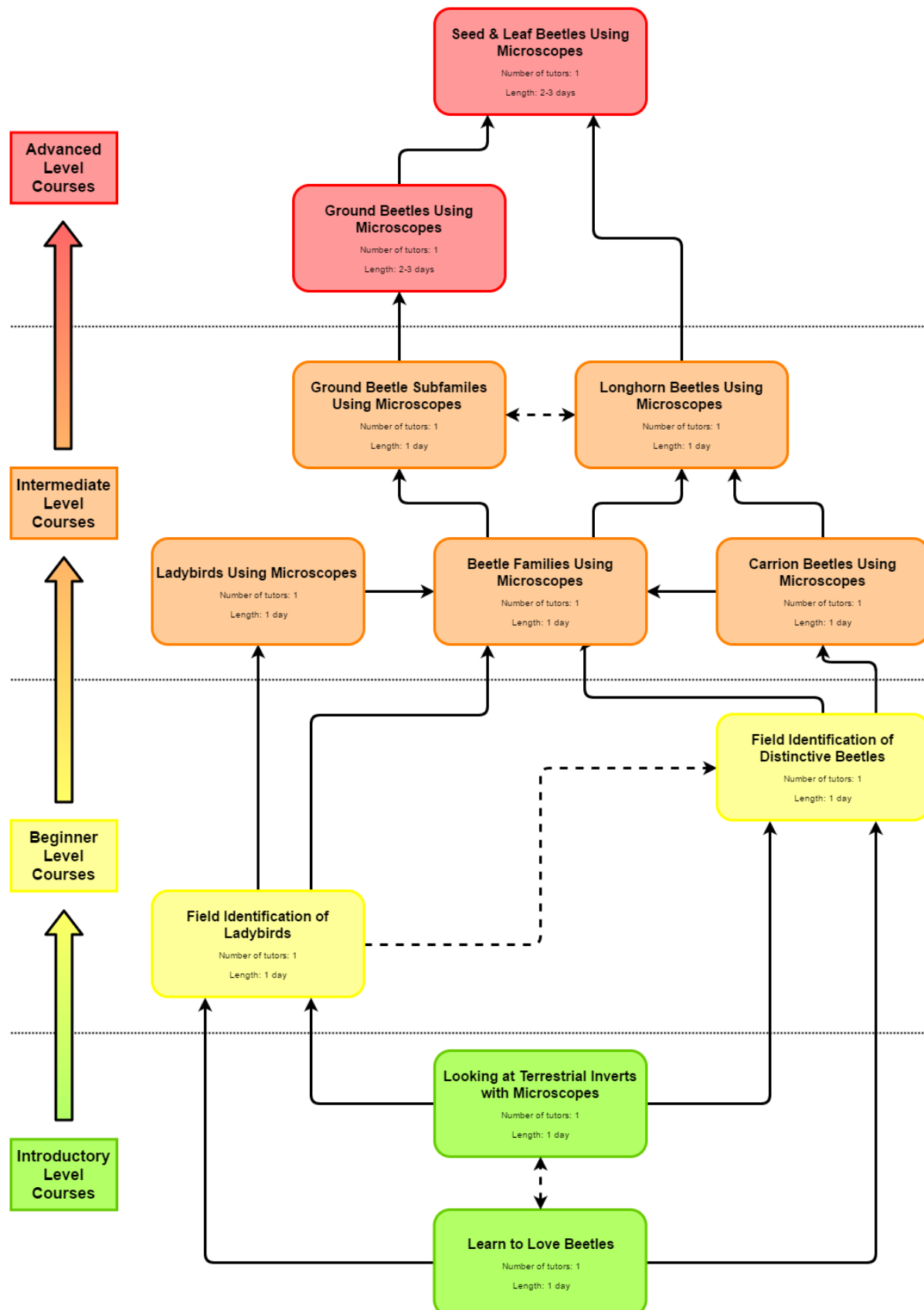


## 8.2 Structured Course Pathway for Arachnids

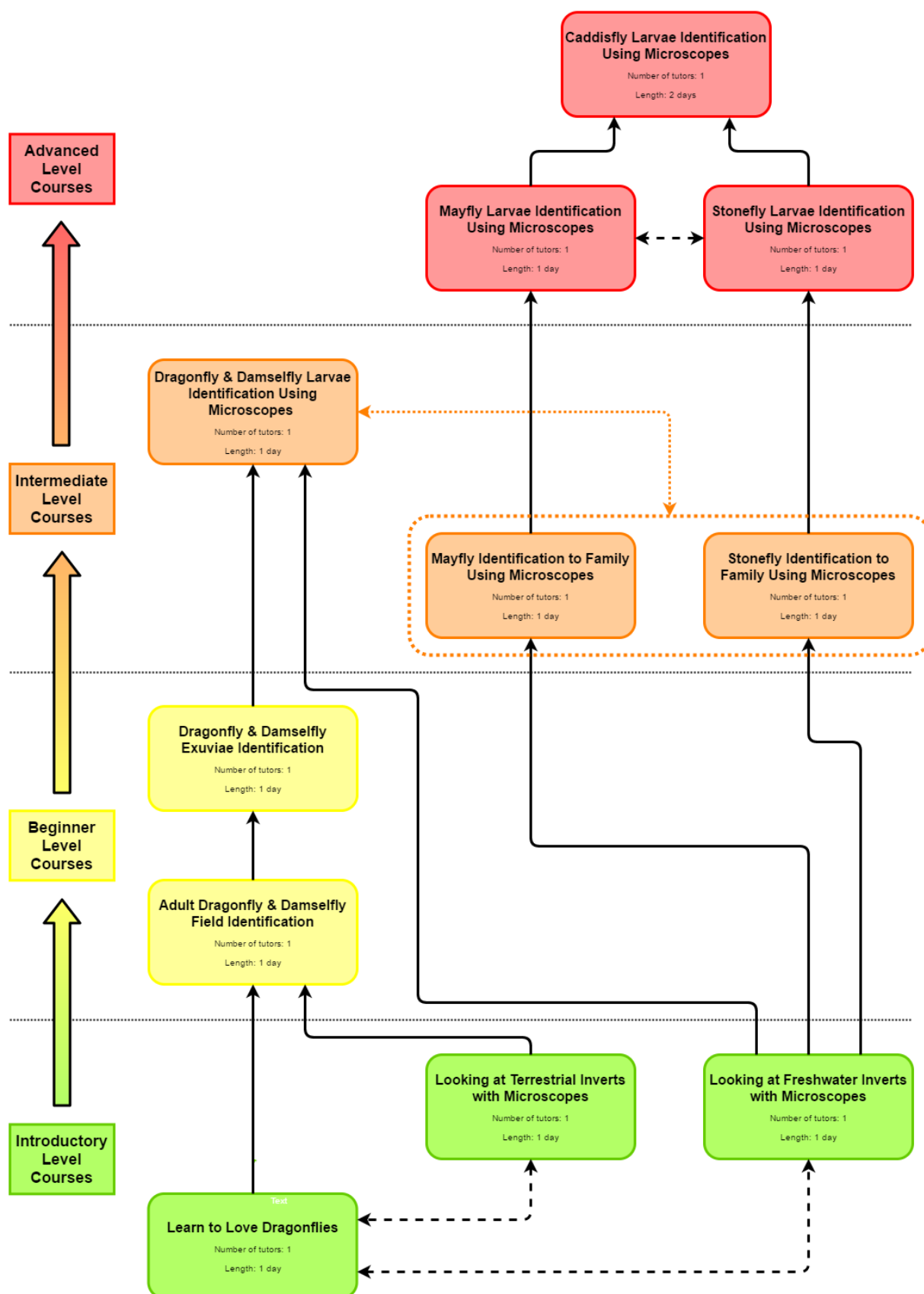




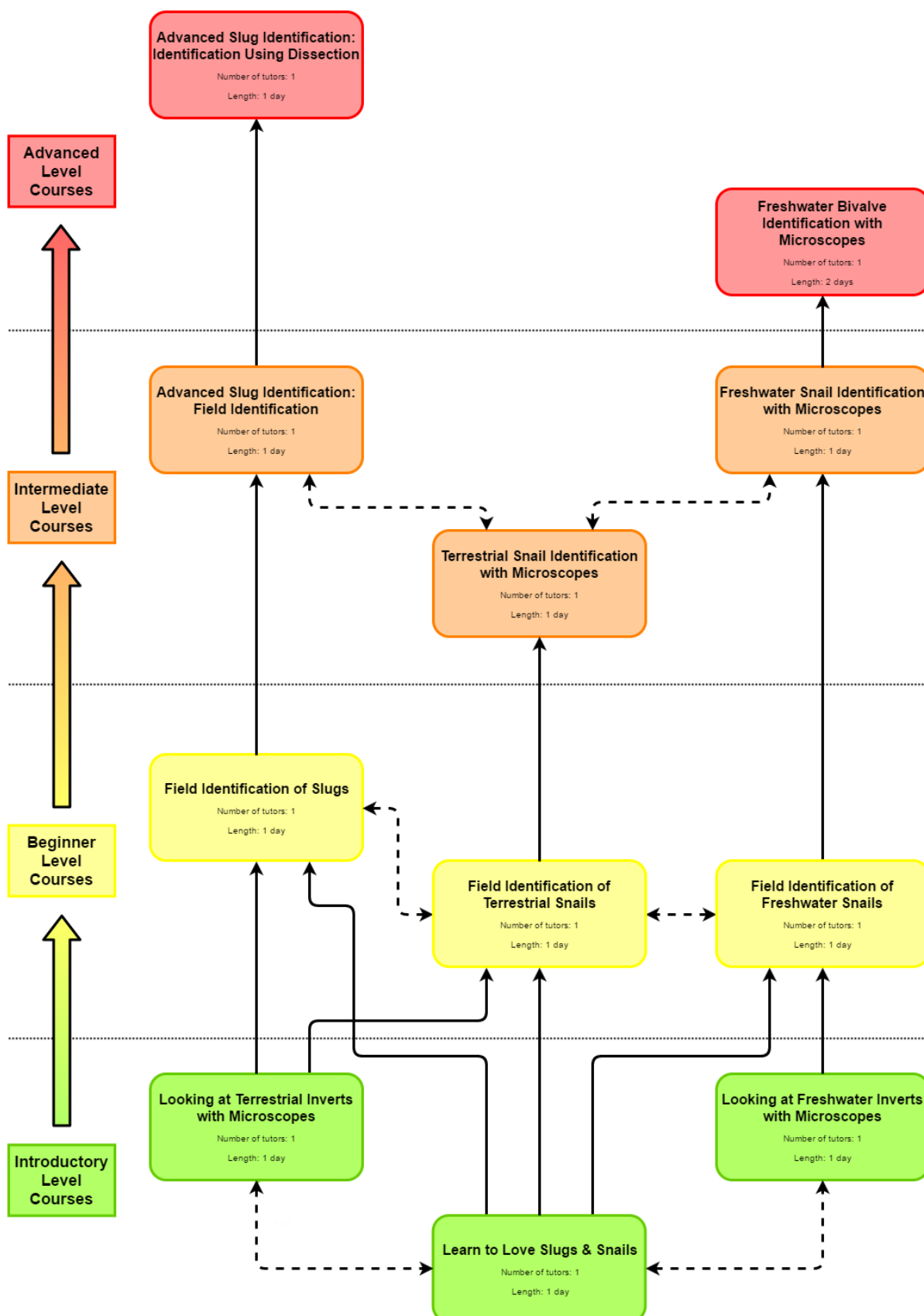
### 8.3 Structured Course Pathway for Beetles



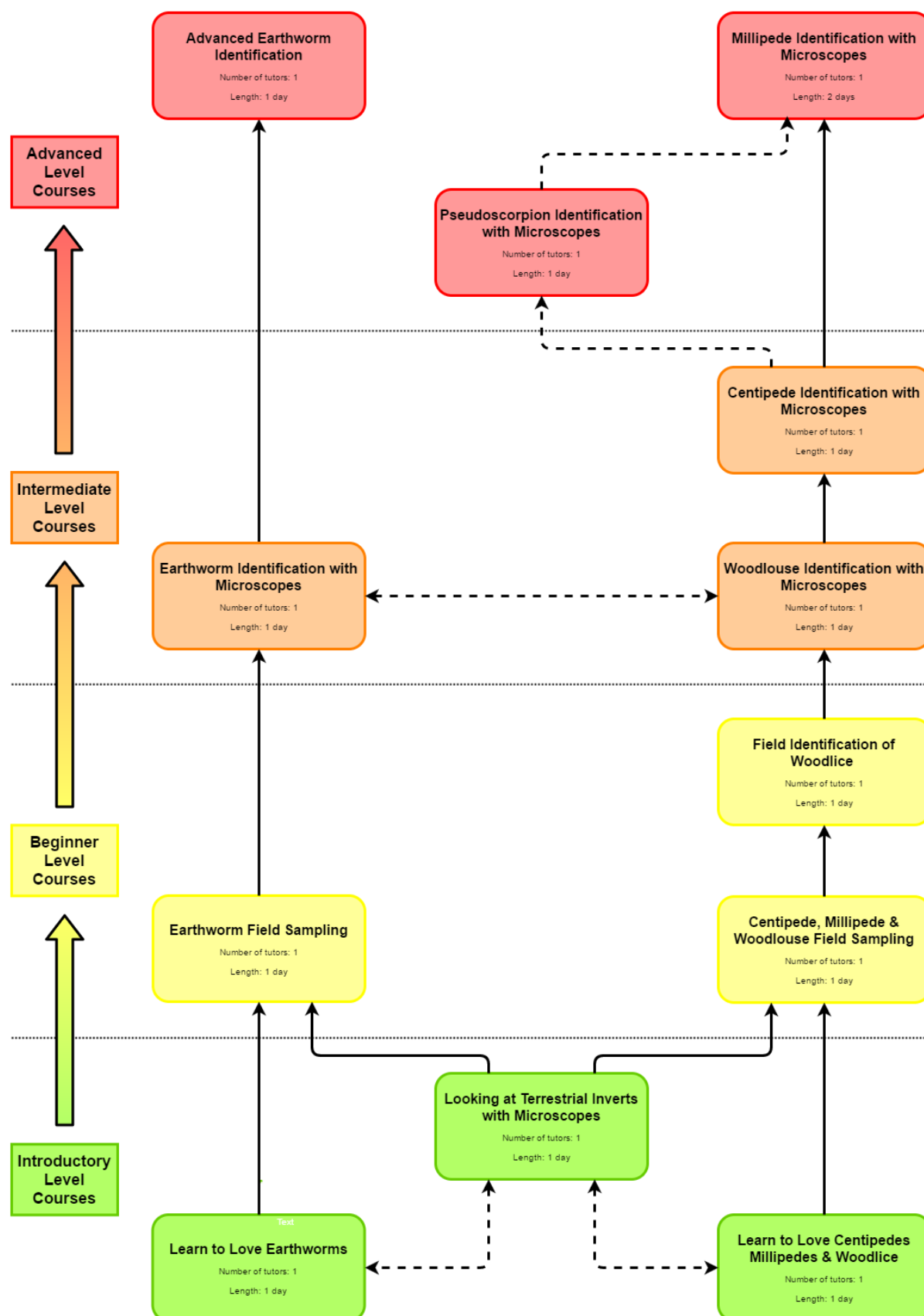
## 8.4 Structured Course Pathway for Freshwater Insects



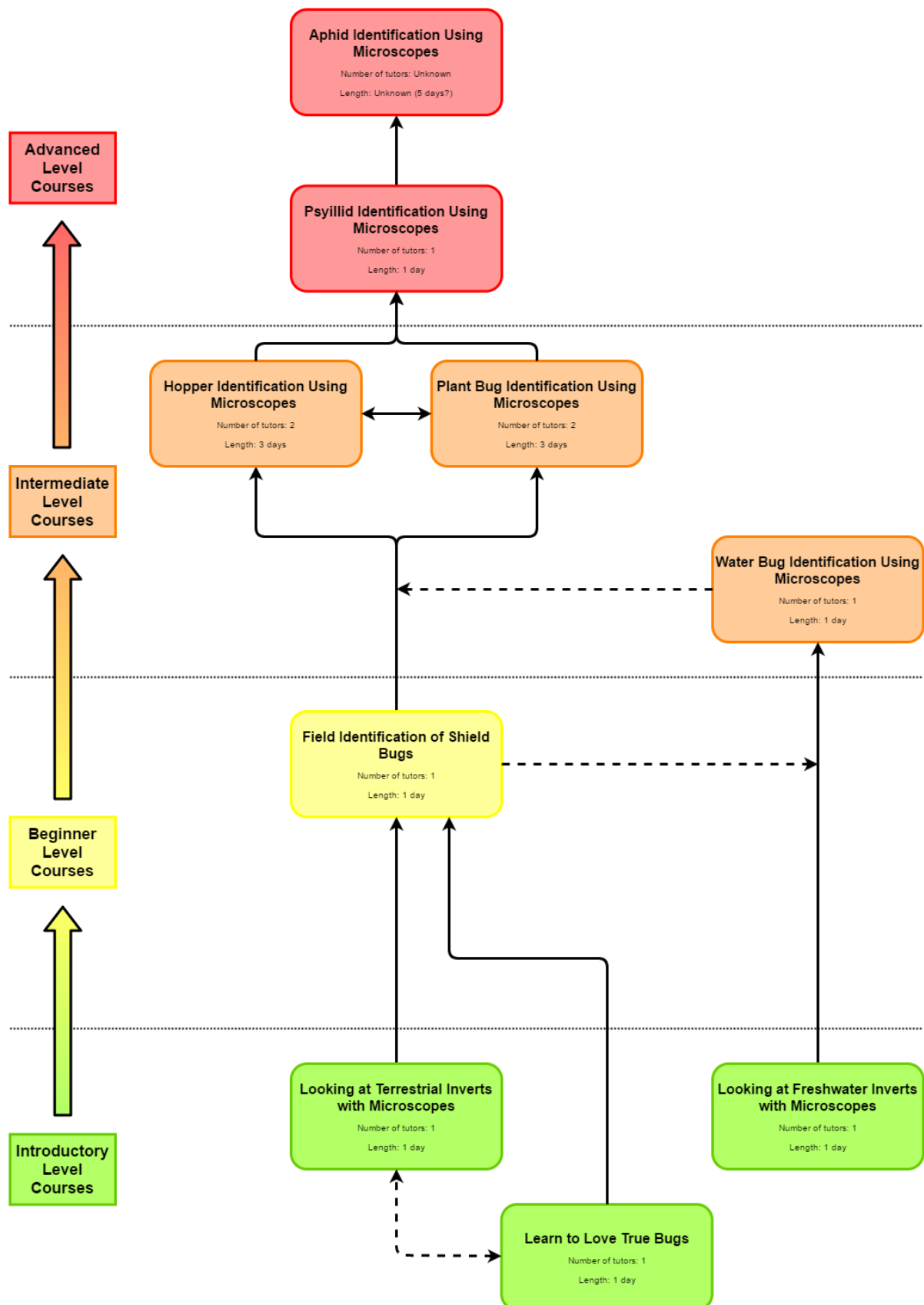
## 8.5 Structured Course Pathway for Non-marine Molluscs



## 8.6 Structured Course Pathway for Soil Invertebrates

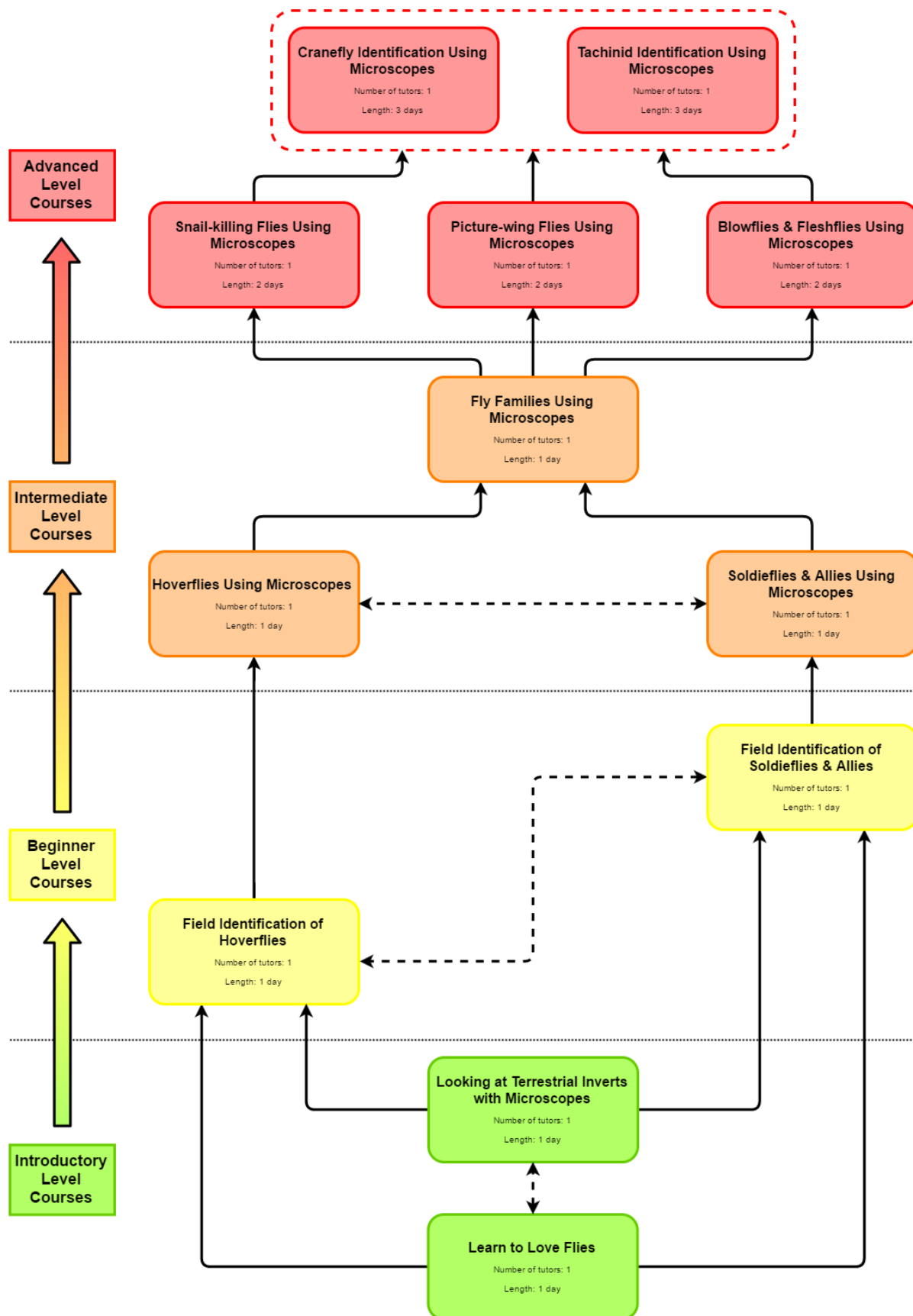


## 8.7 Structured Course Pathway for True Bugs





## 8.8 Structured Course Pathway for True Flies



## 9 Breakdown of Focus Species Group training courses by year

**Year 1** The first year will have an emphasis on *recruiting* volunteers to participate in BioLinks project activities (though recruitment will continue throughout the duration of the project). This will include celebratory BioBlitz launch events and a larger proportion of *introductory* courses compared to other years.

**Year 2** The second year will focus around *developing* volunteers through *beginner* and *intermediate* courses. Additional *introductory* courses will also be delivered to maintain a higher recruitment rate at this early stage in the project.

**Year 3** The third year will focus on *retaining* volunteers that have participated in the project by ensuring that volunteer needs are listened to and met. Feedback will inform BioLinks with regard to the *beginner* and *intermediate* course titles that are in demand.

**Year 4** The fourth year will focus on *motivating* volunteers to undertake independent biological recording by providing a purpose through promotion of the BioLinks digital atlas project and an increased number of *intermediate* and *advanced* courses.

**Year 5** The fifth year will focus on ensuring the *legacy* of BioLinks is strong and that volunteers feel sufficiently confident, motivated, skilled and knowledgeable to continue biological recording and facilitate others to do the same. This will include providing a higher proportion of *advanced* courses than previous years and a celebratory BioBlitz events to close the project and demonstrate the impact that the project has had on local volunteer biological recorders.

During each year of the project 60 focus species group training courses will be delivered, totalling 300 courses over the lifetime of this 5-year project. The diagram below indicates the predicted number of taught courses that will be delivered at each of the **BioLinks Volunteer Learning Pathway** competency levels covered within the BioLinks project, though this will be reassessed, and other training providers consulted, on a regular basis to ensure training provision from other identification training providers is complemented rather than competed with. As volunteers are able to enter at any point in the pathway, courses at all levels will be delivered during each year.

