# TWIC Spring Conference Report, April 2016

## *Tools and Technologies to assist Biological Recording*

A record high of 74 people had booked to attend the TWIC Spring Conference on Saturday 30th April 2016 at the Macarts Centre, Galashiels. **David Dodds**, TWIC Director, welcomed everyone to the event and introduced TWIC Manager, Graeme Wilson to give an update on TWIC's plans for 2016 and beyond.


TWIC Director, David Dodds. Photo: Mike Beard.

### Welcome & Introduction, including update on TWIC Expansion.

**- Graeme Wilson (TWIC Manager)**

Graeme started off by explaining that 2016 was a very exciting year, as it is 25 years since what was to become TWIC was formed in 1991 and covered just the Lothians. Since then, the centre has grown and continues to grow. 1st April 2016 marked TWIC's official expansion into Falkirk, Stirling, Clackmannanshire and most of the Loch Lomond and Trossachs National Park. During the previous year or so TWIC has sourced various datasets and has added over 250,000 records to its database for the new area with further datasets yet to be processed or sourced.

TWIC's Autumn Conference will be a focus of the 25 year celebrations, but TWIC is going to be busy throughout the year with staff taking part in numerous events and organising excursions and workshops in both the expansion area and the Lothians and Borders. Members and conference goers were told to keep an eye on the TWIC website or email correspondence for updates, with members being reminded that they get one week's advance notice of booking for events that have limited spaces.

Graeme closed by hoping everyone enjoyed their day and took the opportunity to talk to as many people as possible during breaks.

*Graeme Wilson*

### Digital Collections: The Royal Botanic Garden Edinburgh (RBGE) as an Online Resource

**- Dr Elspeth Haston (Deputy Herbarium Curator, RBGE)**

Elspeth gave a fascinating insight into the work of the Royal Botanic Garden Edinburgh (RBGE) and their continuing development of online access to their collections. The RBGE holds three national collections: the Living Collection; the Library and Archives Collection; the Herbarium.

The **Living Collection** is held in 4 gardens across Scotland, at Edinburgh, Dawyck, Logan and Benmore and the names and locations of the 71,939 plants (representing about 343 families and 13,658 species) that grow in these gardens are listed in the **Catalogue of the Living Collections.** This can be searched online at http://data.rbge.org.uk/living and an ongoing programme aims to enhance the value of this resource by associating images with the records. A newer resource, available online at http://geo.rbge.info, will eventually present interactive maps for the living collections.

The RBGE **Library and Archives Collection** contains a wealth of specialist botanical and horticultural resources for Scotland and the world. The **Library Catalogue** is searchable online – and some of the library holdings and RBGE publications are also available. Fully digitised, the "Notes from the Royal Botanic Garden Edinburgh", originally published in 46 volumes between 1900 and 1990 and containing over 1000 papers, can be accessed through both the Biodiversity Heritage Library and Europeana websites.

The **RBGE Archive** holds papers and images relating to the history of the garden and its plant collectors, and to the development of botanical science and horticulture. One must still visit the library to view actual documents, but the online catalogue raises awareness of this incredible resource. However, Elspeth issued a warning – "When you start searching the archive catalogue you can lose hours of your life in being diverted along fascinating trails!"

The **Herbarium** occupies the top two floors of the same building as the library at Inverleith. There, in a series of grey cabinets, around 2/3 of the world's plant species are represented. Parts of tropical rainforests, savannas, peat bogs, and pretty much every other kind of natural environment, have been brought together in one place. Globally, over 300 million herbarium specimens are held in collections and the RBGE holds 3 million of these, of which c. 500,000 are from Britain and Ireland; the oldest specimen dates back to 1697. Collecting is

ongoing and the RBGE accessions 10,000 - 30,000 specimens each year – and is running out of room!

Each herbarium specimen provides an evidence-based data point in time and space – and a wealth of potential data for taxonomy, systematics and ecology. Digitising makes this information freely available. So far, around 85,000 specimens have been databased and almost 20,000 have also been imaged at high resolution. These are available to view and free to download from the **RBGE Herbarium Catalogue.** Digitising is done by group, partly by request and partly based on RBGE priorities. One core project is the digitising of water plants; all Alismataceae (water plantains) have been databased, along with 4,242 specimens of Carex (sedges) and 982 Potamogetonacece (pondweeds). In collaboration with the Natural History Museum, all the RBGE's British and Irish red algae and a large number of seaweed genera have been digitised as part of a project to gather data of interest to biodiversity and conservation research.

**You can help the RBGE** in their aim to digitise at least a minimal record for each of its specimens. Working with **herbaria@home**, a brilliant project developed by the BSBI, members of the public can view and transcribe label data from online images of specimens. The quality is exceptionally high and so far more than 5,000 RBGE specimens have been databased by herbaria@home volunteers. Have a look on http://herbariaunited.org.

RBGE currently sends data to a large number of aggregators such as the Global Biodiversity Information Facility (GBIF) and Encyclopedia of Life, and hope soon to have their data on the NBN and the Atlas of Living Scotland. Where possible, the herbarium also provides material for DNA sequencing - an exciting area of study where advances in technique mean that it is now possible to analyse DNA from specimens collected in the 1800s! Clearly the RBGE collections are an invaluable resource and digitisation is essential to unlock their full potential as a reference and data source for Scotland and the world.

*Jackie Stewart*

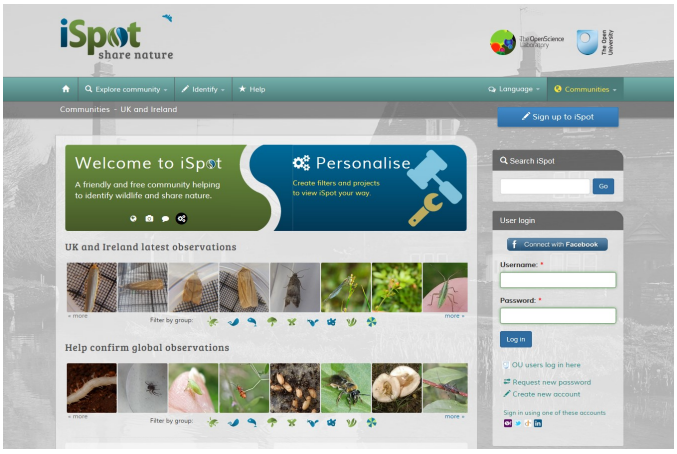
## Re-inventing Natural History in a Networked World

### - Jonathan Silvertown (iSpot and University of Edinburgh)

Jonathan gave an interesting and inspiring introduction to the development and use of **iSpot** – one response to our changing times in natural history data collection.

Networks aren't new. Apparently Darwin had five deliveries of mail every day – correspondence with various people on a wide range of topics that totalled more than 15,000 letters in his lifetime. Now the collection and exchange of information is easier than ever before and natural history is being "re-invented"!

**iSpot** was developed by the Open University with funding from OPAL (the Open Air Laboratories network) and aims to connect enthusiasts and experts and to engage a new generation of naturalists. It relies on networks and effectively crowd-sources knowledge to identify a species from a photograph. Identification is at its core because a name is the key that unlocks information. iSpot helps people to learn.




Screenshot of iSpot homepage, www.ispotnature.org.

**How does it work?**

A user can upload a photo of a species requiring identification, or add an ID themselves with a level of confidence such as "I'm as sure as I can be" or "It might be this". If another agrees, he/she can click on the thumbs up symbol or if disagreeing, add a new identification. Votes on the ID of an uploaded photo are weighted by the identifiers' reputations in the taxon group in question and a "Likely ID" is produced. The identifier's proficiency is indicated and people known to be experts get "badges" to show this. Clicking on the ID agreements displays who made them and their reputations – and an anonymous user can build a reputation through correct identification. Half of observations posted without a name receive a likely ID inside an hour and 88% within a day.

iSpot now has nearly 57,000 registered users, 613,000 observations and 1.1 million images - and over 30,000 species have been identified. More than 18,000 observations have come from Scotland. Registration is necessary to submit observations but everyone can access information. At present, a network of around 150 societies and schemes work with iSpot and it is currently being re-engineered to integrate with the National Biodiversity Network (NBN) and the Atlas of Living Scotland.

A study of 14,000 name changes in iSpot showed that revised names improved accuracy and that most revisions are from species to species. People rarely get the family wrong – but quite a lot had their precision changed from species to genus. To provide an external check on species identification, 30,000 iSpot records were submitted to iRecord where all verifiers are

recognised experts for their taxon group - and 94% of these were verified.

iSpot is scaleable. More than 90% of the observations submitted are named – and this percentage has stayed consistent over time. Most of the things people see are common, so lots of people know what they are. Being an online resource, the people doing the identifying can be a very long way away from those submitting observations.

Other features of iSpot include computer redacted keys whereby one can decide which characters to look at. These are easy to use and testing has shown them to be superior to dichotomous keys. There is a species browser – by taxon – the content of which changes as more data are added and iSpot projects can be used to filter particular observations - and it even offers quizzes to test your knowledge.

The more iSpot is used, the better it will become – so if you haven't already tried it, give it a go!

Visit www.ispotnature.org.

*Jackie Stewart*

## Open Mike

First up at the Open Mike session was **Katty Baird** of the **British Arachnological Society**. She highlighted the fact that when it comes to spiders and harvestmen many kilometre squares have few or no records. Anyone wanting to help fill these gaps in recording could get involved with the South of Scotland Spider Group, who organise workshops and take part in events and BioBlitz run by other organisations. Katty concluded with news that they are working on setting up a public recording project.

Up next was **Richard Buckland** from **Butterfly Conservation** speaking about the Yarrow Argus Project which is being funded through the Environmental Co-operation Action Fund. The project focuses on the food plant of the Northern Brown Argus, the Common Rock-rose, which flowers in June. The females lay their eggs on the top of the leaves in June and July and once you get your eye in it is quite easy to spot the eggs. Richard asked people to keep their eyes peeled for more details of the project as they were announced.

Richard was followed by another Butterfly Conservation member, this time **Mark Cubitt**, who was taking about the **National Moth Recording Scheme**, which has been in place since 2007. This is the last year to gather moth records for inclusion in the atlas, so Mark made a plea for everyone to submit any moth records they may have.

Mark also highlighted a really exciting project, the Scottish County Moth Recorder Voucher Photo Archive, a bottom up project to enable County Moth Recorders' photos to be kept in a central location.

**Laura Coventry** spoke on the **Edinburgh Sparrowhawk Project** and introduced herself and her brother Hugh as the new project co-ordinators. She asked everyone to keep an eye out for birds with a white ring on their right leg and to report these to them. She pointed out that this conference was in the Borders and the project was in Edinburgh, so people may think there is no point keeping a look out for the birds, but I think Laura surprised most at the conference when she announced that the furthest sighting so far had been Cheshire!

*Graeme Wilson*

Over lunch, delegates were able to browse the posters and displays and to network with other delegates.


Part of the TWIC display. Photo: Mike Beard.

## iRecord as a New Data Source for County Recorders - Friend or Foe?

### - Mark Cubitt (Butterfly Conservation National Moth Recording Scheme)

After the lunch break, Mark Cubitt gave a talk on iRecord from the perspective of a user, county recorder and verifier. There are an increasing number of options for submitting your records to a recording scheme or county recorder and iRecord represents one – but how useful is it?

Ideally records submission should be as efficient as possible – both for the field recorder and the county recorder receiving the records. Challenges for the county recorder include records submitted in non-standardised formats and missing information or typos; these require correction/reformatting prior to entry into the database. This diverts the county recorder's time away from the important task of validating and verifying records. For recorders, who may be recording for enjoyment, it is important that data submission is made as easy and efficient as possible and that they receive rapid feedback on their data.

Many recording schemes now have tailored spreadsheets that ensure records are entered in a standardised format and include species name lookups, which eliminate spelling errors in names. These spreadsheets ensure all essential information is

included and are structured in such a way as to make entry into a county database straightforward.

In recent times, some recording schemes have moved to centralised online recording options, which make use of new technological advances. A particularly good example is BirdTrack (covered in a later report). A growing number of mobile phone applications (apps) for recording are available, many of which feed directly into online recording databases. These apps allow you to capture information in the field in a digital format and upload photos to assist verification. Some apps offer help with species ID. Whilst not all apps are made equal, their use is set to increase. In time, apps and tablets will replace most things that people need PCs for. Consequently, the days when *all* recorders have access to Microsoft Excel may be numbered.

iRecord – developed by the Biological Records Centre – is a popular online recording website. It eliminates typos in species names, all records have a grid reference, and automatic checks can be provided which, for example, flag species outside their known distribution or flight period. Mark demonstrated how to enter a casual record on iRecord. Common names may be shared by several taxa, so iRecord shows the group name beneath the species name to help avoid the user selecting the incorrect species. Users can also enter a list of records for a site on a date e.g. from a moth trapping session, or upload a photo with a sighting. Other useful features include the ability to create your own 'activity', automatic checks (as described above) and online forums to support users. Currently, the automatic checks used by iRecord are over-cautious, but these will improve as more data are added.

County recorders can register as verifiers for a particular group and geographic area. Verifiers can mark records as 'correct' (e.g. with photographic evidence), 'considered correct', 'plausible', 'unsure about' or 'wrong'. Records can also be queried with the originator, forwarded to an expert or re-determined. There are options to verify single records or bulk verify records based on a variety of selection criteria, such as date, recorder or area. All data are held in the database regardless of verification status, but it is possible to query the database to exclude rejected records for example. The system allows for new determinations/ verifications to be added later. Data on iRecord can be downloaded by Local Environmental Records Centres like TWIC, National Recording Scheme organisers or county recorders.

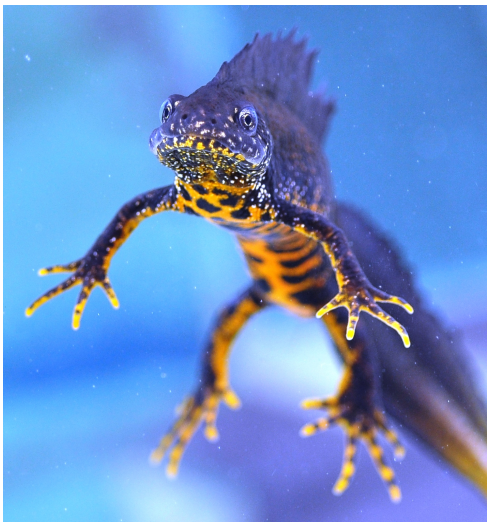
In answer to the question "iRecord – friend or foe?" Mark suggested that recorders who already use a standardised recording spreadsheet or application should continue doing this. Those who don't, should seriously consider using the iRecord website or recording app. For county recorders the advantage of iRecord is that you will receive records you would not otherwise get.

Editor footnote: Since the spring conference, an iRecord app has been released. See: http://www.brc.ac.uk/app/irecord-app.

*Natalie Harmsworth*

## Great Crested Newt Detectives: A New eDNA Sampling Project in Scotland

### - Pete Minting (Scottish Project Officer, Amphibian and Reptile Conservation)



Great Crested Newt. Photo: Chris Dresh.

Amphibian and Reptile Conservation's (ARC) Scottish Project Officer, Pete Minting, introduced the *Great Crested Newt Detectives* project. This exciting new 2-year project has been made possible by funding from the Heritage Lottery Fund and Scottish Natural Heritage. The project will involve pond surveys across Scotland using DNA technology and public engagement activities, such as educational events for schools and a national wildlife art and writing competition.

The Great Crested Newt (GCN), *Triturus cristatus,* is Scotland's rarest native newt and is a European Protected Species, meaning that it is fully protected in Scotland. Pete showed a map of the current known distribution of the GCN, demonstrating that the species mostly occurs within 4 main regions in Scotland (Dumfries and Galloway, Central and SE Scotland, Highland and the Mull of Kintyre). However, more populations may exist. Recent modelling by ARC has identified a number of 1km-squares that hold suitable GCN habitat within 5km of a known GCN population and are therefore a priority for survey.

As part of the *Great Crested Newt Detectives* project, 100 sites in Scotland will be surveyed during 2016-17 using a new method known as Environmental DNA. Environmental DNA, or eDNA for short, is a method that allows the detection of aquatic species by sampling the water for their DNA. Water samples from ponds are collected by volunteers and sent to the laboratory for testing. The methodology was trialled in the UK in 2013 by the Freshwater Habitats Trust and was shown to be an effective means of detecting GCN. Pete emphasized

that eDNA sampling was not intended to replace 'traditional' field survey methods like torching or netting, rather it was an additional tool in the herpetologists' armoury. The advantages of the eDNA technique are that no license is needed to take water samples (cf. traditional surveys), fewer visits are needed to be 90% confident of the presence of GCN and the site visit can be undertaken during the day, reducing health and safety concerns.

ARC are looking for volunteers to assist with the surveys. Sites with previous GCN records will be selected for survey, along with sites identified during ARC's modelling exercise as holding suitable GCN habitat and being in close proximity to existing GCN records. ARC are also keen to use local knowledge – so volunteers can put forward new sites that might be suitable for GCN. It is hoped that the project will bring to light new GCN populations, generate useful data on how well the technique works in Scotland and engage people in amphibian and reptile conservation.

Pete concluded his presentation by running through the identification of Scotland's three native newts and he highlighted the useful resources for amphibian and reptile identification and habitat management advice available on ARC's website. See: www.arc-trust.org.

*Natalie Harmsworth*

## BirdTrack, Bats and Bush Crickets

### - David Jarrett (BTO Scotland)

David Jarrett. Photo: Mike Beard.

David Jarrett of BTO Scotland started his presentation by focussing on BirdTrack and the way BirdTrack data are used. The first use highlighted was the use in phenology and the research into changes to migration timing. One example of this is Sand Martin which is now arriving 25 days earlier than 40 years ago. This analysis is only possible because so many records have been gathered over the last few decades.

The high number of records also allows for the production of distribution maps and publications, such as the Bird Atlas 2007-2011 that contained 4.5 million BirdTrack records, and also to review species status, for example using records to estimate wintering waterfowl populations as well as numbers of breeding Great White Egret. These records can also be used to produce data and information for local bird reports.

The BirdTrack app has made recording out in the field so much easier, although David did point out that this does not mean the end of the pencil and paper notebook. However one of the biggest advantages of BirdTrack is being able view all your own records and analyse them too.

David then moved onto a new BTO project, the South of Scotland Bat Survey, which is being carried out in partnership with the Bat Conservation Trust and the National Trust for Scotland. This is a project that transfers techniques and lessons learned from the Norfolk Bat Survey Project to the South of Scotland. It is an SNH-funded survey of bats in Southern Scotland focussing on three species in particular, Noctule, Leisler's and Nathusius' Pipistrelle, to provide information on distribution and activity. However all bat species will be noted. The survey can be carried out by anyone. All you need to do is first pick a 1km square of your choice online and book out the equipment, which comes with full instructions, from one of 16 centres across southern Scotland, of which TWIC is one. Then, you set up the static bat detector and leave it overnight for three nights at three separate locations within a 1km square. After the survey is complete, the SD card and completed survey information sheet are posted off in a prepaid envelope. The surveyor then receives a list of all the species that have been recorded during their survey work.

It is just not bats that this project will record. The Norfolk project also recorded over 75,000 bird call records, over 5,000 mammal records and over 400,000 Orthoptera records. These latter records are identified in collaboration with Natural History Museum in Paris. It is hoped that the Bog Bush Cricket (*Metrioptera brachyptera*) may be recorded as it has currently been found at only one site in Scotland.

*Graeme Wilson*

## Summing up

### - Sarah Eno (TWIC Chair)

Sarah commented that the talks had highlighted how quickly technology was moving on (even since the last TWIC conference) and that the options available to gather and use data were similarly growing. These innovations meant that it was an exciting time for biological recording, and provided many new 'tools in the box' for the naturalist.

Sarah thanked the speakers, organisers and the MacArts Centre for hosting the event and everyone who attended.