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This year saw the first ever ARC-BHS-HSI Joint Scientific Meeting held in Dublin, Ireland on the 28th August at Trinity College Dublin. Abstracts of presenter contributions made are listed below.

Chasing Unicorns: Herpetofaunal monitoring of the elusive Common Lizard on North Bull Island UNESCO reserve, Dublin

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North Bull Island (N.B.I) is a 5km long and 800m wide sand spit located in Dublin Bay, Ireland. It is a relatively recent and inadvertent result of human intervention in the bay yet holds the most designations of all sites of natural importance in Ireland. The island comprises of a mosaic of tidal and ephemeral wetlands and sand dune and human modified habitats, with a sandy beach running its entire length. There is heavy human presence in the reserve, with two golf courses in addition to the dunes and beach system being a popular spot for runners and dog walkers.

Although little information exists, anecdotal evidence suggests that there has been a decline in reptile and amphibian abundances on the island over the last two decades and it is ongoing. In 2014, the Herpetological Society of Ireland (H.S.I) initiated the first ever surveying and monitoring program for N.B.I to determine the status of native herpetofauna species on the island.

Here we report the findings of the monitoring to date on N.B.I and highlight the importance of citizen science, appropriate survey methods, and repeated annual monitoring in order to make meaningful judgements on the status of elusive species.

Genetic diversity and conservation of European Common Wall Lizards (*Podarcis muralis*) in Jersey, Channel Islands

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Wall Lizards (*Podarcis muralis*) on the British Channel Island of Jersey are near the northern limit of their geographical range. Wall lizards have a wide distribution in continental Europe, occurring almost throughout France, Italy and northern Spain. The origins of the Wall Lizard populations on the island were obscure although some populations were known to have been introduced from elsewhere. In order to assign conservation priorities to the various Jersey populations, it is important to determine their origin, assess their local distribution and investigate their genetic fitness. A phylogeography study took place to compare the genetic structure of known populations with others from nearby France, including the Chausey archipelago. Polymorphic microsatellite markers were used to evaluate genetic structure and diversity of the island and mainland (western France) populations. Further work was carried out at a later date using mitochondrial cytochrome b gene to infer the phylogeography of the island populations.

Four unique haplotypes were detected in the island populations that form a sub-clade within the Western France clade. There is a significant reduction in genetic diversity of the island populations in relation to the mainland. The small fragmented island populations at the northern range margin of the Wall Lizard distribution are most likely native, with genetic differentiation that reflects isolation around 7,000 BP following the post-glacial sea level rise. A combination of restriction to specific localities and an inability to expand their range might make the island's populations more vulnerable to extinction. Conservation management strategies should focus on protecting areas where lizards can still migrate to and from sites and encourage conservation and habitat management at their existing sites.

The Natterjack Toad in Ireland – landowners engagement is providing cause for cautious optimism

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The first half of the 20th Century saw a significant range contraction of the Natterjack Toad (*Epidalea [Bufo] calamita*) in Ireland. This is thought to have been due to the loss of breeding wetlands following land drainage and it was particularly dramatic around Castlemaine Harbour. More recently toads have died out at their most westerly breeding pond on the Dingle peninsula near Fermoyle. The toad was given an "Unfavourable Bad" assessment in the 2007 national report to the European Commission. The most recent conservation assessment (2013) was also "Unfavourable Bad" but some signs of stabilisation and even recovery are becoming apparent.

Monitoring has shown that large metapopulations still persist at a number of locations across the range. To supplement these and help improve connectivity, a programme of pond creation was begun with local farmers in 2008. To date 100 ponds have been dug around Castlemaine Harbour and at Castlegregory. About 20 of these ponds have already been naturally colonised by toads, but to assist the recovery, NPWS began actively translocating spawn and tadpoles into more ponds in 2014. The translocations were repeated in 2015 and it is hoped that a new 3 year monitoring contract starting in 2016 will provide the first scientific data on the species' recovery.

Origins of the British Natterjack Toad: a phylogenetic analysis with conservational implications

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The Natterjack Toad, *Bufo (Epidalea) calamita* (Laurenti, 1768) is a UK protected species, suffering from the loss of suitable connected habitat. Since the 1980's conservational actions have attempted to reinforce and re-establish declining and extinct populations, however with the advance of molecular techniques and their application to the field of ecology, it has become apparent that the Natterjack's metapopulation structure within the UK is quite complex.

Extant UK vertebrate species can be traced to ancestors who survived the last glacial maximum by taking refuge in the Iberian peninsula. However the consequent migration patterns which formed the current species' distribution are unknown. Current analyses show Natterjack populations fall into distinct clusters, forming the hypothesis that they survived in *both* a north European and the Iberian refuge; one of which founded the UK east coast populations, and the other the west.

Mitochondrial DNA variants, calibrated against a molecular clock and aligned with geographic data will further investigate these refugia, providing the details of the divergence of the species. This will inform the hypothesis that current UK Natterjack populations form two distinct genetic units, and so impacting future conservational management.

The reliability of identifying newt species by using images from the internet

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The UK has a long history of natural history recording, and participation is on the increase in the herpetological community. Local ARGs hold large amounts of data, thanks to the efforts of volunteers who submit records every year. Although such a level of recording could never be achieved on a professional scale, there remain

significant issues concerning the reliability and validation of data collected by volunteers. Advances in technology have resulted in many novices recording their observations photographically and attempting identification via the internet, social media, or sending the image to an expert. However, expertise is hard to define, and although experience and/or qualifications may be a good indicator, there may be inconsistencies between experts in terms of how they identify and classify species.

In this study, experienced amphibian ecologists (i.e. Great Crested Newt license holders) were asked to sort images of newts downloaded from the internet into groups of the same species. Provisional results shed light on variation between experts in identifying newts, the morphological features that are used most frequently in diagnosis, and provide recommendations for validation of records submitted to citizen science programmes.

Engaging volunteers in citizen science projects – case studies from ARGUK

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Much is said about the importance of citizen science projects and the role of volunteers in collecting records and supporting the professional NGOs for amphibians and reptiles. This presentation reviewed five of ARGUK's flagship projects covering: adders, sand lizards, common toads and the prevalence of Chytrid across all UK and Irish amphibians, in order to determine the role of 'expert volunteers', and find out more about what works well, and what works less well. Interviews were conducted with project leaders and commonalities drawn out.

It was found that for many projects, although many people were initially recruited, it was usually a 'hard core' of 5-10 dedicated recorders who would continue, year on year, collecting the standardized data that could be analyzed. Other factors for success included: the perceived conservation importance of the project, clear and understandable project objectives, straightforward experimental protocols, allowing volunteers to pick survey times to fit with busy lives, not asking volunteers to travel long distances, and providing good logistic support and feedback.

A note on the behaviour of the Common Lizard (*Zootoca vivipara*) in County Cork, Ireland

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Despite having faunal components that are often considered to be depauperate, Ireland has one native reptile species: the Common Lizard (*Zootoca vivipara*). However, there have been relatively few studies on this species in Ireland. This project was undertaken to investigate its behaviour, using instantaneous scan sampling and focal sampling, at Ballycotton, in County Cork, Ireland.

An ethogram was established for the species, and sampling showed that the variables of month and weather (or corresponding human numbers and substrate temperatures associated with the weather) had highly significant effects on all of the behaviours displayed by the lizards. The majority of the behaviours were significantly affected by individual type (i.e. male, female, juvenile), substrate type and time of day. Instantaneous scan sampling of the lizard population showed that the variables of month, weather and time of day had highly significant effects on the lizards' choice of substrate and the numbers of lizards exhibiting certain behaviours. The possible underlying mechanisms of these findings, as well as potential reasons for unexpected results, are discussed. This study provided the first comprehensive data on the behaviour of *Z. vivipara*, with variations in activity patterns (temporally, seasonally, sexually and with age).

Genetic structure of native and newly founded populations of the Natterjack Toad (*Bufo calamita*) in northern France

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In the coal basin of northern France, human activities have profoundly altered natural habitats by increasing the levels of fragmentation. This man-made area has been highly disturbed from the start of the last industrial revolution till the cessation of mining activities in the late eighties. Paradoxically, this mining area was recolonized by a protected pioneering species, the Natterjack Toad (*Bufo calamita*). Indeed, the mining area consists of abandoned slag heaps, free of pollutant agents, forming a chain of spoil heaps where temporary ponds can be frequently observed. Therefore, this study area provide a unique opportunity (i) to study the population genetic structure in a man-made habitat recently colonized by a pioneering amphibian, and (ii) to compare the observed genetic structuring with that of populations occurring near the shoreline and in some semi-natural inland habitats in northern France.

The aims of this study were twofold (i) characterizing the levels of genetic diversity and the spatial genetic structure within and among coastal sites and recently colonized inland mining areas (ii) tracing back the history of colonization of the coal basin, *i.e.* where do the mining area populations come from? Using a comprehensive sampling of 67 populations for a total of 859 individuals successfully genotyped at 15 nuclear microsatellite loci, we showed contrasting patterns of genetic diversity and kinship levels: native coastal populations were more inbred and less genetically diverse when compared to inland area populations. Surprisingly, we also showed a clear genetic distinctiveness between coastal populations and populations located in the mining area, which bring into question the likelihood of human-mediated multiple introductions. Finally, whereas a clear pattern of isolation by distance was found along the coastline, the spatial genetic structure depicted in the coal basin suggested the occurrence of physical barriers disrupting the patterns of gene flow.

The British Herpetological Society in 2015; a membership society in the age of social media

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The British Herpetological Society is one of the oldest and best-known herpetological societies in the world. Established in 1947, it is known for its prestigious publications, conservation projects, and meetings. Our flagship publication is the Herpetological Journal, but we also publish the Herpetological Bulletin, operate four Committees, and have a Young Herpetologists section.
Despite a steadily-declining membership, the BHS continually adapts to new technology and trends. With traditional membership societies waning, what does the future hold? Are membership societies a thing of the past, and will social media take their place? We don't think so.

If the BHS didn't exist, with its Council of 20 dedicated volunteers, the excellent work of our Committees would end. The Captive-Breeding Committee contributes immeasurably to conserving critically-endangered herps, such as the Malagasy Golden Mantella and the Cayman Island Blue Iguana. The Research Committee's Student Grant Scheme has supported 35 projects across the world. The Conservation Committee's Land Fund and Conservation Fund helped purchase many nature reserves. And without the Education Committee, we wouldn't be inspiring a new generation of Young Herpetologists.

Scientific journals won't go away soon, but as people move to online-only membership, publication costs decrease. And as more journals migrate to open-access, we are at the vanguard. Members download publications free; indeed non-members do so a year later. We have a social media presence too. Our Facebook page has over 2000 'likes', and although this doesn't convert to tangible support currently, perhaps one day it will.

How can research improve UK amphibian conservation practice?

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Gordon et al (2014) [Animal Conservation 17: 1-2.] lament the poor record of scientists in achieving an impact on conservation practice. They explicitly ask leading conservation practitioners to state "what information they need to make a difference in the real world". By examining examples of research that have resulted in better real world outcomes for UK amphibians, I explore how the situation could be further improved.

Evidence on the origin of our northern-most Great Crested Newt *Triturus cristatus* populations, for example, has radically altered conservation actions for this species. Analysis of national monitoring datasets for Natterjack Toads *Bufo calamita* has refined survey methods and clarified conservation priorities. The factors constraining the conservation relevance of research typically relate to the marginal appeal of conservation research themes, and the fact that conservation issues are often inherently complex, involving a daunting blend of ecology and politics. To improve the situation, we need an authoritative goal-based plan for species recovery, under which to assign and prioritise research; better exchange of knowledge and data between scientists and practitioners; and better translation of findings into guidance. Thus, whilst a list of research topics would help, other changes to the research-conservation interface are merited.