



Promoting Effective Governance
of the Channel Ecosystem
Promouvoir une gouvernance efficace
de l'écosystème de la Manche



Best Practice in Citizen Science: Invasive Non-native Species

Workshop Report

19th September 2014

Charles Darwin House, London

1. Introduction

1.1 Background

The UK Environmental Observation Framework (UKEOF), in partnership with the Marine Biological Association (MBA), National Biodiversity Network (NBN), Promoting the Effective Governance of the Channel Ecosystem (PEGASEAS), and the British Ecological Society (BES) Special Interest Groups in Citizen Science and Invasive Species delivered a workshop designed to facilitate the sharing of best practice in citizen science, with a specific focus on invasive non-native species.

The workshop was initiated by the UKEOF Citizen Science Working Group, which provides a forum where partner organisations can share good practice and discuss future needs and plans for using volunteers to collect environmental observation data.

1.2 Workshop Focus

Invasive non-native species management was chosen as a focus for this workshop as it is open and accessible to citizen science, and spans across marine, terrestrial, and freshwater environments. There is also current policy relevance in this area due to the proposed EU Regulation on the prevention and management of the introduction and spread of invasive alien species.

1.3 Workshop Aims

The aims of the workshop were to:

- Share knowledge on how citizen science has been successfully used to support the management of invasive non-native species.
- Discuss how citizen science could be further utilised for invasive non-native species management
- Examine the data available to support invasive non-native species management, and discuss needs and aspirations for the future

2. Summary of the Day

The workshop was held on 19th September 2014 at Charles Darwin House in London. The event was well attended with 50 participants from across the public sector, NGOs and academia. The full agenda and list of attendees can be seen in Annex 1 and 2. All presentations can be found on the [UKEOF website](#). Feedback from attendees was very positive and a summary can be seen in Annex 3.

3. Workshop Sessions

Session 1: Key note talk

The workshop began with a keynote talk from NBN's Chief Executive, John Sawyer, who presented on invasive non-native species in New Zealand and gave some information on the potential role of the NBN in managing invasive non-native species. In particular, biosecurity issues were explored, and consideration was given as to how alien species have been managed, both in terms of successes and issues encountered by New Zealand authorities.

Session 2: Best practice presentations

Best practice presentations were delivered which considered citizen science initiatives in monitoring invasive non-native species across terrestrial, freshwater and marine environments.

The first presentation focused on best practice in marine environments and was delivered by the MBA, in association with PEGASEAS. Information was presented about the significance of joint working across the Channel and a number of different projects including The Shore Thing Project were explained.

The second talk was delivered by the Rivers and Fisheries Trusts of Scotland (RAFTS), to give a freshwater perspective. Examples of biosecurity and invasive non-native species programmes were given, as well as the partnership approach adopted to deliver these programmes. Information about new technologies such as Natural Language Generation to generate automatic text feedback to volunteers was explained.

Thirdly, a talk on terrestrial best practice was delivered by Helen Roy (Centre for Ecology and Hydrology). This gave information on work that has been carried out to understand invasions, such as that which has occurred globally by the harlequin ladybird. Information was also given on relevant projects such as Recording Invasive Species Counts (RISC) as well as ways of engaging with volunteers for non-native species recording.

Session 3: Pathways

The first afternoon session of the workshop focused on pathways for invasive non-native species. Deborah Procter, JNCC gave an introduction to the session, and explained some of the key pathways that invasive non-native species can spread through. Participants split into break-out groups for marine, freshwater and terrestrial environments and considered the various pathways for the spread of invasive non-native species and current and potential initiatives in citizen science to help monitor pathways. Key messages from the workshop, including this session can be seen in section 4 below.

Session 4: Data –Current availability and Future needs

The current availability and future needs of data in relation to invasive non-native species were considered. Presentations were given by Paula Lightfoot (National Forum for Biological Recording) and Dave Kilbey (NatureLocator). In particular, the importance of public access to data was noted, and repositories for data such as the NBN Gateway were emphasised. Key issues were noted such as improving the availability and accessibility of data. The use of apps to monitor invasive non-native species was discussed and best practice around this considered, for instance feeding back to recorders and engaging with stakeholders.

Session 5: Upcoming EU Regulation

A presentation was given by Olaf Booy (GB Non-native Species Secretariat) regarding the upcoming EU Regulation on the prevention and management of the introduction and spread of invasive alien species. This gave a background to the regulation and set out the obligations of member states.

4. Key Considerations from Break-out Groups

The purpose of the workshop was primarily to share good practice, and the feedback from the workshop indicated that attendees' expectations were met in this respect. In addition some key messages were identified during the break-out sessions, and are provided below.

- **Volunteer Engagement**

Good volunteer engagement is essential to the running of a successful citizen science project. Several points were discussed, including:

- The use of social media in advertising citizen science projects and informing people about the results has proven useful
- Volunteers' motivation needs to be considered when engaging with participants to help ensure that volunteers will engage on a long-term basis.
- Ensuring that volunteers are able to engage is important. For example, different methods for submitting records may be necessary as not everyone will want or will be able to use technological methods.
- Matching different pathways to particular sets of people was suggested, for example using gardeners to help monitoring invasive non-native species which spread through the horticultural industry.

- **Monitoring Sites**

- Some of the key places to monitor invasive non-native species can be difficult to access for geographical, regulatory or political reasons, for example within ports. It is therefore important to communicate effectively with land-owners and authorities to enable monitoring to take place.
- Volunteers may be more motivated to monitor in scenic sites, meaning some sites will be less popular, potentially resulting in skewed results. There is a need to communicate with volunteers about the purpose and benefits to monitoring, to encourage engagement at all sites.
- The different geographical scales involved in the monitoring of invasive non-native species should be taken into account when deciding on how best to use citizen science. For example, the monitoring of invasive non-native species in freshwater environments can take place over different scales, eg over a catchment or nationally. Scientific protocols and communication with those involved should take into account the different geographical variability in monitoring.

- **Data Quality**

There can be a perception that the data produced by citizen science projects is of low quality. Although much work is being done to improve this perception, it remains an issue. It is therefore important to be clear on the purpose of citizen science projects (ie whether for scientific data collection or for public engagement). If data is being collected for scientific purposes a robust scientific protocol needs to be developed for data collection.

- **New Technologies and Approaches**

Crowd-sourcing, hackathons and "games with purpose" were identified as new approaches in citizen science that could be useful in invasive non-native species monitoring, for instance volunteers could help with digitising data. There are new techniques in environmental monitoring which can also be considered, such as environmental DNA.

- **Availability of Data**

It was noted that data needs to be held in a way that is open and accessible. This will enable people and organisations to keep up to date with what data is available, and it can be helpful in raising volunteer's morale to know that the data they have collected can be used. Moreover, access to more records will enable more accurate identification of species.

5. Conclusions and next steps

The workshop was positive and enabled the sharing of best practice through providing a forum for practitioners to meet and share and discuss ideas. It is clear that there is a lot of work taking place throughout the UK on managing invasive non-native species through citizen science and the workshop demonstrated that it is useful to bring together organisations working across marine, freshwater and terrestrial environments. However, there are some issues and barriers which need to be overcome, for instance with regards to availability of records on invasive non-native species.

It is important that future work should be built upon what already exists, for instance best practice guides such as SEPA's Choosing and Using Citizen Science Guide and UKEOF's Guide to Citizen Science, both of which can be found [here](#).

It was evident from the workshop that it would be beneficial for the community to be able to continue to share best practice regarding invasive non-native species. Whilst UKEOF is not the appropriate organisation to host a forum that would enable this to happen, UKEOF could facilitate relevant organisations to meet to scope out this work. It is also important that a European aspect is considered to ensure the UK is engaged with international partners, as invasive non-native species management is an international concern.

Discussions at the workshop demonstrated the need for open and accessible data. Issues around data were considered further at a Data Deficits workshop hosted by the BES Special Interest Groups in Macroecology and Citizen Science and a summary of the workshop can be found [here](#).

Going forwards, the following recommendations are made:

- 1) UKEOF to support / help facilitate relevant ongoing work in sharing best practice where needed.
- 2) Open and accessible data is encouraged where possible, and that structures are in place to ensure that data can flow.



British Ecological Society
Citizen Science Group



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British Ecological Society
Invasive Species Group



Best Practice in Citizen Science Workshop: Invasive Non-native Species

Friday, 19th September - Charles Darwin House, London

am Chair: Jon Parr (MBA)

pm Chair: Deborah Procter (JNCC)

	Time	Session	Lead
	10.00	Arrivals - Tea and Coffee	
1	10.30	Welcome and introductions	Chair
2	10.35	An introduction to UKEOF	Helen Beadman (UKEOF)
3	10.45	Keynote Talk: Invasive thoughts - Biosecurity perspectives from New Zealand (and the NBN Trust)	John Sawyer (NBN)
4		Best practice in citizen science for the monitoring of invasive non-native species	
4a	11.15	The successful use of citizen science in the monitoring of non-native species	Chair
4b	11.25	Marine non-natives, issues, engagement and action in France and the UK	PEGASEAS Jack Sewell (MBA)
4c	11.50	Freshwater invasive non-natives	Chris Horrill (RAFTS)
4d	12.15	Engaging people in recording terrestrial non-native species in Britain and beyond	Helen Roy (CEH)
	12.40	Lunch	
5		Pathways	
5a	13.30	Pathways for invasive non-native species	Olaf Booy (GB Non-native Species Secretariat)

5b	13.40	Breakout groups on pathways: Marine Freshwater Terrestrial	Jan MacLennan (Natural England) Paul Stebbing (CEFAS) Olaf Booy (Non- native Species Secretariat)
5c	14.15	Feedback from discussion groups	Chair
6		Data - Current availability and future needs	
6a	14.30	Current availability of data Capturing and Processing New Data	Paula Lightfoot (National Forum for Biological Recording) Dave Kilbey (NatureLocator)
6b	15.00	Q & A Panel	Chair
7		Upcoming EU regulation	
7a	15.10	Upcoming EU regulation on the prevention and management of the introduction and spread of invasive alien species	Olaf Booy, GB Non-native Species Secretariat
8	15.25	Closing remarks	Chair
	15.30	<i>Close</i>	

Attendee List

Name	Organisation
Agnès Pouliquen	PEGASEAS
Alan Stewart	University of Sussex
Alison Dunn	University of Leeds
Alison Dyke	Stockholm Environment Institute
Andy Musgrove	BTO
Audrey Ryan	University of Southampton
Becky Seeley	Marine Biological Association
Bev MacKenzie	IMO
Carolina Schneider Comandulli	Extreme Citizen Science Research Group
Chris Horrill	RAFTS
Chris Raper	Natural History Museum
Claire Quigley	Environment Agency
Clive Askew	Shellfish Association of Great Britain
Crona Hodges	Aberystwyth University / COBWEB
Daniel Dörler	University of Natural Resources and Life Sciences
Daniel Perlaki	University of Exeter
Dave Kilbey	NatureLocator
David Noble	BTO
David Slawson	OPAL
David Urry	Society of Biology
Davide Thambithurai	
Dean Morrison	Kent Wildlife Trust
Deborah Procter	JNCC
Fadilah Ali	University of Southampton
Gail Austen-Price	Durrell Institute of Conservation and Education
Glyn Jones	FERA
Helen Beadman	UKEOF
Helen Roy	CEH
Inti Keith	University of Southampton
Jack Sewell	Marine Biological Association
Jake Morris	Forestry Commission
Jamie Williams	Environment Systems
Jan Maclennan	Natural England
Jenny Mallinson	University of Southampton
Jenny Streeter	
Jessica Holland	FUGRO EMU
John Sawyer	National Biodiversity Network
Jon Parr	Marine Biological Association
Jonathan Silvertown	iSpot / Open University
Julian Hosking	Natural England
Karen Harper	London Invasive Species Initiative
Karsten Schönrogge	CEH

Kate Buckle
Kate Wright
Kay Haw
Ken Collins
Laura Harrison
Lorna Shaw
Lucy Anderson
Mandy Henshall
Nick Bialynicki-Birula
Olaf Booy
Paul Stebbing
Paula Lightfoot
Rachel Waldock
Rebecca Elliott
Sarah Allison
Sophie Isaacs
Steve Whitbread
Valentine Seymour

FUGRO EMU
Yorkshire Wildlife Trust
Woodland Trust
University of Southampton
BESS Directorate
Essex Wildlife Trust
University of Leeds
NBN
Natural Resources Wales
GB Non-Native Species Secretariat
Cefas
National Forum for Biological Recording

Canal & River Trust
Essex Wildlife Trust
UKEOF
National Forum for Biological Recording
UCL

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Workshop Feedback

The figures below include results from 22 workshop attendees.

	Poor	Average	Fair	Good	Excellent
Venue				23%	77%
General Organisation					
Relevance to your job		5%		18%	77%
Opportunity for discussion			23%	14%	59%
Best practice presentations			18%	59%	23%
Pathways break-out sessions		9%	27%	45%	18%
Data Session			18%	36%	41%

Were expectations met?

77% of attendees noted that their expectations of the day were fully met, and 23% were partially met.

Will you follow up on anything discussed?

91% of attendees noted that they would follow up on aspects of the workshop.

Could we have included anything else?

The following ideas were noted:

- More time for discussion
- Use of citizen science data towards eradication/management
- Input from officials/funders
- Awareness-raising best practice