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Biology and Environment: Proceedings of the Royal Irish Academy, Volume 120B, Number 2, 2020, pp. 175-185 (Article)

Published by Royal Irish Academy
*DOI:* *https://doi.org/10.1353/bae.2020.0010*

# ENGAGING AND EMPOWERING PEOPLE IN BIODIVERSITY CONSERVATION: LESSONS FROM PRACTICE

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Cite as follows: Crowley, C., Flood, K., Caffrey, B., Dunford, B., FitzPatrick, Ú., Hamilton, J. and O'Gorman, M. 2020 Engaging and empowering people in biodiversity conservation: lessons from practice. *Biology and Environment: Proceedings of the Royal Irish Academy* 2020. DOI: 10.3318/BIOE.2020.15

Received 28 April 2020. Accepted 27 July 2020. Published 16 September 2020.

## ABSTRACT

This paper synthesises a number of meaningful practices and transferable insights from sessions at the 2019 National Biodiversity Conference on engagement in biodiversity conservation. To achieve this, a diverse selection of contributors working with youth, the business and farming sectors, local communities, the general public and society at large, reflected on their research, practice and understandings using Dunford's (2019) triadic framework of engagement—the *Pocket*, *Head* and *Heart*. Across the range of social groups and scales involved, and different methodological approaches employed in each contributor's work to date, the paper finds that an overarching principle to successfully progressing all engagement work is the value of developing collaborative relationships among stakeholders in order to help identify and achieve shared conservation goals. It concludes that co-designed and appropriately resourced all-island, place-based or sectoral approaches, together with citizen science and public education, accessible to everyone from youth to retirees, offer effective practices for growing and strengthening collaborative relationships. Key to these practices is authentic and meaningful engagement across age groups, communities, sectors, institutions and public authorities, in order to achieve the ultimate shared goal of biodiversity conservation for this and future generations.

## INTRODUCTION

Engagement is about reaching out and seeking purposeful interaction with others. With biodiversity loss and ecosystem collapse ranking in the top ten global risks in terms of likelihood and impact (World Economic Forum 2019), understanding how to engage with and empower people to achieve shared biodiversity conservation goals is crucial. Engagement is a two-way process, as are the flows of information and knowledge to be gained from it. Decision-making in biodiversity conservation and other areas of public policy has tended to rely on global or codified knowledge, objectively derived from scientific enquiry by experts, that is 'standardised and easily transferable' (Morgan and Murdoch 2000). Conversely, tacit, lay or local knowledge, 'often personal and context-dependent' as it results from the interaction of people, place and practice (ibid.), has been undervalued. Taken altogether, the rich diversity of educational and lived experiences gives rise to a range of knowledges and know-how, all of which have value in an era of climate change. If public policy decisions are based on global knowledge primarily, and if the political process permits special interest lobbying, vital local and lay knowledge can be overlooked or even deliberately side-lined with negative consequences for the human relationships necessary for sustainable conservation, and for conservation outcomes. Therefore, engaging effectively with other stakeholders is important to capture the breadth and depth of relevant information, knowledge and experience. And it is also needed to build connections, develop mutual understanding and create a shared, dynamic vision around which to collaborate. The rest of this paper draws together the lessons and findings from the work of a range of practitioners, both early stage and seasoned professionals, to highlight meaningful practices and transferable insights on engaging and empowering people in biodiversity conservation.

## METHODS

Over 30 presentations at Ireland's 2019 National Biodiversity Conference addressed the topic of engagement in biodiversity conservation from various perspectives, using differing approaches, at a variety of scales, among a range of demographics and sectors. In order to capture key recurring themes and useful transferable insights, a selection of the conference session speakers was invited to address the topic of engagement in biodiversity conservation for this paper; contributors range from a recent

DOI: https://doi.org/10.3318/BIOE.2020.15
Biology and Environment: Proceedings of the Royal Irish Academy, Vol. **120**, No. 2, 175–185 (2020).  

undergraduate and a PhD candidate to those employed for years or decades in the community, voluntary and statutory sectors.

The paper needed to employ a lens through which the diverse authors could filter their research and practice that was fluid enough to encompass the range of their work, while pragmatic enough to be useful to others when applying the findings. At the conference, Dunford (2019) presented a useful framework for motivating people around the environment based on over two decades of working with farmers in the Burren landscape of the west of Ireland. He summarised that work in terms of three key engagement considerations, namely: the *Pocket*, the *Head* and the *Heart*. This triadic framework provided a suitably flexible filter through which to synthesise insights about conservation engagement from diverse contributors. In each of the six thematic sections in 'Results and Discussion', a different contributor shares reflections from their experience of researching, engaging and/or empowering people in biodiversity conservation and draws implications for future practice within their respective fields through the triadic framework.

## REFLECTIONS ON PRACTICE – RESULTS AND DISCUSSION

Starting with an overarching view of engaging communities through networks, engagement is next assessed through the multi-sectoral All-Ireland Pollinator Plan. Focusing on two sectors in particular, the value of certification for engaging businesses, and of taking a community-based partnership approach to engage farmers are outlined. Engagement with youth through experiential learning is explored, before considering how to engage with the wider public using citizen science.

### ENGAGING ACROSS COMMUNITIES FOR BIODIVERSITY – THE VALUE OF WORKING WITH THE GRASSROOTS

In recent years, community groups have been established across Ireland to involve citizens in conservation, providing leadership and 'in many ways bringing the State along with them' (Mulvey 2019). Community groups are frequently run and managed by volunteers, who may lack the time and capacity to drive their groups forward due to insufficient human, social and financial resources. National umbrella networks such as Community Wetlands Forum (CWF), Irish Uplands Forum (IUF) and the Rivers Trust[1] work to support a multitude of such local, grassroots groups, providing knowledge and information on training, funding and conservation. These networks share many commonalities including a focus on partnership working; evidence-based action; and crucially, empowering people and communities to actively protect habitats and landscapes in the places where they live for the benefit of all. The value of these networks in bringing together a wide variety of stakeholders is 'often hidden … and usually underestimated in its potential to raise the effectiveness of public policy' (Bovaird 2007).

The *Pocket*—a theme across the community engagement discussion (and the conference as a whole) was how under-resourced the environment sector is relative to other sectors, with investment in biodiversity representing only 0.31% of total government expenditure (Morrison and Bullock 2018). Community groups and networks have the added challenge of being under-funded relative to other programmes in the environment sector. The legacy of insufficient investment has led to frustration as groups face the loss of key funding schemes (for example, the Heritage Council Community Grants Scheme in 2019), while the subsequent lack of continuity inhibits long-term planning (see Dempsey *et al.* 2019). Although new initiatives such as the Local Authority Waters Programme are to be welcomed, the funding available to community projects and its accessibility remain limiting factors[2]. For instance, some rural development funding was found to bypass communities due to centralised structures and systems which prove prohibitively complex to navigate (Shortall 1994). Bureaucratic application processes lead to insufficient uptake by smaller community groups that lack the capacity to make lengthy applications or the means to fund projects until they are reimbursed, with 'state funding for voluntary activity being conjoined with ever-more onerous regulation' (O'Connor and Ketola 2018). Beyond volunteer-run community groups, even employees within the community and voluntary sector struggle to meet what have been described as the 'non-negotiated accountability and monitoring regimes' of some funders (Milbourne and Cushman 2012, in Lee 2016). Given these concerns, it is recommended that funding models become more flexible, integrating and adapting to feedback from community groups given that these groups are capable of responding quickly to emerging needs, focus on value for money, and involve beneficiaries in

[1] These three networks presented at the conference engagement sessions. Other examples of habitat or landscape-focused organisations that strategically engage with volunteer community groups around Ireland include Woodlands of Ireland, Tree Council of Ireland and Burrenbeo Trust.

[2] In 2018, €360,000 of the Local Authority Waters Programme budget of some €3.4 million (just over 10%) comprised the Community Water Fund for small-scale community projects. Out of 69 projects, 35 were refused due mainly to either incomplete applications or insufficient funding, suggesting the need for assistance to communities with their applications plus a bigger allocation of the total budget, respectively (Local Authority Waters Programme 2018).

the design of programmes and services (Lee 2016). Other suggestions to improve funding schemes include streamlining applications[3]; counting voluntary time as part of the community's contribution; and turning volunteering into employment. Changing voluntary work into paid work is challenging and while the Rivers Trust, CWF and IUF each have a staff member (one full-time and two part-time, respectively[4]), this is harder to achieve for local community groups. These groups have to identify their own funding annually from public or private sources, follow each fund's particular terms and conditions, apply and, if successful, oversee the management and financial responsibilities of the work, unless funding rules allow them to hire someone to assist with these roles. Thus, any new funding mechanisms should be co-designed by government departments with networks and community groups to improve the administration of funding schemes and include staff resources to help to achieve the twin aims of supporting community-based conservation and job creation. This would contribute greatly to the stability and resilience of these groups, allowing them to spend more time on long-term planning and helping to mitigate the risk of 'volunteer burnout'.

The *Head*—educating communities about biodiversity requires a multipronged approach comprising elements such as mainstreaming biodiversity into school curricula; providing opportunities for people to connect to nature; learning by doing; and increasingly, using technology as a tool to engage. However, recent research in climate change communication points to the failure of the 'Information Deficit Model', which assumes that we only need to give people more information to close the knowledge gap between scientists and the public (Suldovsky 2017). Lessons from climate and science communication can be applied to engaging communities for biodiversity conservation, focusing on the need to raise environmental literacy, increase critical thinking skills and develop the skills needed to turn knowledge into action (Bickford *et al.* 2012).

The *Heart*—community groups often develop and coalesce around a shared vision for their local place and are not necessarily driven initially by conservation goals. Starting with local issues is a useful way to align local and national priorities in biodiversity policy and decision making. Visioning exercises are increasingly used to bring people together, define a collective vision, and identify actions needed, e.g. *The Nore Vision*[5] and the *Vision for Dundalk Bay Rivers*[6]. Creating a collective vision and engaging communities from the outset of a project can help to overcome or at least better understand conflicts and create cross-sectoral buy-in and collaboration (Berkes 2007). Partnering and collaborating with other stakeholders enables groups to achieve a lot on low budgets. However, community engagement takes time and requires long-term support, over decades rather than years, in order to build relationships, structures and institutions at local level (Berkes 2004). Networks like CWF, IUF and Rivers Trust play a vital role by developing partnerships across scales, sectors, disciplines and even borders, and research demonstrates the value of this approach if biodiversity conservation projects are to be successful (Berkes 2007). Communities are as diverse as the places they inhabit so encouraging biodiversity conservation at local level requires an understanding of local contexts. While there is no single right way to engage and empower communities in conservation, successful participatory processes share features such as empowerment, equality, learning, and trust, integrating scientific and local knowledge in a flexible process that allows for feedback and adaptation (Reed 2008).

Much valuable work is taking place at community level by unpaid volunteers, and community groups are increasingly challenging the State to provide them with the resources and supports they need. Policy makers could tap into this energy to deliver on policy objectives. Ultimately, to succeed in conserving biodiversity, there needs to be investment in communities where habitats remain, not just the habitat itself (Berkes 2007). However, most public engagement in Ireland is limited to either informing or consulting, rather than a more empowering approach that emphasises truly meaningful participation[7] (Rowe and Frewer 2005; Carragher *et al.* 2017). Therefore, government should prioritise investment in participatory governance approaches for biodiversity conservation, so that improvements can be made on previous methods which failed to deliver (O'Riordan *et al.* 2015; Carragher *et al.* 2017). Statutory investment at community level includes: meaningful engagement from the outset that demonstrates how people's input is feeding back into policies; new structures and supports to ensure community groups have access to funding and

[3] Easy-to-complete funding applications for community initiatives mediated through local authorities, such as Tidy Towns and the Community Enhancement Scheme, are good examples.

[4] Community Wetlands Forum's part-time development officer is funded by NPWS and supported by Irish Rural Link. The Department of Environment, Communities and Local Government has provided funding to The Rivers Trust to support the role of the All-Ireland Development Officer. Irish Uplands Forum is supported by the Heritage Council. However, short-term funding for the IUF's only part-time worker concluded in 2019 indicating once again the insecurity of resourcing, even for such a long-established and experienced network.

[5] See http://www.cklp.ie/wp-content/uploads/FINAL-The-Nore-Vision.pdf.

[6] See https://www.catchments.ie/creating-vision-dundalk-bay-rivers/.

[7] For a framework of increasingly meaningful participation, see graphic from the International Association for Public Participation (2018).

expertise; a strong partnership approach; dedicated community liaison staff to overcome institutional reluctance to share power and engage with communities; and platforms to support collaboration across sectors and scales.

## ENGAGING ACROSS SECTORS FOR BIODIVERSITY – THE VALUE OF A SHARED PLAN

One third of Ireland's 98 wild bee species are threatened with extinction, while common bumblebee species have experienced a 16.6% decline in abundance since 2012 (FitzPatrick *et al.* 2006; National Biodiversity Data Centre 2019). Rare species are disappearing through habitat loss and common species are struggling because of land management practices. In 2015, Ireland became one of the first countries in Europe to develop a strategy to address these pollinator declines and protect pollination services. The All-Ireland Pollinator Plan 2015–2020 (Pollinator Plan Steering Group 2015) was developed voluntarily by a 16-member steering group and its implementation is being coordinated by the National Biodiversity Data Centre (NBDC).[8] The all-island framework across the Republic of Ireland and Northern Ireland is supported by over 90 governmental and non-governmental partner organisations who share responsibility for delivering the plan's 81 actions.

At its core, the plan looks at the whole Irish landscape—farmland, public land and private land—and tries to make it a place where pollinators and other biodiversity can survive and thrive. It explains why pollinators are important (e.g. bees provide free services worth €53m annually to the Irish economy (Bullock *et al.* 2008)). It is a call to action that, through small changes, everyone can protect pollinators for current and future generations. It engages and empowers people by providing them with clear directions on how they can act. To achieve all this, the plan has published sectoral guidelines with simple, evidence-based actions for farmers, local authorities, transport bodies, local communities, faith communities, gardeners and businesspeople, with more in train. Through such tailored guidelines, the plan makes it easier for people to care for pollinators, as evidenced in the following outcomes over its first four years:

- A NBDC pilot project and European Innovation Partnership (EIP) in Kildare, funded by the Department of Agriculture, Food and Marine, aims to show that all farms can be more pollinator-friendly without impacting on productivity
- Local authorities are changing the way public land is managed and 160 communities have engaged with the plan by making their local areas more bee-friendly and entering the special pollinator award in the Tidy Towns competition
- More than 200 businesses have agreed to take actions to help and thousands of gardeners are becoming pollinator-friendly
- The third-level sector now has an active 'Irish Pollinator Research Network', while a growing number of citizen scientists are engaging with the NBDC to learn how to identify pollinators and collect data to track changes.

Important lessons have been learned about motivating engagement across sectors around the plan.

The *Head*—through the plan, there is collective agreement of a realistic all-Ireland framework for the future across multiple sectors from north to south. Knowledge and ideas are shared across jurisdictions to solve a common problem and embedded at local level by linking with existing networks and initiatives from Tidy Towns and Green Schools to Creative Ireland. Using messaging that is positive, constructive and celebrates existing biodiversity, the plan culminates in a clear 'ask'—can you provide food, shelter and safety for pollinators? Following consultations across sectors, evidence-based solutions and advice are tailored to each target audience (e.g. local authorities, Tidy Towns, businesses) while information is easy to access and free (e.g. website, videos using peer-to-peer approach).

The *Heart* and *Pocket*—the plan encourages collaboration as much as possible (e.g. to create a network of pollinator habitat) and the process is actively managed in an open and transparent way. Despite limited resources, volunteer achievements and local champions are recognised and rewarded (e.g. through the Pollinator Award for Tidy Towns).

The plan is dynamic: progress is tracked to assess what is working (e.g. implementation of actions, creation of habitat and changes in pollinators) and the plan is open to learning and adapting (e.g. the value of champions and awards). Although the All-Ireland Pollinator Plan is still in its early stages, it has shown how to engage across sectors, and bring people together around a shared purpose to address a biodiversity crisis. In light of the threats faced by pollinators, the aim is to build on the lessons learned so that the next plan for 2021–25 can be even more effective.

## ENGAGING WITH BUSINESS FOR BIODIVERSITY – THE VALUE OF INDEPENDENT CERTIFICATION

There are many examples since the twentieth century where lax or non-existent regulation of industrial processes and products has resulted in environmental degradation. In response, the private sector started to embrace the concept of corporate

[8] The NBDC is an initiative of The Heritage Council, co-funded with the Department of Culture, Heritage and the Gaeltacht.

**Table 1—Business reasons to engage in biodiversity action**

| *Corporate Categories* | *Business drivers to address with nature-based action* |
|---|---|
| Operations | 1. Mitigate biodiversity impacts |
| | 2. Inform better remediation remedies |
| | 3. Permit acquisition and renewal |
| | 4. Secure social license to operate |
| Management | 1. Improve government relations |
| | 2. Increase employee engagement |
| | 3. Address climate change |
| | 4. Implement nature-based solutions |
| | 5. Improve lands management and realise cost savings |
| | 6. Position for talent acquisition |
| Citizenship | 1. Inform reporting and disclosures |
| | 2. Provide a sustainability goal and performance metric |
| | 3. Create meaningful community engagement |
| | 4. Frame corporate investment in education |
| | 5. Satisfy socially responsible investment and shareholders |
| | 6. Drive action along supply chain / circular economy |

Source: O'Gorman (2020)

social responsibility (CSR) in the 1980s, which acknowledges that companies have a responsibility that extends beyond profitability (Robinson 2011). CSR has evolved to encompass ideas such as sustainability and shared value creation, highlighting that the private sector could (and indeed should) play a positive role in biodiversity conservation. Many discussions around business and biodiversity focus on natural capital valuation schemes or on corporate No Net Loss and Net Positive Impact targets driven by financing mechanisms like the Equator Principles that look specifically at actions (mostly in the extractive sectors) with a direct impact on biodiversity[9]. A pragmatic approach to mainstream biodiversity into non-extractive sectors may be to focus on the role of people as well (e.g. how to encourage voluntary action to meet one of a number of business needs).

The *Pocket*—identifying the business need is the first step to engaging the private sector with biodiversity. Without it, engagement will not be sustained through the inevitable business disruption and budget cycles. To date, ecosystem services valuation schemes and natural capital approaches, while popular in academic and NGO communities, have not yet evolved sufficiently to drive significant change in the corporate sector, e.g. Lambooy *et al.* (2018). Consequently, the Wildlife Habitat Council (WHC)[10] identified 16 business reasons for companies to engage in biodiversity action and these are summarized in Table 1. An unpublished 2019 survey of WHC members found that the majority engaged in biodiversity action around three business drivers, namely: secure social license to operate, increase employee engagement, and inform reporting and disclosures.

The *Head*—the next step is to develop a strategic approach for engagement and framework for action. Voluntary actions by the private sector are always at risk during inevitable corporate disruptions from mergers, acquisitions, reorganisations, economic downturns and budget cycles. By designing the biodiversity programme as a strategic effort with objectives, resources and metrics, it can be mainstreamed into operations and supported over periods of disruption with greater biodiversity outcomes than shorter-lived projects. In addition, by communicating the goal of the project, the company makes a public commitment that its stakeholders can track. For example, a large US solid waste management company made a public commitment to implement biodiversity programmes on 100 facilities across its operations area and succeeded in this target during intense upheaval in the industry through the early 2000s (Waste Management 2017). Likewise, a multinational auto company published a corporate sustainability commitment to engage all of its manufacturing facilities in biodiversity programmes (General Motors 2019), which has survived bankruptcy, corporate divestments and economic uncertainty.

The *Heart*—this is evidenced by public recognition and local ownership achieved through certification. For example, WHC recognises the biodiversity enhancement and conservation education activities of its corporate members through a voluntary

[9] As well as human rights and climate change. See: https://equator-principles.com/, accessed 23/10/19.

[10] The Wildlife Habitat Council is an NGO with 30 years' experience in promoting and certifying conservation on corporate lands. Source: https://www.wildlifehc.org/, accessed 31/10/19.

sustainability standard called Conservation Certification. The standard confers recognition at the local level of 'acceptable', 'outstanding' and 'excellent' conservation efforts. Such site-level recognition lasts for 2–3 years and underpins local ownership and a sense of pride, while also acting as a composite metric for corporate reporting. Over the course of WHC's 30 years, in excess of 1,000 biodiversity programmes among more than a hundred Fortune 500 companies have been WHC-certified, with 70–75% seeking renewal of certification (Ireland *et al.* 2019). Furthermore, a number of corporate conservation programmes have been certified for 28 years and by 2015, 45% of re-certified sites had held certification for a decade. While biodiversity outcomes on programmes dispersed across corporate lands may be hard to measure, these efforts are comparable to financial incentives offered by government such as tax incentives for placing land in permanent protection (ibid.). In addition, employee job satisfaction is significantly positively impacted by both direct and indirect engagement with biodiversity or habitat enhancement efforts (Kaplan *et al.* 1996). Therefore, engaging the *Heart* makes business sense too.

Some key lessons learned are that while leadership support is essential to start engaging businesses around biodiversity, local ownership is also necessary in order to sustain it. Furthermore, flexibility is important in that biodiversity action should be enabled but not prescribed. Taken altogether, it highlights the role that engaging business in biodiversity action has in initiating, empowering and enabling place-based responses for conservation on corporate lands.

## ENGAGING WITH FARMERS FOR BIODIVERSITY – THE VALUE OF A COMMUNITY-BASED, PARTNERSHIP APPROACH

The Burren Programme (BP), which works with over 300 farmers on 23,000ha of biodiversity-rich farmland, has evolved over 20 years of research, application and adaptation. It aims to persuade local farmers to modify their farming practices in order to deliver additional environmental outcomes from their land. Clearly, engaging and empowering the farmers who own the land and have the knowledge and experience to farm it is a prerequisite for success. BP's achievements have been built on a solid foundation of respect and partnership between stakeholders, requiring a lot of time, patience and compromise from all involved.

Two points are worth noting when working with farmers: they do not comprise 'a homogenous group with standardised attitudes and behaviours' (Burton and Paragahawewa 2011), therefore not all approaches will work for all farmers. Furthermore, farming is more than a business and decisions are not always based solely on economics because it 'acquires a meaning far deeper than almost any other occupational identity. In that sense, farming is a vocation' (Vanclay 2004).

The *Pocket*—while money is important in engaging farmers, it is not just the amount that matters; the perceived fairness of payments in terms of rewarding effort is also crucial, as is transparency and, critically, its purpose. Agri-environment scheme (AES) payments, while welcome, are often viewed by farmers as 'compensation' to avoid negative practices and as such are not seen as 'earned' (Dunford 2001). The BP focussed on incentivising positive management through a results-based payment structure, while also co-funding farmer-nominated conservation actions, resulting in payments linked to performance and stimulating better engagement by providing both an incentive and a challenge to farmers.

The *Head*—farming for biodiversity conservation is not straightforward. Ongoing research, advice and support are necessary for farmers to restore or enhance biodiversity, and this must be tailored to local geography and habitats. Accordingly, BP scientists worked with farmers to co-create solutions to such management challenges as supplementary feeding of outwintering livestock. Blending scientific research with local knowledge led to practical, effective solutions and empowered farmers, while also reassuring them that they were being progressive. Professional support is especially necessary in protected landscapes such as Special Areas of Conservation, where permission for conservation works may be needed from multiple authorities and acts as a significant deterrent and cost for farmers. The BP team spend a lot of time securing these permissions so that farmers can farm. Scheme design is also important: while complexity is often necessary in the design of effective AESs, the interface with farmers must be straightforward. The BP stripped back its farm plan design to produce a highly visual, 1-page plan containing all the necessary information.

The *Heart*—within the BP, the most effective farmers are often those who believe in the value of what they are doing, who really 'own it': this is often overlooked in AES design and delivery, and it goes far beyond a simple annual training event. A key aspect of ownership is allowing farmers 'freedom to farm' and flexibility in decision making. Once the BP clearly describes the desired outcome, farmers are free to decide how to achieve it—or not. Farming is a complex business, subject to unpredictable pressures from weather, disease and markets, while each farm is unique in terms of its structure, productivity and management history. To dictate management (e.g. by enforcing grazing dates) disregards all this, suggests mistrust, erodes pride and builds frustration (Dunford 2001). Another important value is keeping things local. The BP office lies in the midst of the community, which is reassuring to farmers;

particularly when there is also a continuity of personnel as relationships of trust are slowly built but quickly lost. Locally targeted schemes can leverage a lot of 'pride of place' as farmers appreciate that their work will directly benefit their community and locality.

Much of BP's success in engaging farmers is built on the work of the local charity Burrenbeo Trust, which focusses on connecting people with place and their role in caring for it. From the outset, Burrenbeo—'the living Burren'—along with the book 'Farming and the Burren' (Dunford 2002) played an important part in giving the story of the Burren back to farmers because as O'Rourke (unpublished) observed '… the majority of local people have not taken ownership of their own heritage… [it tends to be] imposed 'from above' and 'from outside'. Burrenbeo has encouraged a sense of informed pride and ownership of place among over 2,000 local children, mostly farmers' sons and daughters, who then become important 'influencers' on farming parents. Engaging active farmers can be more difficult but hosting events in familiar spaces—community halls, marts and farms—has helped. Monthly farm walks, often led by a farmer, have given several farmers the encouragement to host their own educational farm tours, while the annual Burren Winterage Weekend and 'Farming for Nature' awards highlight to farmers that their role as countryside custodians is valued by society.

All of this work has been enabled by strong local leadership, particularly from within the farming community. A spirit of empathy, respect and compromise has brought other stakeholders into the fold and resulted in a strong sense of partnership. One of the most powerful outcomes of this engagement and empowerment has been the recent emergence of local farmers as conservation leaders, rightly assuming an expanded societal identity and role as 'ecosystem services providers'.

As the Common Agricultural Policy's Green Architecture evolves, a future challenge for the BP will be to develop a simple 'Green Plan' for participant farmers which will include all their environmental commitments—under baseline conditionality, Eco-Scheme, National Agri-environment Scheme and Burren Programme. This is one way to simplify and reduce bureaucracy, an important principle of the more farmer-friendly approach needed for farming for nature. Another key principle is paying for results delivered (known as results-based agri-environmental payment scheme or RBAPS), which has proven attractive to farmers in that it provides an incentive, encourages innovation and enables 'freedom to farm'. This RBAPS approach can and should be mainstreamed as part of the National Scheme (e.g. under the Low Input Permanent Pasture (LIPP) and Traditional Hay Meadow (THM) GLAS Options) and/or as part of a locally targeted programme, but will usually require an associated payment for 'conservation support actions' as is the case in the Burren's hybrid approach.

## ENGAGING WITH CHILDREN AND YOUNG PEOPLE FOR BIODIVERSITY – THE VALUE OF EXPERIENTIAL LEARNING

With technological advances, many young people are becoming increasingly distanced from nature. A Facebook (FB) poll was used to ask one young ecologist's social network what they thought that young people needed in order to become more engaged with biodiversity (Hamilton 2019). While the results are limited to a small group of respondents, their indication that engaging youth with biodiversity may need a multifaceted approach mirrors the findings of other conservation practitioners at the 2019 National Biodiversity Conference (e.g. Dunne 2019; Bromley 2019).

The *Head*—67% of the poll's 42 participants considered education important in helping young people to connect with biodiversity and the problems faced by it. A greater emphasis on natural heritage within the education system would promote engagement with biodiversity and help to 'set the seed' in the psyche of future guardians of nature. Education is already highly regarded by Irish youth. A national consultation on the lives of children and young people in Ireland[11] found that when asked 'What's the best thing about living in Ireland?', education topped the list (Coyne *et al.* 2012). Conducted in 2011, primary school pupils highlighted the environment as one of the worst things about living in Ireland due to pollution, litter and habitat loss. The fact that the environment was not raised as an issue by secondary school students suggests that awareness may decline by second level. As one of the youngest conference speakers (and a secondary student himself) explained, while environmental awareness and education programmes such as Green Schools[12] are effective, they remain optional (Dunne 2019). Instead, the FB poll flagged the importance of mainstreaming the subject in the education system—'learning about the natural world that surrounds and supports us all should be central in [the school] curriculum'—as is already happening elsewhere (e.g. in Italy; see Hodal 2019). A whole-of-society approach—including the need for adult education—is flagged, because as one FB poll respondent explained: '… the adults around [youth] need to be educated so that they are surrounded by a culture that cares about biodiversity. Without

[11] From primary and second level, encompassing students aged approximately 7 to 18 years.

[12] Green Schools is a student-led programme of whole-school action for the environment. See https://greenschoolsireland.org/about/, accessed 24/10/19.

societal change, education and other initiatives can only ever be so effectual.'

The *Pocket*—government has an important role to play in resource allocation: 26% of poll respondents agreed that public funding and awareness raising is needed to engage young people with biodiversity: 'more funding/facilitating for experiential learning'. Youths highlighted educational resourcing in the 2011 national survey too, calling for more investment in science teaching and facilities (Coyne *et al.* 2012).

The *Heart*—7% in the poll flagged 'other' options, especially in terms of experiential learning. As one respondent noted: 'most of all though, people need to experience nature …'. Inspiring and motivating young people about nature calls for delivering education in ways that speak to the heart, excite even the most unenthused and can turn interest into action.[13] Children's innate desire to connect with the natural world should be supported through programmes that are interactive and hands on, that get children (and adults) outdoors and engaging with nature because as another respondent outlined: 'no one is going to absorb information about their native, local biodiversity from a book if they haven't been exposed to it on the ground'. Successful models include programmes for primary and secondary students such as those delivered in Glenveagh National Park (Bromley 2019) or place-based conservation programmes done in partnership with rural communities that include meaningful engagement and inspire award-winning projects by local children and students, such as Burren Beo Trust[14] and DuhallowLIFE[15].

## ENGAGING WITH THE PUBLIC FOR BIODIVERSITY – THE VALUE OF CREDIBLE CITIZEN SCIENCE

Citizen science is on the increase in Ireland. Bat Conservation Ireland, BirdWatch Ireland, Irish Whale and Dolphin Group, the NBDC and Offaly County Council presented at the 2019 conference about successfully engaging with citizen scientists and harnessing their data to achieve important monitoring work. This section focuses on the work of BirdWatch Ireland (BI), an NGO resourced through a range of public and private funding streams, that has monitored the changing status of birds in Ireland for over 50 years through long-standing volunteer surveys and research projects, and those it coordinates for partners such as the NPWS. The backbone of this work is a dedicated network of highly skilled and motivated volunteers who collect much of the valuable data, helping BI to focus its conservation work on Ireland's most threatened birds and habitats. The collection of citizen science data brings significant benefits.

The *Pocket*—the reporting of wildlife sightings by members of the public provides an opportunity to collect wildlife data continuously over wider geographical areas and at lower cost (Dickinson *et al.* 2010). For example, 17,000 volunteers took part in the Bird Atlas 2007–11 across Britain and Ireland and succeeded in surveying a land area of some 319,000 km$^2$ while producing 14.3 million bird records, almost entirely through volunteer efforts (Gillings *et al.* 2013). The cost of completing a project of this scale using paid fieldworkers would be totally prohibitive.

The *Head*—data collected through citizen science allows conservation organisations to monitor the changing status of species across large areas over long periods of time, producing important information such as population trends, distribution maps and abundance change. For example, annual monitoring of wintering waterbirds through the Irish Wetland Bird Survey[16] completed waterbird counts across 694 wetland sites in the Republic of Ireland, generating estimates for 72 species and counting an estimated 757,910 waterbirds from winter 2011/12 to winter 2015/16 (Lewis *et al.* 2019). Recent results from this extensive, long-term survey show a decline of 40% in the total waterbird population over the 17 years to winter 2015/16 (Burke *et al.* 2018). To ensure the credibility of such citizen science data, there must be a systematic approach to data collection, along with the necessary supports for volunteers. This includes providing clear, detailed survey methodologies and guidelines; delivering sufficient training and induction for volunteers; offering easily accessible, ongoing support to volunteers throughout survey periods (e.g. dedicated survey coordinators); and regular communication with volunteers to maintain survey standards and motivation levels. If these steps are followed, an organisation can develop a loyal network of trained and experienced volunteers who provide high quality data, often over years or even decades. The validation of records collected by volunteer observers is important to ensure records are fit for purpose and widely accepted by the scientific community (Dickinson *et al.* 2010). Because BirdWatch Ireland applies a rigorous validation process to ensure a high level of confidence with its bird data, much of that supplied to the EU Commission for reporting purposes (e.g. Article 12 national reporting on status and trends of bird species) is derived from its citizen science

[13] The 'School Strike for Climate Change' movement is recent evidence of how interested students can become engaged activists.

[14] See https://burrenbeo.com/our-work/learning/.

[15] See https://www.duhallowlife.com/kids-corner.

[16] Coordinated by BirdWatch Ireland and funded by the National Parks and Wildlife Service, Department of Culture, Heritage and the Gaeltacht.

surveys. The knowledge that their bird sightings are part of a structured, validated survey contributing to the conservation of biodiversity is a key driver for volunteers.

The *Heart*—a growing body of research highlights the significant health and wellbeing benefits people experience from getting out in nature (e.g. Pretty *et al*. 2006). Furthermore, participating in a bird survey allows people to join a growing network of volunteer recorders across Ireland. This provides them with a platform to make connections with likeminded citizen scientists, take part in outdoor social interactions and feel part of a 'club'. Such factors help to motivate volunteers to continue donating their time, all the while knowing that they are making a positive contribution to conservation locally, nationally and internationally.

## CONCLUSIONS

A recurring theme in these case studies of engagement is the value of developing relationships with other stakeholders in order to achieve shared conservation goals. Looking at engagement in terms of *Pocket*, *Head* and *Heart* revealed a variety of approaches and emphases used in practice. For example, the *Pocket* is important for engaging business and farming sectors, and it is vital in order to sustain the volunteer pipeline of community groups. And while the *Pocket* may not be essential to citizen scientists or youth directly, it is vital to the NGOs and education providers dependent on adequate and secure resourcing to ensure quality citizen science outputs and inspiring learning experiences, respectively. The *Head* is important across all of the case studies because the purpose of any engagement must be well founded in terms of theory and practice, while the *Heart* has a key role in sustaining engagement over the long-term by underpinning strong, resilient relationships based on fairness, mutual trust and respect.

Common goals in terms of conservation are shaped by external, as well as internal, factors. That is why when it comes to engaging youth, focusing on the education curriculum alone is not enough because youth are subject to outside influences, such as their parents or business advertising that are in turn influenced by government policies and industry regulations. Community-wide education is required to help build the necessary sense of shared purpose across the whole of society, something that is emerging through the All-Ireland Pollinator Plan. At the same time, nature education ideally happens through experiential learning and as locally as possible to deepen the relationship among guardians of nature, both present and future (as seen in the bottom-up approach to engagement adopted with farmers through the BP and with businesses through the WHC). Creating such meaningful shared purpose can unlock the passion and strengthen the commitment needed to sustain conservation efforts into the future. This is evident in the dedication of citizen scientists who collect local data over decades while sharing a sense of belonging through participation in a network of likeminded volunteers. Thus, co-designed and appropriately resourced all-island, place-based or sectoral approaches, together with citizen science and experiential community-wide education accessible to everyone from youth to retirees, offer effective practices for growing and strengthening collaborative relationships. Such joined-up thinking and action could ultimately engage and empower everyone when it comes to biodiversity conservation.

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