

Curating with Communities for Well-being: Exploring an Amgueddfa Cymru–National Museum Wales Biocultural Collection through Community Workshops

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Abstract

Biocultural collections include specimens of plant and animal origin, artefacts and documentation. They are important resources for the conservation of biological and cultural diversity, as well as for education and research. Curation of biocultural collections at Amgueddfa Cymru–National Museum Wales is underpinned by the unique legislative framework, the Well-being of Future Generations (Wales) Act (2015). This article presents the findings of a series of six workshops with a range of community groups invited to discuss how the Amgueddfa Cymru Economic Botany Collection can build public understanding of biodiversity and fulfil its well-being duty. Findings indicate participant interest in the collection as a resource that can support learning about the multiple values of plants, the diverse cultural heritage linked to plants and the community connections the collection can support, including within and across cultures, practices and places.

Key words: biocultural collections; collaboration; sustainability; Wales; well-being.

1. Introduction

Biocultural collections encompass herbaria of vascular specimens and non-vascular specimens; zoological specimens; plant and animal parts; plant and animal products; DNA collections; living collections; archaeological plant and animal materials; ethnographic materials and cultural artefacts; and biocultural documentation (Salick *et al.* 2014; Fonseca-Kruel *et al.* 2019). Biocultural collections have long been resources for the study of biodiversity and understanding of biophysical systems and processes (Davis 1996; Ponder *et al.* 2001). First, they can enable monitoring of changes in species via material specimens and identification of new species in the form of type specimens. Second, they can support understanding of global environmental change, including biophysical impacts of climate change and responses to habitat loss and fragmentation, via data spanning from millions of years ago to the present (Suarez and Tsutsui 2004). Third, they can support environmental conservation efforts, both safeguarding genetic diversity via DNA and living collections and providing 'historical information as well as valuable reference points from which change can be measured, technologies relearned and organisms reintroduced' (Hart *et al.* 2014: 329).

Biocultural collections are increasingly recognized as important resources for biocultural knowledge, including traditional, indigenous and local ecological knowledges (Fonseca-Kruel *et al.* 2019). As assemblages of materials, knowledge and relations (Bell 2017), biocultural collections have the potential to build knowledge and understanding of people-plant relations from multiple perspectives (Fonseca-Kruel *et al.* 2019: 215). As Gavin *et al.* (2015: 141) note, 'conserving diverse sets of knowledge can provide human and biological communities with greater adaptive capacity to cope with current and future disturbances'. Biocultural collections could offer important lessons for sustainable futures, providing insight into the dynamic interconnections between communities and environments.

At present, however, a number of issues limit biocultural collections curation, including: 1. curatorial standards; 2. databasing and digitization of specimens; 3. access and use; 4. ethics, including collaboration with indigenous or source communities; and 5. funding and

staffing (Salick *et al.* 2014). A further issue includes the structural racism that can reside in biocultural collections and curatorial approaches (Das and Lowe 2018). Moving away from institutional 'isolation' towards a 'networked community of institutions' may address some of the issues facing biocultural collections, particularly curatorial standards (Crouch *et al.* 2014), as well as funding and staffing issues (Salick *et al.* 2014).

Networked approaches can support dynamic interaction between collections, curators and communities, enabling exchange of good practice, exchange of multiple perspectives and possibilities for sharing infrastructure platforms through partnership in funding programmes. Development of global database standards for the digitization of biocultural collections further supports comparability across multi-institutional collections (Salick *et al.* 2014).¹ With reference to medicinal plant collections, Teixidor-Toneu *et al.* (2018) for example emphasize the need for systematically gathered information so that information acquired is compatible with other data resources.

To improve access and use of collections, Dooley and Luce (2015) highlight the need to identify barriers that limit collaborative collection development; to develop policies and procedures that facilitate rather than inhibit access to materials; and to develop metrics that enable standardized measurement of key aspects of collections use and management. Digitization is considered an important tool for increasing access and use of biocultural collections, enabling remote access and search-ability whilst potentially reducing damage to specimens and curatorial costs (Carine *et al.* 2018).

Ethical frameworks for co-operation such as the Nagoya Protocol (Secretariat of the Convention on Biological Diversity 2014) and Convention on Biological Diversity (CBD 1992) require that collaborations between institutions and communities are based on knowledge exchange, non-exploitation and mutual respect. Salick *et al.* (2014: 10) emphasize the need for 'just and equitable material transfer agreements and intellectual knowledge partnerships between biocultural collections and indigenous groups worldwide in order to facilitate strong, collaborative and continuing relationships'.

Recent museology scholarship further highlights how collaboration between communities and museums plays an important role in processes of reclaiming, resuscitating, transforming and producing local knowledges (Silverman 2015: 7), rejuvenating and reimagining traditions and cultural practices (Peers and Brown 2003) and initiating decolonization processes within and beyond the museum space. This is critical particularly for indigenous peoples 'whose way of life has changed dramatically but whose identity rests on historical cultural knowledge' and for whom 'artefacts offer the possibility of recovering a broad range of cultural knowledge for use in the present and future' (Peers and Brown 2003: 5).

The growth of provenance research of bio-cultural specimens in collections further reflects a convergence of interest amongst academic researchers and museum professionals on issues of object biography, the relational museum and the politics of restitution (Cornish and Driver 2020; Driver *et al.* 2021). Examining the circulation of objects in the Kew Museum of Economic Botany, the Mobile Museum project demonstrates how new meanings and values have been created in the course of circulation (Cornish and Driver 2020; Driver *et al.* 2021). Processes of mobilization and recontextualization, including via clearance and the national distribution of specimens, can involve both gains and losses of information (Cornish and Driver 2020; Driver *et al.* 2021).

Considering approaches to decolonizing collections at the Natural History Museum, Das and Lowe (2018: 4) suggest 'publicly acknowledging difficult pasts is an important first step in creating less racist museum interpretation in natural history museums'. They conclude,

the natural history knowledge from indigenous people from around the world, captured through colonial encounters, needs to be more widely acknowledged for their impact on society, with their narratives sitting proudly alongside those specimens and artefacts within natural history museums (Das and Lowe 2018: 12).

Structural racism is reflected not only in collections but in the limited diversity of museum curators, particularly within the natural sciences. In reference to Royal Botanic Gardens, Kew, Director of Science Alexandre Antonelli suggests structural racism might be addressed

by increasing the ethnic representation of staff, promoting diverse perspectives on historic collections, re-examining scientific and curatorial practices, digitizing more collections to widen access and examining and updating western-centric labels.²

Drawing upon a case study of the Amgueddfa Cymru–National Museum Wales Economic Botany Collection, this article presents the findings of six workshops with a diverse range of community groups. These workshops aimed to work with groups to explore how the Economic Botany Collection can: 1. build public understanding of biodiversity, and 2. fulfil the Museum’s public well-being duty. Research was conducted in the context of new legislation in Wales, including the Well-being of Future Generations (Wales) Act 2015 (National Assembly for Wales 2015), whereby public bodies, including Amgueddfa Cymru–National Museum Wales, have a legislative duty to take action to improve ‘the economic, social, environmental and cultural well-being of Wales’. The seven well-being goals outlined in the Well-being Act (see Section 2.1) were used to structure workshop discussions and to aid participants to contribute to a framework of multiple values based on their interests and preferences so as to guide future collection activities, acquisitions and approaches.

The following section provides a contextual overview of the Amgueddfa Cymru biocultural collection, with particular focus on the Economic Botany Collection. The legislative context in Wales and its relevance for Amgueddfa Cymru is further detailed. Section three outlines the methodological approach applied. Section four presents the findings of the workshops, linking identified themes to the seven well-being goals. Section five draws upon findings and considers how working together with communities plays an important role in informing biocultural collection curation for the well-being of future generations.

2. Context

2.1. Amgueddfa Cymru Biocultural Collection

The Amgueddfa Cymru biocultural collection is held across a number of sites in Wales including National Museum Cardiff, St Fagans National Museum of History and Nantgarw National Collections Centre. The main Botany Collections are held by the Natural Science Department, National Museum Cardiff, curated by Botany Team curatorial staff (see Table 1). The Amgueddfa Cymru Botany Collections are the sixth largest in the United Kingdom and the largest collection of plant specimens from Wales.

| AC-NMW Botany Collection | Approximate number of specimens |
|-------------------------------|---------------------------------|
| Welsh National Herbarium | |
| • Vascular Plants | 255,000 |
| • Non-vascular Plants | 337,000 |
| • Other | 158,000 |
| Economic Botany Collection | 5,500 |
| Botanical prints and drawings | 7,000 |
| Timber collection | 12,000 |

Sources: (Lazarus and Pardoe 2003)³

Table 1. *Amgueddfa Cymru Botany Collections*

Collections of a socio-cultural dimension are mainly held at the St Fagans National Museum of History. They include ethnographic and archaeological materials and cultural artefacts from Wales, translocated buildings such as cottages and chapels from different eras and regions of Wales, livestock and kitchen and medicinal plants, and biocultural documentation.⁴ This article focuses on the Amgueddfa Cymru Economic Botany Collection which includes food products, medicinal plants, dyes, tannins, gums, resins, fibres and seeds (see Figures 1a-d).⁵

The Economic Botany Collection encompasses specimens from around the world, with a significant number from India, South-East Asia and East Africa. Few specimens within the collection originate from Wales. The collection was initially developed primarily as an educational resource, to improve the botanical knowledge of the general public. It was also developed as a collection of plant specimens and plant-based products with potential economic value. Specimens within the collection have been classified according to use, including food products, medicinal plants, dyes and tannins, gums and resins. In most cases they lack, or have been separated from, accompanying biocultural information.



Figure 1. Photos of a selection of Economic Botany Collection specimens: a. Cinnamon (*Cinnamomum zeylanicum*); b. Brush made from rush peelings (*Juncus effusus*); c. Wool dyed with walnut (*Juglans regia*); d. Heritage Welsh wheat variety (*Triticum aestivum* 'Hen Gymro'). Photo credits: Amgueddfa Cymru.

Figure 1(a)

The majority of specimens that constitute the collection were acquired in the 1920s and 1930s, donated by institutions including the Royal Botanic Gardens, Kew and the Imperial Institute, other botanical gardens, commercial companies, botany curators, other plant enthusiasts, and exchange clubs. Individuals travelling or working abroad also sent specimens (Cornish *et al.* 2020). Many of the specimens acquired by the museum during this period are indicative of the focus of the British Empire on discovery and exploitation of new raw materials for trade and industry. In the mid to late 1930s,



Figure 1(b)

acquisition of new varieties of crops and conservation of traditional varieties indicate a period of interest in national self-sufficiency. By the end of the twentieth century, the rate of collecting economic botany specimens slowed down significantly, although existing specimens within the collection have been used for educational outreach activities and events. The most significant recent development of the collection was the acquisition of 469 *Materia medica* specimens donated by Professor T.D. Turner in 2007, which includes material of plant origin such as bark, roots, leaves and resins that are or have been sources of medicinal drugs.⁶

Amidst the context of climate emergency, loss of biodiversity and biocultural knowledge, alongside growing societal interest in how plant-based products and biocultural knowledge can support sustainable futures, combined with the urgent need to attend to and address structural racism and initiate decolonization processes within collections, there is increasing awareness within Amgueddfa Cymru of the need to reconsider the potential role of the Economic

Botany Collection. This includes but is not limited to: developing understandings around the biocultural dimensions of existing specimens; extending the range of plants and products in the collection; and making the collection more accessible, engaging and co-curated.

2.2. Amgueddfa Cymru and the Legislative Context in Wales

As a public body within Wales, Amgueddfa Cymru has a duty to deliver on well-being and sustainability. According to the Well-being of Future Generations (Wales) Act (2015), all public bodies must carry out sustainable development, defined as: ‘the process of improving the economic, social, environmental and cultural well-being of Wales by taking action, in accordance with the sustainable development principle’ (National Assembly for Wales 2015: 3). The Well-being Act places a statutory duty on public bodies in Wales to work together

towards seven well-being goals, as outlined in Figure 2.

The Well-being Act also outlines five ways of working, defined as long-term, integration, involvement, collaboration and prevention (Welsh Government 2015: 7). Each year, public bodies, including Amgueddfa Cymru, are required to prepare and publish a local well-being plan which sets objectives to meet the seven goals, demonstrate they are working to a ‘sustainable development principle’ and that they are doing so according to the five ways of working.

Amgueddfa Cymru’s Vision *Inspiring People, Changing Lives* was developed using the framework of the Well-being Act, underpinned by four key commitments: Prosper, Experience, Learn, Participate (Amgueddfa Cymru 2016). All departments within the Amgueddfa Cymru have a duty to develop and implement a strategic work plan that embeds the five ways of working and the seven well-being goals of the Act. At present, the Economic Botany Collection does not feature largely in the Department of Natural Sciences strategic work plan.

In 2017-2018, the Amgueddfa Cymru Economic Botany Collection was investigated as part of a *Valuing Nature Programme* placement. The aim of the placement was to consider how the collection could be used to build public value and understanding of biodiversity, in light of the new legislative duties of the Well-being Act, through building a shared framework of values. The placement provided an opportunity



Figure 1(c)



Figure 1(d)

| Goal | Description of the goal |
|---|---|
| A prosperous Wales | An innovative, productive and low carbon society which recognises the limits of the global environment and therefore uses resources efficiently and proportionately (including acting on climate change); and which develops a skilled and well-educated population in an economy which generates wealth and provides employment opportunities, allowing people to take advantage of the wealth generated through securing decent work. |
| A resilient Wales | A nation which maintains and enhances a biodiverse natural environment with healthy functioning ecosystems that support social, economic and ecological resilience and the capacity to adapt to change (for example climate change). |
| A healthier Wales | A society in which people's physical and mental well-being is maximised and in which choices and behaviours that benefit future health are understood. |
| A more equal Wales | A society that enables people to fulfil their potential, no matter what their background or circumstances (including their socio economic background and circumstances). |
| A Wales of cohesive communities | Attractive, viable, safe and well-connected communities. |
| A Wales of vibrant culture and thriving Welsh language | A society that promotes and protects culture, heritage and the Welsh language, and which encourages people to participate in the arts, and sports and recreation. |
| A globally responsible Wales | A nation which, when doing anything to improve the economic, social, environmental and cultural well-being of Wales, takes account of whether doing such a thing may make a positive contribution to global well-being. |

Figure 2. Well-being Goals Source: Welsh Government (2015: 6)

for the re-evaluation of a collection that has received relatively little curatorial attention in recent years. Drawing upon placement findings, this article examines methods of addressing this deficit based on the premise that biocultural collections can play a critical role in supporting the well-being of future generations.

2.3. Amgueddfa Cymru and Community Agency

Against the legislative backdrop of the Well-being Act, Amgueddfa Cymru is considered a leading museum in the UK regarding the promotion of inclusive and participatory practice. Lane and Williams (2020) suggest the vision and values that guide operations at Amgueddfa Cymru place community agency as a ‘keystone’. For example, according to Amgueddfa Cymru’s *Community Engagement Strategy*, community agency is ‘placed at the heart’ of decision-making processes ‘with regular participation and collaboration embedded as a way of working’ (Amgueddfa Cymru 2015: 4). Lane and Williams (2020: 66) suggest Amgueddfa Cymru are ‘exploring the challenges of embedding a rights based approach and developing an organisational culture that is based on values and a commitment to supporting community agency and cultural democracy’ – such an approach is centred upon understanding that it is only through participation that people are able to access their rights.

The legislative well-being duty placed on the museum and institutional commitment to community agency present opportunities for collaborative approaches to the biocultural collection held by Amgueddfa Cymru. These guiding legislative and institutional values have informed the methodological approach applied.

3. Methods

To develop understanding of the potential role of the Economic Botany Collection in building public value and knowledge of biodiversity and supporting delivery of the well-being duty, workshops were facilitated with six community groups. A range of groups was identified and invited to participate in the project, predominantly from the South Wales area, with the aim of gathering diverse opinions about the collections. This included groups with an interest in plants, as well as other groups reflecting some of the diverse communities living in Wales. Representatives of identified groups were contacted via email and asked if members would be interested in participating in the workshops. Support for transport costs to National Museum Cardiff was offered to groups to promote workshop accessibility. In the case of the National Wool Museum volunteer group, a workshop was hosted at the museum site in Carmarthenshire for the convenience of participants, due to its distance to National Museum Cardiff.

As outlined in Table 2 below, the six participating groups comprised: the Amgueddfa Cymru Youth forum (Youth group); a Cardiff-based gardening group (Gardening group); a Cardiff-based botanical art group (Botanical art group); a Cardiff-based community organization for Black, Asian and minority ethnic women (Women’s group); a group of staff and volunteers from a Cardiff Council park plant nursery and education centre (Park group); and a group of Amgueddfa Cymru National Wool Museum volunteers, a number of whom were involved in creating and maintaining a natural dye garden at the National Wool Museum site (Museum volunteer group).

| Group | Number of participants | Length of workshop (hours) |
|------------------------|------------------------|----------------------------|
| Botanical art group | 3 | 2 |
| Gardening group | 7 | 2 |
| Museum volunteer group | 10 | 2 |
| Park group | 8 | 2 |
| Women’s group | 9 | 2 |
| Youth group | 6 | 2 |
| Total | 43 | 12 |

Table 2. Community Group Workshops

In the workshops, participants were introduced to the Botany Department collections by curatorial staff. Participants were then invited to discuss first, what interested them in the collection; second, what they would like to see more of in the collection; and third, how, if at all, they would like to engage further in the collection. Subsequently, participants were introduced to the seven goals of the Well-being Act and invited to discuss in the group the potential role of the collection in contributing to each of the seven well-being goals (Section 2.2). Guided through the well-being goals, participants were asked to contribute to a framework of multiple values based on their interests and preferences, sharing their comments on post-its attached to posters displayed for each of the goals. Following discussion, participants were given approximately ten to fifteen minutes for any further questions and time for reflection and addition of any other comments.

Workshops were adapted for each group, with the aim of catering for the interests and needs of the group. For example, the workshop for the Botanical art group included an extended tour of the botanical prints and drawings; the workshop for the Women's group focussed on the herbs and spices within the collection; and the workshop for the Museum volunteer group focussed on the dye plants within the collection. Whilst structured, space was also fostered for new topics to emerge. Workshops were facilitated with the aim of creating a space where participants felt both safe and heard. Although techniques such as turn-taking were not implemented, participants were encouraged to share their views, as well as to create space for others.

Workshop design was informed by theories of co-production, defined as 'people who use services and carers working with professionals in equal partnerships towards shared goals' (SCIE 2015) and community consultation approaches, whereby individuals or representatives of the community are involved 'in shaping service development and implementation' (Potter 2005: 9). In a museum setting, Canning and Holmes (2006) highlight the need to consider alternative methods for engaging with non-users within the community, particularly those who are unfamiliar with the museum or face particular barriers to participation, such as language. Hosting the workshops with pre-existing groups created a more relaxed atmosphere for participants, supporting those for whom the museum is an unfamiliar space and for whom English is not a first language.

Ethical guidelines issued by the British Sociological Association (BSA 2017), Cardiff University (Cardiff University 2019) and Amgueddfa Cymru (Amgueddfa Cymru 2019) were followed. Ethical approval was obtained from Cardiff University (SREC/2614). Informed consent was sought from all those involved. Prior to the interview or workshop, participants were introduced to the project and provided with an information sheet and participant consent form. Project aims were discussed at the beginning of each workshop and the participant consent form was explained in case participants did not have time to look at it in advance.

Written comments were transcribed and analysed thematically, both according to the well-being goals and emerging themes within each group. The leading author also kept detailed notes of the workshops and a field diary.

In the following section, insights to the collection offered by participants are presented, drawing upon the emerging framework of multiple values connected to the seven well-being goals.

4. Findings

4.1. A Prosperous Wales

The Museum volunteer group questioned what a 'prosperous' Wales means, asking whether it is about 'exploiting and industrializing' or about 'exploring own resources'. With reference to the dye plants within the collection, the group noted the focus at present on plant species that could be 'traded', rather than those that could be 'grown or gathered' within Wales. They highlighted the need for more representation of species that can be cultivated and foraged within Wales, as well as those that can be imported.

The Park group was interested in seeing how the collection could play a role in promoting sustainable, low carbon futures within Wales by supporting learning about the historical use of plants, whilst the Gardening group suggested the collection could support education for sustainable development and global citizenship by promoting learning about the role of plants both historically and in contemporary society. The Park and Gardening group participants were further interested in the potential insight the collection could offer regarding the medicinal properties of plants leading to pharmaceutical innovation.

4.2. A Resilient Wales

When asked how the collection could contribute to a more resilient Wales, extending representation of specimens of native plants and plants growing in Wales was key for four groups (the Gardening group, Museum volunteer group, Park group and Youth group). These groups highlighted the need for increased representation of, and information about, native plants and plants growing in Wales, including: specimens of endangered Welsh flora (Park group); specimens linked to historical and contemporary uses of plants in Wales (Gardening and Museum volunteer groups); and specimens of plants connected to Welsh folklore (Park group). Participants from the Youth group and Park group suggested the museum could play an active role in the preservation and conservation of biodiversity in Wales through work connected to the collection.

The Gardening group recommended greater representation of edible species cultivated and gathered historically in Wales, as well as expressing interest in how the collection could support learning about growing and gathering food plants in present-day Wales. The Botanical art group questioned whether some of the seed specimens contained genetic information relevant for resilient futures, such as heritage grain varieties. Participants in the Museum volunteer group also highlighted gaps in the collection of dye plants that can be cultivated and gathered in Wales.

The Museum volunteer group, Women's group and Gardening group further suggested the collection could build community resilience by supporting connections with local environments. One participant from the Museum volunteer group for example reflected 'being resilient is knowing what is around you and how to see it', whilst a participant in the Gardening group noted how 'foods and dyes can link plants to local environments'.

Four groups – the Park group, Museum volunteer group, Gardening group and Youth group – discussed how the collection could be used as a tool to support learning around sustainable practices by looking at the use of plants in the past in Wales. Park group participants for example were interested in how the collection could support learning around sustainable materials in the built environment, whilst participants from the Museum volunteer group highlighted how learning more about the historic uses of plants as fibre and dye could support sustainable practices in textiles. The Youth group further suggested the collection could also be used as a tool for dialogue around sustainable food futures.

4.3. A Healthier Wales

Speaking from first-hand experience, members of the Park and Museum volunteer groups reflected on how volunteering can support health and well-being, both by reducing social isolation and loneliness and building social networks, particularly for retirees. They suggested the museum could play an active role in supporting community health and well-being by offering more volunteer opportunities associated with the collection.

The Park and Botanical art groups recommended developing a programme of activities, including walks and talks, that support nature-based connections in local areas linked to the collection. The Park group, for example, was interested in the connections the collection could make with local parks and green spaces, promoting physical activity amongst museum visitors. According to one participant in the Botanical art group, the collection could be 'a great resource to connect local people with the environment and how important it is to us'.

Whilst the Park, Botanical art and Youth groups expressed interest in how the collection could support learning and understanding around historical medicinal uses of plants, the Youth group, Women's group and Gardening groups were further interested in how the collection could build knowledge and understanding around the potential role of plants for health and

well-being in the future, including plant-based food and medicine. The Women's group for example highlighted the health benefits of sharing knowledge around the use of herbs in cooking across cultures.

4.4. A More Equal Wales

Three groups emphasized the need to raise awareness of the collection in Wales (Botanical art group, Museum volunteer group and Women's group). As participants in the Botanical art group and Women's group highlighted, at present, many people are not aware of the Amgueddfa Cymru biocultural collection. Participants in the Museum volunteer group proposed that the collection needs to 'open up', 'otherwise it feels like a closed shop'. Participants in the Gardening, Park and Museum volunteer groups further highlighted the current lack of information about collections available online, experienced when trying to find out more about the collection in advance of the workshops.

All groups discussed the important role of digitization to make the collection more publicly accessible and available, whether in the form of a digitally searchable catalogue and categories or a digitally available 'handbook or manual'. The Gardening group reflected how digitizing the collection would make it more globally accessible, enabling more people to engage with the collection across the world. However, as participants in the Women's group noted, not everyone is computer literate or digitally connected and there is a critical need for non-digital ways of engaging with the collection too.

The Botanical art, Gardening, Park and Women's groups noted that, at present, there is very little public-facing presence of the collection within the National Museum Cardiff, aside from one small area in the *Insights Gallery* and the temporary *Plants and People* exhibition. These groups highlighted the need for greater presence of the collection within the museum, through permanent and temporary exhibitions. Other suggestions included dedicating an area within the museum to feature specimens from the collection that changes every six months, a 'behind the scenes film' and a 'demonstration room'. They also recommended developing the programme of activities connected to the collection. Suggestions included talks, workshops, festivals and behind the scenes tours. As the Botanical art group reflected, a programme of activities connected to the collection will mean it is shared more.

In-person access to the collection is currently by appointment only. Discussions within groups highlighted how many people are not aware of the possibilities to arrange visits. The Museum volunteer group for example identified the need for a clear point of contact and explicit information on the Amgueddfa Cymru website about how to arrange a visit or find out more, whilst the Gardening group emphasized the need for the collection to be 'free at the point of access', both in person and online.

A key concern for the Youth group was making the collection relevant for the diverse communities living within Wales. They reflected that whilst Amgueddfa Cymru is a public museum and open to all, not all people feel welcome in the museum space or comfortable engaging with the collections. Participants in this group recommended that Amgueddfa Cymru do more work so that the biocultural collection appeals to 'more than one group or faction' and no longer feel that they are 'being hoarded by the few'.

4.5. A Wales of Cohesive Communities

Five groups (the Botanical art group, Gardening group, Museum volunteer group, Park group and Women's group) discussed the importance of outreach and network building to raise awareness of the collection. The Museum volunteer group highlighted the need for 'getting out and talking to people', 'disseminating information, dispersing out' and recommended creating a dedicated outreach role to connect communities to the collection. Whilst exhibitions and events were considered important, the Botanical art group and Museum volunteer group suggested extending programme activities beyond museum sites, so that more communities across Wales can have opportunities to engage with the collection.

Four groups (the Gardening group, Museum volunteer group, Park group and Women's group) highlighted the importance of network building with other organizations and communities in Wales, including within formal education settings (such as with schools, universities and

colleges), as well as amongst communities living within Wales. These groups suggested network building with communities in Wales provides opportunities for knowledge exchange and the potential for generating new insights around the collection. The Gardening group was further interested in the knowledge exchange opportunities that could arise from international network building with other institutions and communities.

4.6. A Wales of Vibrant Culture and Thriving Welsh Language

All of the groups expressed interest in how the collection could support learning about connections between plants and cultures. The Museum volunteer group, Park group and Youth group identified potential in how the collection could support knowledge and understanding around how plants have been used in the past by diverse communities, as well as how they are used in the present day and how they could be used in the future. Participants in the Park group further expressed interest in how the collection could build understanding around Welsh culture and heritage. They suggested that learning more about historic uses of plants, including the use of plants in cooking, craft and medicine, could offer inspiration for contemporary practices in Wales. They also saw potential in using the collection to support learning about the Welsh language, through looking at the Welsh naming of plants and plant products and references to plants and plant products in Welsh literature and folklore.

The four groups that could be described as communities of practice (the Botanical art group, Gardening group, Museum volunteer group and Women's group) were particularly interested in how the collection could support knowledge and understanding around practices. The Gardening group, for example, wanted to see representation of a greater range of edible plants that have been or could be cultivated or foraged within Wales to support contemporary horticultural practices in Wales. The Women's group, which included a number of participants involved in a community cookery initiative, reflected on how the collection could be used as a starting point to share knowledge around the use of herbs and spices in cooking – linking with existing specimens in the collection, as well as identifying gaps and populating them with indigenous knowledge. The Botanical art group suggested the inclusion of textile samples within the collection could support knowledge and understanding around the use of plants as natural dyes. The Museum volunteer group further highlighted the need for specimens within the collection that reflect contemporary uses of plants in Wales, as well as historical ones. As one participant reflected, the collection needs to be 'dynamic' and 'living', stating: 'There needs to be a snapshot of what happens now'.

Some participants also highlighted the need for more inspiring displays of the specimens in the collection accompanied with photos and illustrations, with one participant in the Park group for example reflecting that the collection is, at present: 'very grey and the plants are very brown. It needs to be brightened'. Another participant in the Park group highlighted how inclusion of literature and folklore could support engagement with the collection and potential for new insights. The Museum volunteer group and Women's group further reflected on how including stories in displays and storytelling within collections would bring the specimens and knowledges linked to them alive. Drawing upon the examples of the Cathedral of Light at Royal Botanic Gardens, Kew and the *Seed* sculpture by Peter Randall-Page at the Eden Project, the Youth group discussed how artworks, installations and sculptures can be both sources of inspiration and insight, opening up new possibilities for engaging with plants and collections.

4.7. A Globally Responsible Wales

Although most groups agreed that a key role of the collection is to make a positive contribution to global well-being, many felt the collection needed to do more in order to contribute in a meaningful way to this well-being goal. Three groups (the Park group, Gardening group and Museum volunteer group) expressed uncertainty around the present aims and objectives of the collection. The Park group and Museum volunteer group for example highlighted the need for clear purpose and vision in the collection so that it can more effectively contribute to global well-being.

Some groups, however, had ideas of potential roles for the collection. The Park group suggested that raising awareness and supporting learning around the critical role plants play

in society was a further key part of the work of the collection. Participants in the Museum volunteer group agreed that a key role of the collection was to support 'looking after the environment'. Participants in the Gardening group reflected that the collection could play an important role in 'education for sustainable development and global citizenship'. In the Youth group, one participant suggested a key question to guide the future work of the collection should be 'what could benefit humanity?'

All groups highlighted how the collection could be an educational resource but further highlighted the need to share information already contained within the collection more broadly, as discussed in Section 4.4. The Botanical art group, Gardening group, Museum volunteer group and Women's group recommended the active gathering of new information relevant for sustainable futures in Wales. The Gardening group further noted that building international links, including with other botanic gardens and cultural institutions, and making the collection globally accessible, was critical work.

Participants in the Botanic art group discussed how the collection contained relevant information that could support learning about colonial histories, as well as building global links and making connections across cultures. As one participant reflected, 'It is a resource for people of Wales. A way of linking with other cultures'. For this group, making the collection more accessible was key. For the Museum volunteer group, making the collection 'dynamic' and 'alive' was important. For the Youth Forum, making it 'relevant' to the diverse communities living in Wales was essential.

The Botanic art group and Youth group highlighted the decolonization work to be done connected to the collection. The Botanic art group noted how the collection contains 'information about the colonial past' as well as 'information to make global links'. The Youth group identified potential in using the collection to open up dialogues around colonial histories. They highlighted the need to diversify narratives within the collection so that it is relevant for a wider group of people in Wales and beyond.

5. Discussion

Drawing upon the findings, this section considers how collaborative approaches to biocultural collections with communities can support 1. sharing of diverse knowledges; 2. more connected communities, and 3. more just approaches to curation.

5.1. Sharing diverse knowledges

Findings highlight diverse perspectives on the Amgueddfa Cymru Economic Botany Collection and a wide range of viewpoints regarding the potential role of the collection in contributing to the seven well-being goals of the Well-being Act.

Rich imaginaries can arise when exploring collection futures with diverse community groups, with particularly insightful perspectives from those with lived experience. Participants with experience of volunteering for example shared opinions around the health and well-being dimensions of being a volunteer, whilst practitioners offered insight regarding how the collection could support contemporary communities of practice by developing knowledge and understanding around historical practices. Practitioners particularly highlighted the need for more specimens – including edible crops, plant-based dyes and plants with medicinal properties – that could be relevant for sustainable futures in Wales, as well as activities and curatorial approaches that provide opportunities to engage with historical and contemporary practice.

Workshop discussions suggest biocultural collections provide opportunities for communities to connect with their cultural heritage. Asian participants in the Women's group for example spoke about using a wide range of herbs and spices both for traditional remedies and cooking. These spices were seen as ways of connecting with their cultural heritage and sharing it with others. Participants across the groups expressed interest in using the collection as a starting point to learn more about the different ways plants are used by diverse cultures both in Wales and around the world.

Lessons from other institutions indicate possibilities for engaging with community heritage, knowledge and practice. The Arctic Studies Center at the Smithsonian for example has a programme where community artists use collections to demonstrate and share indigenous

knowledge and to inspire new works.⁷ The Recovering Voices program further offers support for communities to work on and with collections to ‘save, document, and enliven their languages, cultures and traditional knowledge’.⁸ Through transatlantic collaboration with Haida and Blackfoot indigenous communities, the Pitt Rivers Museum offers a further example of how communities can be supported by museums in the pursuit of knowledge documentation and revitalization (Krpmotich and Peers 2013; Peers and Brown 2015).

5.2. Connecting communities

All groups discussed the benefits of raising awareness of the biocultural collection within communities in Wales. As a national collection, the Amgueddfa Cymru biocultural collection belongs to the people of Wales. Findings however highlight current shortcomings of the collection in terms of fostering this sense of belonging. Many of the participants within the workshops had never heard of the collection and groups such as the Youth group questioned whether the collection at present appeals to the diverse communities living within Wales. Outreach and network building was considered essential amongst all groups to raise awareness of the collection. Groups highlighted the need to increase the physical presence of the collection across the Amgueddfa Cymru sites; to increase the online presence of the collection including via digitization; and to build connections with communities across Wales and internationally.

Discussions demonstrate interest in how the collection could play a more active role in facilitating connections within and across communities – including communities of practice, cultures and places. The Women’s group, which included participants from a range of different ethnic backgrounds, emphasized the importance of building relationships between different cultures and communities, identifying food as a particularly useful tool for doing this. For example, Asian and African members of the Women’s group discussed how they might cook the same plant in different ways.

Discussions with the Park and Botanical art groups further suggest collaborations between museums and communities have the potential to support not only connections with cultural heritage but also the cultivation of new biocultural relationships with local environments and communities. Although there was uncertainty amongst some groups around the aim or vision of the collection, findings demonstrate opportunity to build more collective visions for the future of the collection by working with communities.

As Peers and Brown (2003: 161) suggest, through collaborative approaches, museums can be sites for the production of new knowledge. Engaging with local communities both inside and outside the museum’s physical space is critical to achieving a ‘dynamic museum’ that reflects community heritage (Van de Laar 2013). At Museum Rotterdam, migration has been used as a theme for exploring the museum collections and for stimulating innovative approaches to engaging with local communities to curate collections, including with immigrant community members (Dibbits and Karrouche 2017). Such work has offered new historical perspectives on collections and enabled critical review of the representation of migration in the museum space, as well as new perspectives on local identity and, in this case, what it means to be a ‘Rotterdammer’ (Dibbits and Karrouche 2017).

Cultivating connections within and between diverse communities can offer new insights into collections and curatorial approaches. Projects such as the Reciprocal Research Network,⁹ the Great Lakes Alliance for the Study of Aboriginal Arts and Culture¹⁰ and the Mukurtu Content Management System¹¹ exemplify approaches that engage with originating communities ‘in processes of relationship building and network development’ with the aim to ‘enhance possibilities for association, access and connection’.¹² Biocultural collections are thus identified as potential tools to support inter and intra-cultural communication and understanding (Iervolino 2013).

5.3. Collaborating for justice

Discussions within the workshops indicate expectations amongst some participants that that Amgueddfa Cymru needs to do more work around decolonizing collections, including the biocultural collection. The Youth group and Botanic art group for example were interested in how the collection could support learning around the history of colonialism and were interested to learn more about the diverse narratives connected to specimens. Several groups also

recognized the potential for the collection to build links with communities across the globe, including with source communities. Collaboration with communities plays an important role in leveraging the role of biocultural collections in supporting more just futures. Many museums are working to embed communities within curatorial approaches. The 'Multaka' scheme in the Pitt Rivers Museum, and the History of Science Museum, Oxford, UK aim to use museums and collections as 'meeting points' for bringing people together.¹³ Volunteers can act as guides for specific personal experiences and stories connected to objects from their countries of origin. These examples demonstrate ways of working not *in* but *with* communities (Silverman 2015). Such approaches between museums and communities acknowledge the challenge of decolonizing work, and seek practices that 'bolster cultural identity and foster healing' (Peers and Brown 2003: 5).

Further work is required in order to continue the process of addressing structural racism. Hiring and training of immigrant and refugee community members as guides, pioneered by Pennsylvania Museum through the 'Global Guides' programme, exemplifies how engaging with and employing diverse local community members brings new perspectives on collections and new understandings of local community heritage (Pennsylvania Museum 2018).

Collaborative approaches require appropriate resources that enable both museum staff and community members to carve out time to engage with processes of co-curation. This includes but is not limited to: appropriate funding for curatorial outreach and engagement with diverse local communities; financial reimbursement of community members participating in processes of co-curation; and developing financial reimbursement of community members participating voluntarily in co-curation as well as the development of new, paid, roles representative of local communities within the museum space.

In 2020, Amgueddfa Cymru issued a statement confirming its opposition to racial injustice and inequality, declaring that #BlackLivesMatter and pledging to diversify the collections, increase representation and contribute to conversations that highlight decolonization, inequality and racism.¹⁴ Following this, the Amgueddfa Cymru decolonization programme was initiated, leading to development of *A Charter for Decolonising Amgueddfa Cymru's Collections* (Amgueddfa Cymru 2022). The charter lays out Amgueddfa Cymru's approach to decolonizing its collection and highlights six key areas of focus, where the museum will work with communities across Wales, and beyond, with the aim 'to decolonise the collection, and work towards decolonising the museum itself', including: 1. Community action research; 2. Co-curating content; 3. Identifying racist collections; 4. Decision-making about acquisitions; 5. Collections access; and 6. Digitization (Amgueddfa Cymru 2022). Work on the decolonization project within the biocultural collection includes auditing the collection to discover specimens associated with colonization and oppression and to research their provenance, as well as engaging with local community groups and working with them to reinterpret and co-curate museum specimens and to provide cultural context. The aim is to recognize the value of traditional knowledge held in diaspora communities and to increase involvement and representation of communities across Wales.

6. Conclusion

Findings from the workshops suggest biocultural collections, such as the Amgueddfa Cymru Economic Botany Collection, have the potential to contribute to building public understanding and awareness of biocultural diversity and to the well-being of future generations. Creating frameworks of multiple values in collaboration with communities can inform future approaches to collections and curatorial practices based on diverse perspectives. Key recommendations of this study include: making the collections more physically and digitally available and accessible; developing more local, national and international connections with communities and institutions; and more actively supporting opportunities for learning and knowledge exchange.

Drawing upon experience of hosting the workshops, we highlight the need for further opportunities for communities to work on and with biocultural collections in collaborative ways. Support for communities to access collections both physically and digitally and the development of a programme of activities in collaboration with communities are key steps to enabling more equitable collaborations around biocultural collections. There is further need for more systemic change within collection curation – including opportunities for members

of diverse communities to work within museums as guides and curators.

As scholarship on collaboration highlights, creating more dialogic relationships with communities is essential (Witcomb 2003; Iervolino 2013), working *with* rather than *in* communities (Silverman 2015). The Well-being Act that underpins the work of Amgueddfa Cymru provides fertile ground for museum-community collaboration. Extension of the collection and additional documentation to reflect the diverse knowledges and practices connected to plants is essential, particularly to represent the botanical expertise and practical experience of the diverse communities currently living in Wales. Museums need to work with communities to build knowledge and understanding of the multiple values of biocultural collections. Collaboration between communities and museums is critical to leverage the role of biocultural collections in supporting sustainable and just futures.

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Conflict of Interest

The authors have no conflict of interest to declare.

Authors' Contributions

PN and HP conceived the ideas and designed the methodology; PN collected and analysed the data; both authors wrote the manuscript and gave final approval for publication.

Notes

- ¹ Society for Economic Botany, 'Biocultural Collections Working Group', 2020. <https://www.econbot.org/biocultural-collections-working-group.html>, accessed 26 October 2022.
- ² Alexandre Antonelli, 'It's Time to Decolonise Botanical Collections', Royal Botanic Gardens 2020. <https://www.kew.org/read-and-watch/time-to-re-examine-the-history-of-botanical-collections>, accessed 26 October 2022.
- ³ Amgueddfa Cymru, 'Vascular Plants Collection', 2020. <https://museum.wales/curatorial/biosyb/vascular/collections/>, accessed 26 October 2022.
- ⁴ Amgueddfa Cymru, 'A Brief History of St Fagans', 2020. <https://museum.wales/stfagans/stfagans-history/>, accessed 26 October 2022.
- ⁵ Amgueddfa Cymru, 'Vascular Plants Collection'.
- ⁶ Victoria Purewal, 'Old Cures: Amgueddfa Cymru's Historic Medicine Collection', Amgueddfa Cymru 2010. <https://museum.wales/articles/2010-10-22/Old-cures-Amgueddfa-Cymrus-Historic-Medicine-Collection/>, accessed 26 October 2022.
- ⁷ Smithsonian National Museum of Natural History, 'Arctic Studies Center', 2021. <https://naturalhistory.si.edu/research/anthropology/programs/arctic-studies-center>, accessed 26 October 2022.
- ⁸ Smithsonian National Museum of Natural History, 'Recovering Voices', 2021. <https://naturalhistory.si.edu/research/anthropology/programs/recovering-voices>, accessed 26 October 2022.
- ⁹ Reciprocal Research Network 2014. <https://www.rrncommunity.org/>, accessed 26 October 2022.

- ¹⁰ GRASAC, 'The Great Lakes Research Alliance for the Study of Aboriginal Arts and Cultures', 2020. <https://grasac.artsci.utoronto.ca/>, accessed 26 October 2022.
- ¹¹ Mukurtu Content Management System 2021. <https://mukurtudemo.libraries.wsu.edu/>, accessed 26 October 2022.
- ¹² Kate Hennesy, Dave Schaepe, Natasha Lyons, Aynur Kadir, Reese Muntean, Clarence Pennier and Michael Blake, 'Collaborative Digital Curation and Recursive Publics: The Making of Sq'ewlets: A Stó:lō-Coast Salish Community in the Fraser River Valley', *Museums and the Web* 2018. <https://mw18.mwconf.org/paper/collaborative-digital-curation-and-recursive-publics-the-making-of-sqewlets-a-stolo-coast-salish-community-in-the-fraser-river-valley/>, accessed 26 October 2021.
- ¹³ Pitt Rivers Museum, 'Multaka-Oxford', 2021. <https://www.prm.ox.ac.uk/multaka-oxford-0>, accessed 26 October 2022.
- ¹⁴ Amgueddfa Cymru, 'Our Statement on the Black Lives Matter Movement', 2020. <https://museum.wales/about-us/Black-lives-matter/>, accessed 26 October 2022.

References

- Amgueddfa Cymru (2015) *Community Engagement Strategy, 2015-20*, Cardiff: Amgueddfa Cymru. <https://museum.wales/media/39583/Community-Engagement-Strategy-2015.pdf>.
- (2016) *Inspiring People, Changing Lives*, Cardiff: Amgueddfa Cymru. <https://museum.wales/media/41636/Amgueddfa-Cymru---Well-being-Statement.pdf>.
- (2019) *Code of Ethical Principles and Policy for Research*, Cardiff: Amgueddfa Cymru.
- (2022) *A Charter for Decolonising Amgueddfa Cymru's Collections*, Cardiff: Amgueddfa Cymru. <https://museum.wales/media/53369/Charter-For-Decolonising-AC-Collection.pdf>.
- Bell, J.A. (2017) 'A Bundle of Relations: Collections, Collecting, and Communities', *Annual Review of Anthropology*, 46 (1) 241-59.
- BSA (2017) *BSA Statement of Ethical Practice 2017*, Durham: BSA Publications.
- Canning, C. and Holmes, K. (2006) 'Community Consultation in Developing Museum Projects: A Case Study Using the Repertory Grid Technique', *Cultural Trends*, 15 (4) 275-97.
- Cardiff University (2019) *Research Integrity and Governance Code of Practice*, Cardiff: Cardiff University.
- Carine, M.A., Cesar, E.A., Ellis, L., Hunnex, J., Paul, A.M., Prakash, R., Rumsey, F.J., Wajer, J., Wilbraham, J. and Yesilyurt, J.C. (2018) 'Examining the Spectra of Herbarium Uses and Users', *Botany Letters*, 165 (3-4) 328-36.
- CBD (1992) *Convention on Biological Diversity*, Rio de Janeiro & New York: UN.
- Cornish, C., Allan, P., Gardiner, L., Nicol, P., Pardoe, H., Sherwood, C., Webster, R., Young, D. and Nesbitt, M. (2020) 'Between Metropole and Province: Circulating Botany in British Museums, 1870–1940', *Archives of Natural History*, 47 124-46.

- Cornish, C. and Driver, F. (2020) "'Specimens Distributed": The Circulation of Objects from Kew's Museum of Economic Botany, 1847–1914', *Journal of the History of Collections*, 32 (2) 327-40.
- Crouch, N.R., Balslev, H., Bawa, K., Bye, R., Dema, S., Linares, E., Shengji, P., Randrianasolo, A. and Rashford, J. (2014) 'Multicultural Perspectives on Biocultural Collections', in Jan Salick, Katie Konchar and Mark Nesbitt (eds) *Curating Biocultural Collections: A Handbook*, 263-69, London: Royal Botanic Gardens.
- Das, S. and Lowe, M. (2018) 'Nature Read in Black and White: Decolonial Approaches to Interpreting Natural History Collections', *Journal of Natural Science Collections*, 6 4-14.
- Davis, P. (1996) *Museums and the Natural Environment: The Role of Natural History Museums in Biological Conservation*, Leicester: Leicester University Press.
- Dibbits, H. and Karrouche, N. (2017) 'Ticking the Box?: Material Cultures of Migration in Museum Rotterdam and the Netherlands Open Air Museum', *Jahrbuch für Europäische Ethnologie Dritte Folge*, 12 147-68.
- Dooley, J.M. and Luce, K. (2015) 'Making Archival and Special Collections More Accessible', Dublin, OH: OCLC Research. <https://www.oclc.org/content/dam/research/publications/2015/oclcresearch-making-special-collections-accessible-2015-a4.pdf>.
- Driver F., Nesbitt, M. and Cornish, C. (2021) *Mobile Museums: Collections in Circulation*, London: UCL Press.
- Fonseca-Kruel, V.S. da, Martins, L., Cabalzar, A., López-Garcés, C.L., Coelho-Ferreira, M., Veld, P.-J. van der, Milliken, W. and Nesbitt, M. (2019) 'Biocultural Collections and Participatory Methods: Old, Current, and Future Knowledge', in Ulysses Paulino Albuquerque, Reinaldo Farias Paiva de Lucena, Luiz Viyal Fernandes Cruz da Cunha and Rômulo Romeu Nóbrega Alves (eds) *Methods and Techniques in Ethnobiology and Ethnoecology*, 215-28, New York: Humana Press.
- Gavin, M.C., McCarter, J., Mead, A., Berkes, F., Stepp, J.R., Peterson, D. and Tang, R. (2015) 'Defining Biocultural Approaches to Conservation', *Trends in Ecology & Evolution*, 30 (3) 140-5.
- Hart, R., Law, L. and Jackson, W. (2014) 'Biocultural Collections for Conservation', in Jan Salick, Katie Konchar and Mark Nesbitt (eds) *Curating Biocultural Collections: A Handbook*, 319-36, London: Royal Botanic Gardens.
- Iervolino, S. (2013) 'Museums, Migrant Communities, and Intercultural Dialogue in Italy', in Viv Golding and Wayne Modest (eds) *Museums and Communities: Curators, Collections and Collaboration*, 113-29, London: Bloomsbury.
- Krmpotich, C. and Peers, L. (2013) *This Is Our Life: Haida Material Heritage and Changing Museum Practice*, Vancouver: UBC Press.
- Lane, J. and Williams, N. (2020) 'Amgueddfa Cymru – National Museum Wales and the Journey towards Cultural Democracy', in Mark O'Neill and Glenn Hooper (eds) *Connecting Museums*, 66-79, Abingdon: Routledge.
- Lazarus, M.H. and Pardoe, S.H. (2003) *Catalogue of Botanical Prints and Drawings at the National Museums & Galleries of Wales*, Cardiff: Amgueddfa Genedlaethol Cymru – National Museum of Wales.

- National Assembly for Wales (2015) *Well-Being of Future Generations (Wales) Act 2015*, Cardiff: National Assembly for Wales.
- Peers, L. and Brown, A.K. (2003) *Museums and Source Communities: A Routledge Reader*, London: Routledge.
- (2015) *Visiting with the Ancestors: Blackfoot Shirts in Museum Spaces*, Edmonton: Athabasca University Press.
- Pennsylvania Museum (2018) 'Global Guides Program Receives Public Recognition', *Expedition Global Classroom*, 60 (3) 62. <https://www.penn.museum/documents/publications/expedition/PDFs/60-3/global-classroom-60-3.pdf>.
- Ponder, W.F., Carter, G.A., Flemons, P. and Chapman, R.R. (2001) 'Evaluation of Museum Collection Data for Use in Biodiversity Assessment', *Conservation Biology*, 15 (3) 648-57.
- Potter, S. (2005) *Community Consultation: Effective Practice for Museums*, London: University of Greenwich.
- Salick, J., Konchar, K. and Nesbitt, M. (eds) (2014) *Curating Biocultural Collections: A Handbook*, London: Royal Botanic Gardens.
- SCIE (2015) *Co-Production in Social Care: What It Is and How to Do It – At a Glance*, London: Social Care Institute for Excellence.
- Secretariat of the Convention on Biological Diversity (2014) *Nagoya Protocol on Access to Genetic Resources and the Fair and Equitable Sharing of Benefits Arising from Their Utilization to the Convention on Biological Diversity*, Montreal: United Nations Environmental Programme.
- Silverman, R.A. (2015) *Museum as Process: Translating Local and Global Knowledge*, Abingdon: Routledge.
- Suarez, A.V. and Tsutsui, N.D. (2004) 'The Value of Museum Collections for Research and Society', *BioScience*, 54 (1) 66-74.
- Teixidor-Toneu, I., Jordan, F.M. and Hawkins, J.A. (2018) 'Comparative Phylogenetic Methods and the Cultural Evolution of Medicinal Plant Use', *Nature Plants*, 4 (10) 754-61.
- Van de Laar, P. (2013) 'The Contemporary City as Backbone: Museum Rotterdam Meets the Challenge', *Journal of Museum Education*, 38 39-49.
- Welsh Government (2015) *A Guide to the Wellbeing of Future Generations Act* Cardiff: Welsh Government. <https://futuregenerations.wales/wp-content/uploads/2017/02/150623-guide-to-the-fg-act-en.pdf>.
- Witcomb, A. (2003) *Re-Imagining the Museum: Beyond the Mausoleum*, London: Routledge.

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