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Article

Exploring Public Recognition and Perceived Cultural Value of the Special Qualities within English Areas of Outstanding Natural Beauty

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Abstract: As both the concept of 'landscape' and 'beauty' have very perceptual definitions, they must be assessed by large groups to be appropriately addressed. Therefore, amid a review of AONB designation, cultural perceptions of what is valuable within these designated areas is of paramount importance. Ecosystem services have gained traction as a way to assign social value to the non-physical benefits landscape can provide. AONB landscapes have a list of 'special qualities' (SQs) which are the features and characteristics of this area that warrant its protection. This study looks at the extent to which SQs reflect public values. Multiple methods including photo elicitation, participatory mapping, in-person surveys and social media data analysis have been used. The study suggests that when presented with the same landscape there is huge diversity as to what should be considered 'special'. There is a general preference of landscape heterogeneity, therefore no one SQ could be more important than any of the others if considered in isolation. SQs that have a tangible link to the cultural ecosystem services they provide, were most appreciated. All methods used had their own benefits and flaws, hence future research should use a combination of methods to address perception issues.

1. Introduction

A key goal of the UK's Defra's 25-year plan is to 'conserve and enhance the beauty of landscapes' [1] by reviewing the effectiveness of AONB designation. Social opinions are crucial for driving conservation and policy, and therefore, this study looks at the cultural understanding of the factors that warrant AONB designation; their special qualities (SQs).

To properly assess how landscape is socially valued, landscape must first be defined. The European Landscape Convention defines landscape as "an area, as perceived by people, whose character is the result of the action and interaction of natural and/or human factors" [2]. Broken-down themes of this definition include physical form, perception and human/natural process interaction (practices) and perceptions (human relationships) [3]. Physical form relates to the topography and land cover of the given location. Practices look at how the landscape responds to both natural and human management [4]. Perception is the variability in how individuals respond to their senses based on contextual factors including past experiences, their understanding and interpretation and other cultural factors [5–7]. This drives how individuals can differently assign value to the same subject [6]. Ecosystem services are a large driver in current environmental conservation, defined as the resources and functions of the natural environment that meet human needs or desires through both direct and indirect processes [8]. Cultural ecosystem services (CES) are one of the four ES categories in the millennium ecosystem assessment (MEA) in addition to provisioning, regulating, and supporting services [9]. Benefits of CES include 'spiritual enrichment, cognitive development, reflection, recreation, and aesthetic experiences' [10,11]

providing non-material life-enriching and life-affirming contributions to human health and well-being [10]. Quantifying CES remains remarkably exigent as they can be intangible and subjective concepts, rather than physical resources [11,12] (and do not lend well to economic validation [10]). This combined with the transdisciplinarity of study required to effectively assess their multidimensional factors [12] from a multitude of perspectives on, means CES have received poor appraisal [4]. Despite this, CES are arguably the most relatable of the ES categories to the general public, as they are directly experienced and appreciated, providing a good opportunity to promote engagement [13]. The difficulty of assigning cultural benefits of landscape to the ES framework has been heavily researched and criticised [14]. Henceforth, following recommendations in Wartman et al., 2018) [15], this assessment will focus on the landscape elements with which cultural meanings are associated. Past studies have focused too heavily on landscape elements rather than what is benefited from said elements [6], therefore it is important this link is explored. There is a strong conceptual link between CES and cultural landscape studies, with studies of landscape and sense of place providing a bridge linking ecosystem functioning outcomes and cultural values [16]. Despite this important connection there is a prevailing division in recognition of culturally important landscapes and how they may relate to the provision of ecosystem services [6].

Areas of Outstanding Natural Beauty

One of the most extensive landscape designations within England, Wales and Northern Ireland are areas of outstanding natural beauty (AONBs), with 15% of England is designated as an AONB [17]. These landscapes are designated for conserving and enhancing the natural beauty they possess [18]. The National Parks and Access to the Countryside Act, first formalised AONBs in 1949 (amended in 1995, the Environment Act). The Countryside and Rights of Way (CROW) Act grants rights to Natural England (NE) to designate AONBs. AONB areas are safeguarded from major development with the National Planning Policy Framework (NPPF) stating AONBs should be conserved and enhanced with major planning applications refused, with the exemption of developments proved to be in the public interest [19]. To be eligible for the AONB designation an area must meet the natural beauty criterion set out by NE (Figure 1) [8]. AONB areas are often historically human manipulated landscapes rather than completely 'natural' but remain relatively undeveloped. Beyond conserving and enhancing natural beauty, strategic of objectives of AONBs also include promoting public understanding of AONBs, supporting local communities both socially and economically and identifying the ecosystem service benefits provided by AONBs [20].

AONB SQs are the components of the landscape that fit the natural beauty criterion (Figure 1) warranting the area for designation. SQs are by AONB partnerships (made up of relevant local authorities) and NE, based on the 'distinctive characteristics' and 'key features' of the area (Figure 2) [21]. Semantic issues can arise when describing SQs and natural beauty, these are separate descriptors, with natural beauty being an umbrella term for the landscape components.

AONB unique SQs are explicitly stated within management plans, but not all users of the area will read these. Therefore, there is potential for opinions of stakeholder groups to be overlooked, or for the users of this landscape to not fully understand the components that merit the areas designation.

Describing beauty is subjective, it is a historical discourse as to whether aesthetic quality is objective (the inherent properties of the object in question), or subjective (perception to the 'eye of the beholder') [23]. Modern philosophy favours the subjective theory [24], where opinion is an accumulative aggregation of responses from their senses [5], not just visual quality. Perceptual experiencing of a landscape therefore determines the extent to which it can be deemed beautiful, making it a dynamic and malleable concept and consistency of its interpretation almost unintelligible [25].
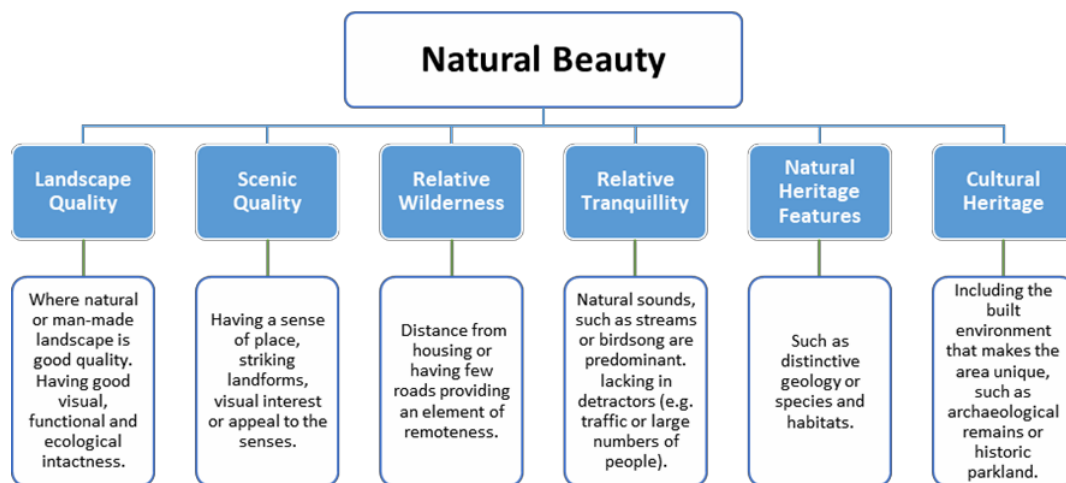
Figure 1. Natural beauty criterion for AONB designation. Figure created from this research, explanatory data from 'AONB: designation and management' [18] and 'Dedham Vale AONB Natural Beauty and Special Qualities and Perceived and Anticipated Risks' report [22].
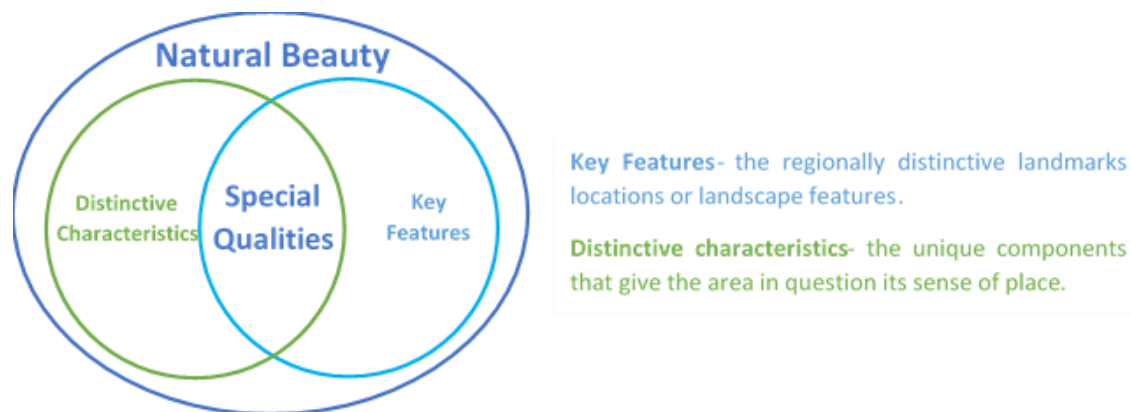

Figure 2. How special qualities relate to natural beauty adapted from SDAONB's management plan [21] with the permission of SDAONB.

The perceptual complexity of both the concept of landscapes and the human validation process makes attributing value to landscapes particularly difficult to understand [26]. To overcome perceptual issues, a multitude of opinions and perspectives are necessary. Consequently, public feedback could be crucial to ensuring that the most beautiful features of AONBs are the ones with the highest protection.

AONBs do not have a legal obligation to promote the area for public use or require their own independent authorities (unless there is a conservation board [21]. Despite this, it has become a strategic objective of AONB function to "promote public understanding and enjoyment of the nature and culture of AONBs and encourage people to take action for their conservation" [21].

Guidance documents such as landscape character assessments (LCAs) include cultural and perceptual sections which are intended to highlight valuable characteristic features so future management can ensure their protection [27]. These reports frequently include public perceptions and are aided by a multitude of participatory methods to ensure stakeholder opinions are met. This in turn helps guide AONB SQ choices.

The high scenic quality of AONBs inevitably attract people to these landscapes for recreational pursuits, tourism or residential use, putting pressure on them to accommodate these user groups in a manner that does not degrade its landscape quality [28]. AONB landscapes are protected against most forms of major development [20], however, housing developments are a threat to AONB landscapes with many being approved in these areas to meet housing demand from increasing population and a high interest for retirement

or second homes [29]. In 2016/7 the approval rate was 64% for housing proposals, with AONB land approved totaling to 211.9 ha [29]. Other threats to AONB landscapes include changes to agricultural practices or woodland management, recreational pressures and climate change [30]. Therefore, it is paramount that where development must take place (in accordance with the NPPF), SQ of that area should be fully understood to minimise any deleterious effects to the features that necessitate its protection.

Despite well-developed understanding of the importance of stakeholder participation in management, few extensive studies have been undertaken to analyse relationships between landscape policy and landscape users [6]. Respondents to a survey conducted by Dixon, et al. (2017) showed that public members valued AONB teams engaging with neighbourhood planning groups to increase awareness and understanding of AONB SQs, this stronger connection to SQs could therefore minimise AONB degradation from inappropriate development [31]. Landscape assets with perceived value should be prioritised for management and conservation to ensure they are maintained and enhanced as they are those likely to provide CES [32]. Identifying the SQs with the greatest value means that they can be conservation priorities and used to inform policy, enhancement of these would in turn increase provision of CES and stakeholder satisfaction. This would also be an opportunity to engage with communities, a desired action within Defra's 25-year plan as part of an effort to review effectiveness of AONB designation [1]. Zanderson et al. (2017) highlights how the European Landscape Convention puts significant emphasis on the need for public engagement in the definition an implementation of landscape policies and therefore where there is the potential for significant landscape impacts the preferences of the public should be taken into account [33].

Research specific questions investigated within this paper are as follows: To assess the SQs assigned by AONB partnerships, to identify if they align with public perception of what is special within the landscape and assess different collection methodologies for generating data illustrating public perceptions of landscape SQs. To achieve this the paper; evaluates different stakeholder perspectives on AONB landscapes to determine what key features and distinctive characteristics they assign the most value to and to determine if these align with the SQs of the AONB; looks at the parallels and differences of landscape perception in various stakeholder groups for two different AONB sites, Arnside and Silverdale AONB (A&SAONB) and South Devon AONB (SDAONB); and investigates possible links between social value of SQs to their provision of CES.

2. Method

Multi-criteria analysis methods were used as it is widely considered that a combination of methods produces a more in depth understanding [34]. Both primary data, secondary data and passive contributed data were used to add a multidimensional approach to the subject in question.

2.1. Case Study Areas

Arnside and Silverdale Area of Outstanding Natural Beauty (A&SAONB) and the South Devon Area of Outstanding Natural Beauty (SDAONB) and were both selected as case study AONBs because of their relatively small area and the expressed interest from their AONB partnerships to explore perceptions of AONB SQs from the public. Both AONBs also had relatively manageable numbers of SQs (see Tables 1 and 2), which were up to date and clearly defined within their management plans, lending them well to research exploration. Data were supplied by both AONB partnerships to support research within this investigation. The location and extent of both AONBs can be seen in Figure 3.

2.1.1. Arnside and Silverdale AONB

A&SAONB was designated in 1972 and covers an area of 75 km^2 within the boundaries of Cumbria and Lancashire County Councils [31]. The dense mosaic of different land use

types and habitats within this relatively small AONB [36] make it of national importance to be safeguarded from development.

2.1.2. South Devon AONB

The 340 km² area of SDAONB was first designated in August 1960 (South Devon AONB Partnership, 2014). The AONB lies predominantly within the South Hams/Devon County administrative area although a small proportion lies in both Plymouth and Torbay [22]. The resident population of the AONB is approximately 31,197 people [29]. The SQs of SDAONB are shown in Table 2.

Table 1. A&SAONB SQs explained. Data directly quoted from A&SAONB's Management Plan [31] and their report on SQs [36] with permission of A&SAONB).

Code Name	Special Quality
ASSQ1	Outstanding landscape and spectacular views.
ASSQ2	Unique limestone geology.
ASSQ3	A stunning seascape.
ASSQ4	Rare and precious habitats.
ASSQ5	Internationally and nationally important species.
ASSQ6	Rich sense of history.
ASSQ7	Distinctive settlement character.
ASSQ8	Strong community and culture.
ASSQ9	Opportunities to enjoy the countryside.
ASSQ10	Sense of tranquillity, space and place.
ASSQ11	A highly designated area.

Table 2. SDAONB SQ, information directly quoted from SDAONB's Management Plan [22] with permission of SDAONB.

| Code Name	Special Quality
SDSQ1	Fine, undeveloped, wild and rugged coastline.
SDSQ2	Ria estuaries (drowned river valleys), steep combes and a network of associated watercourses.
SDSQ3	Deeply rural rolling patchwork agricultural landscape.
SDSQ4	Deeply incised landscape that is intimate, hidden and secretive away from the plateau tops.
SDSQ5	Iconic wide, unspoilt and expansive panoramic views
SDSQ6	A landscape with a rich time depth and a wealth of historic features and cultural associations.
SDSQ7	A breadth and depth of significant habitats, species and associated natural events.
SDSQ8	An ancient and intricate network of winding lanes, paths and recreational routes.
SQ9	Areas of high tranquillity, natural nightscapes, distinctive natural soundscapes and visible movement.
SQ10	A variety in the setting to the AONB formed by the marine environment, Plymouth City, market and coastal towns, rural South Hams and southern Dartmoor.
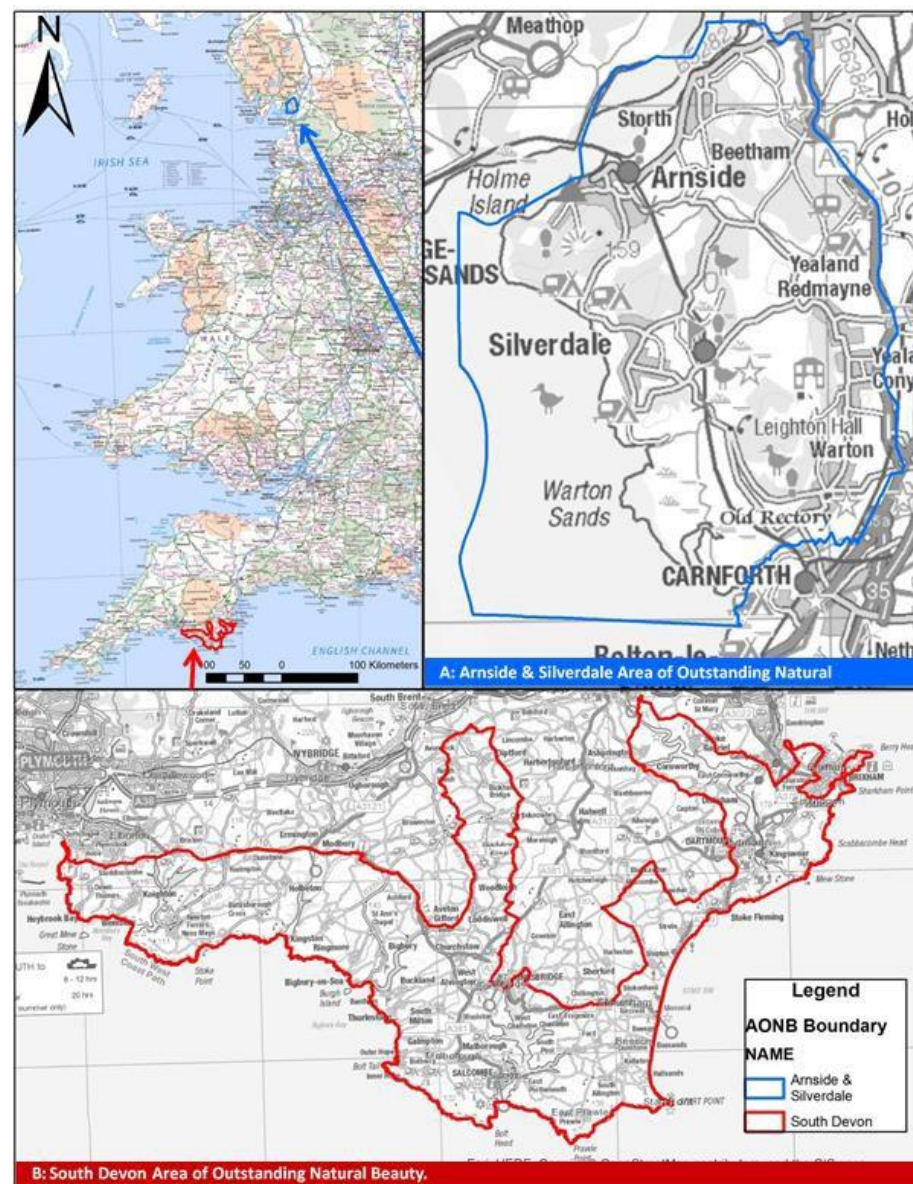
Figure 3. Extent and location of the case study AONBs. (**A**) = A&SAONB, (**B**) = SDAONB. Map was created for this research using AONB and National Parks overlay from Natural England [35].

2.2. Online Questionnaire

An online questionnaire (OQ) was composed, distributed and data collected. Demographic questions including age, gender place of residence, career type and relationship to AONBs were asked to determine stakeholder groups. A question relating to participation in outdoor recreation activities was also presented.

A stated preference assessment was used to judge stakeholder perceptions of 13 different landscape features where the most important feature was ranked into ordinal categories, with '1' being the most important and '13' the least. This method was chosen to obtain semi-quantitative preferential data without the need to be spatially explicit, to gain results that could be applied to all AONBs [37]. The same method was used to determine CES with the highest perceived value to respondents and five crude CES categories were ranked. This crudely determines which CES has the most acknowledged positive effect on wellbeing [38].

A set of ten landscape photos (Figure 4) explicitly depicting one of the SQs of SDAONB were presented to participants as part of a photo elicitation activity. Each photo was

taken in similar weather and season, with locations distributed across the whole AONB. Coloured photographs can be used as an acceptable representation of landscapes if their limitations are acknowledged [39]. Participants were prompted to provide short answers to the question; "what feature within this area, or quality of this area do you think is particularly important and warrants its protection?". This allows diversity of preference when presented with the same material to be quantified as well as identifying if the public can acknowledge SQs of SDAONB.
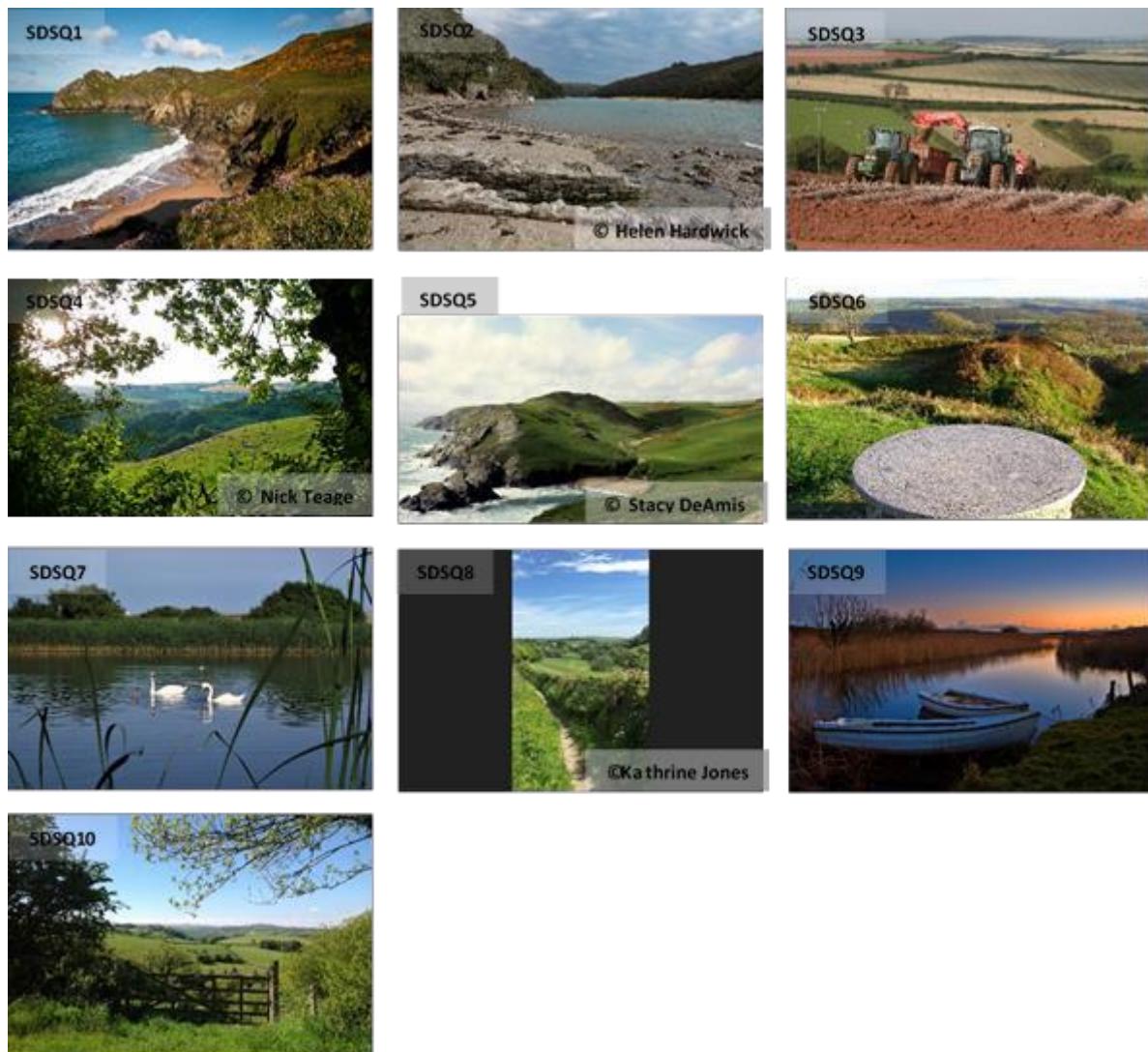

Figure 4. Photos used within OQ photo elicitation exercise. Photos were used with the permission of SDAONB.

2.3. Arnside and Silverdale AONB PGIS Survey

A&SAONB working with Natural England ran an online public participation geographic information systems (PGIS) based questionnaire, in which respondents were asked to pinpoint the exact locations they valued and what they valued them for. For each point partakers were asked to select (<3 of the 7) CES they felt represented this area. Allowing perceptual knowledge and values from communities at local scales to be applied to mapping [40,41].

2.4. 'What Makes South Devon Special?' Survey

Data were collected by SDAONB at a series of events, about respondents' favourite places in the AONB as part of the 'what makes South Devon special' (WMSDS) project. Each

participant was asked to identify their two favourite places and write a short reasoning for choice. These responses were geographically plotted to show distribution of perceived value in the AONB. Similar to the PGIS data from A&SAONB, this allowed local knowledge to be spatially grounded. Locations stated often were broad place names, therefore the mapping of these toponyms have a low degree of accuracy.

2.5. Instagram

Instagram established 2010, has gained recent popularity and uptake in scientific study as a resource for publicly accessible geolocational data, out-performing results from Flicker and Twitter in Tenkanen et al.'s 2017 study [42]. Content was derived by a search for the hashtags '#southdevonaonb' and '#arnsideandsilverdaleaonb' this collected all uploads in the public domain using these tags. Studies have stipulated that textual tags can be used to georeference media to a place [43]. Not all uploads were geotagged to a location within the AONB, so use of these tags assumes content is from within the AONB. Application programming interfaces (APIs) would allow a larger dataset to be collected including more information about the uploader, however, this method was rejected as the complexity of creating custom-made tools for analysing Python code [44] was deemed too complex to be performed in the allocated research timeframe.

2.6. Data Interpretation

Responses from all collection methods were categorised using a grounded and inductive method to avoid researcher bias [45] to determine if the features identified (or shown) within the results were SQs.

3. Results

3.1. Online Questionnaire

The OQ received a total of 158 respondents. Recreational activities respondents partook in varied greatly but more than half of all respondents stated they 'look at the view from a car', 'look at wildlife', 'sit and look at the view', 'walk or hike', or to 'be with friends or family'. 'Being with friends or family' was the most frequently selected activity chosen by 90% of respondents. Less than 2% of all respondents claimed to partake in 'field sports', 'fishing' or 'none of these'.

Landscape features were ranked on a 13-point scale with the most important features ranked as 1. Mean results from this ranged from 4.5 (wildlife rich) to 9.7 (agricultural land). The ranking produced results with large interquartile ranges in Figure 5. With the smallest standard deviation occurring in valleys (2.7), this shows there was a low level of agreeance between respondents. Only the results of the most and the least important mean ranked features (agricultural land and wildlife rich) have interquartile ranges that do not overlap, so be considered significantly different.

Respondents were asked to order the importance of seven CES categories or valuing landscape. Wildlife had the most saliency with a mean of 2.6 (closest to 1 = most important), with learning being assigned typically higher (less important) ranking averaging at 5.5. However, similar to the ranking of landscape components, no one feature is statistically significantly more important than the others with all interquartile ranges overlapping.

In the photo elicitation exercise, most responses (based on the aggregated mean of the 10 photos) identified physical features of the landscape (90.1%). Fewer responses identified characteristics of that area (50.0%) or benefit that could be considered CES (37.7%).

The aggregated responses from the ten SQ landscape photos (Figure 6) shows that comments noting or describing the 'flora' of the landscape were the most frequent (12.1% of responses). The following landscape elements appeared responses for all ten of the SQ photos; 'flora', 'fauna', 'views', 'beauty', 'wild/natural', 'tranquil', 'unspoilt', 'expansive' and 'diversity'.

Less than half of the responses for each photo (except SDSQ7) identified the SQ the photo was aimed to illustrate in the photo elicitation exercise (Figure 7), with the rest of the

responses highlighting different features, characteristics or CES they deemed to be more important in that landscape.
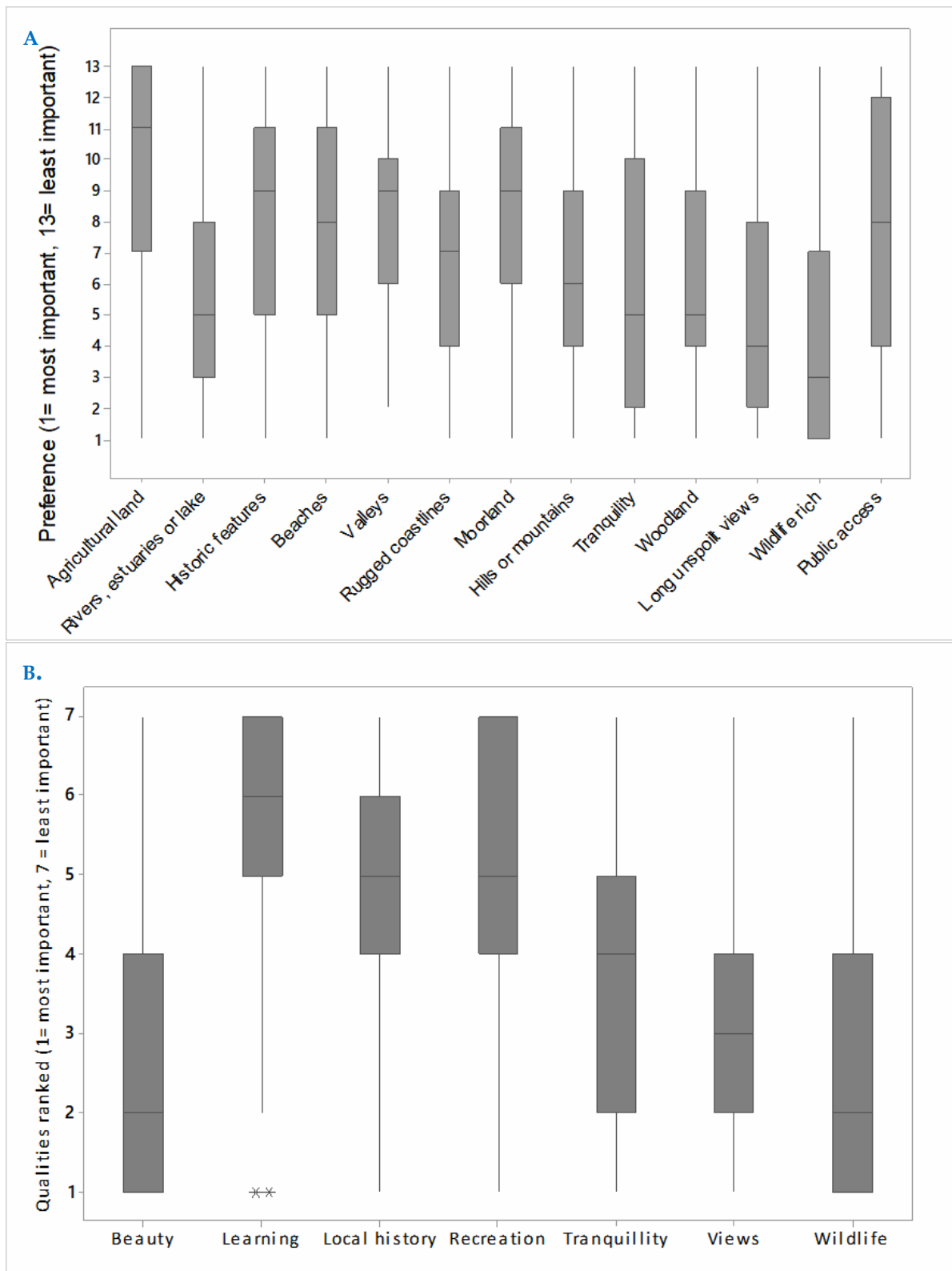

Figure 5. (**A**): Ranked landscape component preference from OQ. (**B**): ranked CES preference from OQ, Note: "******" represents data outliers.
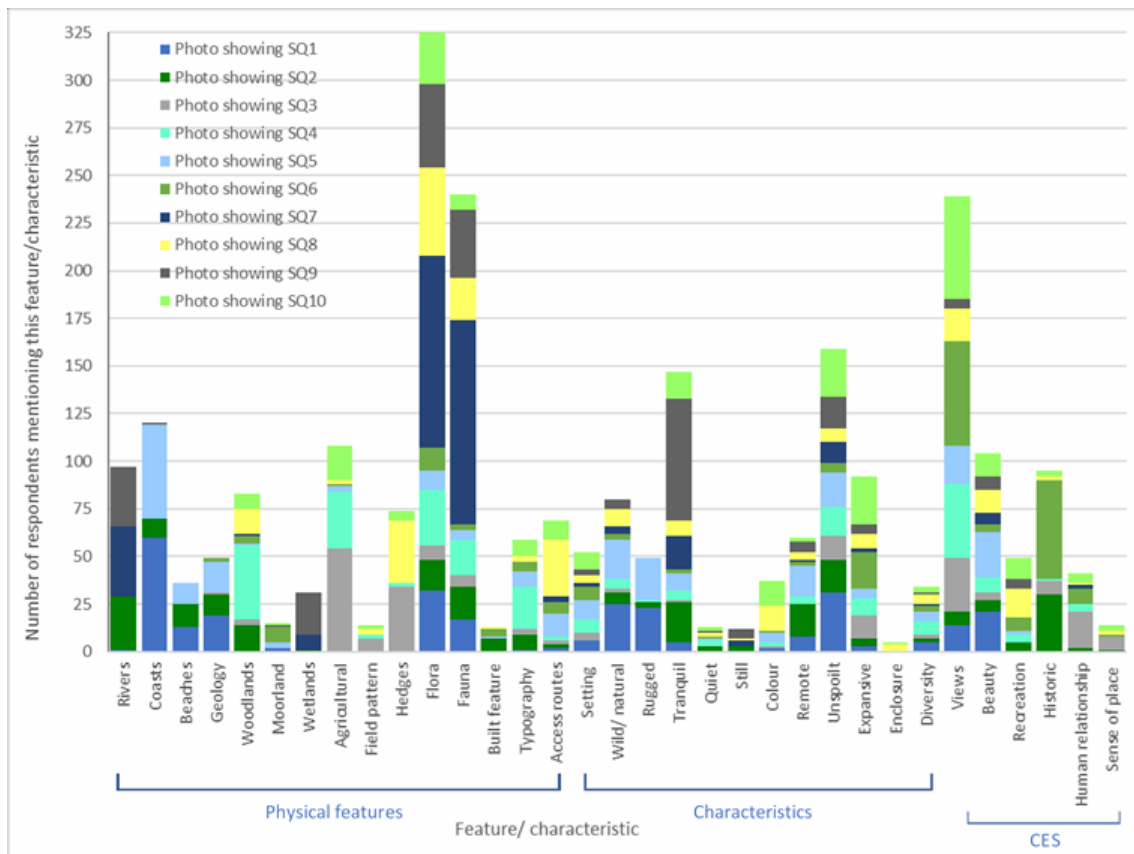
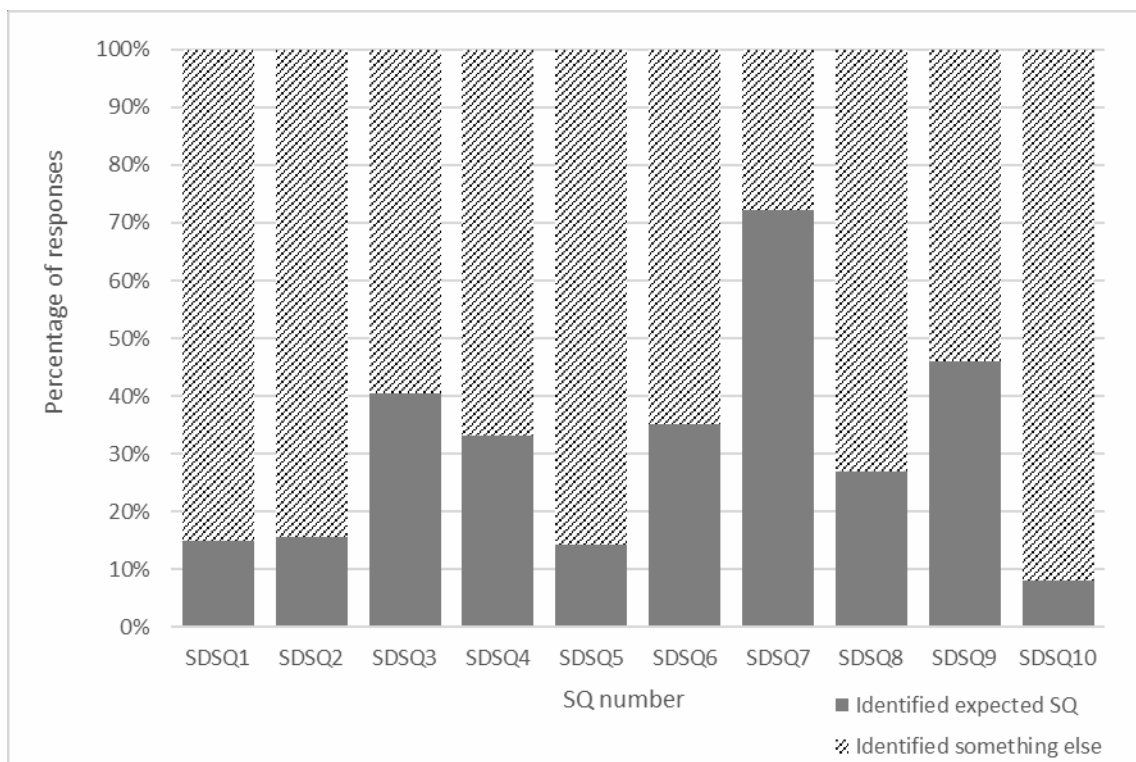**Figure 6.** Photo elicitation responses categorised into defined groups, per photo.

Figure 7. Proportion of respondents who identified the expected SQ for each landscape photo of SDAONB.

3.2. Arnside and Silverdale PGIS

A&SAONB Partnership received a total of 95 participants for their 'mapping your favourite places' PGIS survey, which plotted 431 locations, as their personal favourite places describing why they valued said areas.

The distribution of all locations identified are shown in Figure 8. The most densely concentrated area of favourite places marked were in Arnside Knott (1 km^2 directly south of Arnside village), in which there were 24–38 points. Coastal areas near Arnside and Silverdale villages as well as the Leighton Moss RSPB reserve and Gait Barrows National Nature Reserve also received high numbers of favourite point locations.
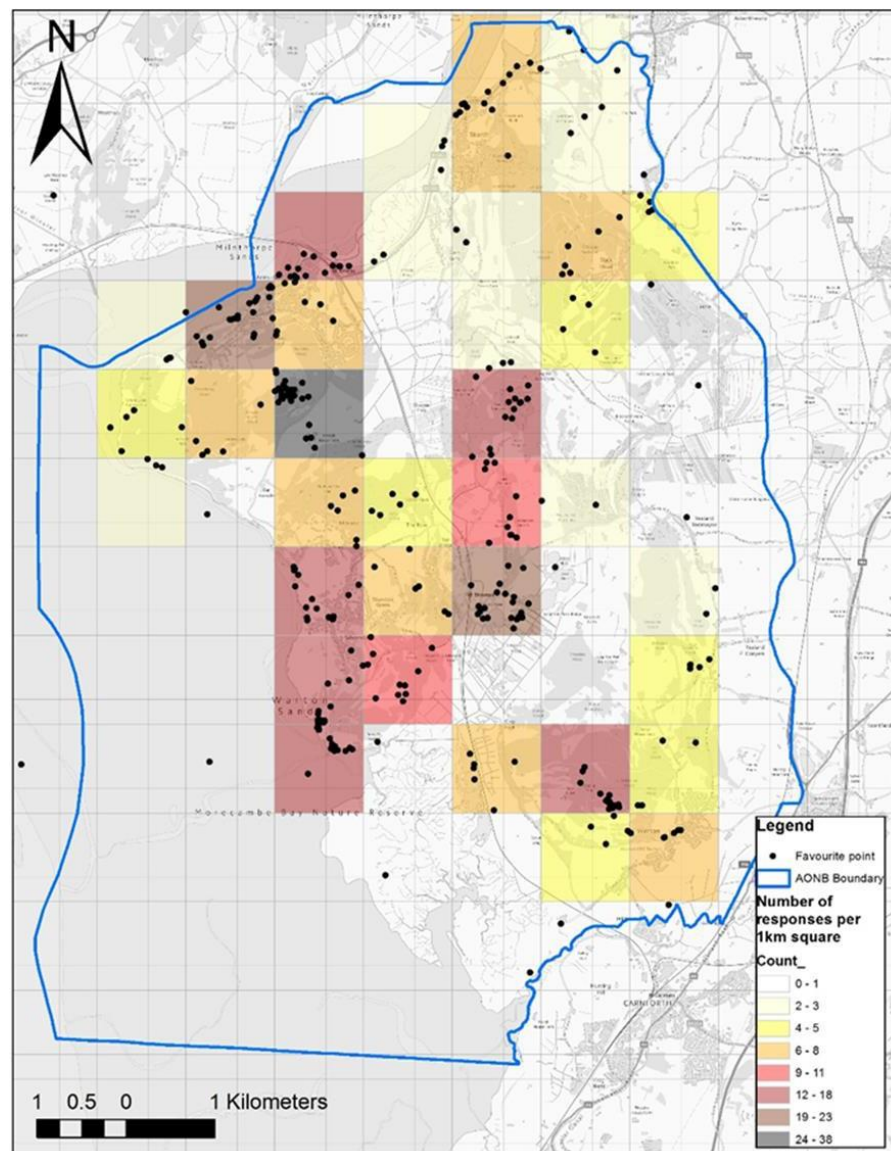
Figure 8. Distribution of favourite place points identified by PGIS respondents in A&SAONB, with the most frequently favoured km^2 areas shaded with the darkest red. Map and boundary created using AONB and National Parks overlay from shapefiles downloaded from Natural England [35].

The most commonly selected CES expressed to be present by respondents were 'views' (26.2%), 'recreation' (21.9%) and 'beauty' (15.8%) as shown in Figure 9. A total of 332 (out of 431) responses contained free text description of reason for choice, only these points were counted in percentages of points showing SQ of A&SAONB.

Most frequently mentioned SQ in descriptions included ASSQ1 (36.6% of respondents) and ASSQ9 (28.2% of responses), whilst the least recognised was ASSQ8 (0.4% of responses) the full results are displayed in Figure 10.
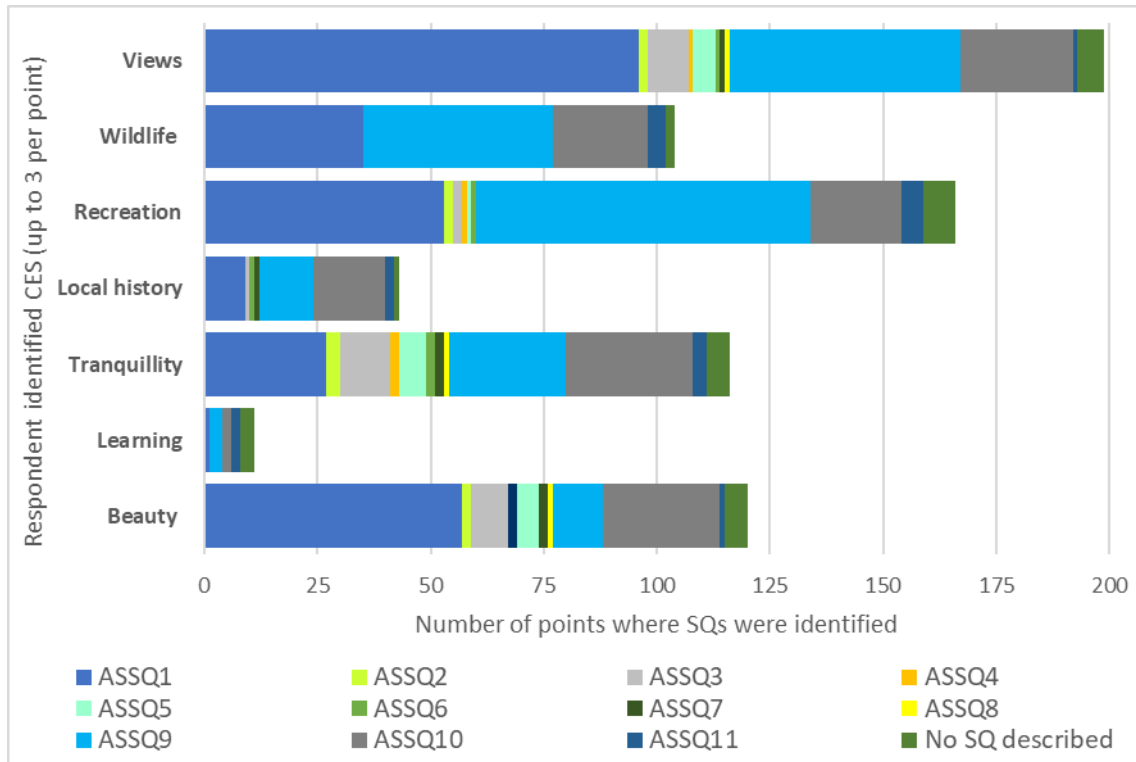

Figure 9. PGIS responses looking at the relationship between respondent identified CES and the SQs of A&SAONB their response identifies.
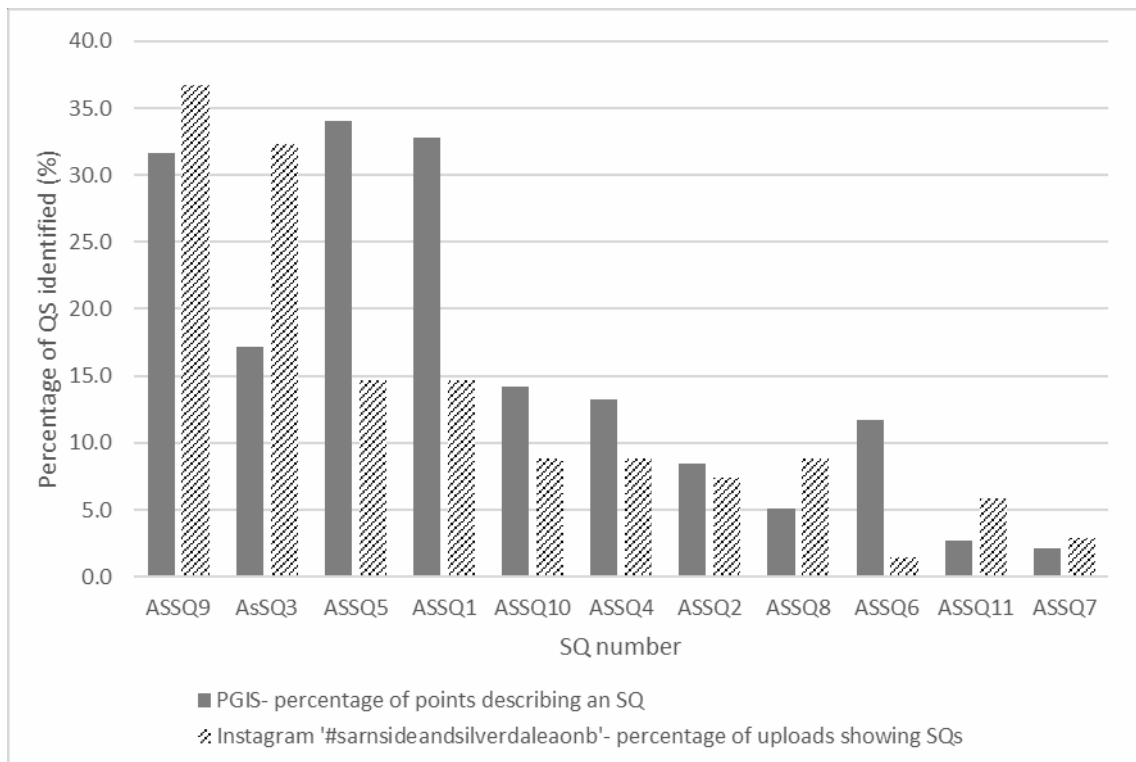

Figure 10. The percentage of responses from PGIS survey and Instagram uploads that identify SQ features for A&SAONB.

3.3. What Makes South Devon Special Survey

From the two events in which members of the public were approached ('Crabfest', Salcombe 06/05/18 and Wembury Fair, Wembury 07/07/18), 123 favourite place points were located (Figure 11). The majority of 'favourite places' plotted were coastal, or near some form of watercourse. The highest concentration of points was in the km^2 encompassing Salcombe and the km^2 including Thurlestone Sands (9–10 points). Other popular areas included the km^2 including hope cove (7–8 points). The most common SQ shown in favourite points was SDSQ9. No favourite point identified SDSQ4 as a reason for the location being favoured. Full results are shown in Figure 12.

3.4. Instagram Uploads

Uploads using the hashtag '#arnsideandsilverdaleaonb' in the public domain were accumulated and their content inspected (*n* = 68). From these uploads the most frequent SQ featured was ASSQ9 (featured in 36.8% of uploads) in which all were photos. In addition, notably popular were ASSQ3 (32.4% uploads). ASSQ6 had the lowest upload number (1.5% uploads). Only uploads stating ASSQ1, ASSQ4, ASSQ6, and ASSQ10 were included in counts to avoid subjective photo interpretation. Full results are shown in Figure 10.

A search of Instagram posts using the hashtag '#southdevonaonb' provided the collection of image data and complimentary comments and hashtags (*n* = 128), from July 2015 to September 2018. These data were assessed to determine whether the subject matter of these uploads illustrated SQs of the AONB. Of all search results tagged '#southdevonaonb', the SQs featured the most frequently were SDSQ3 and SDSQ5 which both feature in 20.3% of uploads. All photos showing or describing SDSQ1, SDSQ2, SDSQ3, SDSQ4, SDSQ7, SDSQ8 were counted, whereas the remaining SQs were only counted if mentioned in the corresponding text to avoid researcher bias. Full results are shown in Figure 10.
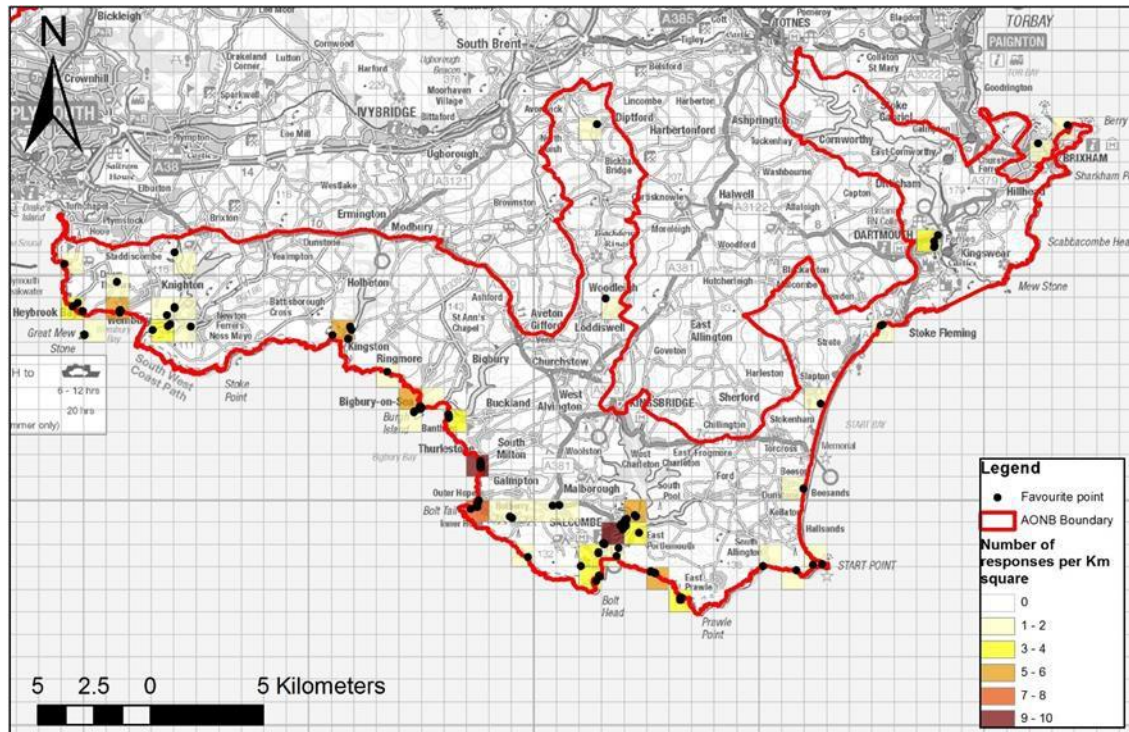

Figure 11. The location and distribution of favourite places identified by WMSDS respondents in SDAONB with the most frequently favoured km^2 areas shaded with the darkest red. Data (developed in this research), map and boundary created using AONB and National Parks overlay from Natural England [35].
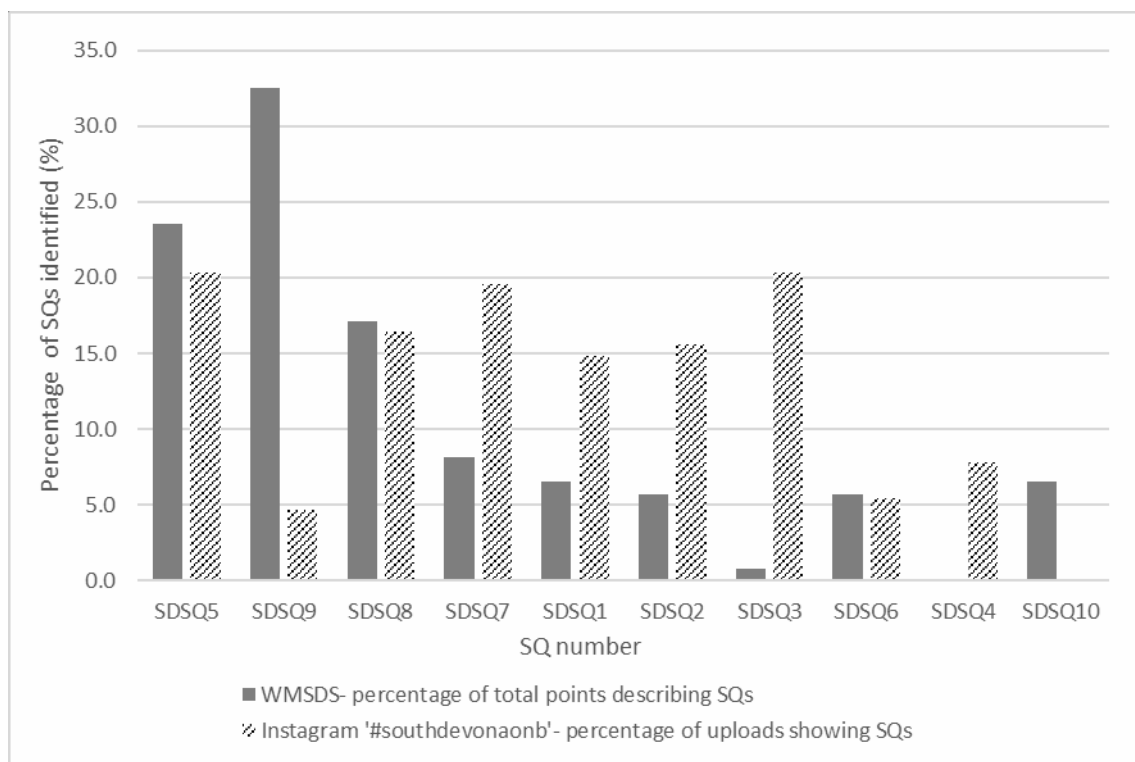
Figure 12. The percentage of responses from WMSDS survey and Instagram uploads that identify SQ features for SDAONB.

4. Discussion

4.1. There Is No Significantly Preferred Landscape Component

Despite some being ranked higher than others in results from both the OQ and WMSDS surveys, ultimately no one landscape asset was significantly more important than the others, with all interquartile ranges overlapping with at least one other feature. Similarly, when asked to describe what was valued in the OQ photo elicitation exercise, most responses listed multiple features they thought was special in that area, suggesting diversity of landscape features is preferred. This finding was also reported in NE's 2009 study in which survey respondents preferred to state a combination of components rather than valuing them individually [46]. The importance of structural diversity and heterogeneity to positively reinforce perceived beauty has been frequently reported [47,48]. SQs of landscapes should therefore not be considered in isolation but appreciated for their cumulative effect on enhancing natural beauty.

4.2. The Same Area Can Be Differently Interpreted by Different People

Due to the small number of photos, and contextual issues arising from this photo elicitation, conclusions on how beautiful different SQ features of SDAONB cannot be inferred from these results, instead this study should be used to illustrate the ability for respondents to differently interpret a landscape rather than focusing on the components respondents identify [46].

When asked to identify what is special about a landscape photo, respondents gave a variety of reasons (Figure 6). Aggregate means concluded 30.7% that of responses (n photos = 10) stated the SQ that was identified as the expected response as what was special about this landscape. Other responses included both less prominent SQs and features or characteristics not given heavy weighting in SDAONBs ten SQs, including beaches and hedgerows.

In addition to the limitations on the singular dimension of photo elicitation, the study was constrained by the limited information in the demographic of respondents. It is likely that perceptual preferences would differ between age groups, birthplace, education, and

job sector. More detail on the respondent demographic should therefore be sought in future studies to avoid bias from larger numbers of respondent from one group.

There were a series of landscape attributes which were identified in all ten photos representing SQs this suggests that these may be widespread across the SDAONB, these were flora, fauna, views, beauty, wild/natural, tranquil, unspoilt, expansive and diverse. These are all non- geographically bound qualities, some of these are also perceptual based such as tranquillity, therefore, can be applied to more areas than more physical features such as SDSQ2 or SDQ1.

There were however some negative comments towards some landscape photos, with 3.4% of the comments for the photo illustrating SDSQ3 being negative (all other photos <1.4% negative comments). The landscape in the photo for SDSQ3 is one of the most obviously human manipulated landscapes, this result hints that respondents prefer less humanly altered landscapes.

Across the ten landscape photos, respondents more commonly picked up on physical features of the landscape as being special, compared to characteristics of CES. This is likely to be due to the more complex nature of the concept of CES and suggests that respondents may not necessarily associate what the landscape provides for them as being merit to warrant it being a special and protected landscape. Future studies should look to ask respondents what they would personally benefit from the landscape, in order to better encapsulate CES from photo elicitation exercises.

4.3. Public Appreciation of Special Qualities

If a SQ or element of an SQ was included in the reasoning for choice of PGIS or WMSDS favourite points, or in the either in the media itself or the complementary description of Instagram uploads, perceived value was assumed of this quality. Stated reasoning for valuing locations in the WMSDS survey or A&S PGIS were more effective in determining perceptual experiencing of the landscape as well as just the physical features of the area, whereas most Instagram data related to aesthetics.

Despite large variation between results from the two data collection methods, all SQs of A&SAONB were recognised to be important in both methods. However, in SDAONB, SDSQ4 was not identified in WMSDS and SDSQ10 not mentioned in Instagram searches. The results of the data collection methods are shown in Figures 10 and 12.

Results generally saw that SQs with the most tangible CES benefits were often the most appreciated. This mirrors past research which suggests difference in valuing landscape features can occur depending on the provision of CES [49].

ASSQ9 was the most popular A&SAONB SQ in A&SAONB, the similar SDSQ8 was also highly appreciated. These are likely to have perceived importance, as cultural benefits from them are more tangible, particularly for the provision of recreational opportunities [50]. CES provision is dependent on the ease of beneficiaries to be able to reach them [51] and therefore require access (ASSQ9, SDSQ8). Recreational demand of PGIS participants showed that the most participated in recreational activities were walking (90.2% of respondents). Access routes are required for all other SQ features to be reached to be appreciated so it was therefore used frequently in combination with other SQs of the AONB. This link was also furthered by 21.9% of favourite PGIS locations choosing their valued service choice as 'recreation' with descriptions of ASSQ9 (Figure 9).

ASSQ3 was valued highly in both PGIS and Instagram uploads, seascapes described as 'stunning' can be directly related to the provision of aesthetic appreciation, a CES defined by the MES as individuals attributing beauty to ecosystems [9]. This is furthered by the result of their high occurrence of these SQs in the 'beauty' service category (Figure 9).

Views also have aesthetic value, particularly those which are long reaching with a diverse or complex range of features present [49]. ASSQ1 and SDSQ5 relating to views in both AONBs were highly valued. Views are also associated with more open, high, exposed environments which have also been reported to directly relate to the provision of the CES

'escapism'—the idea of getting away from it all [46]. Both ASSQ3 and ASSQ1 can also be associated with the provision of inspirational and sense of place CES [31].

Reasoning for the popularity of characteristic based SQs is likely to be because of the relative lack of geographical constraints they can be interpreted to be present in. This was true of ASSQ10 and SDSQ9 describing tranquillity and ASSQ1 and SDSQ5 describing views. This is reflected in the wide distribution of these points across the two AONBs (Figures 13 and 14).

Figure 13. The distribution of favourite points identified from PGIS results and the SQs responses identify. Note that pie charts merely show where a combination of features was identified, not the extent to which SQs are valued. Data (developed in this research) Map and boundary created using AONB and National Parks overlay from shapefiles downloaded from Natural England [35].
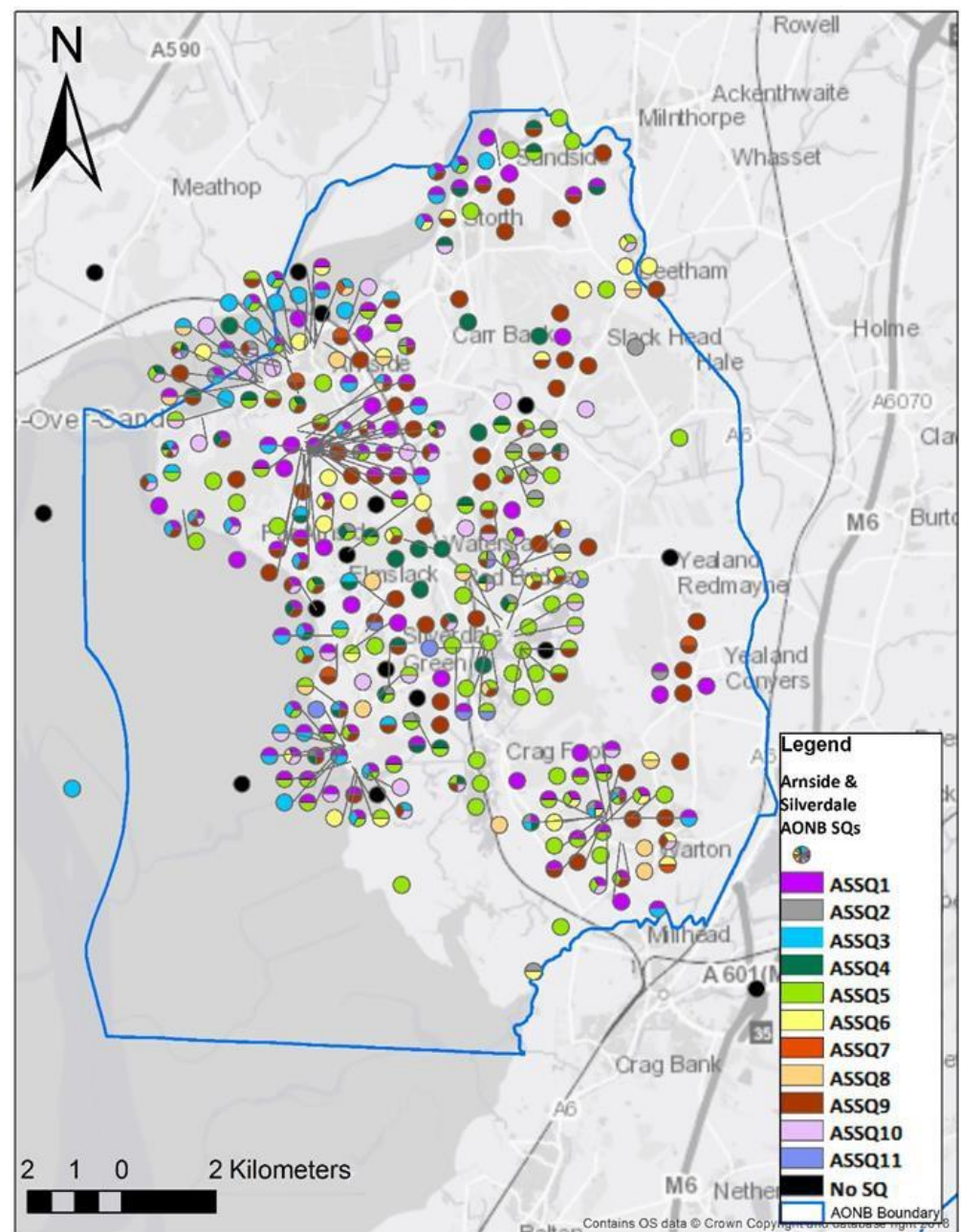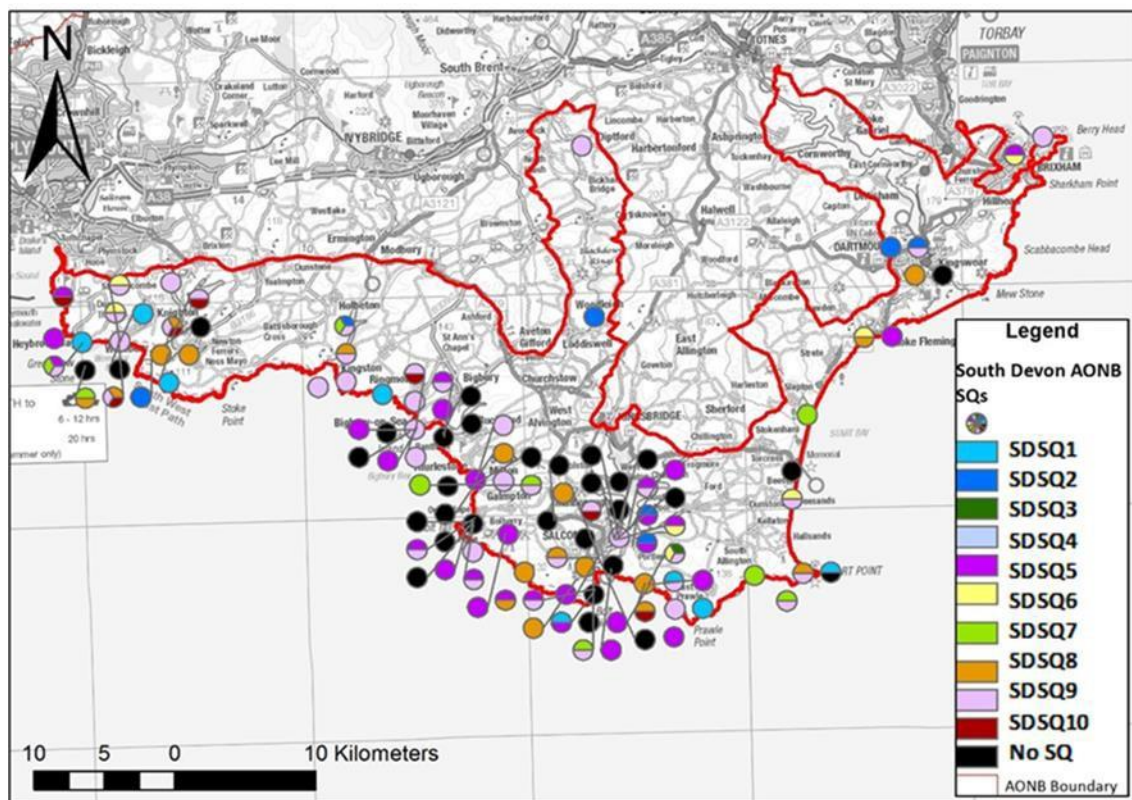
Figure 14. The distribution of favourite points identified from WMSDS results and the SQs responses identify. Note that pie charts merely show where a combination of features was identified, not the extent to which SQs are valued. Map was created using AONB and National Parks overlay from shapefiles downloaded from Natural England [35].

SQs which focused on landscape characteristics such as tranquillity (ASSQ10, SDSQ9) had high derived value from PGIS results (14.2%) and WMSDS (32.5%) but were appreciated to a lesser extent in Instagram uploads ASSQ9 (8.8%) and SDSQ9 (4.7%). Unlike the other SQs, tranquillity is predominantly perceptual, (although usually associated with quiet or natural sounds in areas with a lack of obvious human presence [52]). Only uploads where tranquillity factors stated in comments/tags were counted for this category (to exclude perceptual researcher bias). Therefore, this low score may be down to poor description and portrayal of tranquillity in Instagram posts rather than the uploader not appreciating ASSQ9.

SQs may also be valued due to their local rarity. This may have been true of ASSQ1 with higher ground is limited to few locations including Warton Craig the highest point in the AONB (163 m) and Arnside Knott (159 m) [53] providing extensive view opportunities over the surrounding lowland. These locations saw particularly concentrated PGIS identified valued points for views (Figure 13).

The joint most featured SQ Instagram uploads for SDAONB was SDSQ3, appearing in as many uploads as SDSQ5. Traditional small-scale agricultural landscapes such as those present on SDAONB have been found to be aesthetically preferred [40]. The frequency of Instagram uploads could be a result of the high provision of this SQ with 74% of the AONB land within agricultural use [22] much of this fitting the SDSQ3. Lower stated value for this SQ in WMSDS could be a result of those familiar with the landscape do not necessarily associate it with being special or unique because it is in such widespread local supply.

Wildlife was generally regarded to be important across both AONBs ASQ7 and SDSQ5. This is likely to be because the moral satisfaction of conserving species for their right to existence is widely adopted [39]. Species are also thought to provide inspiration, knowledge and spiritual CES, which may further influence their perceived value [47]. ASSQ7 occurred in far fewer Instagram uploads. This may have been due to the mobility and elusive nature

of fauna making them hard to capture rather than lower perceived value. Perceived value of habitats (ASSQ7) and designated areas (ASSQ11) were valued to a lesser than species (ASSQ4) suggesting people may not necessarily make the link between he need for ASSQ4 to support ASSQ5. Perhaps these three linked factors should therefore be accumulated into one SQ for A&SAONB.

There was a general trend for SQs describing landscape features such as ASSQ2, ASSQ4, SDSQ1, SDSQ2, SDSQ3 and SDSQ4 to receive lower appraisal than those which focus on characteristics in PGIS AND WMSDS results. This lower appreciation may be linked to the difficultly for landscape users to determine personal benefits from the existence of said features, despite them being rare or of national importance. Wartmann and Purves (2018) link sense of place (a CES) to perceived landscape features, yet this is stated to be a more intangible benefit [14]. However, the aesthetic importance of these physical features such as SDSQ1, SDSQ2, SDSQ3, SDSQ4 features were acknowledged by higher appearance in Instagram uploads.

SQs that have a high relation to human uses of the landscape such as ASSQ7, ASSQ8 may have not been highly recognised by PGIS participants as being important to AONBS as the name Areas of Outstanding 'Natural' Beauty, may lead respondents to separate natural and built features, only attribute those of natural origin as having AONB importance. With many not necessarily attributing the presence of people to the importance of AONB landscapes.

Historic features, part of ASSQ6 and SDSQ6 received comparatively low overall appraisal this may be because a larger understanding of the feature is required to know it is of historic origin. For example, the small curving field pattern present on valley and coastal slopes within SDAONB is of historic origin [22], although field pattern was noted 14 times within the OQ, it cannot be proven that this was noted as valuable because it was of historic origin. Historic features are known to have large significance to locals but may appear ordinary to those unfamiliar to the landscape [3]. Therefore, it is possible that historic features are highly valued, but respondents did not necessarily state historic as a reason for valuing them. A large proportion of WMSDS favourite points were found in close proximity (<2 km) from the sea or a watercourse, other studies have also highlighted distance to water in positive landscape evaluation, but this is noted to be variable depending on the type of water and its visibility [27]. Past studies have also explored the link between the presence of water and tranquillity [54], a possible trend that can be seen in the distribution of SDSQ9 (Figure 14).

Beaches reoccurred as a landscape feature not currently considered a SQ of the AONB. In WMSDS, 18.7% of responses included the word 'beach' and 25.0% of Instagram posts used the word beach in their description. Beaches are not technically within the AONB designation as the high-water mark is the seaward boundary of the AONB [22]. However, the 68 beaches [22] that line the SDAOB coast, should be considered with more weight as a factor for making the AONB special (although briefly mentioned within the SDSQ1) or included within the AONB boundary to better align with public perception. Re-assessing AONB boundaries should, therefore, be considered in Defra's review of AONBs.

Public perception of the value SDSQ10 was particularly hard to assess as determining what responses can be categorised as to influence the 'setting' of AONBs is almost incommensurable, therefore trends relating to this SQ in results were not explored further.

4.4. How the Results Reflect on AONB Effectiveness

Results from the PGIS survey showed a particularly high uptake of the SQs of the AONB with many responses to why they value their favourite locations almost quoting aspects of the SQ definition. This may have been a direct result of positive reinforcement of the SQs achieved by the AONB partnership by engagement schemes which have increased understanding of how the AONB is designated.

The large difference in the results between WMSDS and Instagram results in SDAONB compared to the PGIS results and Instagram uploads in A&SAONB, suggests that there is a

possible lack of awareness in the SDAONB users to what the SQ features are and why they are important. However, the scenic quality of these SQs is still appreciated. SDAONB had a far higher proportion of favourite place points that were valued for reasons that could not be attributed to an SQ of the area (25.2% responses) compared to A&SAONB (4.5%). This may be because A&SAONBs SQs better align with what is publicly valued than those of SDAONB, or a lower understanding of the SQs of SDAONB. However, differences between the WMSDS and PGIS results are equally likely to be due to the variance in response length, respondent demographic and the number of responses collected, or due to A&SAONB having more SQs. Therefore, comparison of the two results should be taken lightly. This could however suggest that SDAONB should consider adopting some of the methods identified in A&SAONB management plan for educating the public of the SQs present in the AONB.

Determining if the public perception of the vale of AONB SQs is appropriate to merit them being SQ features is difficult to assess as 'value' can be considered a social construct [3] with no black and white definition, or measure for how culturally valuable something needs to be to merit designation. Defra's review of AONBs should consider looking to define 'vale' so that AONB effectiveness can be better assessed. Furthermore, the term 'natural beauty' in the name AONB, may influence the public not appreciating the importance of communities and built features of landscape as part of AONBs, and therefore, the name AONB may no longer be appropriate for what they are aiming to protect.

4.5. Evaluation of Methodologies

All methodologies required the researcher to categorise and judge responses as to whether what was being described (or shown in Instagram data) was exhibiting a feature or characteristic deemed to be a SQ of the AONB. Therefore, there was a large window for inappropriate structuring from the researcher [46]. Best efforts were made to avoid this by following strict a reasoning method in which only responses including certain language were included in counts for each SQ. There was also a high chance of human error as all data had to be manually categorised and counted, second counting should be required in future studies to avoid this. When asking respondents to explain what aspects of a landscape they value, it has been shown that people rarely compartmentalise the aspects of their experience [15] making it hard for them to explain isolated contributing factors to why they value a landscape

In all methodologies, except for social media data collection there is the risk for respondents to use what they expect the researcher is looking for what they value in the landscape rather than what they value. The use of secondary data provided by the AONBs also limited its applicability to this study.

Using photos only shows a limited 'window' of the whole landscape as a single-angle vista, which can allow researcher bias as it does not represent the landscape as a whole [55]. Factors such as the weather and seasonal influences such as the appearance of flowers and leaves could alter perceptions of the landscape [5,24]. This may have been the case for the photo illustrating SQ1 where there was a high response percentage (22%) for flora which may not have been replicated at other times of the year when the flowers in the foreground were not blooming.

Photo elicitation can only accurately assess one dimension of landscape value; aesthetic quality. Although this finding is still valid as it proves that the aesthetic importance of SQs can be identified by respondents. Other multi-sensory stimuli factors such as sounds, smells, and movements, cannot be accurately assessed in this method [5], which may reduce numbers identifying landscape characteristics. Therefore, there is the opportunity for this SQ to be wrongly assigned to areas or missed from those which are highly tranquil. Without understanding of this setting, it is impossible for respondents to identify that this landscape feature or characteristic is locally rare or regionally important. Therefore, respondents not familiar with the landscape are likely to not fully appreciate it.

PGIS to assess landscape presents its own challenges. Getting a respondent group representative of the stakeholder population using the landscape in question can prove difficult. Online distribution through AONB websites create a bias to respondents with a vested interest in the topic matter, for example a 37.4% of those who partook in A&S PGIS working in environment-related jobs. By being exclusively online limits the demographic of respondents, for example, older age groups often do not engage with online methods. There is also the danger that when no longer at their chosen location their responses may not encapsulate what it is they value as well. PGIS mapping also relies on the respondents being able to provide the exact location for the feature of the landscape they value, which can be miss-mapped creating false data.

In-person collection of data runs the risk of researcher bias in those approached to partake in the survey, care was therefore taken to approach as varied a demographic of people possible. Local events were good way in which to approach mixed landscape users, however the coastal location of the two events may explain the high numbers of responses valuing coastal locations, or the clustering of favourite places located in Salcombe. Less respondent data were collected from this method, to keep participant interest, more demographic information would have enhanced this study.

Social media uploads can be deemed 'passive and non-authoritative crowdsourced geographic information' [45] as the owner of the content does not upload with the study in mind. Therefore, avoiding participant bias to the research question, discussed to be an issue in other data collection methods.

There are also ethical issues surrounding the collection of demographic information of social media users making this information hard to obtain, or data is uploaded to private accounts. Although Instagram users tends to be younger, typically 18–29 y of age [56]. Much of social media content is contributed to by a low number of highly active users rather than equal contributions from all users [57]. In SDAONB one user was responsible for 11.7% of all the data uploaded. There were also little geographical data provided in Instagram posts used within this study, other studies using this methodology have encountered this issue [58]. You cannot assume high upload numbers means high visitor numbers to an area, with the visitor profile and sudden events seen to warp this [43].

Collection of social media data assumes that the content was uploaded because it is valued. However sometimes there are other motives, for example a post tagged to SDAONB included pictures of litter (to raise awareness). Therefore, the uploader motive needs to be accounted for and associated language judged before it is counted.

4.6. Addressing Study Constraints in Future Research

Open ended questions such as that provided by the OQ, PGIS and WMSDS when asked to describe what is valued, produce data which is both difficult and time consuming to analyse. These data also have a large window to be falsely interpreted by the researcher, when forced to determine if this response describes a SQ. Perhaps a more suited question to determining if landscape users' value SQ features would include a multiple-choice selection where only a set number of options could be chosen to assign value. SQs would have to be appropriately diluted within multiple choice answers to avoid influencing those who partake. It would then be useful to have a 'why' question in which a variety of cultural benefits can be chosen from. This would be able to directly link features and characteristics to CES. Future research would also benefit by asking respondents if they had seen educational material provided by AONB partnerships on the SQs of the AONB.

Future study should use a mix of both online and in-person data collection methods to addressing a larger demographic of the population. A larger proportion of AONB users (accounting for resident and visitor numbers) should be addressed where possible. Social media data has the potential to provide greater information on how landscape is valued especially if API key access of larger datasets is achieved

Regular users of the AONB should be targeted as well as the public as the familiarity of respondents to the landscape has a direct impact on the results of landscape preference in

past studies [40]. Those that do not know the area may not pick up on contextual features, however perceptions of those that know the landscape well may be skewed by personal attachments. The use of multiple photos illustrating the same SQ would also reduce the bias presented by single angle vistas. However, this more extensive analysis may put off participants because of its length.

Differences in the results obtained through the survey methods for each location shows, different methodologies may skew conclusions if used in isolation, and therefore, standalone methods should not be used to judge the perceived value of AONB SQs.

5. Conclusions

The SQs assigned to both A&SAONB and SDAONB were all identified as being valued by different respondents to the methodologies used to assess them so public perception can be considered to align to some degree with what AONB partnerships consider valuable. Generally, it can be concluded that landscape heterogeneity is valued by the public, and therefore, the aggregate SQs should be considered together rather than trying to single out one SQ feature that is the most important. SQs with the highest perceived value determined from this study were those that directly relate to tangible CES such as access, views and tranquillity. SQ that are physical landscape features were mentioned less frequently in verbal descriptions of why an area was valued however were shown frequently in social media content, suggesting the appreciation for their aesthetic quality. There was generally more correlation with public perception of perceived value of A&SAONB SQs compared to SDAONB SQs however this could be due to the differing methodology and response number of the two studies rather than one set of SQs being more appropriate than the other. Whilst the methodology proved effective in showing that members of the public could successfully identify SQs of AONB landscapes when presented with them and could personally show that they valued the SQs of these AONBs, conclusions could only be inferred as to why these SQs were valued by users. Future studies should follow the recommendations section provided to better overcome the hurdles of this subjective discourse. The methodologies used all had their own benefits and flaws so are all appropriate to future studies, however the diversity in results from the methods highlights the importance of not relying on any one method for an effective study. Future study should instead use a combination of the methodologies presented, to a wider remit of respondents to accurately assess value of AONB SQs. To conclude, AONBs can be effective at identifying what the public perceive as important as special qualities, however, future conservations should include re review of AONB boundaries (such as including beaches, a valued feature not currently within SDAONB) as well as considering if the name AONB should be better aligned with its more recent strategic objectives to including human related aspects of AONB purpose such as local communities and how these AONBs provide ecosystem services, such as cultural ecosystem services.

References

1. Defra. *A Green Future: Our 25 Year Plan to Improve the Environment*; HM Government: London, UK, 2018.
2. Council of Europe. *European Landscape Convention. European Treaty Series—No. 176*; Council of Europe: Florence, Italy, 2000.
3. Stephenson, J. The Cultural Values Model: An integrated approach to values in landscapes. *Landsc. Urban Plan.* **2008**, *84*, 127–139. [CrossRef]
4. Oteros-Rozas, E.; Martin-Lopez, B.; Fagerholm, N.; Bieling, C.; Plieninger, T. Using social media photos to explore the relation between cultural ecosystem services and landscape features across five European sites. *Ecol. Indic.* **2018**, *94*, 74–86. [CrossRef]
5. Dorning, M.A.; Van Berkel, D.B.; Semmens, D.J. Integrating Spatially Explicit Representations of Landscape Perceptions into Land Change Research. *Curr. Landsc. Ecol. Rep.* **2017**, *2*, 73–88. [CrossRef]
6. Moore, T.; Tully, G. Connecting landscapes: Examining and enhancing the relationship between stakeholder values and cultural landscape management in England. *Landsc. Res.* **2017**, *43*, 769–783. [CrossRef]
7. Loucks, O.; Kaplowitz, M.; Turnley, J.G.; McGee, B.; Dietz, T.; Stahl, R.; Kapustka, L.; Munns, W.; Bruins, R. Sociocultural Valuation Of Ecological Resources. In *Valuation of Ecological Resources*; CRC Press: Boca Raton, FL, USA, 2007; pp. 9–44.
8. Daniel, T.C.; Muhar, A.; Arnberger, A.; Aznar, O.; Boyd, J.W.; Chan, K.M.; Costanza, R.; Elmqvist, T.; Flint, C.G.; Gobster, P.H.; et al. Contributions of cultural services to the ecosystem services agenda. *Proc. Natl. Acad. Sci. USA* **2012**, *109*, 8812–8819. [CrossRef] [PubMed]
9. Millennium Ecosystem Assessment (MA). *Ecosystems and Human Well-Being: Synthesis*; Island Press: Washington, DC, USA, 2005.
10. Fish, R.; Church, A.; Winter, M. Conceptualising cultural ecosystem services: A novel framework for research and critical engagement. *Ecosyst. Serv.* **2016**, *21*, 208–217. [CrossRef]
11. Small, N.; Munday, M.; Durance, I. The challenge of valuing ecosystem services that have no material benefits. *Glob. Environ. Chang.* **2017**, *44*, 57–67. [CrossRef]
12. Paracchini, M.; Zulian, G.; Kopperoinen, L.; Maes, J.; Schagner, J.; Termansen, M.; Zandersen, M.; Perez-Soba, M.; Scholefield, P.; Bidoglio, G. Mapping cultural ecosystem services: The case of outdoor recreation across the EU. *Ecol. Indic.* **2014**, *45*, 371–385. [CrossRef]
13. Hølleland, H.; Skrede, J.; Holmgaard, S.B. Cultural Heritage and Ecosystem Services: A Literature Review. *Conserv. Manag. Archaeol. Sites* **2017**, *19*, 210–237. [CrossRef]
14. Wartman, F.; Purves, R. Investigating sense of place as a cultural ecosystem service in different landscapes through the lens of language. *Landsc. Urban Plan.* **2018**, *175*, 169–183. [CrossRef]
15. Wartmann, F.M.; Acheson, E.; Purves, R.S. Describing and comparing landscapes using tags, texts, and free lists: An interdisciplinary approach. *Int. J. Geogr. Inf. Sci.* **2018**, *32*, 1572–1592. [CrossRef]
16. Tengberg, A.; Fredholm, S.; Eliasson, I.; Knez, I.; Saltzman, K.; Wetterberg, O. Cultural ecosystem services provided by landscapes: Assessment of heritage values and identity. *Ecosyst. Serv.* **2012**, *2*, 14–26. [CrossRef]
17. LUC. *The Value of AONB Partnerships: An Independent Assessment Prepared for AONB Partnerships*; LUC: Bristol, UK, 2013.
18. Gov.UK. Guidance: Areas of Outstanding Natural Beauty (AONBs): Designation and Management. 2018. Available online: https://www.gov.uk/guidance/areas-of-outstanding-natural-beauty-aonbs-designation-and-management (accessed on 10 September 2021).
19. Ministry of Housing, Communities and Local Government. *National Planning Policy Framework*; Ministry of Housing, Communities and Local Government: London, UK, 2018.
20. Defra. *Areas of Outstanding Natural Beauty: Landscape Protection and Enhancement Support Scheme (England) 2017—19 Application to European Commission*; Defra: London, UK, 2017.
21. South Devon AONB Partnership. *Management Plan 2014–2019*; South Devon AONB Partnership: Totnes, UK, 2014.
22. Alison Farmer Associates. *Dedham Vale AONB Natural Beauty and Special Qualities and Perceived and Anticipated Risks: Final Report*; Dedham Vale AONB: Dedham, UK, 2016; Available online: https://www.dedhamvalestourvalley.org/wp-content/uploads/2020/12/Dedham-Vale-Natural-Beauty-and-Spacial-Qualities-Final-Report-July-2016.pdf (accessed on 1 November 2021).
23. Frank Fürst, C.; Koschke, L.; Witt, A.; Makeschin, F. Assessment of landscape aesthetics—Validation of a landscape metrics-based assessment by visual estimation of the scenic beauty. *Ecol. Indic.* **2013**, *32*, 222–231. [CrossRef]
24. Daniel, T. Whither scenic beauty? Visual landscape quality assessment in the 21st century. *Landsc. Urban Plan.* **2001**, *54*, 267–281. [CrossRef]
25. Selman, P.; Swanwick, C. On the Meaning of Natural Beauty in Landscape Legislation. *Landsc. Res.* **2010**, *35*, 3–26. [CrossRef]

26.   Brown, G.; Brabyn, L. An analysis of the relationships between multiple values and physical landscapes at a regional scale using public participation GIS and landscape character classification. *Landsc. Urban Plan.* **2012**, *107*, 317–331. [CrossRef]

27.   Tudor, C. *An Approach to Landscape Character Assessment*; Natural England: London, UK, 2014. Available online: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/691184/landscape-character-assessment.pdf (accessed on 1 September 2021).

28.   English, R.; Tanner-Tremain, V.; Dixon, D. *Planning for the South Devon AONB: Planning Guidance v1*; South Devon AONB Partnership: Totnes, UK, 2017.

29.   CPRE. *Beauty Betrayed: How Reckless Housing Development Threatens England's AONBs*; Campaign to Protect Rural England: London, UK, 2016.

30.   Arnside & Silverdale AONB. *Arnside and Silverdale Area of Outstanding Natural Beauty: Statutory Management Plan 2014–2019*; Arnside & Silverdale AONB Partnership: Carnforth, UK, 2014.

31.   Dixon, D.; Sinden, N.; Crabtree, T. *An Independent Review of Housing in England's Areas of Outstanding Natural Beauty 2012–2017*. Landscapes for Life, CPRE, 2017. Available online: https://www.cpre.org.uk/wp-content/uploads/2019/11/An-independent-review-of-housing-in-Englands-AONBs-2012-17.pdf (accessed on 1 September 2021).

32.   Van Berkel, D.B.; Tabrizian, P.; Dorning, M.A.; Smart, L.; Newcomb, D.; Mehaffey, M.; Neale, A.; Meentemeyer, R. Quantifying the visual-sensory landscape qualities that contribute to cultural ecosystem services using social media and LiDAR. *Ecosyst. Serv.* **2018**, *31*, 326–335. [CrossRef] [PubMed]

33.   Zandersen, M.; Lindhjem, H.; Magnussen, K.; Helin, J.; Reinvang, R. *Assessing Landscape Experiences as a Cultural Ecosystem Service in Public Infrastructure Projects: From Concept to Practice*; Nordic Council of Ministers: Copenhagen, Denmark, 2017; Volume 510.

34.   UK National Ecosystem Assessment. *The UK National Ecosystem Assessment: Synthesis of the Key Findings*; UNEP-WCMC, LWEC: Cambridge, UK, 2014; Available online: https://www.unep-wcmc.org/resources-and-data/the-uk-national-ecosystem-assessment--synthesis-of-the-key-findings-and-technical-reports (accessed on 20 September 2021).

35.   Natural England, 2018. Natural England Open Data: Areas of Outstanding Natural Beauty (England). Available online: https://naturalengland-defra.opendata.arcgis.com/datasets/areas-of-outstanding-natural-beauty-england?geometry=-31.852%2C47.971%2C-2.672%2C57.264 (accessed on 1 November 2021).

36.   Arnside & Silverdale AONB. *What Is Special about Arnside & Silverdale Area of Outstanding Natural Beauty?* Arnside & Silverdale AONB, 2016. Available online: https://www.arnsidesilverdaleaonb.org.uk/wp-content/uploads/2016/11/ASAONB-Special-Qualities-Report-FINAL-1.pdf (accessed on 1 September 2021).

37.   Harrison, P.A.; Dunford, R.; Barton, D.N.; Kelemen, E.; Martin-Lopez, B.; Norton, L.; Termansen, M.; Saarikoski, H.; Hendriks, K.; Gómez-Baggethun, E.; et al. Selecting methods for ecosystem service assessment: A decision tree approach. *Ecosyst. Serv.* **2018**, *29*, 481–498. [CrossRef]

38.   Martín-López, M.; Iniesta-Arandia, I.; García-Llorente, M.; Palomo, I.; Casado-Arzuaga, I.; Del Amo, D.; Gómez-Baggethun, E.; Oteros-Rozas, E.; Palacios-Agundez, I.; Willaarts, B.; et al. Uncovering Ecosystem Service Bundles through Social Preferences. *PLoS ONE* **2012**, *7*, e38970. [CrossRef] [PubMed]

39.   Howley, P.; Donoghue, C.O.; Hynes, S. Exploring public preferences for traditional farming landscapes. *Landsc. Urban Plan.* **2012**, *104*, 66–74. [CrossRef]

40.   Brown, G.; Kyttä, M. Key issues and priorities in participatory mapping: Toward integration or increased specialization? *Appl. Geogr.* **2018**, *95*, 1–8. [CrossRef]

41.   Brown, G.G.; Reed, P. Social Landscape Metrics: Measures for Understanding Place Values from Public Participation Geographic Information Systems (PPGIS). *Landsc. Res.* **2012**, *37*, 73–90. [CrossRef]

42.   Tenkanen, H.; Di Minin, E.; Heikinheimo, V.; Hausmann, A.; Herbst, M.; Kajala, L.; Toivonen, T. Instagram, Flickr, or Twitter: Assessing the usability of social media data for visitor monitoring in protected areas. *Sci. Rep.* **2017**, *7*, 17615. [CrossRef]

43.   Grothe, C.; Schaab, J. Automated Footprint Generation from Geotags with Kernel Density Estimation and Support Vector Machines. *Spat. Cogn. Comput.* **2009**, *9*, 195–211. [CrossRef]

44.   Heikinheimo, V.; Di Minin, E.; Tenkanen, H.; Hausmann, A.; Erkkonen, J.; Toivonen, T. User-Generated Geographic Information for Visitor Monitoring in a National Park: A Comparison of Social Media Data and Visitor Survey. *ISPRS Int. J. Geo-Inf.* **2017**, *6*, 85. [CrossRef]

45.   Dandy, N.; Van Der Wal, R. Shared appreciation of woodland landscapes by land management professionals and lay people: An exploration through field-based interactive photo-elicitation. *Landsc. Urban Plan.* **2011**, *102*, 43–53. [CrossRef]

46.   Natural England. *Experiencing Landscapes: Capturing the Cultural Services and Experiential Qualities of Landscape: Natural England Commissioned Report NECR024*; Natural England: Cheltenham, UK, 2009.

47.   Herbst, H.; Förster, M.; Kleinschmit, B. Contribution of landscape metrics to the assessment of scenic quality—The example of the landscape structure plan Havelland/Germany. *Landsc. Online* **2009**, *10*, 1–17. [CrossRef]

48.   Duarte, G.T.; Santos, P.M.; Cornelissen, T.G.; Ribeiro, M.C.; Paglia, A.P. The effects of landscape patterns on ecosystem services: Meta-analyses of landscape services. *Landsc. Ecol.* **2018**, *33*, 1247–1257. [CrossRef]

49.   Ridding, L.; Redhead, J.; Oliver, T.; Schmucki, R.; McGinlay, J.; Graves, A.; Morris, J.; Bradbury, R.; King, H.; Bullock, J. The importance of landscape characteristics for the delivery of cultural ecosystem services. *J. Environ. Manag.* **2018**, *206*, 1145–1154. [CrossRef]

50. Plieninger, T.; Dijks, S.; Oteros-Rozas, E.; Bieling, C. Assessing, mapping, and quantifying cultural ecosystem services at community level. *Land Use Policy* **2013**, *33*, 118–129. [CrossRef]
51. Ala-Hulkko, T.; Kotavaara, O.; Alahuhta, J.; Helle, P.; Hjort, J. Introducing accessibility analysis in mapping cultural ecosystem services. *Ecol. Indic.* **2016**, *66*, 416–427. [CrossRef]
52. CPRE, (n.d.). Campaign to Protect Rural England: Tranquil Places. Available online: https://www.cpre.org.uk/what-we-do/countryside/tranquil-places (accessed on 10 September 2021).
53. Arnside & Silverdale AONB, (n.d.) Arnside & Silverdale AONB: Discover Wildlife. Available online: http://www.arnsidesilverdaleaonb.org.uk/discover/things-to-see-do/discover-wildlife/ (accessed on 1 September 2021).
54. Hewlett, D.; Harding, L.; Munro, T.; Terradillos, A.; Wilkinson, K. Broadly engaging with tranquillity in protected landscapes: A matter of perspective identified in GIS. *Landsc. Urban Plan.* **2017**, *158*, 185–201. [CrossRef]
55. Zoderer, B.M.; Tasser, E.; Erb, K.-H.; Stanghellini, P.S.L.; Tappeiner, U. Identifying and mapping the tourists perception of cultural ecosystem services: A case study from an Alpine region. *Land Use Policy* **2016**, *56*, 251–261. [CrossRef]
56. van Zanten, B.T.; Zasada, I.; Koetse, M.; Ungaro, F.; Häfner, K.; Verburg, P. A comparative approach to assess the contribution of landscape features to aesthetic and recreational values in agricultural landscapes. *Ecosyst. Serv.* **2016**, *17*, 87–98. [CrossRef]
57. Li, L.; Goodchild, M.F.; Xu, B. Spatial, temporal, and socioeconomic patterns in the use of Twitter and Flickr. *Cartogr. Geogr. Inf. Sci.* **2013**, *40*, 61–77. [CrossRef]
58. Di Minin, E.; Tenkanen, H.; Toivonen, T. Prospects and challenges for social media data in conservation science. *Front. Environ. Sci.* **2015**, *3*, 63. [CrossRef]