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## South Atlantic Natural Capital Project; Cultural ecosystem services in St Helena.



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## Review table

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# **CULTURAL ECOSYSTEM SERVICES IN THE ISLAND OF ST HELENA**

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## 1. BACKGROUND ON ST HELENA

*Saints know the value of nature; we want to turn this knowledge into data that will help in decision making across a range of sectors.*

Councillor Russell Yon, March 2019

*St. Helena is symbolic of the fragility of islands: remote, historic, plundered places with high levels of endemism and natural beauty.*

Vince Thompson, ex-St. Helena National Trust, editor St Helena's The Independent newspaper

A remote volcanic island situated in the South Atlantic Ocean, St Helena is home to around 4,500 residents, 90% of whom are St Helenians and the rest expatriates<sup>1</sup>. The capital is Jamestown, and the population is scattered around the island, although the majority lives in the northern part (Jamestown, Half-Tree Hollow and St Paul's). St Helena is 47 sq mi in area, and is composed largely of terrain of volcanic origin, hence its rugged landscape (see Fig. 1 overleaf). The island used to be quite green, both in the tropical interior and the currently bare coastal areas, although little of the indigenous vegetation remains. Large parts of the island are now covered by New Zealand flax, an invasive plant which was the basis for the only substantial industry the island ever had (flax mills for rope production).

The nearest landmass to St Helena is Africa, c. 1200 miles to the east, while the closest inhabited island is Ascension, still c. 800 miles to the north. For centuries reachable only by lengthy ship voyage, this isolation has shaped St Helena's environment, culture and heritage. Thus, for some, like Royle (2010, p. 16), St Helena "is one of the places where the impact of insularity looms largest". In parallel though, the island's history is inextricably tied to European and mainly British imperial history, and as such was a central part of the early globalisation networks and maritime routes from the 16<sup>th</sup> century (McAleer 2016). Thus, according to Daniel Yon (2019, np), the island has been conditioned by the "paradox of isolation and connectivity"; the island has been "cut-off, but deeply connected" to and affected by global and regional phenomena and processes.

This paradox is reflected in the (natural and historical) landscape of St Helena. The fauna and flora (including vegetation) of the Island is both a result of isolated insularity, and of the contact with "civilisation" from the 17<sup>th</sup> century onwards. Thus, considering its remoteness from any species-rich landmass, the flora of St Helena is extraordinary, containing many isolated endemic species (Cronk 1987). Furthermore, regarding invertebrates, St Helena has a high degree of endemism (>90% with over 460 endemic species) due to isolation-led radiations (Gray et al. *in press*). At the same time, the location of St Helena was at the crossroads of oceanic trading systems across the South Atlantic and Indian Oceans, and hence its connectedness resulted in profound changes in the natural environment. The native vegetation was the first "to go", noted as early as the 17<sup>th</sup> by the East India Company administrators who tried in vain to reverse the trend<sup>2</sup> (Grove 1995; also Wallace 1880). Avian fauna was completely transformed in "less than one and a half centuries after the island was discovered"

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<sup>1</sup> Data from the 2016 census, available at <http://www.sainthelena.gov.sh/census-2016-3/>.

<sup>2</sup> As Grove (1995, p. 107) notes: "By the 1690s the shortage of firewood and depredations in the company forests meant that new and stiffer regulation was contemplated locally. In May 1694 the governor ordered 'that none of the Company's timber trees [the indigenous St Helena redwood was intended here] be sold for private use'

(Lewis 2008, p. 137), with the wirebird (*Charadrius sanctaehelenae*) being the only landbird that survived the introduction of mammals (cats and rats), while nine more landbirds have been introduced.

This paradox can also illuminate the significant historical and built heritage of St Helena. St Helena was uninhabited when first discovered by the Portuguese (1502), and was first settled in the mid-17<sup>th</sup> century, after it was granted to the East India Company (1658–1815, 1821–1834). The first fortifications, which are a significant part of the island’s built heritage date from that time (Mundens Battery, Banks Battery, Fort of St. John, Lemon Valley), and were built as a result of the Dutch India Company briefly capturing the island in 1673. This era is also associated with a series of buildings such as Plantation House. Another part of the island’s built and historical heritage, and certainly one of the major tourist attractions (Crallan 1974), is related to St Helena’s remoteness. In 1815, Napoleon Bonaparte was exiled to St Helena, where he died in 1821, and the houses he lived in as well as his (empty) tomb are significant elements of the island’s material and cultural history. St Helena’s key location in the British imperial network also accounts for the slavery heritage which can be found on the island such as the mass slave graves in Rupert’s beach.



**Figure 1. Overview map of St Helena. Source: Open Street Map.**

## 2. CULTURAL ECOSYSTEM SERVICES & NATURAL CAPITAL ASSESSMENT

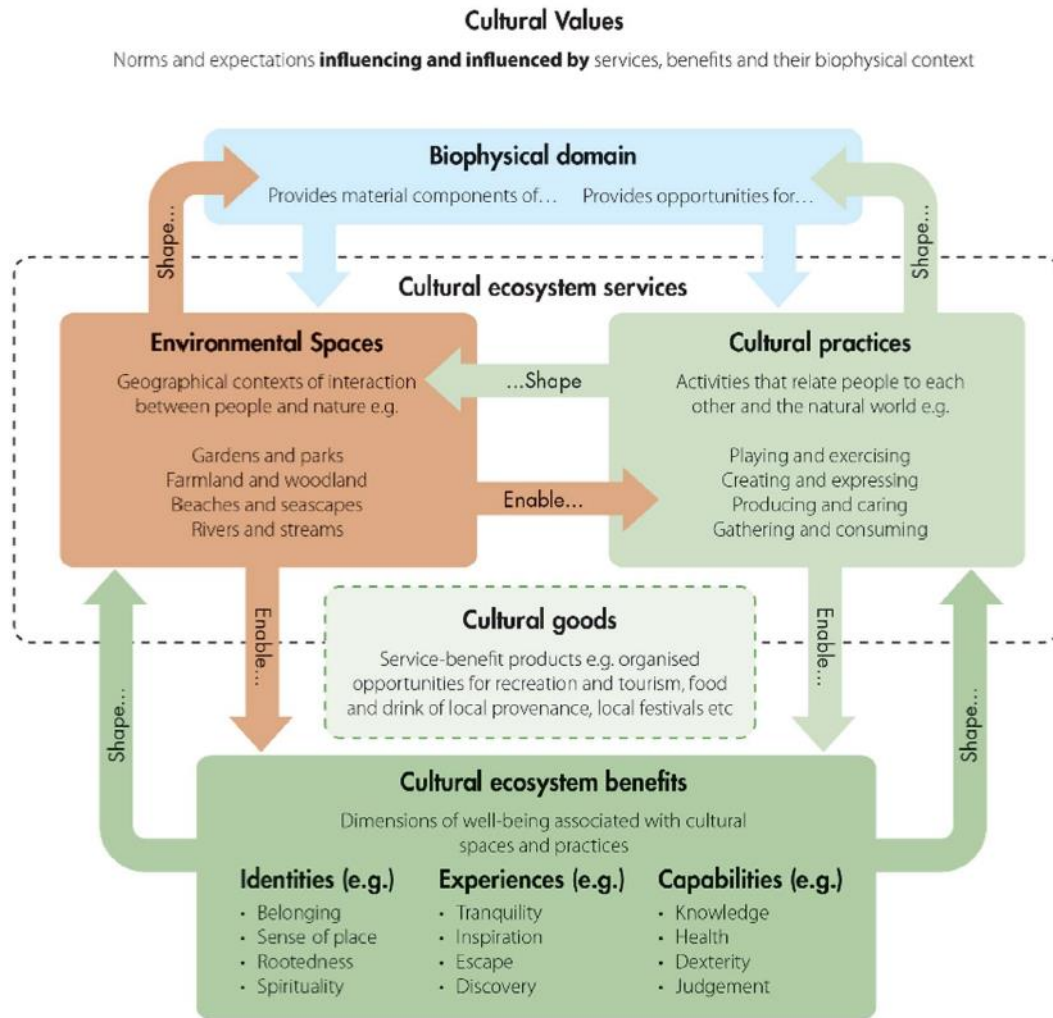
It is against this backdrop that this report presents findings of an empirical study of the cultural ecosystem services and benefits arising from the interaction between people and the natural and historical environment in St Helena. The findings contribute evidence to a programme of Natural Capital Assessment being implemented by the UK Joint Nature Conservation Committee and conducted by the South Atlantic Environmental Research Institute (SAERI) in the UK South Atlantic Overseas Territories. Funded by the Foreign and Commonwealth Office managed *Conflict, Stability and Security Fund*, the work sits under its Environmental Resilience programme which includes objectives to integrate natural capital considerations into economic and social development planning.

The Assessment involves characterising, mapping and valuing these assets and developing decision support tools that can link this information to the needs of spatial planning across marine and terrestrial environments. The University of Kent was commissioned by SAERI to undertake the cultural ecosystem services component of the St Helena Natural Capital Assessment. Working under the direction of the Natural Capital Project Manager, Ness Smith, this study is one of a series of CES assessments being undertaken across the inhabited South Atlantic Overseas Territories, and follows a common methodology within a larger NCA process. This includes CES research in Falkland Islands, Ascension Island and Tristan da Cunha.

Accounting for cultural ecosystem services within the practice of Natural Capital Assessment specifically invites consideration of the natural environment as an object of cultural concern and interest. The focus is on building up understanding of the many and diverse ways people interpret and affiliate with the natural environment, and assign it significance. As such, cultural ecosystem services assessment draws attention to, and emphasises, a highly relational approach to the study of natural assets, and the shared values that cohere in, through and around them.

A general framework for understanding cultural ecosystem services, and their placement within a ‘value chain’ linking the biophysical domain to human well-being, is depicted in Figure 2 overleaf. This framework informs the overall approach taken by the study of the St Helena natural environment. Specifically, the study of CES in NCA includes general consideration of the way people draw out and construct different ‘pictures’ of the natural environment in terms of its distinguishing features and attributes, and how patterns and elements in nature are qualified and evaluated by people, for example, through judgements of state, condition, taste, preference and quality. At least part of the interest in exploring NCA from the vantage point of culture is that it provides an indication of what people emphasise and prioritise in their local and nearby environments, and where sensitivities concerning the management and planning of natural resources may reside.

Although these generalised understandings of natural capital are important to NCA, the overriding and larger concern of the Natural Capital Assessment is to understand and empirically characterise the particular ways the natural environment functions as an asset to human well-being. In this respect, CES are described by Fish *et al.* (2016) as the “*contributions that ecosystems make to human well-being in terms of the identities they help frame, the experiences they help enable and the capabilities they help equip.*” An important dimension of NCA from the perspective of well-being is to understand and document the range of activities - or ‘practices’ - enacted by people with respect to the natural world. The study of these practices is important since they materially shape patterns and arrangements in nature and they condition the environment as a resource of benefit to people. As such, analytical study of these cultural practices is of primary importance to the conduct of NCA from a cultural starting point.



**Figure 2. Cultural Ecosystem Services Framework (Source: Fish et al. 2016).**

### 3. METHODOLOGY

The CES Assessment is based on the findings of an extensive survey and mapping exercise conducted in St Helena in 2018. The approach taken builds on an established methodology for CES assessment (Fish *et al.* 2016). The survey and mapping instrument was designed by the University of Kent, working in consultation with SAERI, and implemented by the St Helena National Trust.

In general, the survey and mapping process was designed to follow the analytical and thematic considerations of CES assessment outlined in Section 2 above. Specifically it: examines how people living in St Helena interpret the island’s natural environment in terms of its distinguishing qualities and characteristics; captures the nature and diversity of cultural practices the natural environment in St Helena enables and supports and; assesses the implications of these interactions for the well-being of people. To source the locations where people interact with nature, we employed gridded maps (150m by 150m), and asked respondents to mark the grids where they interact with nature (four maps: “essence of the natural environment”; “places of work”; “places of leisure”; and “places you feel negative about”). We counted the number of responses for each grid cell to provide maps of relative importance or interaction with the natural environment.

## 4. RESULTS

### 4.1. Survey implementation and response

In total 210 questionnaires, based on face-to-face completion were collected, which is approximately 5% of the Island's population. 80% of the sample were born on St Helena. Geographically, the sample covers the eight administrative units of St Helena very well, meaning that in terms of capturing places it is robust. It is slightly skewed on all demographic categories we considered (females and older residents are the least well represented, as well as residents with primary education). Finally, the people employed in nature conservation, including habitat and landscape restoration, monitoring, and surveying are over-represented in the sample.

**Table 1. Demographics of survey respondents in comparison to St Helena population. NA for No Answer.**

	Population (2016 census)	Sample
<i>Place of residence</i>		
- Alarm Forest	383 (8.8%)	21 (10%)
- Blue Hill	158 (3.6%)	15 (7.1%)
- Half Tree Hollow	984 (22.6%)	46 (21.9%)
- Jamestown	629 (14.5%)	32 (15.3%)
- Levelwood	369 (8.5%)	11 (5.2%)
- Longwood	790 (18.2%)	25 (11.9%)
- Sandy Bay	193 (4.4%)	8 (3.8%)
- St Paul's	843 (19.4%)	48 (22.9%)
	-	NA: 4 (1.9%)
<i>Gender</i>		
- Female	2,138 (47.2%)	73 (34.8%)
- Male	2,396 (52.8%)	127 (60.5%)
	-	NA: 10 (4.8%)
<i>Age*</i>		
- 16-24	432 (11.6%)	30 (14.3%)
- 25-34	499 (13.6%)	58 (27.6%)
- 35-44	536 (14.3%)	46 (21.9%)
- 44-54	722 (19.3%)	45 (21.4%)
- 55-64	662 (17.7%)	10 (4.8%)
- 65+	888 (23.7%)	18 (8.6%)
	-	NA: 3 (1.4%)
<i>Education**</i>		
- No qualifications	933 (33.8%)	-
- Primary	-	2 (1.0%)
- Secondary	-	106 (50.5%)
- Vocational	1108 (40.2%)	35 (16.7%)
- Tertiary	273 (9.9%)	60 (28.6%)
	28 (1.0%)	NA: 7 (3.3%)
<i>Employment status***</i>		
- FT and PT employees	2,083 (51.6%)	156 (74.3%)
- Self-employed	306 (7.6%)	35 (16.7%)
- Retired	624 (15.5%)	9 (4.3%)
- Unemployed	76 (1.9%)	4 (1.9%)
- Student	9 (0.2%)	5 (2.4%)
	-	NA: 1 (0.5%)

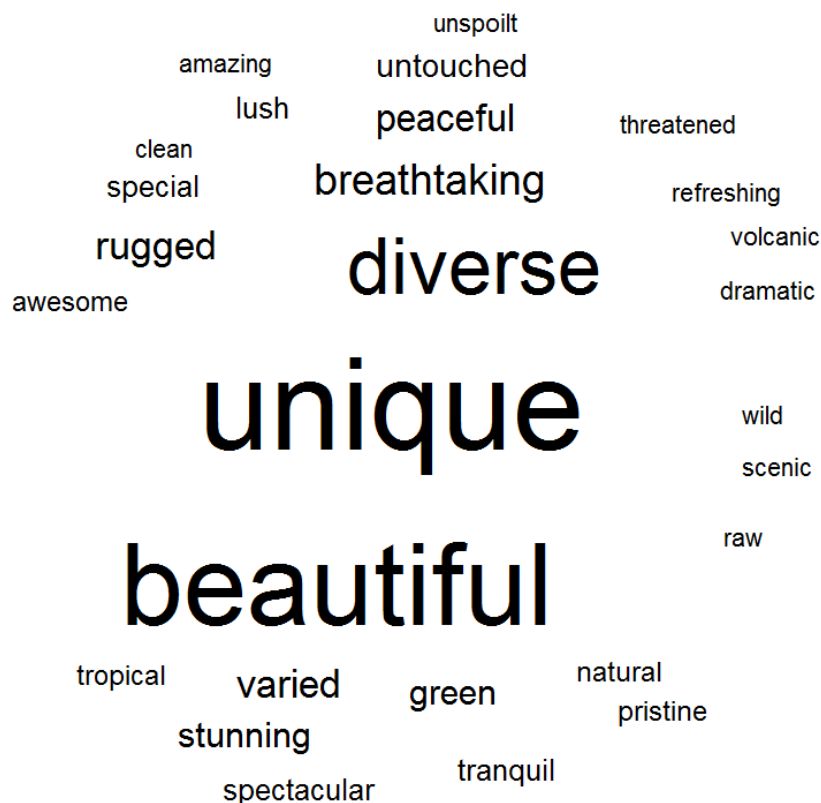
\* To calculate the population percentages for age, we excluded residents < 16 years old. \*\* The St Helena census data only provides education levels data for the economically active population (n = 2,757). Furthermore, as multiple answers to the question are allowed, we are not able to tell how many St Helena residents have primary or secondary education as their highest qualification. \*\*\* The St Helena census data only provides economic activity data for the "St Helenian household population", i.e. non-St Helenian are not included in the calculations.

### 4.2. Qualities associated the St Helena environment



A general finding is that the people living on St Helena find the island beautiful, and strongly associated with notions of diversity and uniqueness (Fig. 3). The first and third most common words are “unique” and “diverse” which, in combination with words like “special” and “varied”, underscore the remoteness, isolation and unique diversity of the island. Indeed, the way isolation has shaped St Helena’s natural environment has been repeatedly noted, most dramatically by prominent conservationist EO Wilson (1992, p. 104) who noted: “St Helena was a nearly closed ecosystem, a biosphere functioning in great isolation, one step removed from a satellite colony in space”<sup>3</sup>. A series of phrases that cannot be captured by this type of word-based presentation is indicative: “Around every corner there is a different world”; “Something you can see every day”; “Mix bag: goes from a desert to a cloud forest”; “Rich in diversity”; “A place I would encourage everyone to appreciate due to its beauty”; “full of endemics”; “Quite unique - will never see elsewhere”; “Unique - no other place like it on Earth”. The naturalness of the St Helena environment is also highlighted by several respondents, as indicated by the use of adjectives such as “unspoilt”, “untouched”, “wild”, “natural”, “pristine” and “raw”.

Aesthetic qualities (“beautiful”, “rugged” and “clean”) are also prevalent, as well as descriptions of the island associated with its particular environments (“volcanic”, “tropical”, “lush”, “green”). The qualities of the environment are mostly linked to sentiments such as awe and appreciation (“breathtaking”, “spectacular”, “awesome”, “amazing”, “dramatic”, “stunning”), as well as tranquillity and mental well-being (“peaceful”, “tranquil”, “refreshing”).



**Figure 3. Prominent characterisations of the St Helena natural environment.**

A key association that cannot be captured by the word cloud and came up repeatedly is between St Helena and jewels, or precious stones: “The emerald of god’s eye”; “An emerald set in bronze”; “The

<sup>3</sup> We first saw part of this sentence mentioned in Smith (1997, 218).

Jewel of the South Atlantic Ocean”; “Diana's Peak - St Helena's treasure chest of endemics”. This association even comes up in the mainstream British press, with current MP Andrew Mitchell writing an article on St Helena’s new airport, calling it “a jewel of the Atlantic.”<sup>4</sup> This metaphor, in combination with the islands diversity highlighted above, is also currently employed by the St Helena government in tourist advertising campaigns as a key slogan: “Experience the jewel of the South Atlantic, where you can embark on diverse walks and trails...”<sup>5</sup>

Notably, there are rarely negative or ambivalent comments regarding St Helena’s environment (“Accessible only by the fit”; “It [is] all right”; “Moderately good”; “Some parts are ok”). There are, however, many respondents (> 10% of the sample) who feel that the environment in St Helena is not being properly managed or appreciated (“Under-valued”; “Under-appreciated and under-valued”; “Huge potential; under-promoted”; “Dirty areas”; “A bit dirty”; “Mostly clean”; “Messed up”; “Spoilt by man”; “Could be made more beautiful”; “Needs protection”; “institutionally under-appreciated”; “some places need improvements”; “some case neglected”; “Sucks - nobody aint taking care of it”; “spoilt by litterbags”; “Overgrown and neglected in some areas due to increase of invasive species and lack of management”). The combination of appreciation and worry about the state of the environment in St Helena is exemplified in the following quote:

“Quite unique - will never see elsewhere; Diverse; stunning; under-researched; under-protected (although lots of amazing environmental work is going on; but location/funding is perhaps a slight barrier).”

Diana’s Peak, the place and environmental feature most regularly mentioned by the respondents (Fig. 4 A and B) as the place that best characterises the St Helena environment (50%, 105), is an embodiment of the qualities mentioned above.<sup>6</sup> Diana’s Peak is the highest point of the island, the elevation of the highest peak standing at ca. 820m (Fig. 5). It forms the core of Peaks National Park, established in 1996 and it has a unique flora, including endemics *Lachanodes arborea* (she cabbage), *Nesohedyotis arbore* (dogwood), *Petrobium arboreum* (whitewood) as well as several species of ferns, and fauna (393 invertebrate species have been recorded in the park, 217 of which are endemic to the island, e.g. groundbeetles *Pseudophilochthus grayanus*, *Pseudophilochthus dicksoniae*, *Endosmatium megalops*).

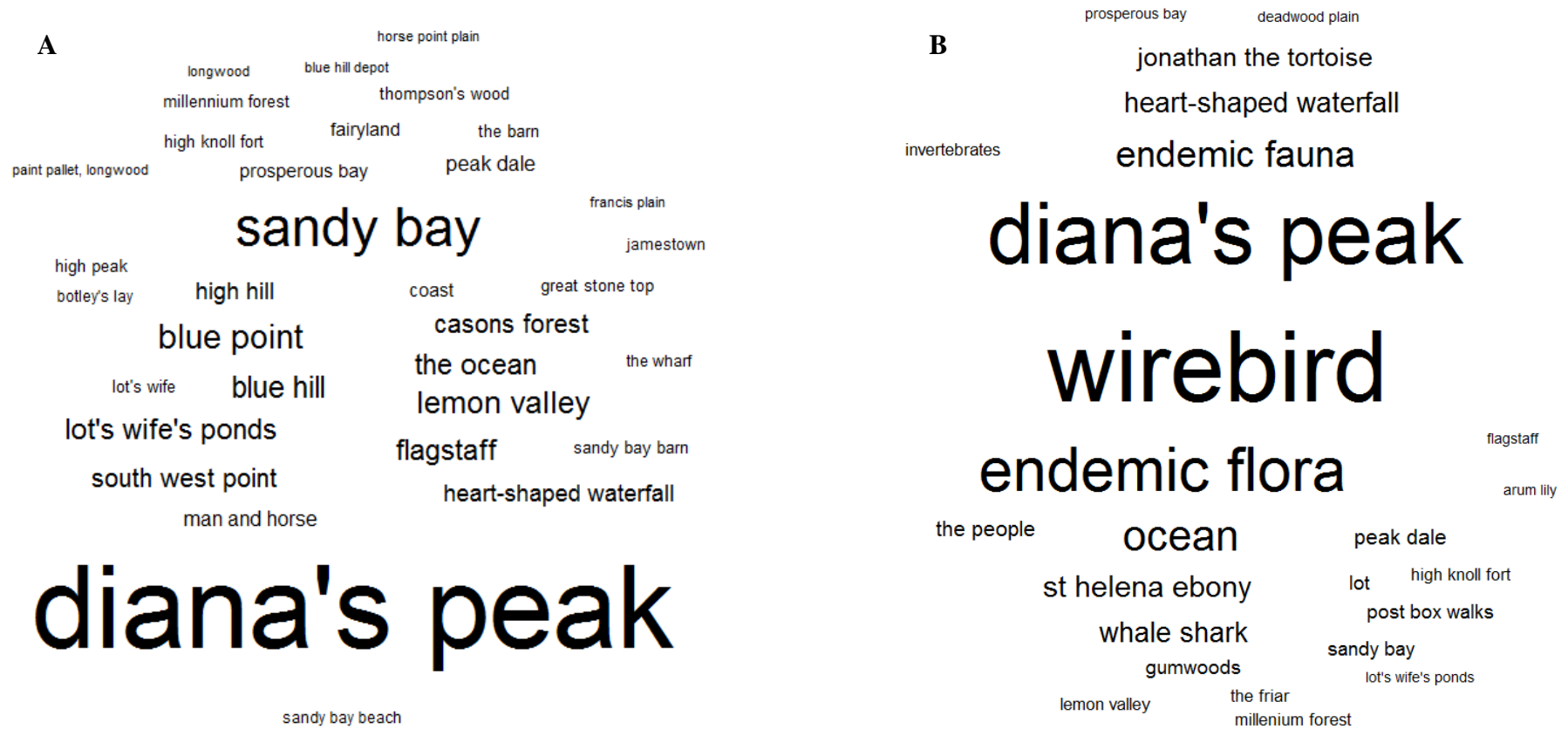
Peaks, mountains, and geological formations are among the most prominent places that respondents mentioned as important places (Fig. 4 A), including the Barn, High Peak, High Hill, Blue Point, Flagstaff, South West Point, Man and Horse, Great Stone Top, Lot and Lot’s Wife and others. For example, one respondent replied that Gates of Chaos and Lot’s Wife “are truly humbling rock formations and volcanic activity”; another notes about the Sandy Bay Barn– “a fat piece of molten rock”.

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<sup>4</sup> Mitchell, A. (2018) St Helena’s airport is no white elephant – it’s a jewel of the Atlantic. Daily Telegraph, 14 May 2018. <https://www.telegraph.co.uk/news/2018/05/14/st-helenas-airport-no-white-elephant-jewel-atlantic/> (paywall). Andrew Mitchell MP was the International Development Secretary for the UK government when the airport funding was approved. The title “Jewel of the South Atlantic” is also claimed by Gough Island, South Georgia island, the Falkland Islands and Punta del Este in Uruguay.

<sup>5</sup> From a full page advertisement by Airlink and agencies of the St Helena government on St Helena tourism in SellingTRAVEL magazine, February 2018, p. 44-45. <https://issuu.com/bmipublishingltd/docs/stm-february-2018>.

<sup>6</sup> Our results correspond with the 7 Wonders of St Helena survey run by St Helena Tourism, which named Diana’s Peak as the number one ‘wonder’. <http://sthelenatourism.com/the-7-wonders-of-st-helena/>



**Figure 4. A: Places that capture the essence of the natural environment in St Helena; B: Features or aspects of St Helena’s natural environment that are an important part of its heritage.**



**Figure 5. The top at Diana's Peak. On the horizon, a single non-native tree can be seen at the top of a neighbouring Peak.**

The ocean, Lot's Wife's Ponds, the Wharf in Jamestown and coasts in general are also featured prominently, reflecting the closeness of St Helenians to the sea and the ocean. A respondent, indicating the experiential and lived experiences that make places special, noted about Lot's Wife Ponds that it's "great walk to them, spectacular scenery interesting geology and features", while another, talking about the same place, commented:

*Lots Wife's Ponds – being quite an extensive hike it allows you to embrace your surroundings that changes from jaw-dropping beautiful, to barren and treacherous to then end in complete serenity when swimming in the naturally made ponds and fishing off the exterior walls/rocks.*

For many of the respondents, what makes a place interesting are the views that it affords, often in combination with other features. To take a prominent example, while Diana's Peak is revered for its diversity and endemic flora and fauna, it is also appreciated because "on a clear day this high point allows amazing views of the entire island"; because of its "amazing cloud, amazing 360 degree views, endemic flora and fauna"; "From there you can see the whole island and how beautiful it is"; "the home to immense amounts of endemics - and provides a stunning walk with stunning views". Some places are more worthy to look at than others, and the views towards them are valued, for example Lot and Lot's Wife ("Blue Point - Natural stand of scrubwood and spectacular views of Lot's Wife and the Gates of Chaos"; "the Range, Levelwood, looking along the coastline towards Lot's wife"; "Blue Point - for the views of Lot and Lot's wife and Sandy Bay beach") or Sandy Bay ("Sandy Bay View From Casons"; "The Depot - Views of Blue Hill and Sandy Bay - can see lush and volcanic landscapes"; "Casons (Hardings) - Views of Sandy Bay and Blue Hill". As with active experiences, views are also related to

lived experience and particular practices, as the following quote indicates: the view from “St Paul's to the sea from my bedroom window.”

The diversity highlighted as a core feature of St Helena’s environment is also a feature of many of the places chosen to represent it. Often, the word “diversity” is used again, as in for example “Banyan Cottage, Sandy Bay: It is secluded, there isn't any electricity or running water, and the quiet diversity of the greenery is surrounded by sheer/astounding cliff sides”; “High Knoll: from here you can see the diversity of the island”; “Diana's Peak(s) - area shows diversity of the environment”; “Sandy Bay: reflects diversity”. In other cases, the description of place clearly hints at it: “Lot’s Wife’s Ponds: so many ecosystems in one place” or “Diana's Peak - walk through so many 'worlds”.

Darwin, when he visited the island in the middle of the 19<sup>th</sup> century, noted: “St Helena, situated so remote from any continent, in the midst of a great ocean, and possessing a unique Flora, excites our curiosity” (Darwin 1862, 480). Similarly, for our respondents, endemic flora and fauna, a core element of biological diversity, and the various species that are well-known as such in St Helena are the most valued natural heritage features or aspects of the environment (Fig. 4 B). 120 respondents (57%) mentioned “endemic flora” or “endemic fauna”, invertebrates, or a particular plant or animal species. The wirebird, a plover named after its skinny legs, is the natural heritage feature that was mentioned by most respondents. The wirebird is St Helena’s only surviving endemic bird, and its national symbol. It occupies a special cultural status, perhaps exemplified by its place in the island’s coat of arms, or the St Helena Border Control stamp (Fig. 6). The wirebird also seems to inspire at least some creative St Helenians, as evidenced by the following poem, written by Dulcie (no last name given, included in Pridham 2015, p. 27-28).



Figure 6. St Helena Border Control stamp one of the authors’ passport (DB).

*On grassy banks I sit  
Patiently waiting  
To see my tiny feathered friends  
Memories from childhood  
Are conjured up.  
How I used to chase you  
Tripping up on stony ground  
Thinking you could not fly  
But here you come again.  
You are no beauty  
Just shades of brown  
And patches of white  
But I love you and sit mesmerised  
Until you at last take flight.*

The story of *Trochetiopsis ebenus* (St Helena ebony) is particularly interesting, as it was thought extinct but was discovered in 1980 on a steep cliff between Lot's Wife and the Asses Ears by St Helenian brothers George and Charlie Benjamin and researcher Quentin Cronk (Cronk 1986). Charlie Benjamin, “using rope and crows, was able to descend the cliff and bring up cuttings” (Cronk 1986, 165)<sup>7</sup>, which were later used to propagate the plant in St Helena and England and re-establish it on the island. The marine environment is also among the features that the respondents consider as important to the St

<sup>7</sup> The descent was dangerous and spectacular. Quentin Cronk documented it with a photograph (see Cronk 1986, Fig. 3) and <http://sthelenaonline.org/the-saint-who-risked-all-to-rescue-a-plant/>.

Helenian heritage. Many respondents simply said “the ocean” (16), while others named Lot’s Wife’s Ponds and whale sharks.

St Helenians appreciation of the endemic life (particularly flora) and diversity of the island is well documented (Smith 1997; Russell 2005), with Smith (1997, p. 217) going as far as to argue that “there are now virtually no islanders who do not understand the meaning of the term ‘endemic’ or who cannot recognize a St Helena ebony”<sup>8</sup>. Again, a word cloud does not do justice to the full elaboration of the respondents’ words: “Cloud Forest habitat, Gumwoods, Longwood Barn, Flagstaff: Endemic habitats and species are very important as only found here”; “The lush green peaks and the invertebrates, cabbage trees, ferns and redwoods; the wirebirds, tropic birds, the ebony, hair grass, and gumwoods; the dramatic changes that happen in short spaces or over small distances”; “Endemic plants and wirebirds: They are what makes the island”; “endemics [have] been there since the beginning shows the islands natural green beauty”; “the remaining endemic plants and wildlife: given that so many species have been lost and some are struggling to survive, I feel it is imperative to do as much as possible to ensure their survival”.

The respondents are also aware of what the scientific literature calls “provisioning ecosystem services”, valuing places because of the various “material” things they provide, hinting at the difficult, if not impossible, separation between what is material and immaterial in CES (Fish et al. 2016). Thus, while Diana’s Peak is clearly the place respondents value most in terms of national pride, identity, diversity, or endemism (Fig. 7), it is also the place that provides water: “Island’s water start from here”, “source of water”, “providing everything that is important to St Helena”; “for flora, fauna, water and the views, it is the essence of the island”. Diana’s Peak is not unique, as for example Iron Pot (“Blue Hill’s water source”), High Knoll (“source of water”), Flax field (“links to the flax industry that was a part of St Helena’s industry in the past”) and the Heart-shaped Waterfall (“supplies Jamestown with water”) are also places which could be said to conflate the cultural with the provisioning. The ocean is also valued for the various “stuff” it provides, (“feeds us”, “for its tourism value”, “for its bounty”). A special mention should be made of the particular geological formations of the island, which provide “fortification”, “lime”, and in general, the “rugged exterior makes St Helena inaccessible”.

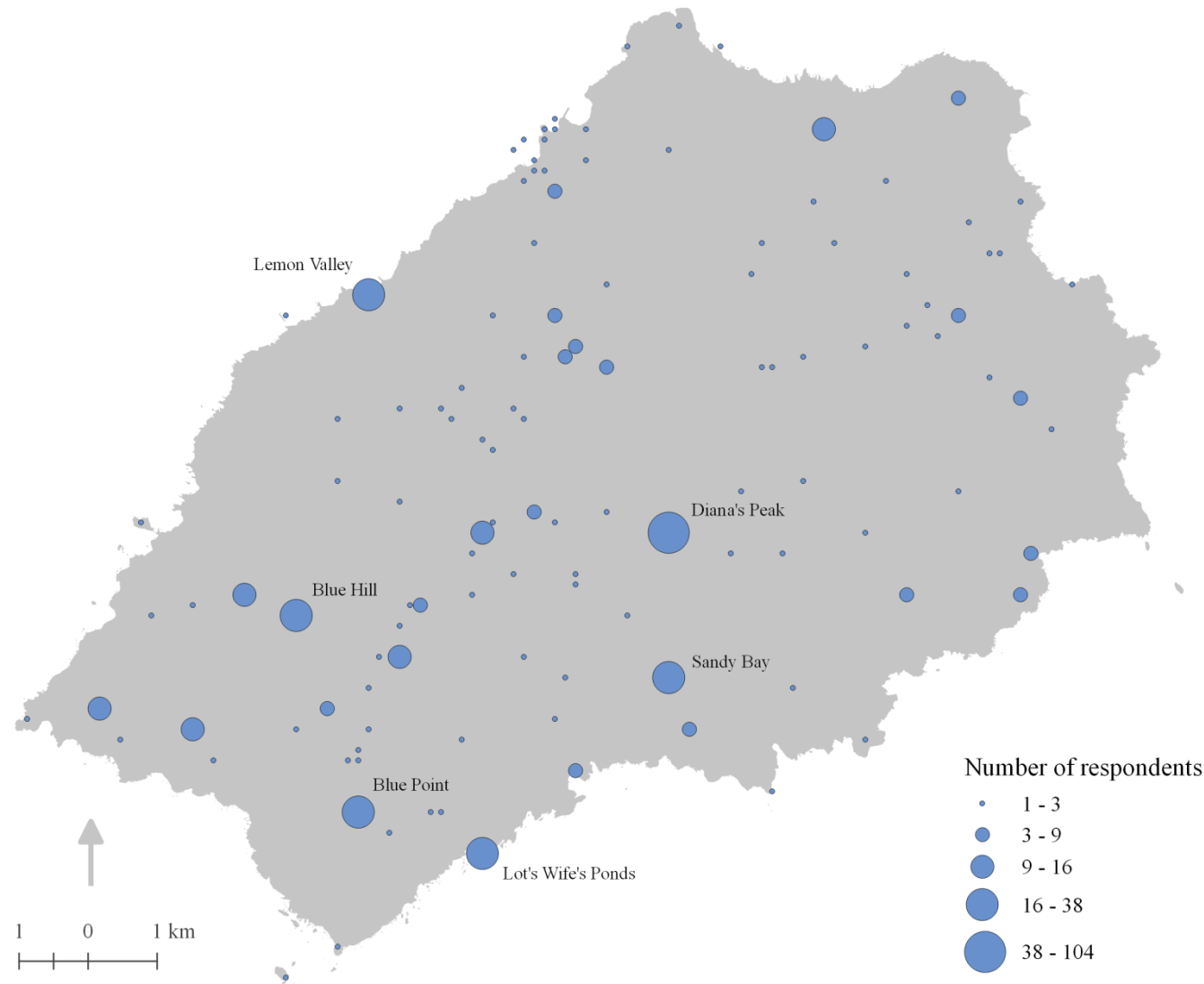
Particularly regarding Diana’s Peak, it is worth quoting at length from UK-born Cathy Hopkins MBE (Hopkins nd, p. 76), to highlight the multiple ways in it is embedded in the cultures of the island:

Where would I find such beauty in nature but atop Diana’s Peak, sitting enveloped in a chill of heavy water droplets of cloud as it was blown up from Sandy Bay and over the top towards the north of the island. The dogwood alongside the path serenely going about its business of gather water for its own benefit ... Created... evolved... a water collecting and distribution machine second to none, ensuring its survival whatever the vagaries of the weather.

Finally, in terms of places which are not really places-as-locations-in-space, but more experiential, practical and historical associations of people and nature, the respondents frequently mentioned post-box walks, and old fishing roads, which are footpaths that criss-cross the islands. For some of our respondents, their value is clear: “I believe these to be important as they provide you with the opportunity to experience our natural environment, the diversity of our island and the sheer natural beauty.” For others, they go straight to the core of this exercise: “Post-box walks [n]ot only they have geological/geographical interest but they are important to the culture of the island.”

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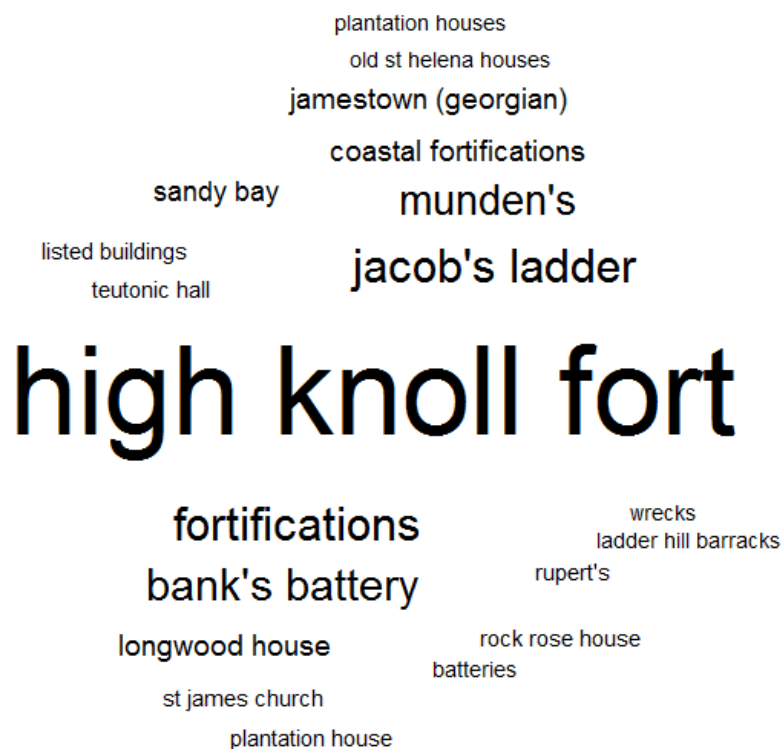
<sup>8</sup> George Benjamin, a St Helenian forest ranger working for the Agriculture and Forestry department was instrumental in Saint Helenians’ education about native and endemic flora (Smith 1997).



**Figure 7. Places that capture the essence of the natural environment in St Helena.**

The heritage of a place is comprised not only by elements of the natural environment as discussed above, but also by features of the built environment. In St Helena, the dominant category of built heritage features are coastal and inland fortifications, the most prominent being High Knoll Fort, mentioned by 83 or 40% of respondents, followed by Bank’s Battery and Ladder Hill Barracks (Fig. 8). Jacob’s Ladder, the prominent feature in Jamestown, was also cited multiple times by our respondents (24), as were the Georgian elements in Jamestown (9). Also prominent were historical buildings in general, and most particularly Munden’s House, Teutonic Hall, Rock Rose House, St James Church, Plantation House, Longwood House (final residence of Napoleon Bonaparte, who died in this house on 5 May 1821), as well as old St Helena houses, plantation-era houses and listed buildings in general. Sandy Bay received numerous mentions, as it has many features respondents considered of value, including the Sandy Bay Chapel, the Sandy Bay Archway, the Sandy Bay fort, and Sandy Bay lime kiln.

While it is difficult to show in a word-cloud as in the figure below (Fig. 8), a sizeable number of respondents consider the slavery heritage of the island as very important. Places such as Lower Farm Lodge House (“steeped with historical value [slavery]”), The Canister (“the [historical] centre of activity in Jamestown - slave auctions, hang tree”), Haytown house (“The history of the liberated slaves and the original buildings from the 19th century”), Lemon Valley (“slavery”), or Rupert’s (“where our ancestral slaves were buried”, “slave heritage”, “connection with the liberated slaves”) are all valued because of their association with slavery histories.



**Figure 8. Heritage and the built environment in St Helena.**

High Knoll Fort the place most frequently associated with negative feelings (38 respondents), followed by Rupert’s (29), and litter left by people (e.g. cigarette butts, soft drink cans) (20) (Fig. 9). With the



exception of the airport (mentioned by five respondents), the landfill and the new development in Rupert's, all other places and features were not mentioned because people do not like them, but because they feel they have been "neglected", are "falling down", "need maintenance". Thus, the sentiment we identified earlier, that respondents think St Helena and her features are beautiful and unique but under-appreciated or under-valued, seems to explain why High Knoll Fort and other features and places like Jacob's Ladder, Wharf, Munden's House, Banks Battery or Sandy Bay beach are in both lists (iconic historical or natural heritage features and places people feel negative about).

Waste management has been rapidly improving in St Helena, with new facilities capable of better recycling. Nevertheless, evidence from the survey, the St Helenian press and Government announcements<sup>9</sup> suggests that people littering has been considered a nuisance for the budding tourism industry too. Note the contrast with the emerald metaphor we identified above:

*Has it not yet dawned on us all that this Island is going through a phase of change, when we soon hope to see an increased number of visitors coming to our shores? ... What kind of impression will we give? We often refer to St Helena as the jewel of the South Atlantic, well what kind of stone do we want to portray, a dull stained semi-precious component, or should we all be working diligently to present a shining attractive emerald of the sea. In the end the choice is ours to make, it is clear that some have already made that choice ... WHAT IS YOUR CHOICE, WILL YOU HELP? Thank you.*<sup>10</sup>

For Rupert's (Fig. 10) and other places (e.g. Broad Bottom), the issue is not only neglect, but there is also an element of frustration towards current or future infrastructure and other developments, often critiquing a perceived "industrialisation" (16 respondents) or "commercialisation" (9 respondents). For Rupert's in particular, which is a popular leisure spot, the respondents mentioned among others:

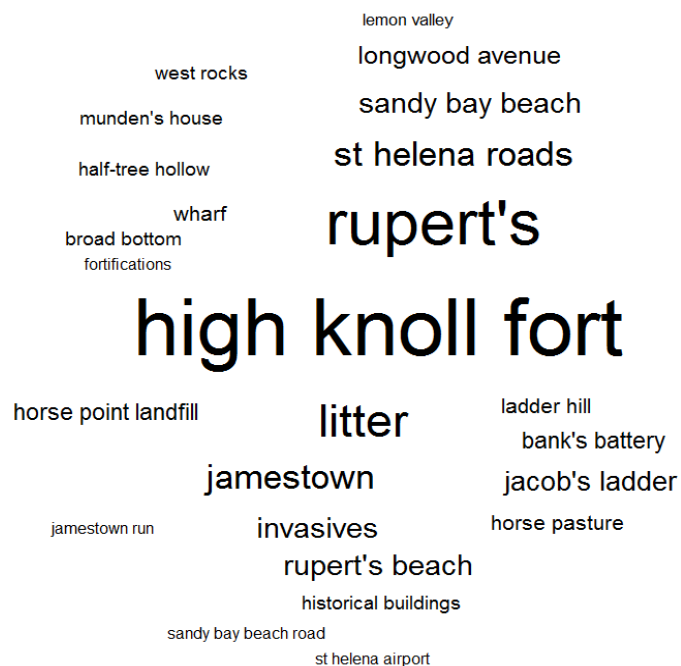


Figure 9. Places respondents feel negative about.

<sup>9</sup> See St Helena Government announcement [www.sainthelena.gov.sh/litter-in-the-jamestown-run/](http://www.sainthelena.gov.sh/litter-in-the-jamestown-run/), accessed 30 April 2019. The Government in 2017 released a new Litter Ordinance, which includes a £100 fine for any "person who deposits or leaves any litter in any public place, except in a refuse receptacle installed by the authority in charge of the place, commits an offence." <http://www.sainthelena.gov.sh/wp-content/uploads/2017/12/Litter-Ordinance.pdf>, accessed 30 April 2019. See also comments by the ex-governor Capes in 2014 on the radio, <http://www.sainthelena.gov.sh/governor-comments-on-baton-litter-and-sams-radio/?highlight=LITTER%20>, accessed 30 April 2019.

<sup>10</sup> Letter by the late Trevor Otto Thomas published in the St Helena Independent and The Sentinel, no date, mentioned in Brown (2013).

*Rupert's: Untidy, industrial and leisure areas need to be defined. Post-box walks need to be marked and the road leading from Rupert's to them should be defined. Liberated slave history need to be recognised and honoured.*

*Rupert's: recognise development but its [slave] history is being erased by industry.*

*The proposed zoning and restricted access for Rupert beach, this is an easily accessible social venue for St Helenians and proposals for the cargo facility could significantly change it.*

*Rupert's: should be an amazing place to socialise/swim but is dirty and neglected.*



Figure 10. Two views of Rupert's beach, depicting what the respondents call "commercialisation" or "industrialisation" of the popular recreation spot.

### 4.3. Practices in nature

#### 4.3.1. Work

For the majority of respondents, being outside as part of their work occurs very frequently (Table 2). 55.3% of the respondents reported that going outside is a feature of their work most days or more, while only 21% reported that they rarely or never go outside.

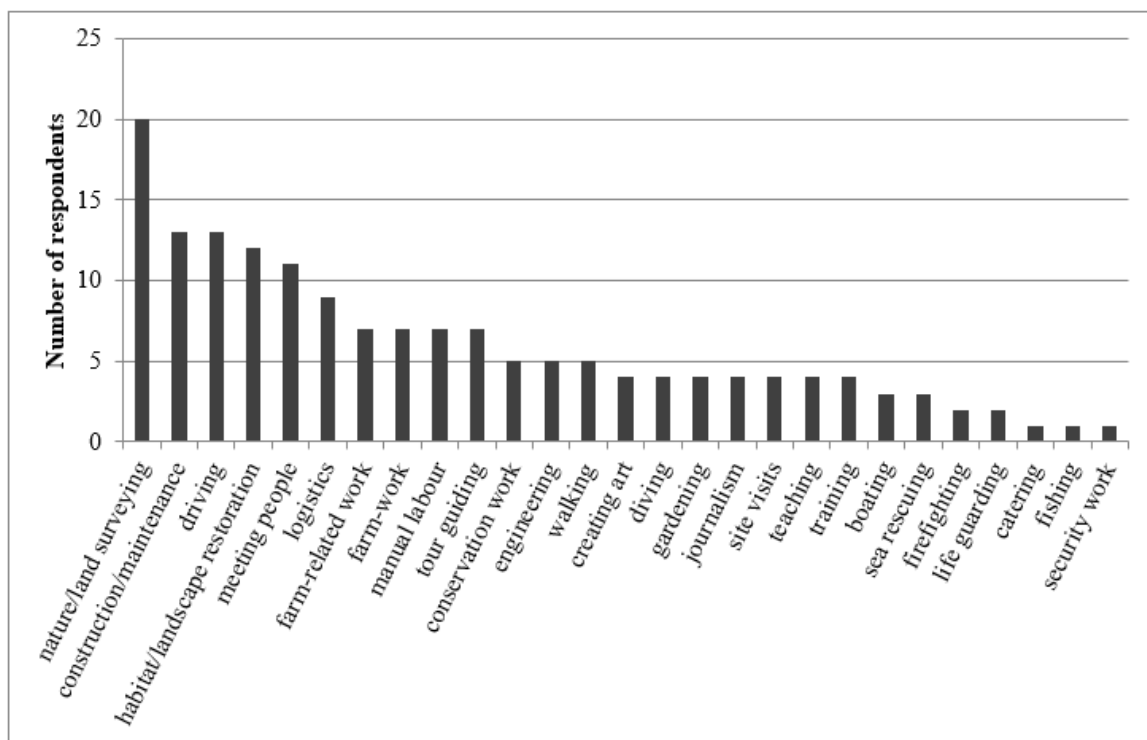
Table 2. Frequency of working outside, in nature.

Frequency of working outside, in nature	Number of respondents	% of respondents
All the time	25	11.9%
Every day	56	26.7%
Most days	35	16.7%
Quite Often	35	16.7%
Very rarely	37	17.6%
Never	5	2.3%
Not Applicable (retired, unemployed)	10	4.7%

Statistically significant gender, age, education and origin (St Helena or elsewhere) interactions with frequency of working outside were identified (Chi-square tests < 0.05 for all categories, see Appendix Item 1):

- Women are less likely to work outside frequently.
- Younger (16-24) and older (55+) respondents more likely to rarely or never go outside for work, while those aged between 25 and 35 are more likely to.
- Respondents with higher education are less likely to work outside frequently in comparison to those with secondary or vocational education.
- Finally, respondents who did not grow up in St Helena are more likely to work most days or more outside. This latter finding can at least partly be explained by the over-representation of conservation professionals in the sample.

To understand what kind of practices and activities bring people outside, we asked respondents to list what kind of outside work they do. During the analysis stage we coded their answers as seen in Figure 11 below. The most common work that brings people outside in St Helena appears to be nature or land surveying, including fauna and flora surveys, marine surveys, and topographic surveys. Construction and maintenance work follows, while landscape and/or habitat restoration is also one the occupations that brings people outside frequently. Incidental ways of being outside are also common, such as driving, meeting people and logistics operations. Notably, eight respondents mentioned tour guiding, indicating that perhaps a new type of work activity has started in the island. Farm and farm-related work are also prominent, as it seems that an amount of respondents work on the land (farming, agriculture) or in related occupations (e.g. farm animal veterinarian, bio-security, livestock checking/weighing before slaughter, farm business managers, etc.



**Figure 11. Activities, or practices, performed outside while working.**

In accordance with the frequency of working outside, different social strata of the St Helena population are engaged in different activities while working in the natural environment. In Figure 13 below we present some contrasts for gender, employment, and age. What this finding hints at is that there are differences in the way cultural work practices are spread across society, with some activities more

common and others rarer in particular strata. For example, women are less likely to be engaged in farm-related or construction activities than men, and more likely to experience natural settings while working as teachers, as land/nature surveyors or while driving. Similarly, for other social stratifications, the activities that relate to nature are often completely different (e.g. between full-time paid workers and the self-employed).

The environmental spaces where respondents interact with nature while working outside can be seen in Figure 14. The first point to note when analysing the map is that the majority of points are in or close to settlements, which is to be expected, since most people would work close to where they live. Secondly, we can see that the area around Jamestown has the highest density of points. The high number of people involved in nature surveying, habitat restoration and conservation work (Fig. 12) is reflected in the fact the places most frequently mentioned by respondents are Diana's Peak and Millennium Forest, the latter a large forest restoration exercise. While this can partly be explained by the conservation-bias of our sample, the number of individuals involved in practical conservation work is quite large in St Helena (e.g. compared to a town of 4,500 people in the western world).



**Figure 11. Peaks National Park rangers eradicating flax plants with machetes, near Diana's Peak.**

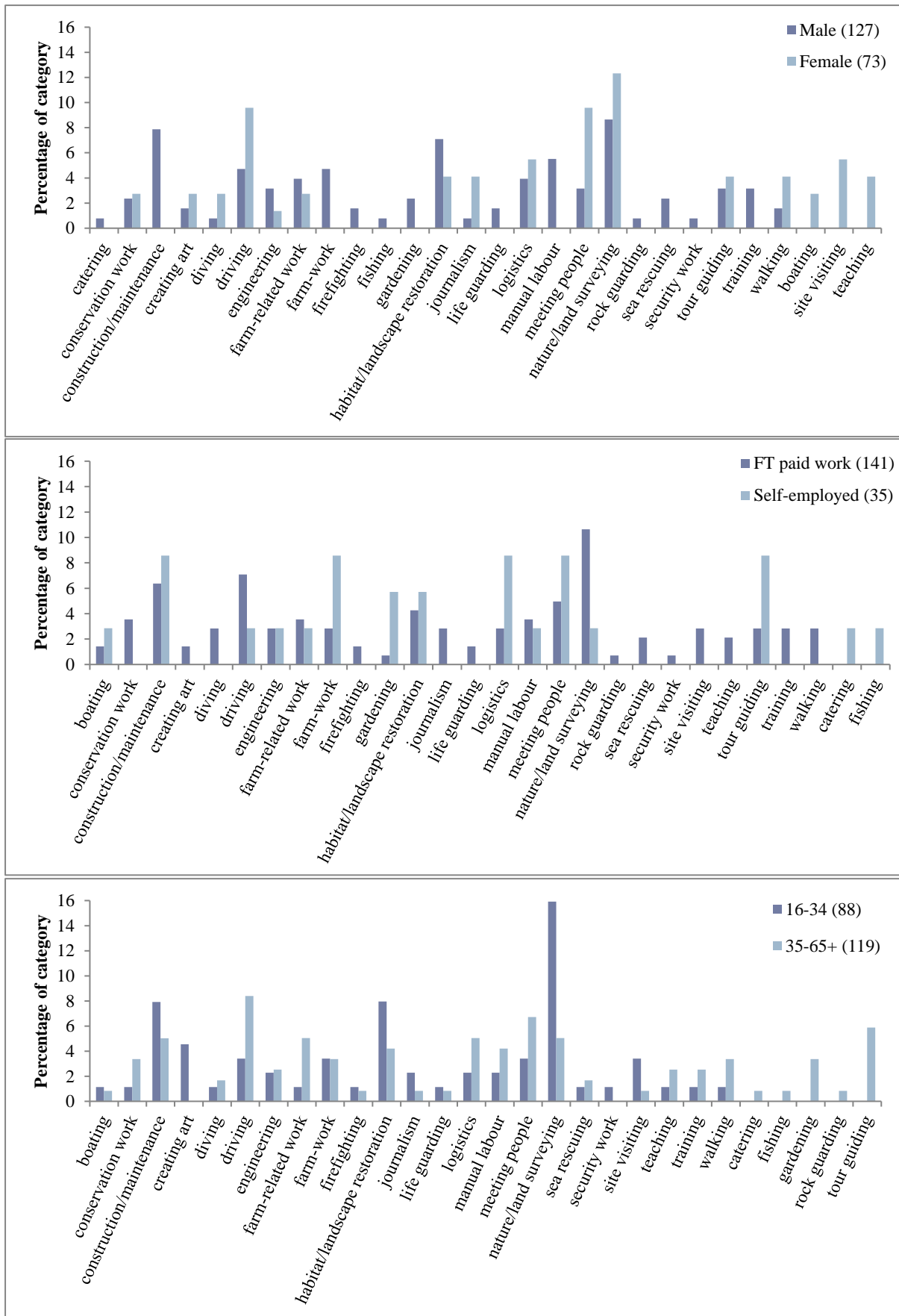
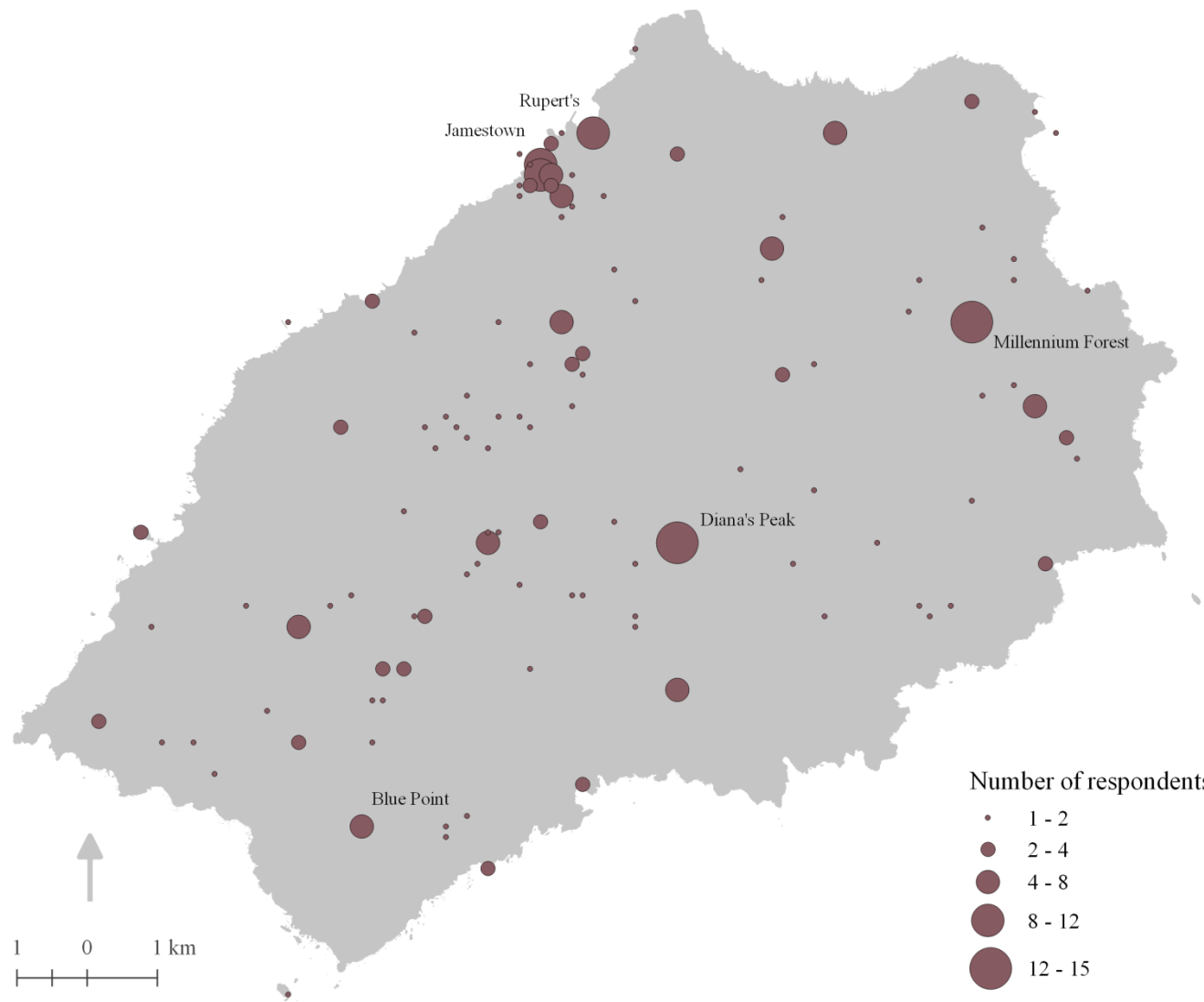


Figure 12. Outdoor work activities grouped according to different social strata. Top: Gender; middle: employment type; bottom: age. Parentheses in the legend show the number of respondents in each category.



**Figure 13. Places where respondents interact with nature while working.**

### 4.3.2. Leisure

Cultural ecosystem services are also associated with activities and places people do and visit during leisure. We asked a range of questions related to leisure and the natural environment in St Helena, grouped around frequency of outdoor leisure activities, type of activities, and places visited. We also investigated the effects of social stratification on these types of practices. The general finding would be that almost all respondents (c. 90%, 187 respondents) are spending time outdoors during their leisure time. Furthermore, respondents are spending leisure time outdoors fairly frequently, since c. 65% do so more than most days (Table 3), with no evidence of significant social stratification, except age (Chi-square test  $p < 0.05$ ), which indicated older people (55+) are less likely to spend time in nature frequently (Table 4).

**Table 3. Frequency of outdoor leisure.**

Frequency	No of respondents	Percentage of respondents
All the time	10	4.8 %
Everyday	51	24.2 %
Most days	77	36.7 %
Most weeks	53	25.2 %
Less than once a month	13	6.2 %

**Table 4. Frequency of outdoors leisure tabulate with age.**

	All the time	Every day	Most days	Most weeks	Less than once a month
<b>16-24</b>	3.4	17.2	41.4	34.5	3.4
<b>25-34</b>	1.8	38.6	36.8	22.8	0.0
<b>35-44</b>	13.6	20.5	36.4	27.3	2.3
<b>45-54</b>	4.4	24.4	42.2	20.0	8.9
<b>55-64</b>	0.0	0.0	40.0	30.0	30.0
<b>65+</b>	0.0	17.6	29.4	29.4	23.5

Respondents appear to spend a significant amount of leisure time outdoors and, as a corollary, they are practicing a variety of outdoors activities (Fig. 15). The most popular activities, i.e. those mentioned by >50% of the respondents, include creative activities (such as photography), foraging, trekking or long distance walking, gardening (including kitchen gardening), swimming in the sea, coastal fishing, contemplating, taking gentle walks, and eating outside. Some of these activities, or their relative popularity, is associated with particular aspect of St Helenian culture. Eating outside, while not solely a St Helenian practice, is also especially significant, particularly related to cooking fish from the local ocean (“fish-fries”, “cook-ups”, “braais”). Leisure activities related to nature are not only taking place outside though. To reflect this, we asked respondents to select from a list which activities they performed at home, or inside. As expected for such a remote island with a big tradition in farming and agriculture, preparing local produce is by far the most common activity with over 80% of respondents enjoying dishes made from local ingredients. This is followed by displaying art from St Helena such as photographs and paintings, and by medicinal use of natural products.

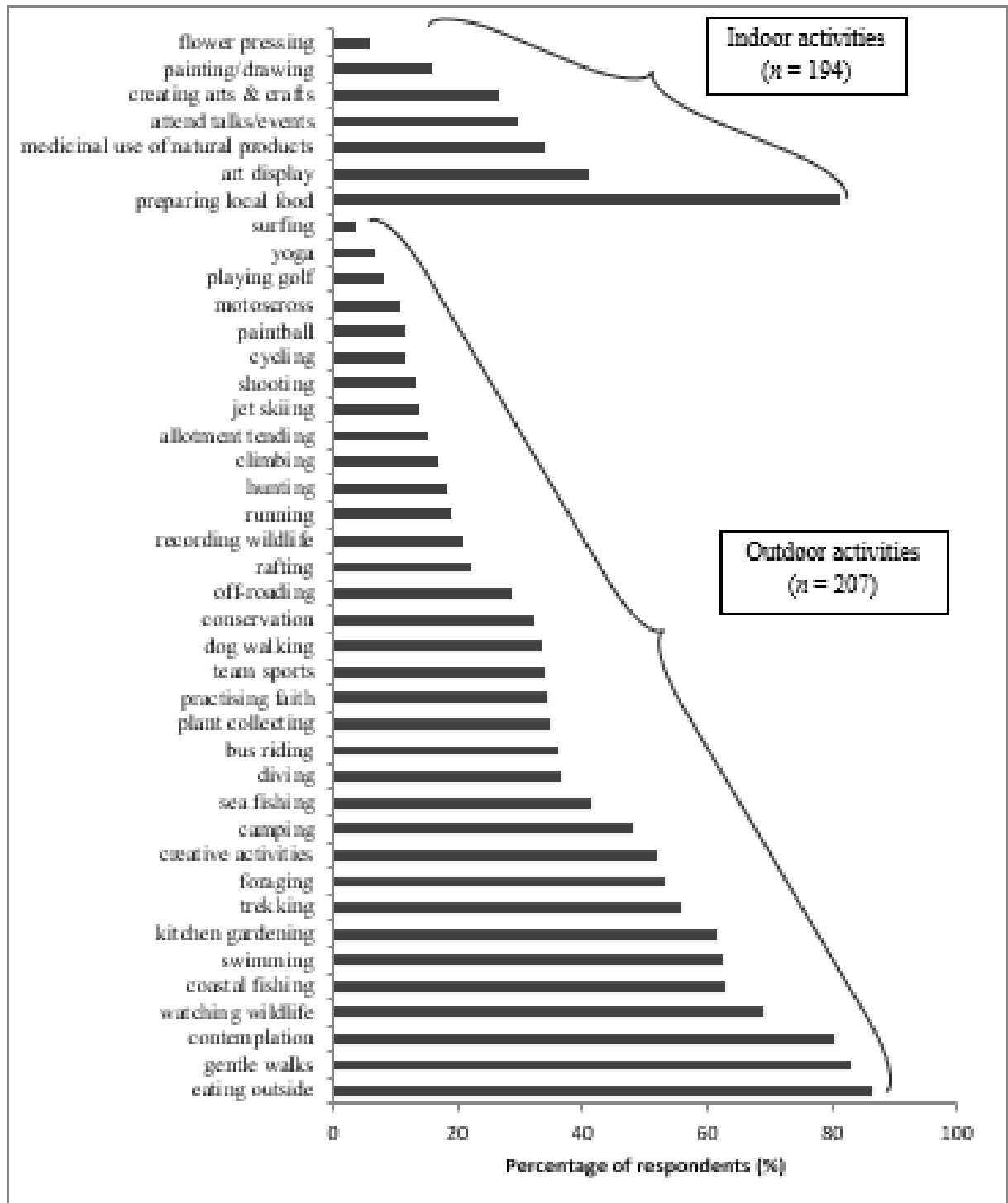


Figure 15. Indoor and outdoor activities Saints carry out in their leisure time.

While the frequency of outdoors leisure did not seem to differ along social axes, particular activities pursued outside do seem to differ (Fig. 16), albeit visibly less than work-related activities. Most activities are common across social strata, with the exception of some interesting cultural practices. For example, fishing is more popular with younger men who were born in St Helena, while camping is more popular with self-employed respondents who were not born in St Helena. As expected, younger



respondents are more active than older. There are interesting parallels between male and female and older and younger respondents, who mainly differ in the ranking of activities and not the activities themselves, hinting that outdoors leisure activities are enjoyed by all.

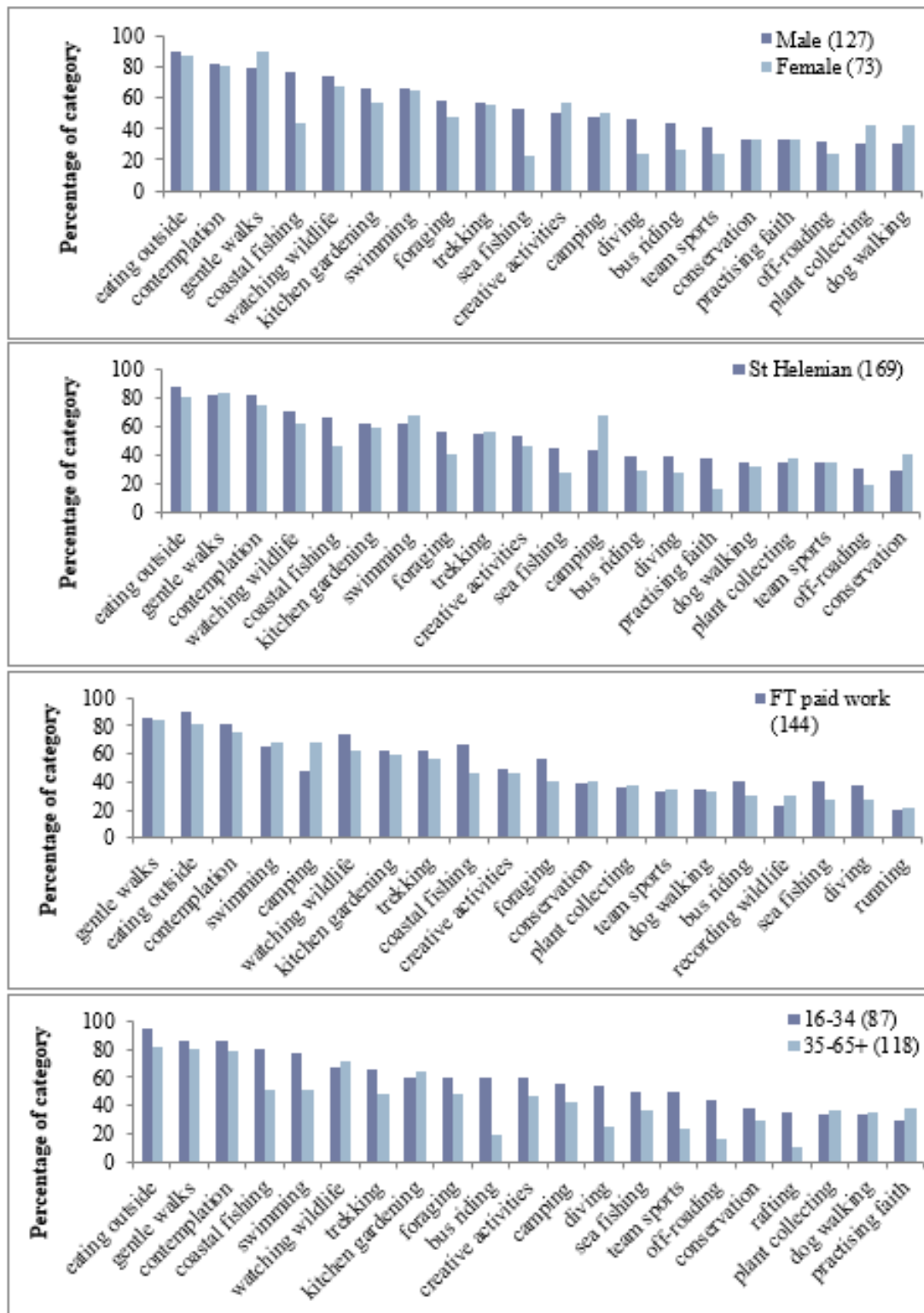
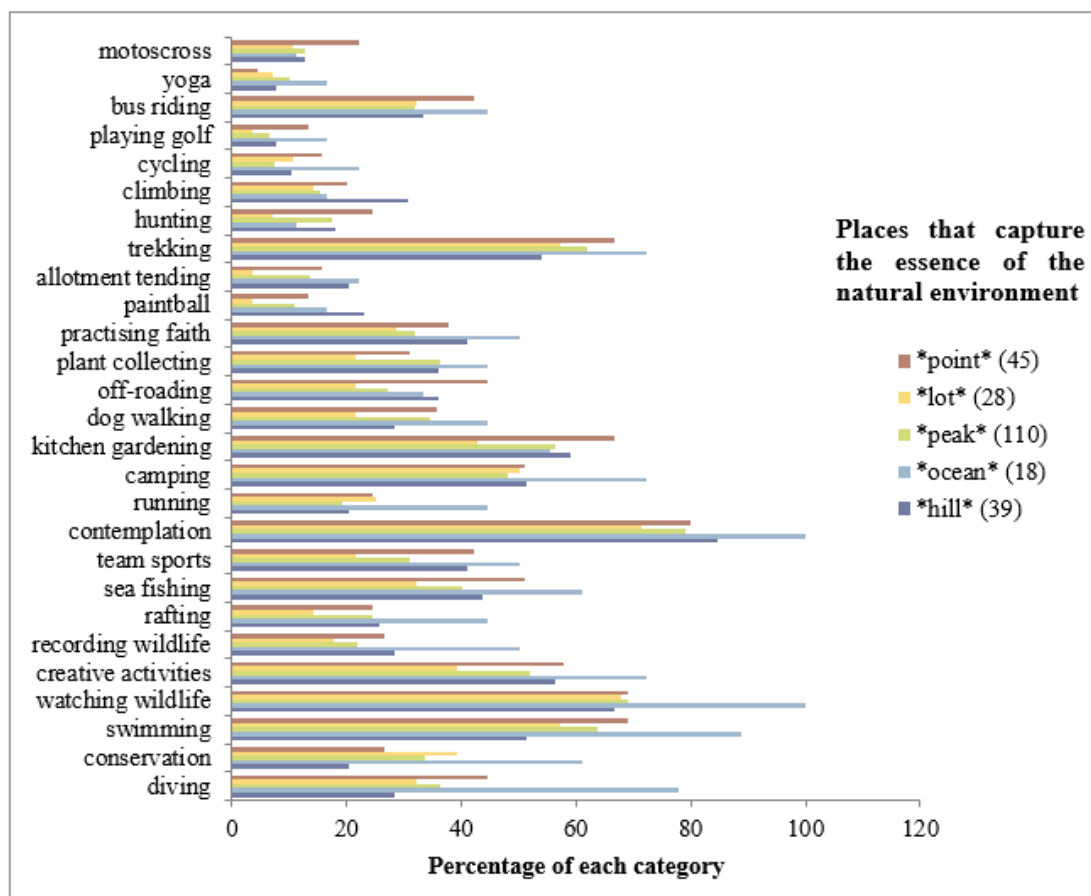


Figure 16. Outdoor leisure activities grouped according to different social strata. From the top: Gender; place of birth; employment type; age. Parentheses in the legend show the number of respondents in each category.

**Figure 14. Outdoor leisure activities grouped according to different social strata. From the top: Gender; place of birth; employment type; age. Parentheses in the legend show the number of respondents in each category.**

The comparison between individuals' leisure activities and the places they named as capturing the essence of the natural environment reveals linkages between activity and views on the environmental spaces of St Helena (Figure 17). Thus, the respondents whose answers to the question "Name three places that capture the essence of the natural environment" contain references to the "ocean" are more likely to enjoy water-based activities such as swimming, sea fishing, diving and rafting. Similarly, respondents who mentioned places that contain "hill" are more likely to enjoy climbing and paintball. This finding is also partly related to number of activities the average respondent in each category practices, i.e. if a category's respondents are more active. Thus, respondents that consider places that contain the words "lot" (Lot, Lot's Wife, or Lot's Wife's Ponds) as the essence of the natural environment in St Helena practice on average 10.57 activities, while respondents who mention the ocean practice an average of 16.33 activities, "peak" 12.45 activities, "hill" 12.64, and "point" 13.57. Thus, we can argue that there is indeed a complex relationship between values regarding the natural environment, frequency, level and type of outdoors activity, although we cannot yet define causal relationships (i.e. do people value the ocean because they enjoy ocean-based activities, or do they enjoy ocean-based activities because they value the ocean; perhaps an answer that would not give precedence to either moment would be more pragmatic).

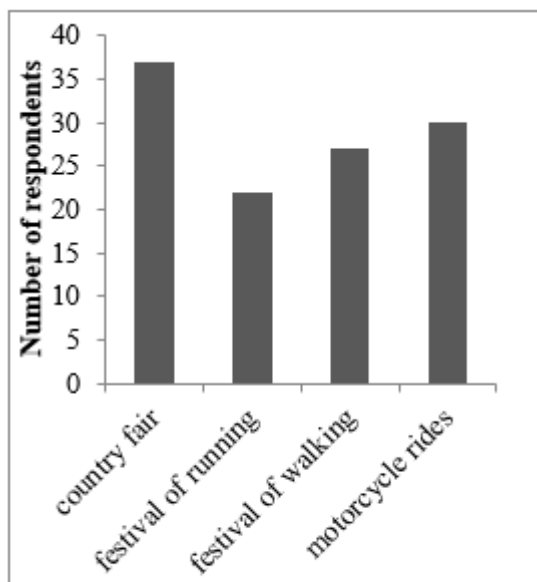


**Figure 17. Relations between individuals' leisure activities and stated places that capture the essence of the environment in St Helena. Numbers in parentheses in the legend items represent the number of respondents that fall in each category. Only activities with differences between maximum and minimum values of 10% are shown.**

**Figure 15. Relations between individuals' leisure activities and stated places that capture the essence of the environment in St Helena. Numbers in parentheses in the legend items represent the number of respondents that fall in each category. Only activities with differences between maximum and minimum values of 10% are shown.**

To gain a better sense of the amount of different activities people in St Helena pursue in the natural environment in their leisure time, we also computed the number of different **Places that capture the essence of the natural environment** carries out from the aforementioned list. The mean number of activities is 12.25 (median = 12), indicating that on average people in St Helena do indeed practice a range of different outdoors activities. The number of activities did not significantly differ along gender, employment, origin, education, or sex (Appendix 4). It did differ along age and education classes (Kruskal-Wallis test,  $p < 0.05$ ), with the younger respondents being the ones that participate the most in outdoors leisure activities (post-hoc pairwise comparisons, Wilcoxon rank sum test,  $p < 0.05$ ), as well as respondents with vocational education.

The activities mentioned above are mostly carried out individually, although circa 30% of the respondents indicated that they participate in groups in at least one activity. The most popular of these group or social activities are diving (11 respondents), motocross (6), golf (5), nature conservation (5) and team sports like football, cricket or netball (10). Often, these activities are part of organised groups or clubs (e.g. diving club, football association). These kinds of events are frequent in St Helena, and are usually organised by related voluntary associations or clubs. The government also organises some events, such as the Festival of Walking as a way to bolster the image of St Helena and attract tourists. Education seems to have a significant interaction with social activities (Chi-square test,  $p < 0.05$ ), as respondents with secondary education are less likely to take part in these types of activities compared to respondents with higher or vocational education (Appendix Item 2).



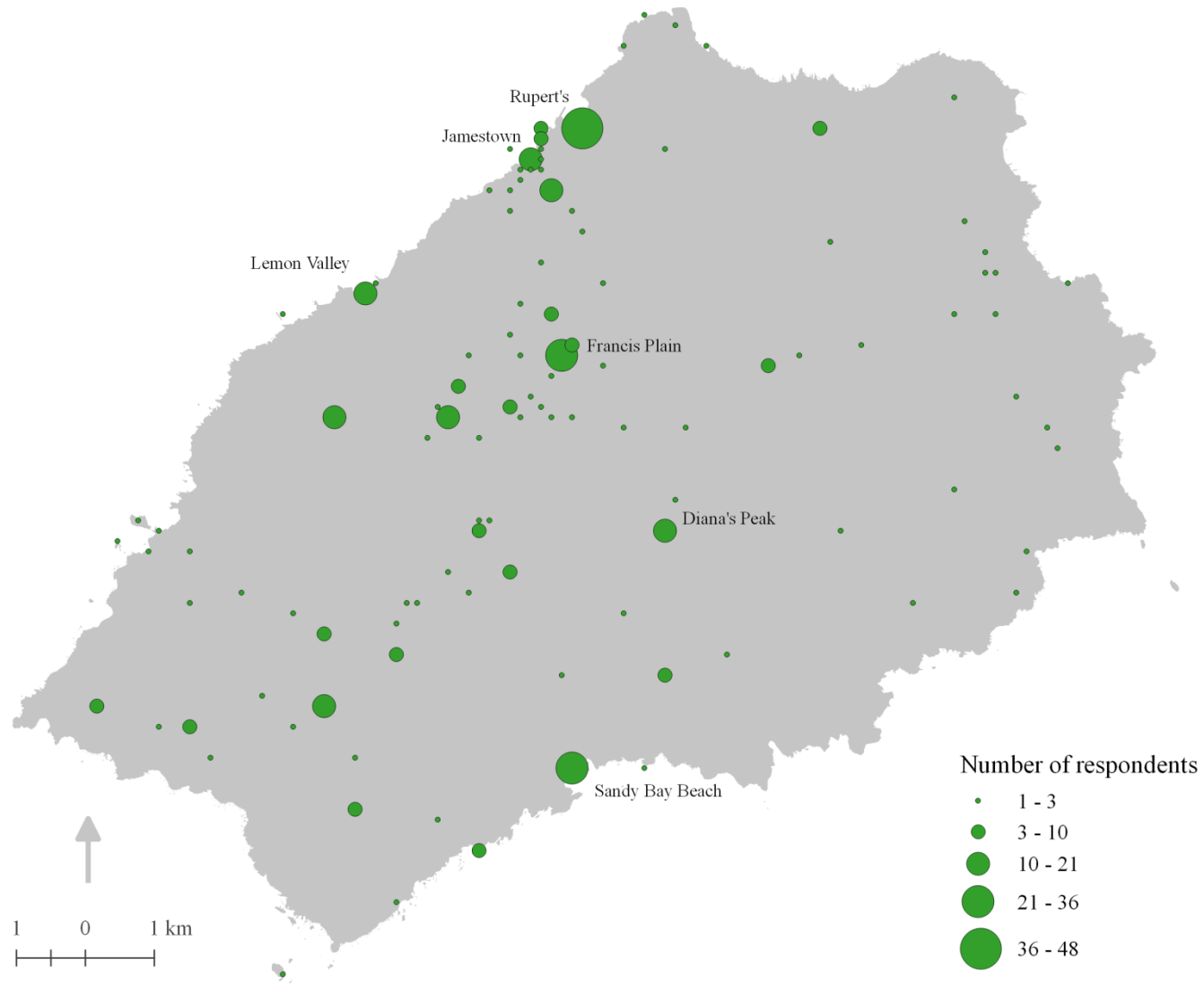
**Figure 18. Outdoors leisure activities carried out in a social setting.**

Furthermore, 43% of the respondents indicated that they also take part in social activities that have a large scale or national character (Fig. 18). As expected, these kinds of events are not attended evenly across social strata (Appendix Item 3). To take gender as an example, more women attend the country fair and the Festival of Walking, while more men attend motorcycle rides. Similarly, respondents with higher education are more likely to attend the Festival of Running or the Festival of Walking than respondents with vocational education, who are in turn more likely to attend the country fair. Younger people are more likely to attend all events with the exception of the country fair, as are full-time workers in comparison to self-employed respondents with the exception of the motorcycle ride.

Finally, we asked the respondents if they are happy with the amount of leisure time they spend outdoors. 36% of the respondents answered that they are, while 50% answered that they are not (the rest did not answer the question). Interestingly, gender and employment appear to be related to satisfaction from

leisure time outdoors, with women and full-time paid workers less satisfied than men and the self-employed respectively.

The environmental spaces where respondents interact with nature in their leisure time can be seen in Figure 19. The Jamestown/St Paul's/Half Tree Hollow area features very prominently on the map, including Rupert's; partly a reflection of population density. Beaches are the places where most respondents spend their leisure time (with activities such as picnics, cooking outside, sports activities, etc.) with traditional spots like Sandy Bay and Lemon Valley reflecting that. Many of the places listed by the respondents are parts of post-box walks, or important sites of natural and historical heritage (e.g. Lot's Wife's Ponds, Diana's Peak) as well as settlements (Sandy Bay, Blue Hill).



**Figure 16. Places where respondents carry out leisure-related activities.**

#### 4.4. Cultural ecosystem benefits

The interactions between environmental spaces and cultural practices sometimes – but not always – through the mediation of cultural goods such as local festivals, produce a range of cultural ecosystem benefits. In this section, we look at some of the benefits enabled by these interactions

##### 4.4.1. Subjective well-being and activities in nature

Research has found that being close to nature contributes positively to human well-being (White et al. 2013, 2017; Bieling et al. 2014; Fagerholm et al. 2016; de Bell et al. 2017). The majority of this research, similarly to CES research in general, is mainly preoccupied with leisure activities or with scenic or beautiful landscape views (e.g. from work windows). We also know that demographic characteristics (affluence, education, sex, etc.) can have an influence on mental wellbeing, but here we are interested more in how the patterning of activities and practices associated with being outdoors in nature might affect self-reported well-being. To do that we followed White et al. (2017), who used a series of four questions related to subjective well-being (OECD 2013): a) life satisfaction (evaluative), b) meaningful/worthwhile activities (eudaimonic), and c/d) happiness and anxiety yesterday (positive/negative experiential)<sup>11</sup>.

Using a series of Kruskal-Wallis and correlation tests we explored for interactions between patterns of outdoor activities and these elements of subject well-being. We only found significant relationships for negative experiential well-being, positive experiential well-being, and eudaimonic well-being. Negative experiential well-being (anxiety yesterday) appears to be associated with frequency of working outside (Kruskal-Wallis test,  $p < 0.05$  post-hoc Benjamin and Hochberg correction; Table X): respondents who are never or rarely working outside self-score higher on how anxious they were yesterday. Positive experiential well-being (happiness yesterday) appears to be positively related to how often respondents carry out outdoors leisure activities (Kruskal-Wallis test,  $p < 0.05$  post-hoc Benjamin and Hochberg correction; Table X), whether they are satisfied with time spent outdoors (Kruskal-Wallis test,  $p < 0.05$  post-hoc Benjamin and Hochberg correction), and with the number of different activities they carry out outdoors (Pearson correlation,  $p < 0.05$ ). Finally, eudaimonic well-being appears to be positively associated with the number of different activities respondents carry out outdoors (Pearson correlation,  $p < 0.05$ ). Following this exploratory phase, we set up a series of ordinal regressions with step-wise selection, which confirmed the finding of the exploratory analysis described above (see Appendix Item 7).

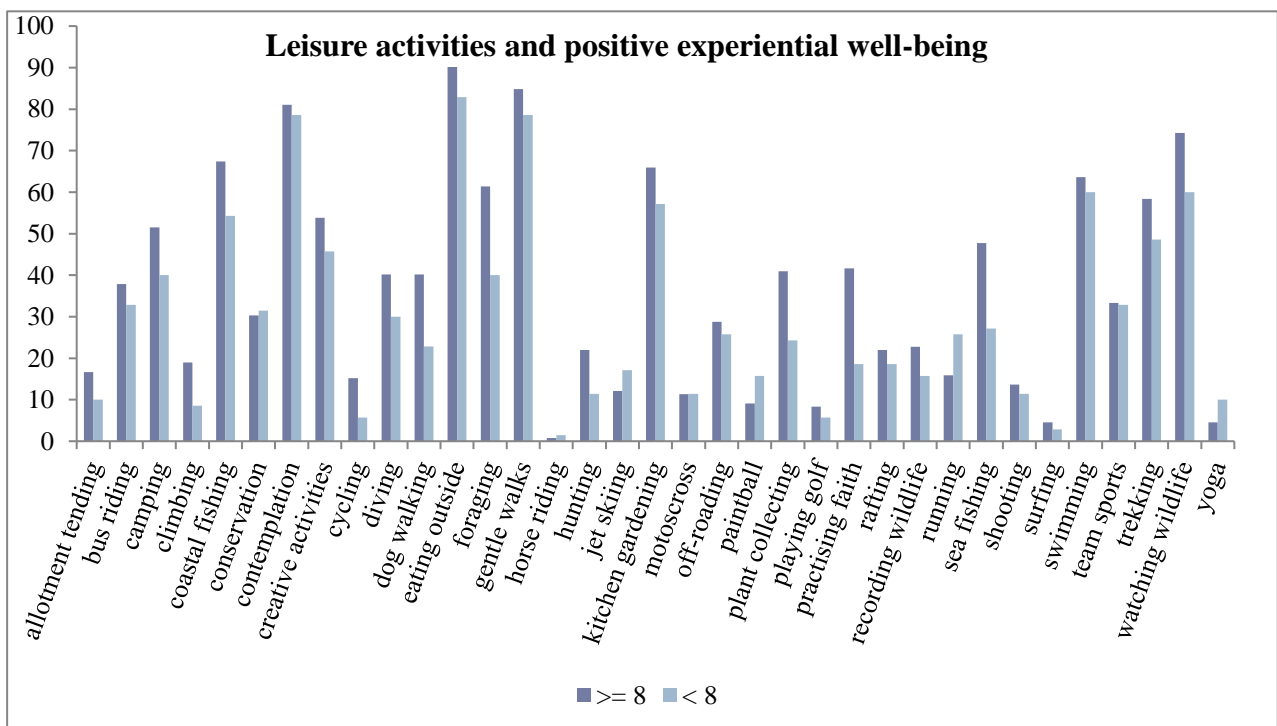
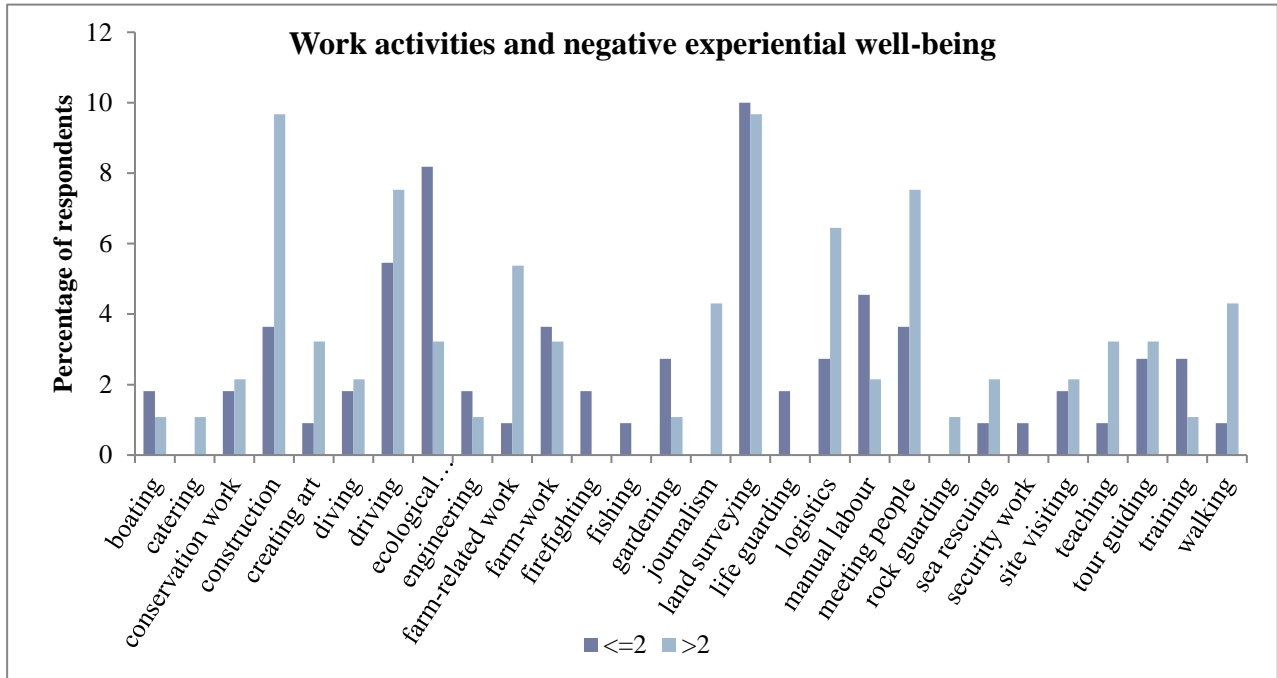
Considering that the frequency of work and leisure outside appears to be related to negative and positive experiential well-being respectively, it is worth looking at whether subjective well-being is related to different activities in nature. Based on the answers to the self-reported experiential well-being questions, we split the respondents into two groups: high and low anxiety for negative experiential well-being and high and low “happiness” for positive experiential well-being (groups were split along the median of the responses). Based on this grouping of the respondents, we calculated the percentages of different work activities for negative experiential well-being and different leisure activities for positive experiential well-being (Figure 20). Figure 20 (top) reveals that respondents who happen to work outside incidentally, i.e. activities such as driving, catering, journalism, logistics, walking, meeting people, teaching appear to have higher levels of experiential anxiety. More than half of the respondents

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<sup>11</sup> Questions: Evaluative wellbeing: “How satisfied are you with life nowadays” (1-10); Eudaimonic well-being: “To what extent do you feel that the things you do in your life are worthwhile?” (1-10); Positive experiential well-being: “How happy did you feel yesterday?” (1-10); Negative experiential well-being: “How anxious did you feel yesterday?” (1-10).

who practice ecological restoration report lower levels of anxiety. Interestingly, the same hold for respondents who work in construction and maintenance.

Figure 20 (bottom) reveals that for respondents who report higher levels of happiness are more active in general, as indicated by the higher percentages for almost all activities (and confirmed by the fact that the number of different activities is related to positive experiential well-being, see above).



#### 4.4.2. Positive experiences in nature

Another dimension of well-being associated with CES is related to the positive experiences gained when pursuing activities in nature (Fish et al. 2016). These experiences are enabled by the relations between environmental spaces and cultural practices, sometimes mediated by cultural goods such as local food or drink, organised opportunities for recreation, or local tourism. We grouped positive experiences in five categories (see Table 7 and Appendix Item 6 ) and asked respondents to tell us how they feel recreating outside by scoring each category from “I strongly agree” to “I strongly disagree”. Respondents seem to be overwhelmed with positive experiences when outside. Recreation outside is conducive to positive experiences related to ecosystem benefits. In the tables below we see that large majorities agree that positive experiences are definitely part of leisure in the natural environment (calculation of means after transforming raw data to Likert scale (1: Strongly agree; 5: Strongly disagree). Outdoor leisure appears strongly related to all categories of experience we listed, but most importantly to freedom, escape and independence, tranquillity, inner peace and contentment, and belonging and attachment. The former, inner peace and contentment, perhaps helps explain why the frequency of outdoors leisure is related to self-reported life satisfaction, the subjective evaluation of meaningful/ worthwhile lives. The predominantly positive feelings respondents derive from being outside during their leisure time perhaps helps explain why people who are able to practice leisure activities every day are reporting higher level of positive experiential well-being (see above).

**Table 5. Positive experiences while associated with outdoors leisure. To calculate the mean we transformed the categories into a Likert scale (1: strongly agree to 5: strongly disagree).**

<b>Being outdoors for leisure I feel:</b>	<b>Mean</b>	<b>Strongly agree/Tend to agree</b>	<b>Neither agree nor disagree</b>	<b>Tend to disagree/Strongly disagree</b>
Tranquillity, inner peace & contentment (202)	1.53	95.0%	4.0%	< 1%
Freedom, escape & independence (202)	1.51	93.0%	6.4%	< 1%
Exhilaration, excitement & stimulation (201)	1.88	79.0%	19.4%	1.5%
Achievement, accomplishment & purpose (201)	1.86	80.0%	20.0%	0%
Belonging & attachment (200)	1.62	86.5%	12.5%	1.0%



## 5. DISCUSSION & CONCLUSION

In this brief report, we have documented the qualities and places in the environment that people living in Saint Helena value; recorded different activities related to the natural environment, as well as the spatial and temporal patterns in the practice of these activities; and finally, we assessed some of the benefits of natural capital for the people in the islands. We did the above with attention to practices beyond leisure, and with an eye on if and how social difference might play a role. Some key outputs are discussed below.



**Figure 17. Flax bushes near the cloud forest at Diana's Peak.**

The St Helenian environment has been shaped both by its isolation and its partial but constant connection to the outside world. Thus, the uniqueness of plant and animal life identified by the respondents, is indeed mainly a result of the island's isolation. However, human-made extinctions and human-brought invasive species have also made the environment, as with the spread of flax which now covers large parts of the island, including parts of the Peaks National Park (Fig. 21). The case of flax is interesting, as it really highlights a disconnect between the realities of an island so heavily exploited and changed since its habitation that the pre-settlement landscape is probably non-existent anymore, and its contemporary description as "natural", "unspoilt" or "untouched". As Alfred Russel Wallace wrote in *Island Life* (1880, p. 283-284):

*When first discovered, 378 years ago, St. Helena was densely covered with a luxuriant forest vegetation ... This indigenous vegetation has been almost wholly destroyed ... This irreparable destruction was caused in the first place by goats ... They were, however, aided by the reckless waste of man ... Two of the native trees, redwood and ebony, were good for tanning, and to save trouble the bark was 'wastefully stripped from the trunks only, the remainder being left to rot; while in 1709 a large quantity of the rapidly disappearing ebony was used to burn lime for building fortifications!*

Thus, while the island of St Helena has been isolated for so long as to have developed a unique flora and fauna, the pride of almost all residents of the islands, it is also a heavily impacted natural environment, partly or even mainly due its particular place in the colonial networks of the Atlantic and Indian Ocean. The early recognition of this impact by the Island's administrators from the time of the East India Company (Grove 1995) has probably been instrumental in the positive and knowledgeable attitudes of many St Helenian's towards the environment.

Relatedly, we discovered that both leisure and work outdoors, in natural settings, are key features of the lives of the people in the islands, and that both have clear benefits in terms of experiences gained and subjective well-being. The results regarding mental well-being hint at a dose-response relationship, i.e.

respondents who are outside more often appear to be less anxious and happier. Nevertheless, while this finding is interesting, it does not give any hint on causation. From our dataset we cannot infer whether it is being outside that provides mental health benefits, or if “happiness” makes us go outside more. Our results however do show that there is indeed a relationship between being outside and better self-reported well-being which is could be of interest to the health professionals and policy makers on the island.

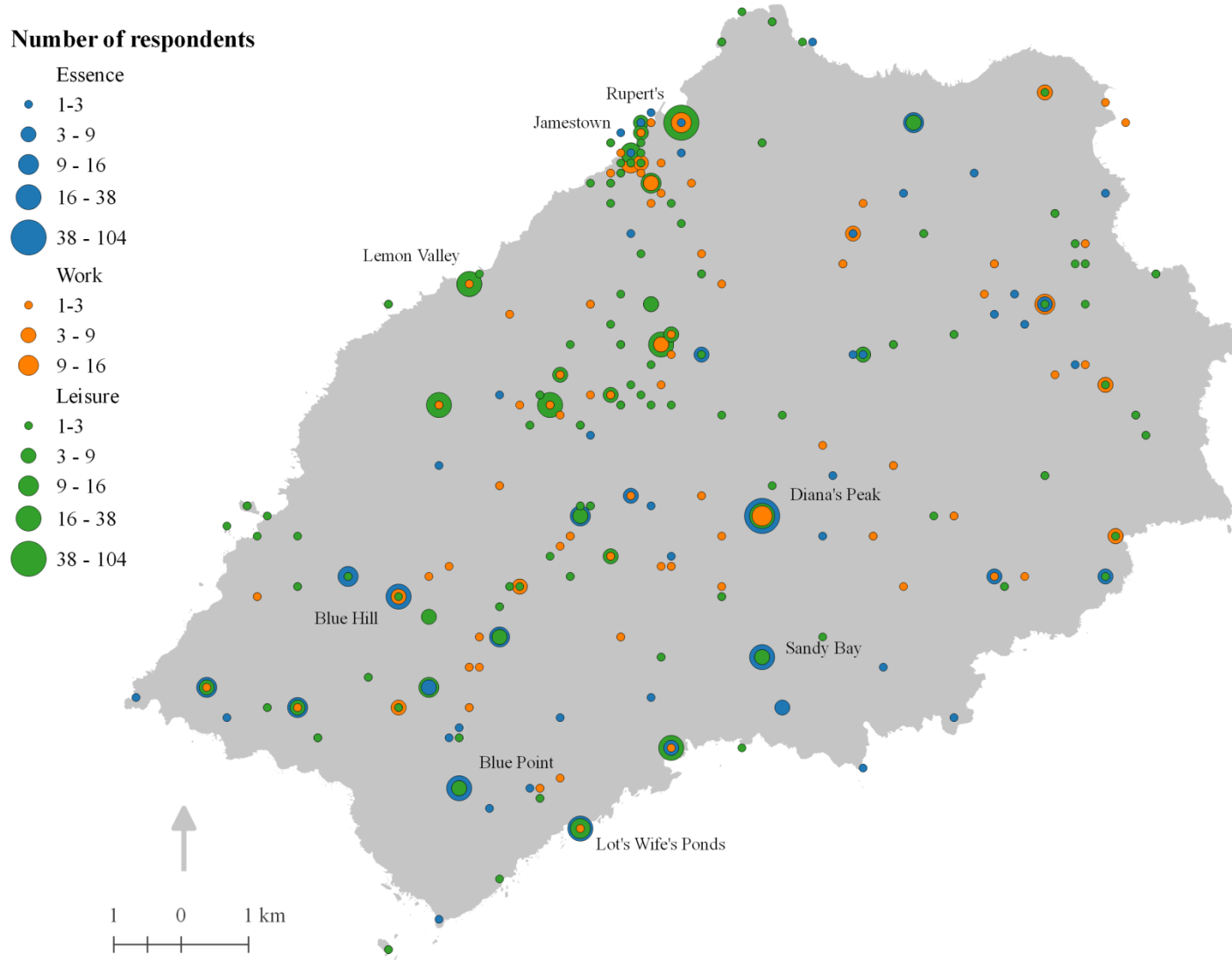
The maps revealed that while natural areas (Peak’s National Park, Lot’s Wife’s Ponds, etc.) are very important places for the population of St Helena, more mundane, “non-natural” places are also very important and need to be managed accordingly (farmlands, green spaces within settlements, parks and gardens, homes). Furthermore, as we can see from Figure 22 below, the most popular places in St Helena are not only work, leisure or iconic places. They combine elements of all three, to different degrees. For example Diana’s Peak is first and foremost a place that symbolises the environment in St Helena, but it is also a place where St Helenians go for leisure and work.

Social difference does have an influence on the activities and practices St Helenians pursue outdoors, more so regarding work and to a lesser degree regarding leisure. Eden (2017) argues that it is practices that shape our interactions with the natural environment, although perhaps these practices are mediated through social/demographic variables.

Finally, this report, along with other work carried out in the NCA can serve as an initial step in creating a baseline for future assessments for the state of natural capital in St Helena. Considering that St Helena will possibly undergo a process of economic and social change due to the new airport and the future high-speed internet connection, it is safe to assume that the way environmental spaces and cultural practices interact and the benefits this interaction produces are bound to evolve. Monitoring, studying and understanding this process of change would be crucial for implementing any interventions (or even letting things be) at the nature-culture interface. Furthermore, to echo Councillor Yon whose quote we opened this report with, “Saints know the value of nature”; considering this report is an attempt at condensing this knowledge, it can be a key dataset for “future cross-sector decision making”, and an opportunity – and a methodology – to acknowledge the residents within discussions of the environment.

Future work could include:

- Deeper interrogation on how practices interact with places to produce CES and how social stratification affects this interaction. That could involve more in depth work, employing thicker, perhaps ethnographic or arts-based empirical and analysis methodologies.
- Identifying particular places and particular characteristics of these places that are conducive of positive feelings and benefits. Again, this could require deepening and extending data gathering methodologies, but it could also include innovative quantitative and qualitative mapping and cartographic methodologies.
- Historical studies of the relation between St Helenian culture and the environment. Exploring these historical links in archival material would extend the baseline backwards in time, help us link the past with the present and the future and aid in understanding how Islanders interact with particular spaces. Particularly interesting would be studies that follow Grove (1995) and others (McAleer 2016) and position St Helena in the context and imperial networks and explore how they affected human-nature relationships historically (Beattie et al. 2014)



**Figure 18. Combined map of places that capture the essence of the natural environment, and where Saint Helenians work and carry out leisure activities outdoors**

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## APPENDIX

**Item 1. Comparisons of frequency of working outside in nature for gender, age, employment type and place of growing up social stratifications. All number represent percentages of relevant categories, e.g. in Table 1 below, 5.1% of female respondents work outside “All the time”. Similarly, in Table 2, 17.2% of respondents between 16-24 y.o. work outside “All the time”.**

**Table 1. Gender and frequency of working outside.**

	All the time	Every day	Most days	Quite often	Very rarely	Never	Not Applicable
<b>Female</b>	5.7	17.1	12.9	24.3	32.9	2.9	4.3
<b>Male</b>	15.3	33.9	20.2	13.7	11.3	1.6	4.0

**Table 2. Age and frequency of working outside.**

	All the time	Every day	Most days	Quite often	Very rarely	Never	Not Applicable
<b>16-24</b>	17.2	10.3	20.6	20.6	27.5	3.4	0.0
<b>25-34</b>	10.5	42.1	17.5	10.5	17.5	1.7	0.0
<b>35-44</b>	13.9	27.9	18.6	16.2	18.6	4.6	0.0
<b>45-54</b>	11.3	31.8	13.6	25.0	9.0	2.2	6.8
<b>55-64</b>	10.0	0.0	30.0	20.0	30.0	0.0	10.0
<b>65+</b>	11.1	16.6	5.5	11.1	22.2	0.0	33.3

**Table 3. Education level and frequency of working outside.**

	All the time	Every day	Most days	Quite often	Very rarely	Never	Not Applicable
<b>Higher education</b>	5.2	13.8	27.6	24.1	27.6	1.7	0.0
<b>Secondary</b>	17.3	32.7	11.5	12.5	15.4	2.9	7.7
<b>Vocational</b>	11.8	29.4	17.6	17.6	14.7	2.9	5.9

**Table 4. Place of growing up and frequency of working days outside.**

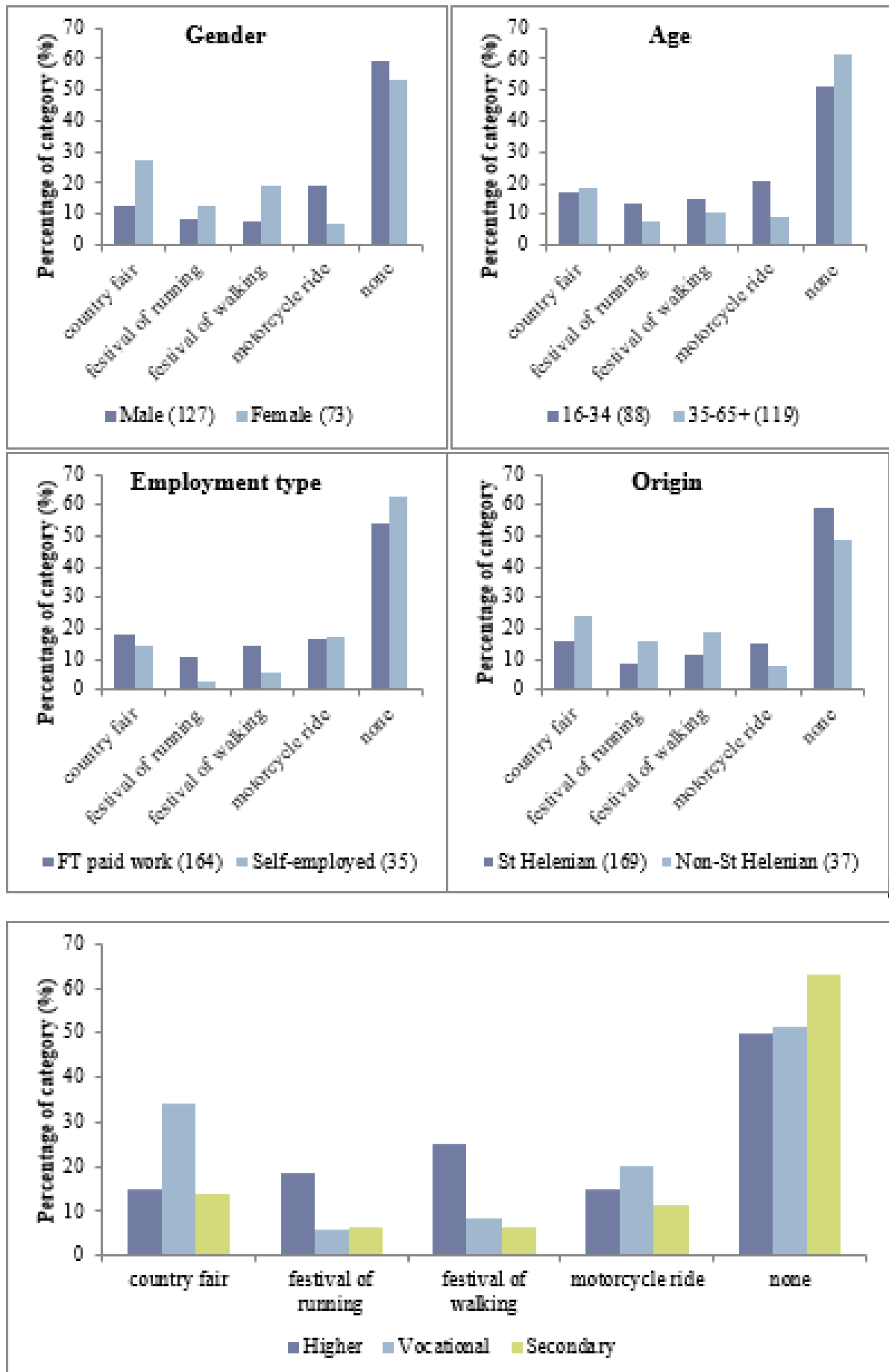
	All the time	Every day	Most days	Quite often	Very rarely	Never	Not Applicable
<b>Grow up in SH</b>	8.1	16.2	13.5	29.7	27.0	5.4	0.0
<b>Did not grow up in SH</b>	13.5	29.4	17.8	14.7	16.6	1.8	6.1

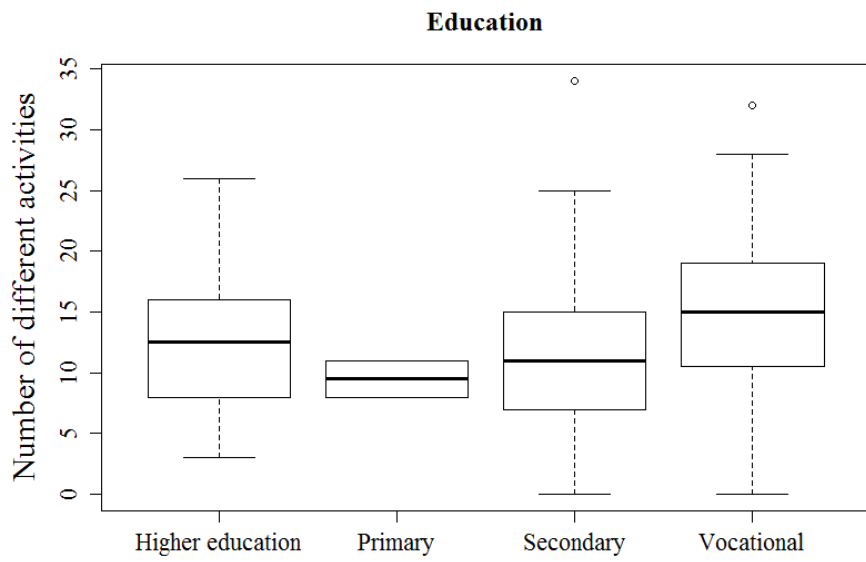
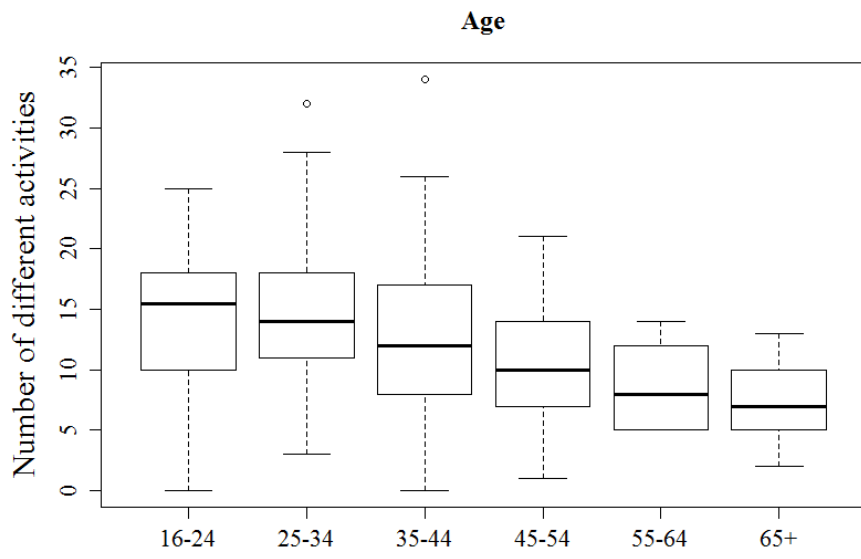
**Item 2. Education levels and social activities**

**Table 5. Education levels and social activities**

<b>Education level</b>	<b>Takes part in social activities</b>	<b>Does not take part in social activities</b>
Higher	46%	54%
Vocational	18%	82%
Secondary	39%	61%

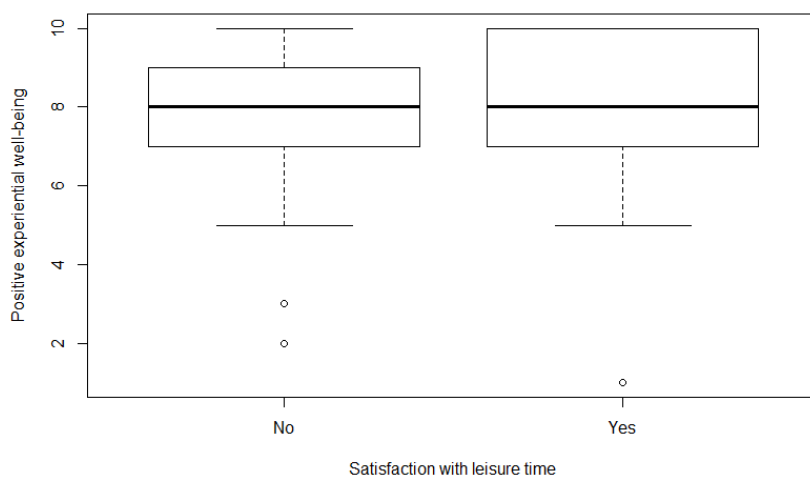
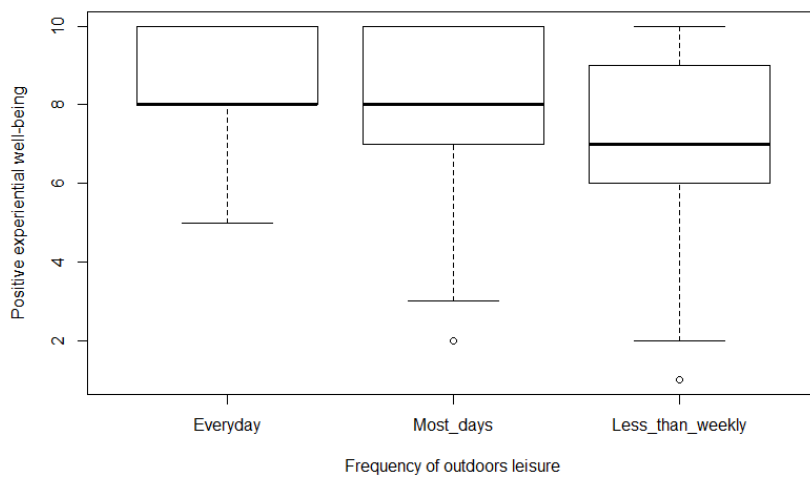
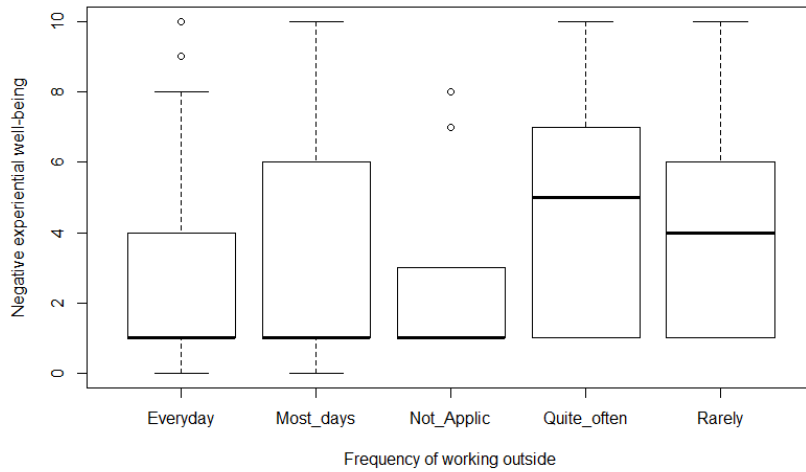
**Item 3. Social activities by gender, age, origin, employment, and education.**







**Item 5. Comparing subjective mental wellbeing for different lifestyles. Top: negative experiential wellbeing and frequency of working outside. Middle: positive experiential wellbeing and frequency of outdoors leisure. Bottom: positive experiential wellbeing and satisfaction with leisure time.**



**ITEM 6****Table 6 Frequency of working outside and self-reported negative experiential wellbeing.**

<b>Frequency of working outside</b>	<b>Number of respondents</b>	<b>Negative experiential well-being</b>
Every day	77	2.97
Most days	34	3.14
Quite often	33	4.50
Rarely	41	4.20
Not applicable	10	2.66
NA	7	3.29

**Table 7 Satisfaction with time spent outdoors leisure and self-reported life satisfaction and positive experiential well-being.**

<b>Frequency of spending time outdoors for leisure</b>	<b>Number of respondents</b>	<b>Positive experiential well-being</b>
Every day	57	8.43
Most days	74	8.05
Less than weekly	66	7.07
NA	6	7.67

Item 7

7.A. Happiness Yesterday

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=====
                        Dependent variable:
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                        Happiness Yesterday (0-10)
-----
Evaluative wellbeing (0-10)    0.431***
                                (0.107)

Anxiety yesterday (0-10)      -0.232***
                                (0.059)

Eudaimonic wellbeing (0-10)   0.413***
                                (0.129)

Q12_1Less_than_weekly        -1.694***
                                (0.438)

Q12_1Most_days                -0.221
                                (0.406)

-----
Observations                    135
Log Likelihood                 -208.008
=====
Note:          *p<0.1; **p<0.05; ***p<0.01
```

## 7.B. Eudaimonic wellbeing (0-10)

Dependent variable:	
Eudaimonic wellbeing (0-10)	
Evaluative wellbeing (0-10)	0.311*** (0.109)
Anxiety yesterday (0-10)	0.118* (0.063)
Happiness Yesterday (0-10)	0.270** (0.121)
Work outside: Less than weekly	0.483 (0.477)
Work outside: Most days	-0.514 (0.422)
Education: Secondary	0.041 (0.391)
Education: Vocational	1.247** (0.549)
Age: 25-34	1.421** (0.564)
Age: 35-44	1.949*** (0.613)
Age: 45-54	2.287*** (0.638)
Age: 55-64	3.082*** (1.019)
Age: 65+	1.969** (0.824)
Number of outdoor activities	0.073** (0.036)
Observations	135
Log Likelihood	-184.650

Note: \*p<0.1; \*\*p<0.05; \*\*\*p<0.01

### 7.C. Experiential wellbeing: Anxiety yesterday

Dependent variable:	
Anxiety yesterday	
Work outside: Most days	0.048 (0.470)
Work outside: Quite often	1.331*** (0.484)
Work outside: Rarely	0.942** (0.447)
Eudaimonic wellbeing (0-10)	0.361*** (0.127)
Happiness Yesterday (0-10)	-0.471*** (0.110)
Outside leisure: Less than weekly	-1.174*** (0.451)
Outside leisure: Most days	-0.718* (0.429)
Observations	135
Log Likelihood	-240.822

Note: \*p<0.1; \*\*p<0.05; \*\*\*p<0.01

## 7.D. Evaluative wellbeing

Dependent variable:	
Evaluative wellbeing	
Happiness Yesterday (0-10)	0.454*** (0.103)
Eudaimonic wellbeing (0-10)	0.486*** (0.125)
Gender: Male	-0.562* (0.318)
Education: Primary	-0.261 (1.509)
Education: Secondary	0.505 (0.351)
Education: Vocational	-0.600 (0.493)
Observations	136
Log Likelihood	-225.343

Note: \*p<0.1; \*\*p<0.05; \*\*\*p<0.01