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# South Atlantic Natural Capital Assessment: Falkland Islands Workshop Report.



Ness Smith

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## Review table

<b>Name</b>	<b>Reviewed by</b>	<b>Date</b>
Version 1	Ness Smith	25/07/17
Version 2	Tara Pelembe and Paul Brickle	30/07/17
Version 3		
Version 4		

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## Overview and update on the Natural Capital Assessment project

Ness Smith, the new Project Manager, gave a quick review of the Natural Capital Assessment (NCA) concept, and how it can be used to make management decisions. She then described the NCA project in more detail:

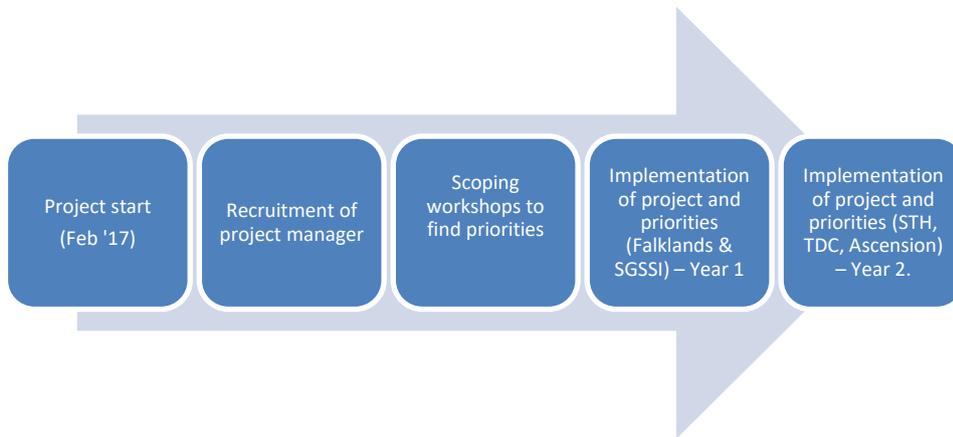
The UK Government, through the FCO managed Conflict, Stability and Security Fund, is supporting a suite of natural capital projects across the UK's South Atlantic and Caribbean Overseas Territories. This work is designed to improve economic stability in the Territories through enhanced environmental resilience as part of a programme led by the UK's Department for Environment and Rural Affairs (Defra). The natural capital project began in September 2016 and will be completed by March 2019 with the Joint Nature Conservation Committee as the Implementing Body.

In the South Atlantic, the natural capital project work is being undertaken by South Atlantic Environmental Research Institute (SAERI) under contract to the JNCC. The project will assist the UK's Overseas Territories in the South Atlantic to assess and map natural capital, value priority assets and deploy decisions support tools to secure long-term economic benefits from the sustainable management of the territories' natural assets. This support will be provided through the development and collation of spatial (mapped) evidence, and a Territory-to-Territory partnership for technical exchange and capacity building within the UK's Overseas Territories in the region. The outcome will be a framework for the South Atlantic UK Overseas Territories to assess the value of the environmental goods and services available and integrate this information into marine and terrestrial spatial planning, economic planning and environmental protection.

SAERI will be providing an evidence base for Falkland Island Stakeholders to make decisions on the areas identified as a priority in this workshop. The project focuses on four key deliverables:

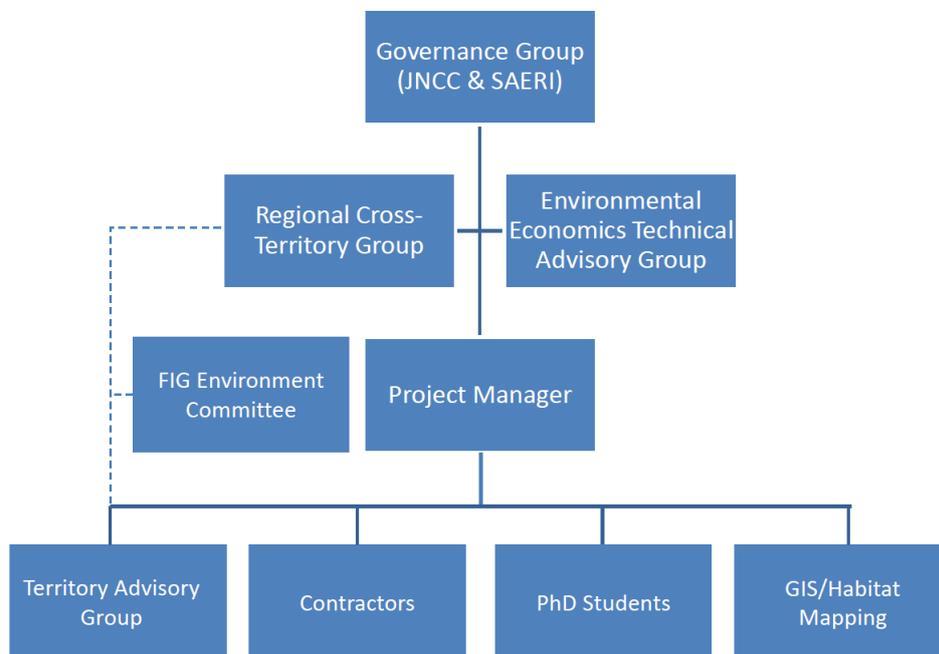
- Spatial data on the distribution of selected natural capital assets, both marine and terrestrial, derived from satellite imagery and other existing resources, as relevant to each Territory;
- Valuation of priority natural capital assets (value mapping integrated into national GIS) and the assessment of economic and societal benefits arising from them;
- Application of analytical tools that will support decision making in the context of environmental management and economic development;
- Methods for monitoring changes to priority natural capital over time using appropriate attributes (develop metrics).

This will be applied across all of the South Atlantic Overseas Territories, with the Falkland Islands and South Georgia being the main focus in year one, followed by Ascension, St. Helena and Tristan da Cunha in the second year (Figure 1).



**Figure 1: Work-flow for the NCA Project**

There are four Groups set up to support the project (Figure 2) and the Falkland Islands Territory Advisory Group will be a key conduit between wider stakeholders, the project team, and the Environment Committee.



**Figure 2: Governance structure of the South Atlantic Overseas Territories Natural Capital Assessment Project**

## Summary of the first Falkland Island NCA project workshop

Ness spoke of the need to narrow-down the scope of the Falkland Islands NCA as, due to time and resources, it would not be possible to work on all the ecosystem services (ES) highlighted in the first workshop held in February. She explained that not all ES would respond to management, and that some would not change significantly over time – this should be considered when prioritising which ES to take forward to the assessment stage (Figure 3).

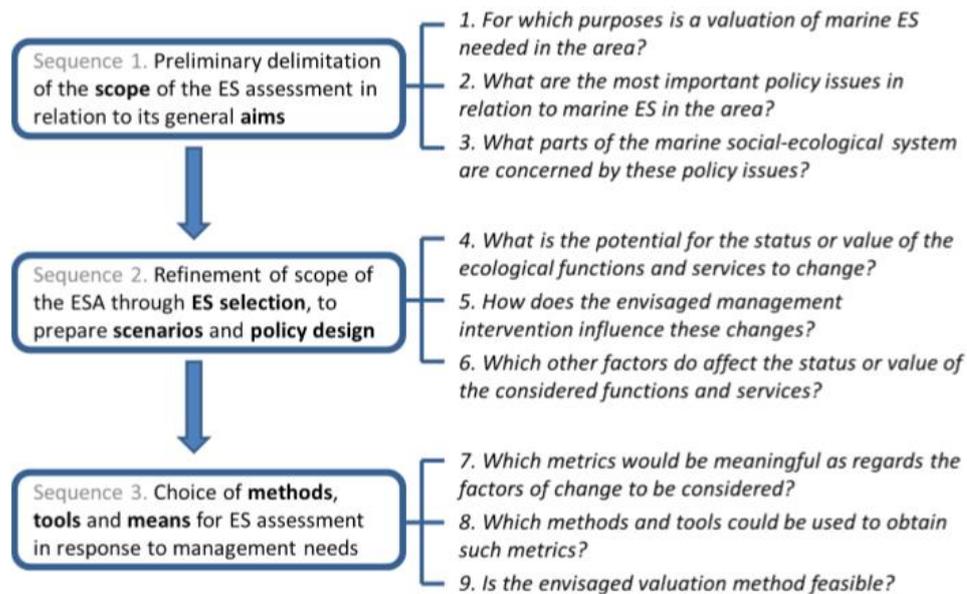


Figure 3: Some questions to think about when narrowing down the focus of the NCA. Source: A Framework for the Operational Assessment of Marine Ecosystem Services. Remi Mongruel and Nicola Beaumont. 2015

Ness then talked through Table 1, which summarises results from the first workshop held in February. This links the priority ES with the ecosystems providing those services, and the principle policy issues which an assessment could help address. It also sets out, quite broadly, the availability of data for each ES. The merits of assessing each of the ES set out in this table had been discussed at length at the first Falkland Islands Territory Advisory Group (attended by Nick Rendell, Emily Hancox, Sam Cockwell and Neil Golding) meeting held the previous week. Five ES were selected by the Advisory Group to put forward to the follow-on workshop.

**Table 1: Summary of results from workshop one linking ES with ecosystems and policy issues.**

	Ecosystem service identified in workshop 1	Primary ecosystem(s)* providing service	Principle policy issue assessment could address	Data availability (rough guide only)
Provisioning	Fisheries	Deep sea, pelagic shelf, near-shore coastal	Spatial planning and integrated land-use management, Sustainable fisheries management	Yes, but poor marine ecosystem data
	Fresh water	Fresh water – riverine, fresh water – ponds & lakes	Management of freshwater resources	Yes
	Livestock production	Lowlands	Spatial planning and integrated land-use management, Supporting EDS	Yes
	Energy and fuel production (oil & peat)	Pelagic shelf, lowlands	Spatial planning and integrated land-use management, Supporting EDS	Unknown/No for peat, Yes for oil
	Food production (no livestock and fisheries)	Lowlands	Spatial planning and integrated land-use management, Supporting EDS	Maybe
Regulating	Carbon sequestration	Deep sea, pelagic shelf, near-shore coastal, lowlands, montane	Assessing climate change effects and climate change adaptation	Biomass; unknown/no Carbon trade prices; Yes
Cultural	Tourism	All (except deep sea?)	Supporting EDS, Waste management, Managing tourism pressure, Protecting aesthetic quality	Arrival statistics and others – needs collating
	Biodiversity (existence value)	All	Supporting nature conservation and biosecurity measures	Unknown/no
	Local culture and recreation	Built environment, near-shore coastal, lowlands, fresh water – riverine, montane	Spatial planning and integrated land-use management, Supporting EDS, Waste management, Managing tourism pressure, Protecting aesthetic quality	Coastal values survey otherwise Unknown/no

\*Ecosystems as set out in the Falkland Islands Biodiversity Framework

### Falkland Island Territory Advisory Group recommendations

Nick Rendell, member of the Advisory Group, set out the Group's recommendations:

- Fisheries are a key industry and major contributor to the economy, an assessment could feed into management/policy options, and there are good quality data available.
- Agriculture is an important part of the economy and major employer. It is also of high cultural importance. It was recommended to focus on livestock production, with an integrated approach to fibre and meat. There are also good data available and an assessment could feed into multiple policy issues.
- Tourism is of increasing importance to the economy, and an assessment could feed into decisions on expansion of the industry. There are some data available which will need to be collated.
- Biodiversity (existence value) could feed into a number of areas of policy and would provide an interesting perspective on how others perceive the Falkland Islands. As the assessment would be conducted in the UK, it would also mean more time could be focused on the other ES.
- Local culture and recreation is important to our way of life and consequently health and well-being. Whilst relatively data poor, it would encompass the less tangible cultural benefits that are often omitted from decision making.

Nick and Ness also explained why other ES had not been recommended for a full assessment:

- Carbon sequestration; whilst tussock grass is important for biodiversity, and also has high carbon sequestration values, it actually has a small footprint to have that much impact. Any benefits of improving this ES would be of more global than local value.
- Peat extraction is now minimal, there are few data available, and therefore should be excluded. Oil production is not perceived by many environmental economists as an ES because oil is a finite resource which is not responsive to management. The volume and market value of the proposed fields are already known, but the valuations and maps produced for the other ES would be able to feed into EIAs/SEAs etc.
- Fresh water; there has already been a lot of work conducted by PWD on alternative water sources and treatments, including costs, and it was felt that livestock production was more important. Fresh water could also be brought into the livestock production valuation, as water shortages in the Falklands have been an issue for farmers over recent years. The recent TEFRA Climate Change project also highlighted a likely scenario trend in rainfall reductions.

### **Discussion of priority ecosystem services to be assessed**

A discussion was held in plenary, prior to a vote on the final ES to be taken forward for assessment:

Q: Was wind/tidal energy considered, as currently all fuel is imported and energy-security is an important issue? A: No, it wasn't considered. Much like the oil resource, there are already known values for the cost of establishing renewable energy, and the yields from different type of device. Renewable energy production is often used as a force for change in developing scenarios and looking at trade-offs – e.g. an offshore wind-farm – what impact would it have on the value of tourism and fisheries, which is more beneficial? Q: We can't manage wind, but we can harvest it – we could look at cost of importing fuel versus establishing wind farm? A: Yes – you could do a Cost Benefit Analysis for this.

Q: A lot of these ES are interlinked. Are we looking at them independently or considering these links? For example we may not be valuing oil production, but the effort put in to collecting information on fisheries, biodiversity etc. to protect the environment against it is not insignificant. A: These interlinks are indeed very complex and probably beyond the scope of what we are able to achieve given the resource. When we start looking at methodologies, we will have a clearer idea.

Statement: This all looks sensible. The focus should be on improving policy. Energy and carbon values are well established knowledge, so support these being excluded.

Statement: This is a good starting point – we can't do everything, and the focus could change over time. A: Yes; this is what we hope to achieve within the scope of the project; we may have to change if data prove difficult. We may also be able to do more if we have capacity. Also important within this project is capacity building – so that each OT will be able to commission and conduct further assessments.

Q: Will the final maps show only monetary value? A: Until we really examine the data, we won't know exactly what will be produced. It is important to remember that not everything will be monetary value – it will be a mixture of qualitative and quantitative values. Cultural values are very important for example, but are hard to put a monetary value to. You can, however, still make management decisions from narrative values. Example given by Advisory Group: Montane is not valuable at all in agricultural

terms, but really important for culture and heritage – it could easily be forgotten if not looked at in a more qualitative way. Q: The maps will also show a Total Economic Value? This is not possible with the resources available – but there will be maps showing the cumulative economic value of those ES assessed.

Q: What will these value maps really tell you? With livestock production for example, will the values be based on the service provided by the ecosystem or based on productivity? The latter is influenced by whole range of other factors – land management or subsidies for example. A: Ultimately the valuation would be on market price of the livestock, but we would need to consider all other factors for sure. Methodology will help tease this out.

Statement; The habitat map will enable us to get into a lot more detail – e.g. tourism vs farming trade-offs. A: Yes, but we will need to discuss the resolution of this versus the broad-scale ecosystems set out in the Biodiversity Framework. Scale and resolution of spatial data will be important; higher resolution does not necessarily give a better result.

Statement: At the last workshop Wolfs Company gave a good example of how valuations could be used – that of the example of compensation from the Exxon Valdeze oil spill, where a TEV led to a significantly higher award.

Q: Will the project just be providing valuations, or will it be developing scenario options etc. - for example with climate change – to explore management responses? A: Scenarios are not within the project deliverables, but agree that they are the most accepted way for using ES valuations. Developing scenarios is quite time-consuming and resource-heavy, so not sure at the moment. This is something we need to work out whilst looking at methodologies.

Did you look at impacts at the first workshop? Yes – people worked through a few scenarios – exponential growth of tourism, increased fisheries and oil production, and the impacts resulting from them. Tables on this can be found in the first workshop report. This is all information we can draw on when we start developing methods. Key today is getting consensus on the services which will be assessed.

Following this discussion, participants were invited to vote for the five ES they would like to be assessed. Ness emphasised that this vote would provide the mandate for the project team to commence the Natural Capital Assessment on those ES selected. The results of the vote are set out in Table 2 (please note that not everyone voted for five ES, so results do not correlate with the number of people present).

**Table 2: Vote results**

Ecosystem service	Number of votes
Fisheries	17
Tourism	16
Livestock production	15
Local culture & recreation	15
Biodiversity (existence value)	12
Fresh water	2
Energy & fuel production (oil/peat)	2
Food production (no livestock or fisheries)	1
Carbon sequestration	1

## Defining the scope of the assessments

Attendees were divided into three groups and asked to complete a set of questions to define the scope of the assessments for the five priority ecosystem services selected in the previous session. The results are set out below (please note, Paul Brickle and Pippa Christie had to leave early so did not participate in this exercise).

### Group 1; Andy Francis, Jackie Cotter, Jenny Cockwell, Megan Tierney, MLA Michael Poole, Roddy Cordeiro, Sam Cockwell

Service to be assessed	Which aspects of this service should we be looking at?	What decisions can this help you to make?	What (if any) are the relevant management plans and policies this can feed into?	What else do we need to know? Relevant people? Data? Challenges?
<b>Fisheries</b>	<ul style="list-style-type: none"> <li>Spawning grounds</li> <li>Commercial &amp; non-commercial relationship</li> <li>Stock assessment</li> <li>Market demand/value</li> <li>Sustainability</li> </ul>	<ul style="list-style-type: none"> <li>Quota &amp; license fees</li> <li>TAC</li> <li>Spatial area management</li> <li>Priority research areas</li> <li>Protection measures</li> </ul>	<ul style="list-style-type: none"> <li>Tax incentives &amp; policies</li> <li>Relevant legislation &amp; regulation</li> <li>Biodiversity priorities</li> <li>EDS</li> <li>Islands Plan</li> </ul>	<ul style="list-style-type: none"> <li>Quota holders/industry</li> <li>DNR/science</li> <li>Value/sales figures</li> <li>Environmental parameters &amp; change impacts</li> <li>Spatial distribution</li> </ul>
<b>Livestock production</b>	<ul style="list-style-type: none"> <li>Stocking rates</li> <li>Value of land</li> <li>Cost and impact of pasture improvements</li> <li>Quality-value relationship</li> <li>Cultural heritage &amp; identity</li> <li>Sustainability</li> </ul>	<ul style="list-style-type: none"> <li>Improvement &amp; assistance grants</li> <li>Land management</li> <li>Habitat restoration schemes</li> <li>Priority research areas</li> </ul>	<ul style="list-style-type: none"> <li>Stocking best practise</li> <li>Public investment/subsidies</li> <li>Relevant legislation</li> <li>Rural development strategy</li> </ul>	<ul style="list-style-type: none"> <li>Lambing percentages</li> <li>Wool clip</li> <li>FMCO, RBA, DNR</li> <li>Local sales</li> <li>NGOs &amp; science</li> <li>Landowners</li> <li>Lands committee &amp; attorney general</li> </ul>
<b>Tourism</b>	<ul style="list-style-type: none"> <li>Tourism hotspots</li> <li>Seasonality</li> <li>Sustainability</li> <li>Trends</li> <li>Impacts</li> <li>Income</li> <li>Types</li> </ul>	<ul style="list-style-type: none"> <li>Protection</li> <li>Regulation</li> <li>Codes of conduct</li> <li>Investment</li> <li>Infrastructure</li> <li>Wider development and spatial planning</li> <li>Public spending</li> </ul>	<ul style="list-style-type: none"> <li>Tourism development strategy</li> <li>Budget priorities</li> <li>Land management</li> <li>Rural development strategy</li> </ul>	<ul style="list-style-type: none"> <li>Market trends</li> <li>Tourism board</li> <li>Feedback/perception research</li> <li>Internal/external operators</li> <li>Pressure points for biodiversity</li> </ul>

**Group 2; Andy Stanworth, Paul Brewin, Neil Golding, Nick Rendell, Sue Gregory, Zoe Fowler.**

Service to be assessed	Which aspects of this service should we be looking at?	What decisions can this help you to make?	What (if any) are the relevant management plans and policies this can feed into?	What else do we need to know? Relevant people? Data? Challenges?
<b>Local culture &amp; recreation</b>	<ul style="list-style-type: none"> <li>• Tradition and heritage</li> <li>• Well-being</li> <li>• Values</li> <li>• Sense of place</li> <li>• Identity</li> </ul>	<ul style="list-style-type: none"> <li>• Entitlement</li> <li>• Community health</li> <li>• Sustainability (e.g. egg collecting)</li> <li>• Budget priorities</li> <li>• Education</li> </ul>	<ul style="list-style-type: none"> <li>• Common and ordinance/management</li> <li>• Health of the nation</li> </ul>	<ul style="list-style-type: none"> <li>• Key indicators?</li> <li>• Retaining contractors</li> <li>• Deriving social data</li> <li>• Engagement fatigue (challenge)</li> </ul>
<b>Biodiversity (existence value)</b>	<ul style="list-style-type: none"> <li>• Penguins/wildlife</li> <li>• Rarity</li> <li>• Diversity</li> <li>• Globally significant</li> <li>• Niche albatross`</li> </ul>	<ul style="list-style-type: none"> <li>• How to better market the biodiversity =&gt; tourism</li> <li>• Support penguin habitat =&gt; marine &amp; terrestrial</li> <li>• MSP</li> </ul>	<ul style="list-style-type: none"> <li>• EDS</li> <li>• Tourism strategy</li> <li>• Biodiversity framework</li> <li>• MSP</li> </ul>	<ul style="list-style-type: none"> <li>• Do people know enough about the Falklands?</li> <li>• Need to present background information</li> <li>• Engagement</li> <li>• Methodology</li> </ul>
<b>Tourism</b>	<ul style="list-style-type: none"> <li>• Impact of people</li> <li>• Accessibility</li> <li>• Uniqueness =&gt; biodiversity, social, cultural</li> <li>• Economic priorities</li> <li>• Expectations</li> <li>• Standards =&gt; tents vs sealion lodge</li> <li>• Sustainability</li> <li>• Clean air/open space/wilderness</li> <li>• Minefields</li> </ul>	<ul style="list-style-type: none"> <li>• Tourism development =&gt; increase numbers and choices</li> <li>• Funding priorities</li> <li>• Associated services =&gt; health, sewage, accommodation, administration</li> <li>• Quality vs quantity</li> </ul>	<ul style="list-style-type: none"> <li>• Biosecurity</li> <li>• MSP</li> <li>• Tourism development strategy</li> </ul>	<ul style="list-style-type: none"> <li>• Thresholds – what is the tipping point? e.g. too many tourists?</li> <li>• Known unknowns!</li> <li>• Inform from exit interviews</li> </ul>

**Group 3; Alexander Arkhipkin, Amanda Kuepfer, Emily Hancox, MLA Jan Cheek, Mark Tettenborn.**

Service to be assessed	Which aspects of this service should we be looking at?	What decisions can this help you to make?	What (if any) are the relevant management plans and policies this can feed into?	What else do we need to know? Relevant people? Data? Challenges?
<b>Tourism</b>	<ul style="list-style-type: none"> <li>Type =&gt; <ul style="list-style-type: none"> <li>- Land-based vs cruise ships vs yachts</li> <li>- Wildlife/battlefields (historic)/local (overlap with recreation)</li> <li>- Local vs international</li> </ul> </li> <li>Spatial</li> <li>Density of visitors &amp; impacts</li> <li>Logistics &amp; access =&gt; land ownership</li> </ul>	<ul style="list-style-type: none"> <li>Protection/management (i.e. habitat degradation/biosecurity =&gt; possible limitations/restrictions – i.e. numbers</li> <li>Improve access/information =&gt; publicity</li> <li>Informed alternatives for access</li> <li>Look at valuation of tourism experience and monetary framework – putting money directly to which aspect?</li> <li>Spatial planning/designations</li> </ul>	<ul style="list-style-type: none"> <li>FITB – economic future of tourism</li> <li>Waste management</li> <li>EDS</li> <li>Biodiversity action plans (wider conservation goals, ACCAP)</li> <li>Wider overlaps with farming policy (e.g. raptor shooting)</li> <li>Value of a petrel to tourism vs impact for farmer on the cost of a lamb</li> <li>New ecotourism/future ideas/opportunities for growth</li> </ul>	<ul style="list-style-type: none"> <li>Falklands Conservation =&gt; seabird counts, wildlife data</li> <li>Landowners – interviews</li> <li>FI Tourist Board – similar countries</li> <li>Cruise ship agents (Sullivan Shipping &amp; FIC)</li> <li>Bluff Cove/North Pond – tour operators (lots more than here!)</li> </ul>
<b>Biodiversity (existence value)</b>	<ul style="list-style-type: none"> <li>UKOT survey – UK residents valuation</li> <li>Conflicts between raptors &amp; penguins or similar between industries</li> </ul>	<ul style="list-style-type: none"> <li>Protection/management vs access</li> <li>Donations – willingness to pay</li> <li>Honeypot/sacrificial areas</li> <li>Future decisions for destinations/reserves/designations and spatial planning</li> <li>Habitat restoration – conservation focus</li> </ul>	<ul style="list-style-type: none"> <li>Biodiversity action plans (wider conservation goals, ACCAP), invasive spp, habitat &amp; biosecurity</li> <li>Future legislation &amp; enforcement</li> </ul>	<ul style="list-style-type: none"> <li>Landowners</li> <li>FC</li> <li>International community (UK/wider/companies/JNCC/RSPB...)</li> <li>Methodology – qualitative vs quantitative outputs</li> <li>Effective feedback mechanism</li> </ul>

Local culture & recreation	<ul style="list-style-type: none"> <li>• Tourists &amp; others living here – come to see nature</li> <li>• Resident's value – including island inaccessible/unvisited</li> <li>• Overlap with culture/recreation</li> <li>• Value to science (i.e. no impact/control areas) wide ranging</li> </ul>			<ul style="list-style-type: none"> <li>• Metrics &amp; data (overlap challenges) must be able to add to current decisions, not repeat</li> <li>• Difficulty with wider ecosystem valuation data</li> </ul>
	<ul style="list-style-type: none"> <li>• Valuing different sites – wildlife, history =&gt; egging</li> <li>• Sport fishing</li> <li>• Horse riding (highlighting routes/areas) =&gt; grazing</li> <li>• Recreational activities – sport</li> <li>• Camping/hiking</li> <li>• Matching habitats &amp; cultural importance</li> <li>• Berry picking/foraging</li> </ul>	<ul style="list-style-type: none"> <li>• Management regulation =&gt; awareness, information, mapping</li> <li>• Development – i.e. ensuring access rights</li> <li>• Matching quality of land through valuation</li> <li>• Utilising demined areas</li> </ul>		

### Next Steps

Ness explained that the next steps would involve taking the information from the workshop and ascertaining what could practicably be delivered within the time-frame and resources available to the project. Methods will be devised with help from the Environmental Economics Technical Advisory Group and input from the Falkland Islands Territory Advisory Group. Engagement will continue through the latter group and further workshops as necessary. Ness also encouraged people to contact her at any point if they have ideas or questions; [projectmanager.natcap@env.institute.ac.fk](mailto:projectmanager.natcap@env.institute.ac.fk).

## Annex I: Attendees

Name	Organisation
Alexander Arkhipkin	Department of Natural Resources - Fisheries
Amanda Kuepfer	Falkland Islands Fisheries Department
Andy Francis	Treasury Department, Falkland Islands Government
Andy Stanworth	Falklands Conservation
Emily Hancox	Department of Mineral Resources, Falkland Islands Government
Jackie Cotter	Falkland Islands Fishing Companies Association
Jan Cheek	Member of the Legislative Assembly
Jenny Cockwell	FCO
Mark Tettenborn	Policy Unit, Falkland Islands Government
Megan Tierney	SAERI
Michael Poole	Member of the Legislative Assembly
Neil Golding	SAERI
Nick Rendell	Environmental Officer, Planning Department
Paul Brewin	Shallow Marine Survey Group/Consultant/SAERI
Paul Brickle	SAERI
Pippa Christie	Falkland Islands Petroleum Licensees Association
Roddy Cordeiro	Department of Mineral Resources, Falkland Islands Government
Sam Cockwell	Public Works Department (Water), Falkland Islands Government
Sue Gregory	Environment Officer, South Georgia Government
Zoe Fowler	Department of Agriculture, Falkland Islands Government