

## Section 6: Spatial Planning, Protected Areas and International Standards – assets or liabilities?

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Issues relating to resource use in terrestrial and marine realms are clearly central to sustainable development. Used correctly, spatial planning, protected areas and international site designations are all tools that can contribute to the protection of livelihoods and the environment, whilst empowering stakeholders and ensuring resources and ecosystem services for the next generation. Equally, however, if such measures are poorly applied, or abused, they can become liabilities (actual or perceived) to communities, fail to deliver environmental protection, and even undermine the very concept of sustainability.

This session of the Making the Right Connections conference heard presentations which drew on experiences (both good and bad) in a range of relevant areas. The increasing integration of environmental considerations into spatial and strategic planning in the UK and the European Union was examined. The consequences of an ineffectual planning process and suppression of environmental democracy in the Turks and Caicos Islands was the focus of an impassioned and eloquent presentation. An overview of the approach to marine planning and protected areas in the Isle of Man was followed by a brief presentation on a potentially globally significant marine reserve in the British Indian Ocean Territory. Following discussion of issues raised thus far, aspects of international designations (particularly under the Ramsar and World Heritage Conventions) were examined. Delegates then heard of progress and challenges in relation to protected areas and wider environmental management planning in Montserrat, the Pitcairn Islands and the British Virgin Islands. Further discussion followed. Key conclusions from the session included acknowledgement of the value of linking spatial planning, protected areas and internationally designated sites into more integrated approaches and broader strategic planning, whilst ensuring that stakeholders and wider communities have a voice in the process.



*From left: Rob Thomas (rapporteur), Fiona Gell, Euwonka Selver and Colin Hindmarch  
(Photos of conference participants in this Section by Thomas Hadjikyriakou unless otherwise stated)*

# Framework Document: Protected Areas: Developing Sustainable Policy Options

**Colin Hindmarch (UKOTCF Council)**

Hindmarch, C. 2010. Framework document: Protected Areas: Developing Sustainable Policy Options. pp 182-185 in *Making the Right Connections: a conference on conservation in UK Overseas Territories, Crown Dependencies and other small island communities, Grand Cayman 30th May to 5th June 2009* (ed. by M. Pienkowski, O. Cheesman, C. Quick & A. Pienkowski). UK Overseas Territories Conservation Forum, [www.ukotcf.org](http://www.ukotcf.org)

The widespread, historic failure to consider fully the environmental impacts of economic development activities which rely fundamentally on natural resources has severely undermined the sustainability of human endeavours. However, there is an increasing shift towards the integration of environmental considerations into high-level policy development, as the need to protect biodiversity and ecosystem services becomes more urgent and apparent. Models for this new approach are emerging, including in the UK and the European Union.

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Many of the problems faced by the environment have been peripheral to the human exploitation of natural resources. As such, they have been tackled in an *ad hoc*, responsive, symptomatic way, without a coherent approach to the problem of such things as habitat loss.

The growing realisation that the 'natural' environment is a key life support system that underpins innumerable economic activities (MEA 2005), suggested the need to factor the value of ecosystem services into the essence of economic planning (Hindmarch *et al.* 2006). The idea has been around for some time but it is becoming the new wisdom (POST 2007) and consequently, environmental concerns are now being incorporated into policy development at the highest levels.

Although some UK territories have already moved along this road to varying degrees, it is worth looking first at an example from Europe, as a basis for discussion. Following the lead given by the Convention on Biological Diversity (CBD 1992), the EU Biodiversity Strategy gave momentum to the process of internalising conservation values by recommending that biodiversity concerns should be integrated into all EU policies (EUBS 1998). This was reinforced by a number of follow-up action plans (EUBAP 2001) that embraced Natural Resources, Agriculture, Fisheries and Economic Development. This process has helped to strengthen

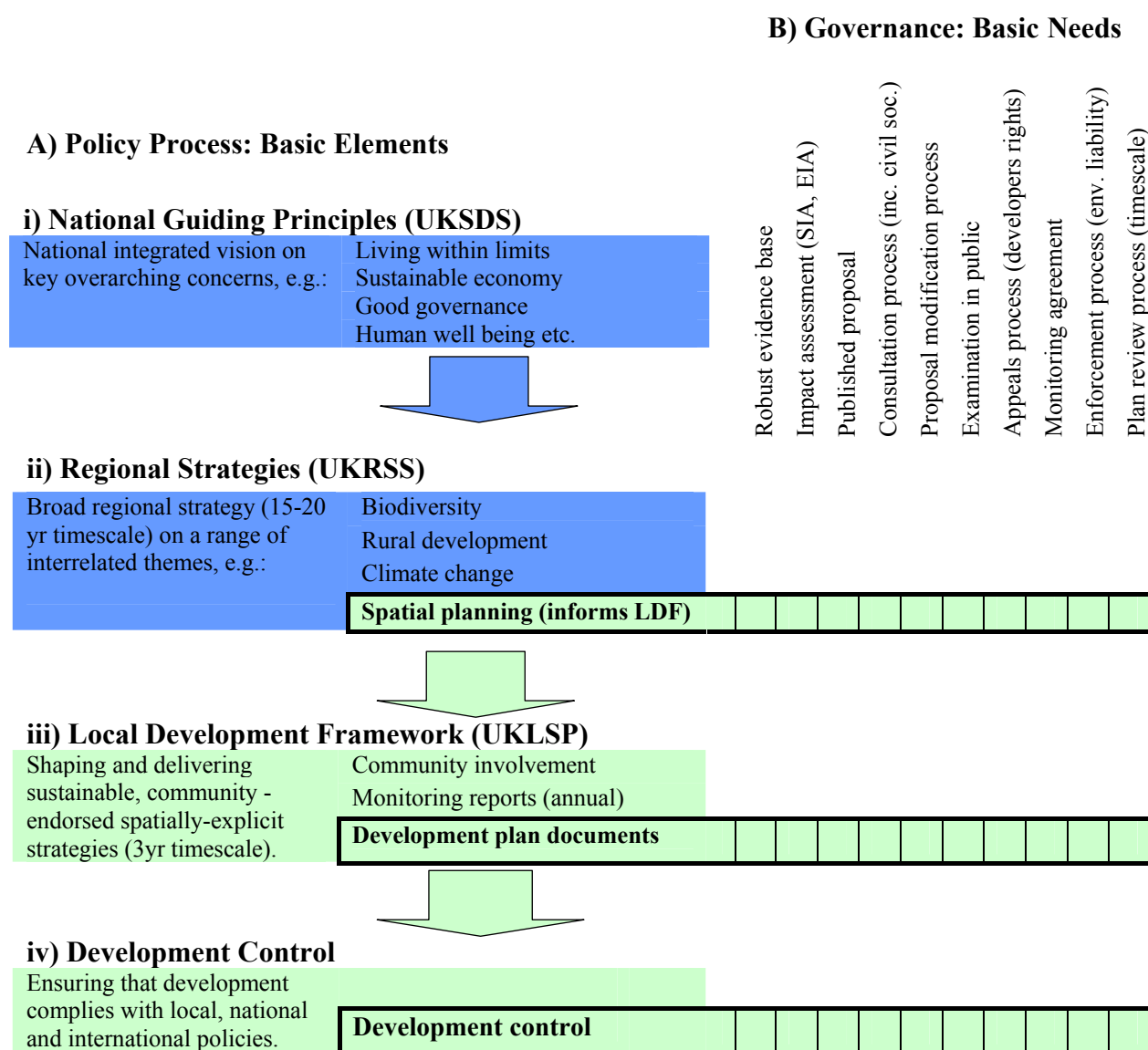
policy integration and is opening up a way for a new relationship between the environment and human activities.

Part of this new relationship is an emergent type of strategic resource management that factors ecological concerns into economic thinking, thereby internalising the hidden costs of human activities (Hindmarch & Pienkowski 2000). This link will place economic limitations on over-exploitation, making it difficult, for instance, to roll out policies or implement plans that encourage farming practices (in the intensive farming systems of Europe) that erode the soil, pollute the water supply, threaten food security and degrade biodiversity.

This will help protect the ecological processes that maximise the biological potential of the protected area 'hot-spots', and, indeed, the wider environment. These will be increasingly protected and supported by an approach to policy development that accounts for the economic value of ecosystem services (Hindmarch *et al.* 2006). This approach will need a 'compatible planning' system and an environmental movement that becomes active at all levels of the policy process and works with the business community to devise sustainable development options.

Fortunately, recent reforms to the UK legislative system have produced a promising policy model

Figure 1. Integrating ecological concerns into development plans: policy process and governance (schematic representation based loosely on new UK procedures). SIA = Strategic Impact Assessment; EIA = Environmental Impact Assessment. (References: UKLSP 2008, UKRSS 2004, UKSDS 2005),



(outlined very sketchily in Figure 1) in that it:  
Has a coherent policy process (Figure 1: A) with a nested suite of ‘tools’ ranging from an overarching general vision on key concerns (i), through broad regional strategies (ii), to local implementation frameworks (iii), to measures for the enforcement of policies on the ground (iv);  
Ensures that biodiversity and sustainability concerns are integral to each stage of the process (i-iv) and their related themes, and that it;  
Includes a system of governance (Figure 1: B) that ensures due process with respect to impact assessment, public involvement, monitoring, review, environmental liability and enforcement.

This model is not necessarily one that will fit all situations; but it could be a useful starting point for thinking about how Territory administrations

might enhance their support for the protection and sustainable management of their natural resources and at the same time meet some of the challenges posed by environmental governance.

In preparation for discussions on this topic, delegates were asked to compare the workings of their own administrations with that of the developing UK model (Figure 1). Table 1 is provided as one framework by which systems in individual territories can be rapidly assessed, and compared to the evolving UK approach.

## References

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**Table 1. Integration of ecological concerns into development plans: policy process and governance.**

**Name of Territory:**

|   |  | Yes | No | Comments on sustainability issues – or other matters. |
|---|--|-----|----|---|
| <b>Policy tools<br/>(Figure 1 A)</b>        | Are there National Guiding Principles?                             |     |    |   |
|   | Are there regional strategies?                                     |     |    |   |
|   | Are there local development frameworks?                            |     |    |   |
|   | Are there development control procedures?                          |     |    |   |
|   | <b>Are the policy tools (above) part of an integrated package?</b> |     |    |   |
| <b>Governance measures<br/>(Figure 1 B)</b> | Is there a requirement for impact assessment?                      |     |    |   |
|   | Are plans and proposals published?                                 |     |    |   |
|   | Is there a process for public consultation?                        |     |    |   |
|   | Is there a plan and proposal modification process?                 |     |    |   |
|   | Are plans and proposals examined in public?                        |     |    |   |
|   | Are there opportunities to appeal against decisions?               |     |    |   |
|   | Are agreed plans and development schemes monitored?                |     |    |   |
|   | Is there an enforcement process?                                   |     |    |   |
|   | Are plans and policies reviewed regularly?                         |     |    |   |

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# Protected areas: a new economic context and a sustainable future

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Hindmarch, C. 2010. Protected areas: a new economic context and a sustainable future. pp 186-194 in *Making the Right Connections: a conference on conservation in UK Overseas Territories, Crown Dependencies and other small island communities, Grand Cayman 30th May to 5th June 2009* (ed. by M. Pienkowski, O. Cheesman, C. Quick & A. Pienkowski). UK Overseas Territories Conservation Forum, [www.ukotcf.org](http://www.ukotcf.org)

In many countries, protected areas have been an effective way of preventing the destruction of some of our biodiversity hot-spots; however, these remain vulnerable because their fate is intertwined with that of a wider environment that continues to deteriorate due to unsustainable human activity. These changes not only threaten protected areas but also the natural ‘capital’ that is fundamentally important to human economic activity and even humanity itself. The only realistic way of challenging this situation is to integrate ecological concerns into the heart of human economic activities and support these with effective enforcement. There is a convincing rationale for this route to a sustainable future, and a practical way forward using emerging European and National (UK) policies.

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## A short history of sustainable resource management and environmental protection

Balancing human economic activity and the environment’s ability to recover from exploitation has become a critical issue, not least for island habitats, which suffer disproportionately from the global change.

Unsustainable human activity has produced widespread environmental problems. Where these have been responded to locally, the corrective measures have often faltered and produced new problems. Whilst these measures highlighted unwanted change and provided a focus for conservation action, they were incapable of tackling the underlying causal processes, which intensified to the point where they threatened the means of production (Hindmarch & Pienkowski 2000) and the basis of human society (MEA 2005). These life threatening impacts compelled policymakers to address the issues behind environmental degradation and, at the same time, provided some insight into the proc-

esses that trigger ecological change. They also cast some light on the difficulties faced by protected areas.

In accepting the gravity of the global environmental crisis and then “making the right connections”, policymakers are now beginning to develop and deliver policies that have the potential not only to secure the future of human economic development, but also safeguard the environment and support the work of protected areas.

## Connecting human activity and ecological processes.

The relationship between human activities and ecological processes is predicted by the common-sense notion that, as the level of human exploitation increases, ecological and economic factors become linked, such that a change in one affects the status of the other (O’Neill *et al.* 1998).



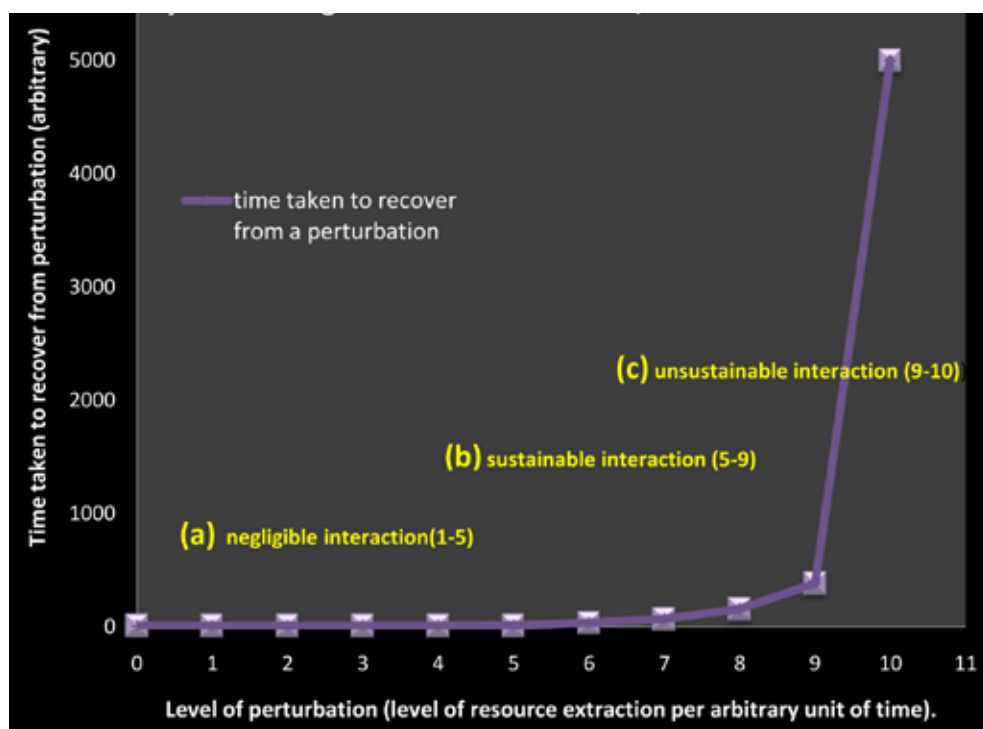


Figure 1. Interaction between 'natural' and economic systems using data from O'Neill et al (1998).

Figure 1 illustrates this process of 'linkage' in terms of the time taken for a 'natural' system to recover from increasing levels of human activity (perturbation). At low levels of activity recovery time is negligible (a), but as exploitation increases, 'natural' and 'economic' processes become linked such that they affect one another. At low levels of exploitation, this linkage (b) is able to increase biodiversity (crops, livestock and production systems) (see also Figure 3 c,d,e,f) and ecosystem resilience; but as the level of exploitation increases, a point is reached when the exploited system becomes incapable of recovery (c) precipitating a shift in state and possible collapse.

It is difficult to assess whether the current state of 'linkage' is approaching a critical shift in state; but there are reasons to believe that human economic activity is degrading the environment to the point where the resilience of its 'natural capital' (see Definitions) is being seriously reduced, along with its capacity to provide the 'ecosystem services' (see Definitions) needed to sustain economic development, human well-being and even human life itself.

### Some definitions

**Natural capital:** An extension of the economic notion of capital (manufactured means of production) to environmental 'goods and services'. It refers to a stock (e.g. a forest) which produces a flow

of goods (e.g. new trees) and services (e.g. carbon sequestration, erosion control, habitat). (EEA 2009)

### Ecosystem services:

"Ecosystem services are the benefits people obtain from ecosystems. These include provisioning services such as food, water, timber, and fibre; regulating services that affect climate, floods, disease, wastes, and water quality; cultural services that provide recreational, aesthetic, and spiritual benefits; and support-

ing services such as soil formation, photosynthesis, and nutrient cycling.... The human species, while buffered against environmental changes by culture and technology, is fundamentally dependent on the flow of ecosystem services." (MEA 2005)

**Free goods:** "We have habitually counted natural capital as a free good. This might have been justified in yesterday's empty world, but in today's full world it is anti-economic. The error of implicitly counting natural capital consumption as income is customary in three areas: (1) the System of National Accounts; (2) evaluation of projects that deplete natural capital; and (3) international balance of payments accounting." (Daly 1999).

### Short-term benefits – long-term consequences:

"Historically, most responses to addressing ecosystem services have concentrated on the short-term benefits from increasing the productivity of provisioning services. Far less emphasis has been placed on the long-term consequences of ecosystem change and consequent effects for the provision of services. As a result the current management regime falls short of the potential for meeting human needs and conserving ecosystems." (MEA 2005, p, 100)

### Connecting theory with reality

These adverse impacts are linked with forms of

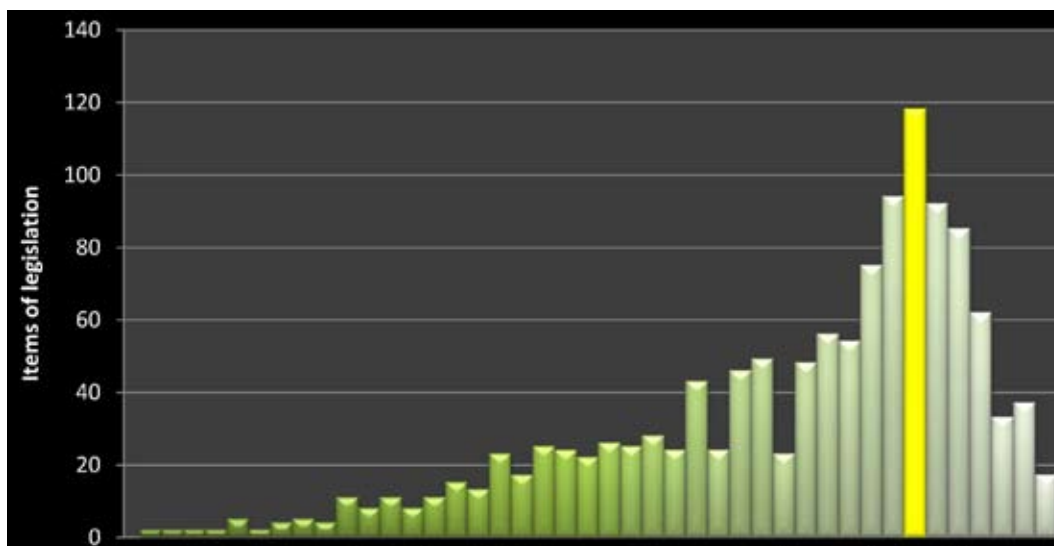


Figure 2. Number of items of EU environmental legislation adopted between 1996 and 2007 (data approximated from Figure 2.1.1 of IEEP 2009)

Notes: The bars show each year from 1966 to 2007. The decline in output from 2001 (yellow box) may reflect a change from responsive to integrative modes of policy development (see Figure 4).

‘protected’ areas continue to suffer from damaging external influences and inappropriate management (Lee & Barrett 2001; Allison *et al.* 1998), along with the associated loss of biodiversity (Eionet 2008) and ecological isolation (DeFries *et al.* 2005). Efforts to deal with these issues

economic activity that push production beyond sustainable limits on a large scale. An example of this phenomenon is provided by the European Union’s Common Agricultural Policy (CAP), probably the best supported ecological experiment since Genesis (Hindmarch *et al.* 2006). This aimed to provide cheap food and reduce imports, partly inspired by the hardships suffered by the drafters as young people during the Second World War. However, within a few decades, its hidden costs were revealed as the removal and simplification of semi-natural habitats, loss of locally distinctive crops and livestock, and the abandonment of farming systems that had a proven record of sustainable production and an ability to increase biodiversity (Hindmarch & Pienkowski 2000).

### Ecosystem breakdown: policy reaction

The effect of this unsustainable economic activity was, for a long time, perceived as a random succession of ‘service’ disruptions that were addressed by a growing number of largely responsive, ‘downstream’ environmental legislative fixes (Figure 2). These struggled to deal effectively with the problem, because they were opposed by heavy ‘upstream’ measures (production support) that perpetuated the problem (Hindmarch & Pienkowski 2000).

The protected area approach to conservation, for example, was developed to secure the long-term survival of important habitats. However, many

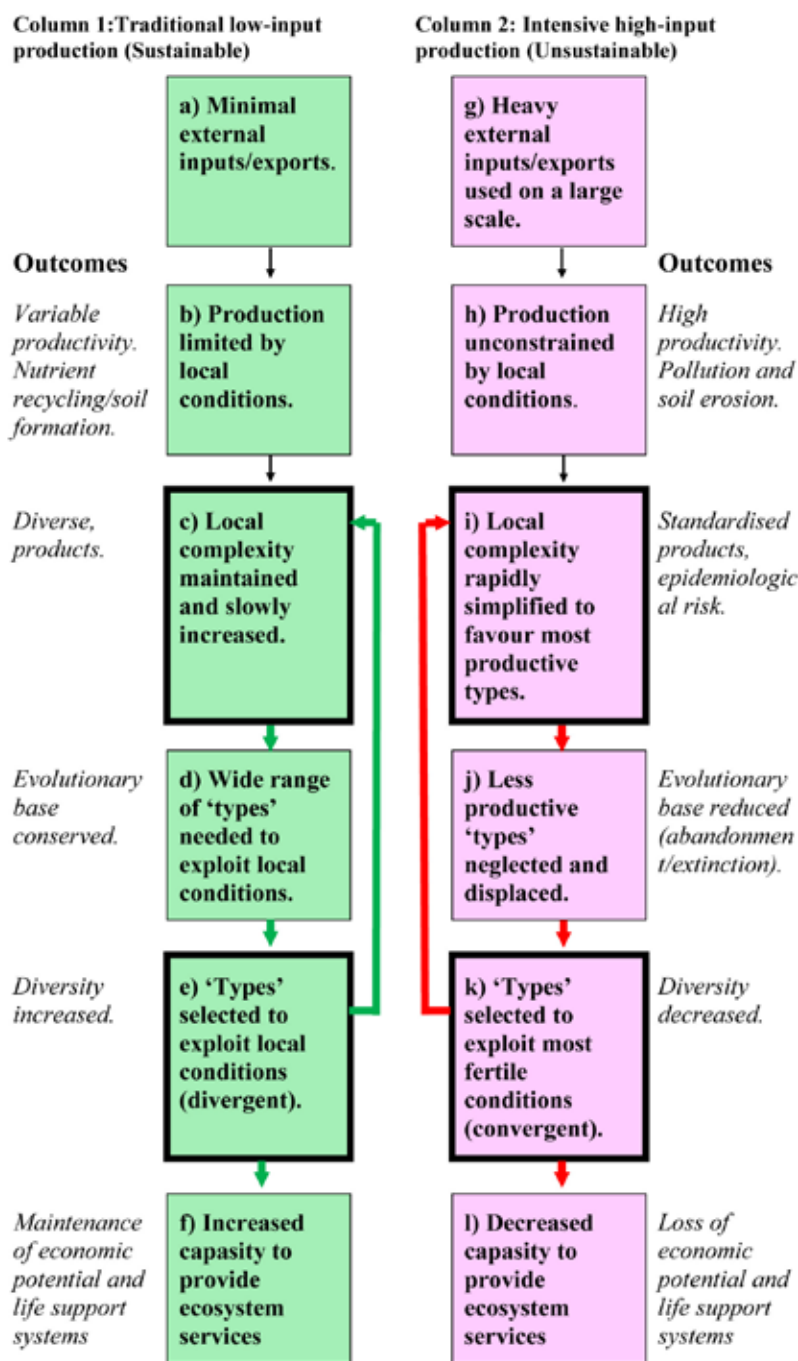
increasingly involve such things as buffer zones (Shafer 1999), corridors (Jongman & Kamphorst 2002) and networks (Natura 2000; EC 2000). However, since these are simply area-based approaches writ large (Hindmarch & Pienkowski 2000), they are unlikely to provide a defence against background environmental change on their own.

The ongoing limitations of site-based conservation and the pressing need to secure the economic potential and life-support functions of the wider environment are encouraging more of a ‘systemic’ approach to environmental protection (EUBS 1998) that involves ‘embedding ecosystem approaches’ (Defra 2007) into conservation management (Smith & Maltby 2003) and spatial planning (Nowicki *et al.* 2005). Importantly, the need for this reform is being supported by an understanding of the need to re-establish a sustainable linkage between economic development and ecological processes, by integrating ecological concerns into the heart of economic planning (Hindmarch *et al.* 2006).

### Discerning causes

The unintended consequences of the CAP support for increased production and the subsequent difficulties in dealing with the ensuing problems using bottom-up remedies, gave some insight into the relationship between policy drivers and ecological impacts. It showed that high-level policies





**NOTE 1:** Green arrows highlight a sustainable cycle that increases the diversity of both natural and economic components of the environment and increases system stability by creating new opportunities for exploitation. Red arrows highlight an unsustainable cycle.

**NOTE:** 'Types' refer to: species, as well as crop varieties and animal breeds.

are able to manipulate environmental processes on a massive scale over a very short timescale and, by way of very simple measures, flip a system from a mode that maintains, or even augments, renewable resources (traditional land management systems) to one that undermines long-term productivity (intensive land management systems).

Figure 3 arranges the discriminating features of both traditional and intensive land-management systems into contrasting causal patterns and, at

Figure 3. Simple policy measures can shift a system from one state to another. Comparison of European low- and high-input land management systems in terms of characteristics, environmental effects and conjectured causal processes.

each stage, notes a few of the more important outcomes. This shows that human exploitation, in the form of traditional low-input production (column 1), has a number of clear features:

- it uses minimal external inputs (a) and a rate and scale of exploitation that is constrained by local circumstances (b).
- it also has an inherent need for a wide range of locally adapted plants, animals, landscapes, technologies, economies and cultures (types) (d), and;
- involves the ongoing selection of 'types' that can most effectively exploit locally-distinctive circumstances (e).

Traditional forms of exploitation, therefore, constitute a divergent process that not only depends upon inherited diversity (d) but also maintains and augments it (c, e), and increases the provision of natural capital and ecosystem services (f).

This suggests that they are not just sustainable, in the sense that they are activities that can be maintained indefinitely, but are evolutionarily active (see points 5-9 in Figure 1b) and able to enhance the productive base of the environment.

The factor that triggers the movement from sustainable 'linkage' (column 1) to collapse (column 2) appears to be the use of heavy external inputs on a large scale (g). This overrides naturally occurring

limits on production (h) and simplifies the environment by favouring a narrow range of productive types (i). This increases production (h), but causes widespread pollution, soil erosion and loss of biodiversity. It also displaces inherited diversity (j) in the form of locally adapted types and involves the convergent selection (k) of a narrow range of productive types dependent on the external inputs provided. This further simplifies the environment and compromises the provision of natural capital and ecosystem services (l).

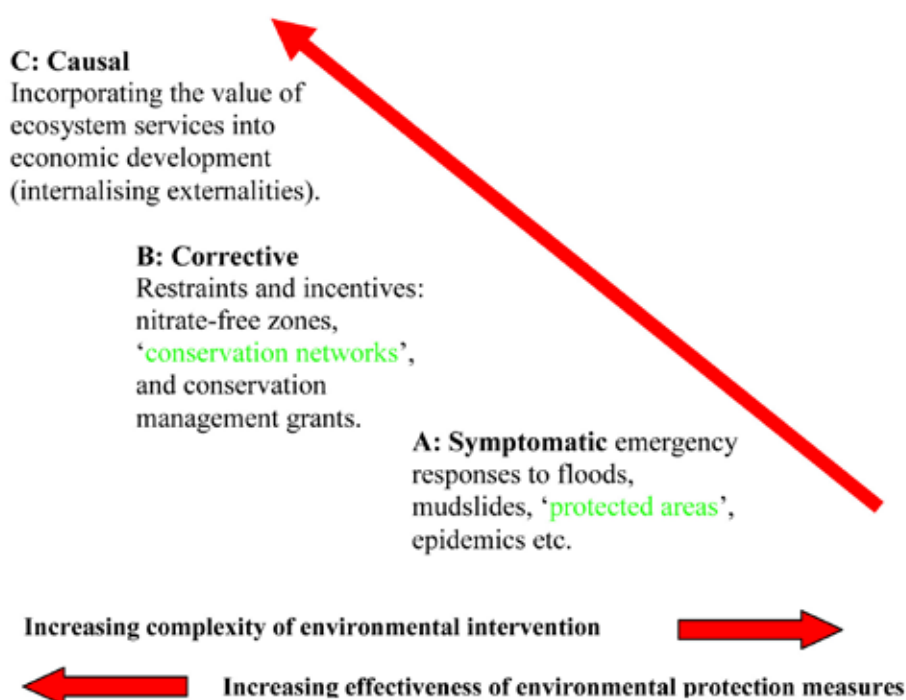
The processes illustrated by Figure 3 support the 'linkage' model (O'Neill *et al.* 1998). They also provide policymakers with a conceptual tool for identifying ways of building restraints into economic policies by decreasing external inputs (g), protecting biodiversity (c, d, e) and integrating the value of natural capital and ecosystem services into economic processes (*sensu* Hindmarch *et al.* 2006), rather than counting them as 'free goods' (see Definitions).

### Emergence of sustainable development initiatives at a European level

The adverse environmental impacts of the CAP experience provided a compelling argument for a rapid realignment of farming subsidies. However, there were also concerns that farm subsidies were becoming too expensive and would increase with the planned accession of the Central European States (Schröder 2002). It was also becoming apparent that these subsidies were beginning to complicate world trade negotiations (Europa 2004). These influences combined to favour an approach to policy development that increasingly addresses causes rather than symptoms (Figure 4). This has helped to put the concerns of biodiversity and sustainable development at the heart of European affairs through a succession of initiatives, including the European Union Biodiversity Strategy (EUBS 1998), its related Action Plans (EUBAP 2001) and the ongoing Malahide process (EC 2006). Importantly, it has also informed the development and review of the European Sustainable Development Strategy (EUSDS 2006), which now includes provisions that will:

- Eliminate policies that are 'incompatible with sustainable development' (EUSDS 2006, para. 24);
- Improve the 'management and avoid over-exploitation of natural resource' (EUSDS 2006, para. 13);
- Encourage 'recognizing the value of ecosystem services' (EUSDS, 2006, para. 13).

These paradigm-shifting provisions are part of a high-level fiscal and regulatory framework for sustainable economic growth. Over time, this could help to protect the environment and its biodiversity



**Note:** policy measures have been moving from a 'responsive mode' (dealing with isolated episode of 'collapse') (A), through 'correction' (developing thematic remedies) (B), to a mode of operation that attempts to avoid collapse (by influencing causal processes) (C). This trend has been increasing the effectiveness of environmental intervention and arguably making it simpler and less self-contradictory.

Figure 4. Development of European environmental policy: schematic representation. Adapted from Hindmarch *et al.* (2006).

hot-spots (including those with protected area status). This would be by fostering an approach to resource management that incorporates conservation into all decision-making processes, and factors the value of natural capital and the ecosystem services it provides into economic planning (Hindmarch *et al.* 2006; Steiner 2006). These overarching measures have profound implications for European member states and associated Overseas Countries and Territories (OCTs).

## National responses to the European policy reform

The process of reform underpinning the European Sustainable Development Strategy (EUSDS 2006) has resulted in a cascade of compliant reforms throughout European institutions and is informing the development of a more coherent approach to Europe's OCTs (OAD 2007; Hindmarch 2007; IUCN 2008). In the case of the UK, these reforms have already produced a promising joined-up policy model (outlined in Figure 5). Importantly, this provides:

- A coherent policy process with a nested suite of 'tools' ranging from an overarching general vision on key concerns (i) through broad

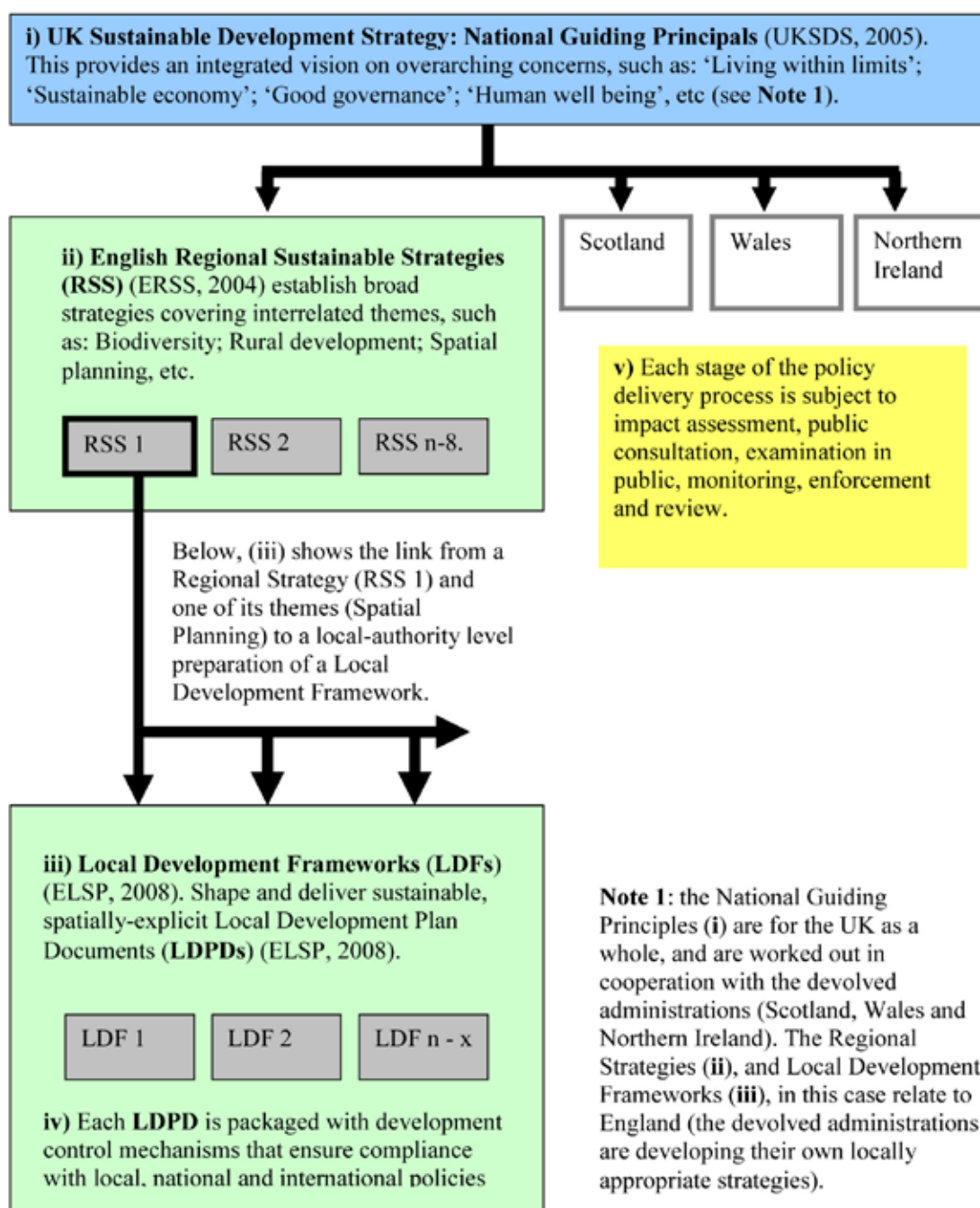


Figure 5. Integrating ecological concerns into development plans: policy process and governance (schematic representation based loosely on the UK approach)

regional strategies (ii) to local implementation frameworks (iii) to measures for the enforcement of policies on the ground (iv);

- Instruments that ensure the integration of biodiversity and sustainability concerns into each stage of the process (i-iv) and their related themes;
- A system of governance that ensures due process with respect to impact assessment, public involvement, monitoring, review, environmental liability and enforcement (v).

Although this model has been developed to suit the particular conditions of the UK, its flexible, 'delegated' structure would provide a useful strategic context for UKOT administrations as part of their reform of environmental governance (UKOTCF 2007; FAC 2008). Importantly, it would establish local ownership of a fiscal and regulatory network that extended to the core of Europe, helping to access resources and influence the up-stream policy initiatives that may affect the Territories.

## Taking things forward

It is possible that the various elements of the model will progress at different rates and that environmental concerns might lag behind. There is likely also to be some denial over such things as:

- Whether there are in fact 'limits to growth' - even though this has been a widely accepted as a logical position for some time (*sensu* Malthus 1798);
- To what extent humanity's drive for population increase and economic growth is responsible for driving environmental change;
- Whether integrating the value of hitherto 'free' ecosystem services into economic development might be the best mechanism to moderate unsustainable activities and encourage effective husbandry of the earth's resources.

There may be resistance amongst conservationists to the idea of going beyond the safe and understandable site-based approach to habitat protection, because of its implications for established routines (Carpenter & Folke 2006) and historic investment. Overcoming these difficulties will take time, as well as the support of a social constituency (Jacobs 1997) and an informed conservation movement that 'runs' with the ecosystem approach to habitat management and becomes involved in its development. It will also need the support of political institutions and the business community; in particular, those sections that struggle to understand the long-

term economic value of the world's natural capital and the services it provides to economic enterprises (see Definitions).

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# The role of environmental democracy

## Euwonka Selver (Turks & Caicos Islands)



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The general value of natural areas, both for conserving the natural heritage and the ecosystem services that these provide, has been widely acknowledged. The vital tourism trade depends on our natural and historical environment. Effective safeguarding of such areas is dependent on a planned land-use strategy, and open and wide-ranging consultation on proposed developments in their vicinity. Planning needs to be open to local public debate, and to comment by international experts, rather than being a closed process involving a small number of people – whether elected or appointed officials, or commercial interests.

In several UKOTs, the public perception is that this vital open planning consultation process does not take place, and if it does, the views expressed are not taken note of. This presentation gives some examples from several UKOTs, and then focuses more specifically on my country of the Turks and Caicos Islands.

On paper, the Turks and Caicos Islands has an impressive suite of protected areas. However, despite being protected legally or by declaration, it has become apparent in recent years that this protection has not prevented significant damage to many of the protected areas, and a reduction in their effective size to enable significant, major and damaging development. In some cases, decisions by the Planning Board have been overturned in favour of built development.

At the heart of this has been the secrecy and lack of consultation about proposed developments. The first anyone has known about some of these has been when the bulldozers move in. The damage has included: tearing down mangrove trees; demolition of large sections of coral reefs; and removing land from National Parks and Nature Reserves to accommodate developers. Building permits have been granted to allow construction without Environmental Impact Assessments. Where Environmental Impact Assessments have been carried out, they are extremely difficult to access, and have not been circulated for comment and peer review. Effective public consultation rarely happens. The Turks and Caicos has seen perhaps its greatest period of the destruction of the environment in the last 6 years. Nearly all the islands have been affected.

Protest groups have already had some small successes, in making legal challenges to developments in protected areas. We must continue the campaign to preserve and re-instate our protected areas, demand open and full consultation on development proposals, and insist that high quality Environmental Impact Assessments (paid for by the developer but commissioned independently) are made widely available throughout the whole territory and beyond, as hard copies and on-line.

Euwonka Selver, Turks & Caicos Islands, [euwonka@hotmail.com](mailto:euwonka@hotmail.com)

I bid you all a pleasant morning. I want to talk to you today about a problem common to several UK Overseas Territories, especially in the Caribbean. I will concentrate on my own home, the Turks & Caicos Islands. The problem is being caused by over-development and inappropriate development, and the failure to follow internationally recognised planning procedures. Examples include the “Star Island” project, Life Resorts International development, and Salt Cay Dock. I want to highlight the importance of civil society in bringing such issues to wider public attention, and in challenging planning proposals and changing outcomes.

The general value of natural protected areas, both for conserving the natural heritage and the ecosystem benefits that these provide, has been widely acknowledged. Effective safeguarding of such areas is dependent on a planned land-use strategy, and open and wide-ranging consultation on proposed developments. Planning needs to be open to local public debate, and to comment by international experts, rather than being a closed process involving a small number of people – whether elected or appointed officials, or commercial interests.

As we have seen from the previous presentation, it is accepted that international best standards for planning and development require these processes to be open, and readily accessible to the public, with independent Environmental Impact Assessments.

This open, consultative process with proper independent Environmental Impact Assessments happens within the United Kingdom. It is the law. However, in some UKOTs, the public perception is that this vital open planning consultation process does not take place, and if it does, the views expressed are not taken note of. Thus, this process is frequently circumvented in some UKOTs, even when it is also the law there.

Many of you will be aware that, in the Turks & Caicos Islands over the last few years, we have excelled ourselves in disregarding proper planning procedures and open consultation.

However, I will start with some reference to the situation in some other Caribbean UKOTs. I will then present some specific examples from the Turks and Caicos Islands.

In this afternoon’s session, we look forward to hearing some presentations very relevant to my

topic, from the British Virgin Islands and from here in Grand Cayman. Therefore, I will not attempt to steal their thunder. I, for one, will be keen to see what we can learn from their experience. I see that there are also presentations from Bermuda. However, I will mention one example from there, because it has been in the press, but I do not think it is in the programme, and I suspect that we can learn from it. I hope that the participants from Bermuda – and elsewhere – will bear with me and, later in the discussion, correct anything I get wrong as well as drawing out other points that they think are relevant.

Bermuda is a prosperous, very densely populated territory and, as such, the pressure for further development is continuous. There is good environmental and planning legislation, but, as in many cases, there are provisions for over-ruling objections and giving the go-ahead for development - which is a common problem in the Turks and Caicos Islands. Fairly recently, it was proposed to construct a beach bar facility on Warwick Long Bay. There was concern locally about such a development in a National Park Conservation Area and on Bermuda’s last pristine large public beach. There was a suggestion that the proposal had been approved by the Environment Minister, over-ruling the previous rejection of the proposal by the Development Applications Board, and an independent planning inspection. A petition and other action opposing the project was organised by the Bermuda Environmental and Sustainability Taskforce. On March 6 2009 the petition, signed by over 5000 people, was delivered to the Premier, Dr Ewart Brown. As one of those involved, Stuart Hayward, said: “What is the point of laws and regulations and the expert counsel of planners, conservation specialists, custodians of parklands and even an Independent Inspector, if a Minister can ignore it all, and in the process endorse the trashing of the very environment he is pledged to protect?”

I do not know what the outcome of this was, or will be. There are people here from Bermuda who perhaps will be able to tell us in the discussion. However, it is clear that public opinion and civil society are making themselves heard in Bermuda. We have had some small successes, but have a long way to go in this regard in the Turks and Caicos Islands, to which I now turn.

On paper, the Turks and Caicos Islands have an impressive suite of protected areas. There are 33

of these, covering approximately 270 square miles, consisting of National Parks, Nature Reserves, Sanctuaries and Historic Sites. In addition, some are protected under the National Trust Ordinance, by virtue of being held, on behalf of the people of the territory, by the Turks & Caicos National Trust. However, despite being legally protected, it has become apparent in recent years that this protection has not prevented significant damage to many of the protected areas, and a reduction in their size to enable significant, major and damaging development. Decisions by the Planning Board have been overturned by Ministers. It is imperative that the Governor exercises his power under Chapter 81 No. 13 of the National Trust Ordinance, which states, "That the Governor may grant to the Trust such land or interest in land over which he has the power of disposition as he may deem fit, and may grant to the Trust control over submarine areas, including control over access to such areas, activities within such areas and such other form of control as he may deem fit". (There is also an extensive breakdown of the powers of the Trust in Chapter 81 No. 5. I bring this to your attention in order to emphasise that the Turks and Caicos has the right legislation on the book - it needs only to be moved by the Governor [although "the Governor" means, in many circumstances the Governor as advised by Ministers]. I suggest that Government grant all the land in our Nature Reserves and National Parks to the National Trust. This has not been done in many cases, so the land is used commercially, instead of being preserved for the people of the Turks and Caicos.

This is the fix needed to prevent situations where secrecy and lack of consultation about proposed developments exist. The first anyone has known about some of developments has been when the bulldozers move in.

The damage has included:

### 1. Shrinking of our National Parks

Land has been removed from National Parks and Nature Reserves (formally or in practice) to accommodate developers. I am sure you read the headlines about "Star Island", which boasted of the construction of a Dubai-style artificial island. This involved major dredging in the Princess Alexandra National Park, leading to the destruction of coral reefs and invaluable fish nurseries. The world's only conch farm was affected as well. However, my friends in Bermuda should be encouraged by

the fact that there is power in numbers, as the people of the Turks and Caicos came together in protest and forced an injunction putting a stop to the artificial island. Pressure and protest groups have had significant successes, in legally challenging developments in protected areas. Petitions against Star Island, and outcries led by Tanya Streeter (professional free diver) against the dolphinarium, and countless others, seem to have caused the project to discontinue.

### 2. Development in Nature Reserves

Life Resorts International was sold land in a Nature Reserve, in Frenchman's Creek, to construct a "Christian hotel". This should not have happened. No development is permitted in Nature Reserves "on our books" - even visitation is said to be limited and by permit only. That needs to be enforced, and I am looking for full support from my fellow environmentalists should they continue any further with this particular project. We must maintain the campaign to preserve and re-instate our protected areas, demand open and full consultation on development proposals, and insist that high-quality Environmental Impact Assessments (paid for by the developer but commissioned independently) are made widely available throughout the whole territory, as hard copies and on-line.

### 3. Knowingly Endangering the Population

Unplanned and uncontrolled development has been allowed to encroach into flood-prone localities, placing some segments of the community in unsafe areas. Inadequate (or non-existent) drainage systems have also contributed to serious flooding problems. The third point (which the Government was aware of) relates to ad-hoc tourism-related developments. These have led to a policy shift that promotes a high concentration of hotels and condominiums within the coastal zone, in some cases set back less than 100 ft from the edge of vegetation, bringing concerns about the impact of storm-surge during storms and hurricanes. All this, knowing that the smallest increase in sea-level or other climate change effects could result in a catastrophic disaster in the islands.

### 4. Secrecy

Building permits have been granted to allow construction, without Environmental Impact Assessments or allowing any public consultation or comment from international experts. Where Envi-

ronmental Impact Assessments have been carried out, they are extremely difficult to access, and have not been circulated for comment and peer review. Public consultation does not happen, as all EIAs are copyright and property of the developers. Even since the advent of the Commission of Inquiry, I have not been able to see specific EIAs that I have requested, as the Planning Department has recently denied that the projects (the Salt Cay Marina development, the Christian Hotel and the dolphinarium project) even existed.

## 5. Boards Bullied

I could not conclude without mentioning the recent crisis in Salt Cay, where planning officials complained publicly of being “bullied” by Ministers over the Board’s refusal to allow a developer to “cut the 1.5 mile island in half”. Hon. Misick, the former Premier, was quoted as saying that the “Board’s decision was unacceptable.” The Chairman of the Board tendered his resignation dubbing it, “a matter of conscience”. The developer intended to dredge through a Historic Site, The White House (which is hundreds of years old), through the Salinas, and right through to the other side of the tiny island to an industrial dock and golf course in the historic heart of Salt Cay. This would have completely isolated the developer’s half of the island.

## 6. Destruction of Coral Reefs and Mangroves

Large sections of coral reef have been lost, as was the situation with the Carnival Cruise deal, where a significant section of the coral reef was torn down to accommodate the ships’ passage into Grand Turk. Additionally, the large influx of persons has lead to damage to shoreline sections of coral, which has encouraged the development of artificial reef systems, stimulated electronically. There was also an incident in Providenciales (in North West Point), involving a treasure hunter with a permit from the Premier, giving him permission to unearth long-lost treasure at any cost. Whether or not his quest was successful is a secret affair but, at present, heavily damaged reefs are the only evidence left of his time spent with us.

Mature mangrove trees have been bull-dozed to accommodate the development of marinas in North Caicos and Providenciales. This destruction of our coral reefs and mangroves also makes us more vulnerable when Category 5 storms (such as Hurricane Ike) hit, as the ecosystems act as natural

barriers against huge waves and a defence against erosion.

## 7. We Don’t Recycle

There is no proper waste disposal system. In TCI, we do not recycle anything; garbage is currently burnt in the open, which is affecting the health of many residents in Casher Garden in Grand Turk, where clusters of cancer exist, and in Blue Hills in Providenciales, where residents complained of smoke inhalation leaving the taste of burnt plastic in their mouths. There have also been reports of increased respiratory problems, blistering and other skin blemishes, since the public dump was moved to that area. The Consultancy Terms of Reference for the National Physical Sustainable Development Plan (Revised April 2008), in Paragraph 5.2 under the heading Environmental Challenges, has pointed to population growth in the context of serious planning and development challenges. The Government was fully aware of the situation of the good people of Chaser Garden in Grand Turk and Blue Hills in Providenciales, as the document goes on in the next paragraph to note “ increased population has resulted in increased volumes of liquid and solid waste, so much so, that the existing waste disposal systems do not have the capacity to adequately process the waste. The result is a serious impact on the physical environment, particularly ground water resources”.

## 8. Straining Resources

Personally, I would like to see some investigation into the Darden project, which is directly affiliated with the Red Lobster company, that entered into an agreement with the TCI Government to undertake lobster farming. There have been reports that a few thousand specimens have been taken from nurseries by the scientists for studies. However, if you live in the Turks and Caicos, you would appreciate the fact that, over the years, our resources have been dwindling from export and local consumption. So I can only imagine what next season will be like, if thousands more are being removed.

In short, over the last few years, it has become apparent that the only importance of our precious natural resources to the powers-that-be is cashing it in for its monetary value. The fine words of the then Minister of Natural Resources, Fisheries and the Environment, in declaring 2007 the “Year of the Environment” (theme “Give Mother Nature a

Helping Hand”), and endorsing 2008 as the “Year of the Coral Reef”, have not been backed up by conservation actions. Rather than giving Mother Nature a Helping Hand, she was given the back of the hand instead.

The Turks and Caicos saw perhaps its greatest period of the destruction of the environment under the leadership at that time. Nearly all the islands were affected.

We are a very bright and very talented people in the Caribbean. We face many common problems and I truly believe that, if we combine our resources and intelligence, we can overcome our many environmental challenges collectively. I have often said that we operate as if we are not connected in the territories, when in fact we are connected in many ways. If we work together through a collaborative effort, we will combat common problems and we will overcome. I am not a scientist and have no background in any sort of formal education when it comes to the environment. I am just a simple person who cares very deeply about environmental preservation for my people and the future generations. I have been considered somewhat of an activist. I have, in my quest to establish an environmental protection agency, contacted our Caribbean neighbours to see if I could utilize a template from them, only to discover that there were virtually no environmental protection agencies in the Caribbean, the nearest being in Puerto Rico. I contacted all our neighbours, and found that most rely for environmental protection on bodies that work hand-in-glove with the governments and not as independent agencies. I would like to send out a challenge to the conference participants to seek to develop protection agencies in our respective countries which act independently and only in the best interest of the environment.

A large number of people in the Turks and Caicos Islands are now aware of the terrible plight of the environment (and the country). They realise that our natural areas are our capital and our legacy. The vital tourism trade depends on leaving enough natural areas to protect our natural and historical environment.

To recap:

1. We must have the protected areas transferred to the National Trust to ensure their protection.
2. We must work together and be open to help from international experts in combating our

problems. In the Caribbean and in the Territories, we face many common threats and challenges; working together we can address them collectively.

3. Planning processes should be open to public debate and comment by international experts.
4. Where the Planning Board, EIAs and the public interest are in agreement with not allowing a proposed project, a Minister should not have the power to overturn their decisions at the stroke of a pen. That right should be taken away.

Have we already gone too far?

Is it too late to curtail what has been done?

What, if anything, can be done?

It is very important that the answer to these questions is to affirm that something can and must be done.

We have the opportunity to do this now, and we must seize it.

# The Marine Perspective on Spatial Planning, Protected Areas and International Standards

**Fiona Gell (Senior Wildlife and Conservation Officer – Marine, Wildlife and Conservation Division, Isle of Man)**



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The marine environment is diverse and often little studied and may be less actively protected compared to terrestrial systems. Uses of our coasts and seas are diversifying and intensifying all the time and it is essential to ensure that conservation of marine species and habitats forms part of new initiatives to exploit and manage marine resources.

A formal approach to planning in the marine environment is a relatively new development in many jurisdictions. Effective Marine Spatial Planning could put marine conservation considerations at the core of marine decision-making but waiting for the implementation of complex MSP schemes could also be seen to delay effective marine conservation initiatives in the shorter term.

For any new initiative associated with the marine environment a major challenge can be the lack of understanding of marine ecosystems at every level. How we tackle this underlying issue on small islands, when we may already be overwhelmed with the day to day work of taking forward marine conservation, is critical for the future of our marine biodiversity.

Marine Protected Areas (MPAs) present particular challenges and opportunities, from the start of decision-making on their designation through to daily running of a site, monitoring and adapting management to longer term changes. Could we do more to exchange information and best practice between geographical regions? Would it be useful to develop more collaborative work on the special MPA issues that small jurisdictions may need to address – e.g. developing appropriate legislation and management systems, lack of local scientific expertise and difficulties with funding?

Here, I develop these themes and hope that this will also be an opportunity to share good practice and case studies on how challenges have been met in different jurisdictions. Main issues discussed:

1. The development of formal Marine Spatial Planning.
2. Effective Marine Environmental Impact Assessment and good practice in coastal casework
3. The challenges associated with establishing new Marine Protected Areas and the effective management and monitoring of existing Marine Protected Areas.
4. Cross-boundary co-operation (regional and international) to support effective monitoring and support compliance with international obligations/regional best practice.
5. Education and awareness-raising at every level – a special challenge for marine management.

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*Figure 1. The Isle of Man*

## **Introduction and Isle of Man Background**

In this paper I aim to give an overview of some of the uniquely marine challenges associated with spatial planning, protected areas and international standards, using the Crown Dependency of the Isle of Man as a case study (Fig 1).

The Isle of Man has a population of just over 80,000 (2006 Census) and is located in the middle of the Irish Sea, approximately 50km from Britain and 50km from Ireland. The island is approximately 52 km long by 22 km wide and has a land area of 572 km<sup>2</sup>, with 160 km of coastline. The Manx Territorial Sea extends out to 12nm (22.2km) from shore, with a total sea area of nearly 4000km<sup>2</sup>.

The Isle of Man has full jurisdiction out to the 3 nautical miles (nm) (5.6km) limit. From 3nm to 12nm the Isle of Man has responsibility for marine conservation, ownership of the seabed and mineral rights but fisheries management decisions have to be made with the agreement of the neighbouring jurisdictions (England, Northern Ireland, Wales, Scotland and the Republic of Ireland).

The first Conservation Officers were employed by the Isle of Man Government in 1998 and the first Marine Conservation Officer was employed in 2004. Chief Wildlife and Conservation Officer Liz Charter heads the Wildlife and Conservation Division, a team of five permanent officers and an additional Assistant Marine Officer, appointed in 2008 on a 3 year fixed term contract. With two dedicated Marine Officers it has been possible to begin to develop a much more pro-active approach to marine conservation.

The Wildlife and Conservation Division is part of the Department of Agriculture, Fisheries and

Forestry. Responsibilities for marine management issues are divided between a number of Government Departments. The Department of Local Government and the Environment is responsible for marine pollution issues, the Department of Transport owns the seabed and has responsibility for managing coastal erosion, sewage disposal and drainage. The Department of Trade and Industry is responsible for seabed minerals and their exploration and extraction.

## **The development of formal Marine Spatial Planning**

Marine Spatial Planning is a process of managing the marine environment and marine resources sustainably through the allocation of space. It has recently become the focus for a number of pilot studies and strategies in the British Isles. In 2006 the Isle of Man had some involvement in a pilot project to look at the feasibility of Marine Spatial Planning in the Irish Sea and the Wildlife and Conservation Division are now leading a cross-government initiative to develop Marine Spatial Planning for the Manx Territorial Sea. It is hoped that this national initiative will also link into an EU-funded INTERREG project to look at Marine Spatial Planning across national borders in the Irish Sea.

### **Challenges:**

On the Isle of Man, it has been a challenge to address the big issues in Marine Spatial Planning as individual officers with specialist responsibilities, so a co-ordinated project is a good way to take this forward.

Marine Spatial Planning can sometimes be presented as the solution to all marine conflicts and management challenges – it is important to see it is one core tool amongst others. Marine Spatial Planning can also be seen as a way of delaying decision-making on difficult issues, but if implemented effectively it is hoped that it will allow more effective decision-making in future.

Rapid development of new uses of the Isle of Man marine environment is currently overtaking the measured Marine Spatial Planning project. A major airport runway extension (Fig 2) and marine aggregate prospecting (Fig 3) have already taken place and there are discussions about marine aggregate extraction, offshore renewable energy development and possible hydrocarbon exploration. Our Marine Nature Reserve project will develop in parallel



Figure 2. The Isle of Man Airport runway extension  
(Photo: Clive Hanley)

with the Marine Spatial Planning project. Ensuring that best practice is followed in the interim period before a formal Marine Spatial Planning system is established is vital.

#### **Opportunities:**

The appointment of a project officer will give a focus to Marine Spatial Planning in the Isle of Man and will bring relevant expertise together.

Small jurisdictions like the Isle of Man provide good trial sites for Marine Spatial Planning and numbers of marine developments and marine management initiatives are manageable so they can be easily understood by all involved.

Sharing of Marine Spatial Planning tools and protocols between UKOTs and CDs and other small island jurisdictions could be very beneficial.

#### **Effective Marine Environmental Impact Assessment and good practice in coastal casework**

What should we expect to see in a Marine Environmental Impact Assessment? In the Isle of Man we have recent experience of inadequate information in Marine EIAs and one case of a major coastal development where a desk based coastal/marine EIA was deemed insufficient through the terrestrial Planning system and a more extensive EIA

(which included original survey work and baseline data collection for monitoring) was a planning condition of the development.

Recently, the UK Institute of Ecology and Environmental Management released a draft version of their new Marine and Coastal Ecological Impact Assessment Guidelines:

[www.ieem.net/docs/IEEM%20marine%20EcIA%20article.pdf](http://www.ieem.net/docs/IEEM%20marine%20EcIA%20article.pdf)

Once finalised, we hope that these guidelines will help consultants carrying out marine and coastal EIAs and those commissioning and assessing the EIAs.

#### **Challenges:**

A lack of case studies on marine development issues can mean that there are few guidelines on what we should be expecting and what is good practice.

Wide remits of conservation staff in small jurisdictions often mean that specialist staff are working outside their specialist area and need external advice on technical issues – e.g. aggregate extraction, marine pollution.

#### **Opportunities:**

Sharing case studies between UKOTs and CDs and other small island jurisdictions could support better decision-making and developing a contact list of marine expertise would also be useful.



Figure 3. Aggregate prospecting in Manx waters (Photo: DAFF)

This summer (2009) the Isle of Man Wildlife and Conservation Division have commissioned an MSc study by a student from the University of York to produce specific Isle of Man Guidelines for Marine Environmental Impact Assessment. It would be useful to know who already has similar guidelines and whether we could come up with something that would be useful for other jurisdictions.

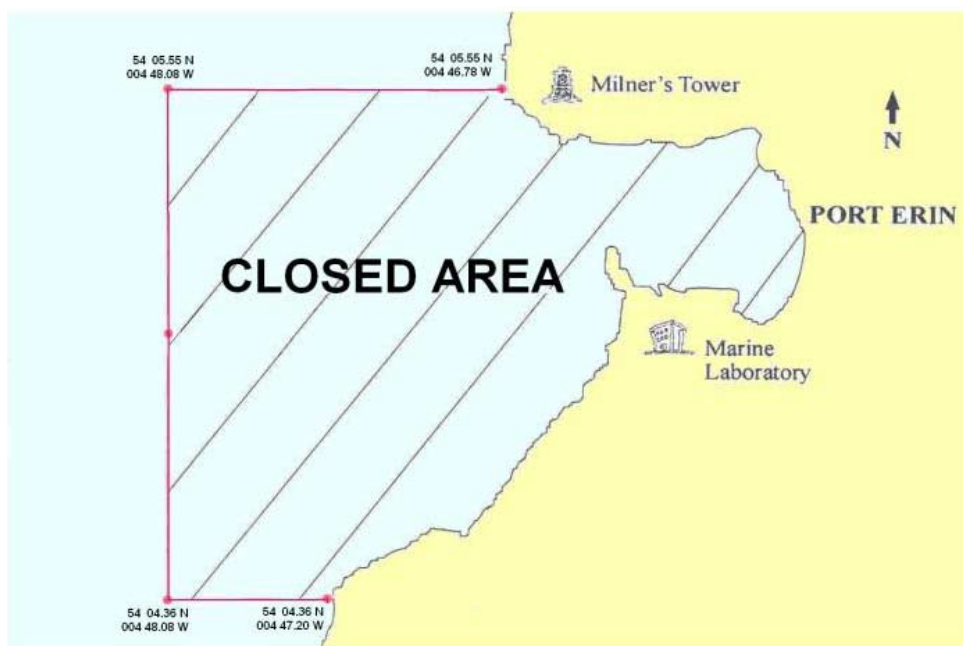


Figure 4 – The Port Erin Closed Area

### **The challenges associated with establishing new Marine Protected Areas (MPAs) and ensuring effective management and monitoring of existing Marine Protected Areas.**

#### **Established MPAs in the Isle of Man**

In the Isle of Man we have one well-established Marine Protected Area, the Port Erin Closed Area. This area was originally closed in 1989 as part of scallop dredging experiments carried out by Liverpool University's Port Erin Marine Laboratory. When the Marine Laboratory closed down in 2006, the Department of Agriculture, Fisheries and Forestry took on responsibility for the area and it became a permanent fisheries management area, closed to all scallop fishing (Fig 4).

The area has been extremely well-studied over the past twenty years and has shown dramatic increases in the numbers of scallops inside the closed area. Fishermen also report seeing the wider benefits of increased production of young scallops from the area, seeding adjacent fishing grounds. Fishing the line, where vessels fish up to the boundaries of the area, is often seen.

Fishermen were initially resistant to the closure of the Port Erin Closed Area, part of one of the most heavily fished scallop grounds in Manx waters. However, in the past few years most have become convinced of the fisheries benefits of the closure, leading to the main scallop fishermen's organisation, the Manx Fish Producers' Organisation,

instigating the closure of a second area as a scallop replenishment area. The second Fisheries Closed Area is in Douglas Bay, the capital of the Isle of Man and main port. This area was closed in February 2008 and trends in scallop populations and other effects are being monitored (Fig 5).

#### **New Manx Marine Nature Reserve Project**

The Isle of Man is making good progress with MPAs for fisheries management and this is bringing clear conservation benefits, protecting areas of seabed from scallop dredging. However, there are no Marine Protected Areas in Manx waters that have been designated specifically for conservation. Legislation for Marine Nature Reserves was introduced into Manx law in 1990 as part of the Isle of Man Wildlife Act. In 1992 the Port Erin Marine Laboratory was key in a bid to establish the Calf of Man as the first Marine Nature Reserve. Extensive research was carried out and a detailed draft management plan put together, but a misunderstanding with the consultation on the draft management plan led to local residents fearing that they had no say in the management of the area and the whole project was boycotted. Since then there has been no real attempt to try and designate an MPA for marine conservation although the Manx Wildlife Trust kept working on



Figure 5. King scallops – one of the main commercial fishery species in Manx waters



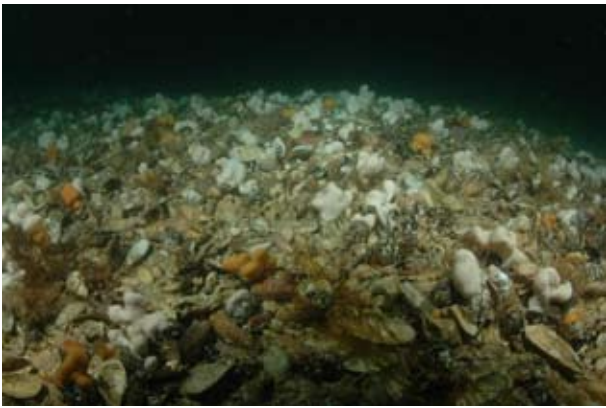


Figure 6. Horse mussel reef habitat in Manx waters  
(Photo: Rohan Holt)

marine conservation issues raised through the process via their Marine Committee.

There are a wealth of marine habitats and species around the Isle of Man that need more active protection and would benefit from the designation of a Marine Nature Reserve. The Calf of Man has rich rocky reef and wall habitats and a high diversity of invertebrate life, with some species that have only been described from the site, and others that are extremely rare or restricted in distribution. However, there are many other sites that would meet MPA designation criteria elsewhere. The horse mussel (*Modiolus modiolus*) reef off the Point of Ayre (Fig 6) is one of only a few substantial horse mussel reefs in the British Isles and is an important habitat for many associated species. Maerl beds (a highly diverse habitat formed of calcareous seaweed), seagrass beds and important spawning grounds are also likely candidate sites. Recent research into cetaceans and basking sharks in Manx waters has also indicated the seasonal importance of coastal sites for these highly mobile protected species.

In October 2008, the Wildlife Division of DAFF



Figure 7. Manx Marine Nature Reserve stakeholder workshop, November 2008

launched a three year project to select and designate a Marine Nature Reserve, using a high level of community participation and stakeholder consultation. We met first with local fishermen to brief them on the project before it was advertised elsewhere and then launched the process with a one day invited stakeholder workshop (Fig 7). The workshop was designed by independent facilitators Dialogue Matters ([www.dialoguematters.co.uk](http://www.dialoguematters.co.uk)) who trained a local team of facilitators for group work and a series of activities to get the best possible information and discussion from participants.

Our target is to establish the first Marine Nature Reserve which provides active protection to important marine species and habitats by summer 2011. The high level of stakeholder consultation will continue over the next two years and social and scientific selection criteria will be used to identify candidate sites.

We have also run a series of eight open meetings in communities around the Island (Figs 8 & 9). These have been attended by a wide variety of marine stakeholders. We are currently drafting Marine Nature Reserve selection criteria (scientific and socio-economic) using best practice guidance from elsewhere (for example the OSPAR guidelines for selecting Marine Protected Areas) also incorporating information collected from community meetings. These criteria will be used to draw up a list of candidate sites for further consultation.

### Challenges:

Manx fishermen are under pressure from all directions as fuel prices increase, scallop prices decrease and more sea areas are earmarked for developments. It is a priority to ensure that the Manx fishing community is fully involved, hence the ongoing community meetings to make the process accessible to all.

Marine conservation staff are also increasingly involved in new marine and coastal developments and other case work and this can reduce the time dedicated to pro-active and positive measures such as establishing effective MPAs.

### Opportunities:

There is extensive experience of establishing Marine Protected Areas for conservation throughout the UKOTs and CDs and from other small island jurisdictions. Sharing experiences and best practice could support jurisdictions at an early stage in establishing MPAs.



Figure 8. Marine Nature Reserve community meeting in the Isle of Man, February 2009 (Photo: Stephanie Halsall)

Effective networks of MPA practitioners are in place in many regions – e.g. the Indian Ocean. Can there be more sharing and co-ordination of resources between small island jurisdictions globally to address those issues specifically faced by small islands?

Establishing communication between marine stakeholders in the same sector in different jurisdictions could also be very positive. For example, promoting links between fishermen, anglers or divers in areas at different stages in establishing networks of MPAs.

**Cross-boundary co-operation (regional and international) to support effective monitoring and support compliance with international obligations/regional best practice.**

The Isle of Man has its own environmental and wildlife protection legislation but it is not subject to the EU Directives which drive much of the site protection and active conservation measures implemented in EU countries – most notably the EU Habitats Directive. Many marine conservation initiatives in the Isle of Man are therefore aiming for some level of EU or global best practice but are not enshrined in law.

Agreement on realistic island-scale goals for monitoring and wildlife protection could support small jurisdictions to take steps towards larger scale reviews of legislation in line with larger countries.

The Isle of Man has a long history of monitoring sea temperature and other environmental variables.



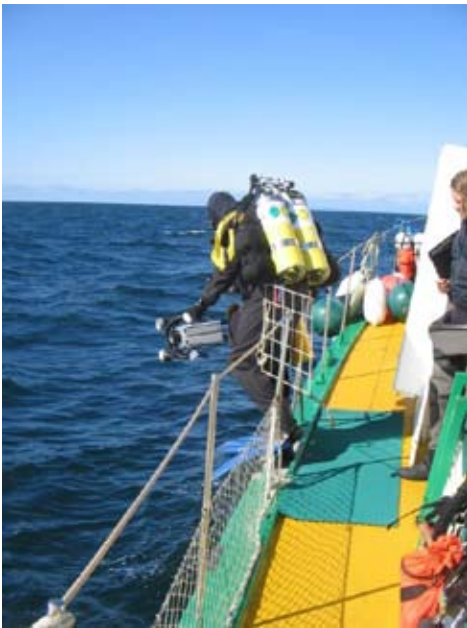
Figure 9. Marine Nature Reserve community meeting – participatory techniques, February 2009 (Photo: Laura Hanley)

Sea temperature monitoring began in 1904 and has continued since then, first by the Port Erin Marine Laboratory and then taken over by the Government Laboratory on the closure of the Marine Laboratory in 2006. This monitoring has shown an increase in sea surface temperatures of at least 1°C over the century since records first commenced, with most of the increase occurring since the mid-1990s. It also showed mean local temperature for 2007 to have been the warmest on record (Government Laboratory 2007).

Marine biological monitoring is developing in Manx waters. The closure of Liverpool University's Port Erin Marine Laboratory was a great loss for marine monitoring and research around the Isle of Man. For decades the Laboratory was at the forefront of marine research in fields such as rocky shore ecology and fisheries assessment and biology. Without local marine science expertise it is important for Government departments to develop in-house capacity and also to build new links with universities, conservation counterparts and research institutions.

A good example of this is a joint monitoring initiative that the Wildlife and Conservation Division of DAFF has with the Countryside Council for Wales (CCW), the statutory nature conservation agency in Wales. CCW have an excellent marine monitoring programme in place in Wales and an active Marine Monitoring Team with staff divers who have extensive experience of marine research and survey. In 2007 a reciprocal agreement was established whereby CCW divers have set up permanent monitoring stations on the horse mussel reef in the Isle of Man (Fig 10) and a Manx marine consultant is providing expertise in analysing video and



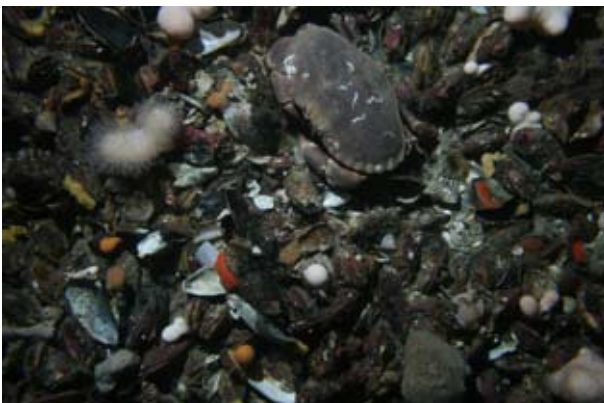


*Figure 10. CCW diver on horse mussel survey in Manx waters*

photographic imagery of the site. The Isle of Man has gained valuable external marine monitoring expertise and CCW have gained an external control site with which to compare trends observed at their Welsh sites. It is hoped that in future this collaboration could develop into a much wider programme of research and survey into horse mussel reefs which are diverse biogenic habitats, vulnerable to damage and a conservation priority regionally.

Bangor University in Wales has been employed to provide fisheries management advice and as part of a diverse programme of fisheries research, Bangor scientists have carried out a broad drop down camera and video survey of Manx waters (Fig 11) to aid fisheries stock assessment and also to assess habitats. This is the first systematic survey of Manx marine habitats and we are awaiting the results which will assist in fisheries management and marine conservation.

The loss of the Port Erin Marine Laboratory has also led to the development of much more community monitoring and data collection which has also



*Figure 11. Bangor University seabed survey photograph (Photo: Bangor University)*

provided an opportunity for education and awareness raising.

Manx Birdlife (formerly the Manx Bird Atlas) is a Manx research organisations that has been in existence since 1997 and has carried out a comprehensive survey of Manx birds, resulting in the publication of the first Manx Bird Atlas in 2006. In 1999 Manx Birdlife carried out a survey of coastal birds around the Isle of Man and they are embarking on a new round of comparable surveys this year which will provide a 10 year comparison.

Manx Birdlife also carried out seal haul out site surveys between 2006 and 2008 which have provided valuable baseline data on seal use of the Manx coast.

In 2005 two marine organisations developed as part of the Manx Wildlife Trust. Manx Basking Shark Watch started out co-ordinating public sightings of basking sharks in Isle of Man waters. Basking sharks are the second biggest fish in the world, second only to whale sharks, and can grow to well over 10m (Fig 12). The Isle of Man is now thought to be a global hotspot for the species and is one of the best places in the world to see basking sharks from shore. The scheme now records over 500 sightings of basking sharks each year and has hundreds of regular recorders who not only report sightings but also detailed accounts of behaviour, photographs and videos. Manx Basking Shark Watch is now developing leading basking shark research and in 2007 a shark tagged in Manx waters was the first to be recorded crossing the Atlantic (Gore *et al.* 2008). This research has attracted international attention and has led to the Isle of Man hosting the first international basking shark conference in August 2009.

[www.manxbaskingsharkwatch.com](http://www.manxbaskingsharkwatch.com)



*Figure 12. Basking shark in Manx waters*





*Figure 13. Seasearch divers collect biological data on a recreational dive*

Manx Whale and Dolphin began as part of the Manx Wildlife Trust and has since evolved into an independent organisation. This organisation also started out collecting public sightings of cetaceans but has since developed into a research operation, carrying out systematic offshore surveys of whales and dolphins in the Manx Territorial Sea. MWDW has also started the first photo-identification catalogue for Risso's dolphins which frequent Manx waters and are finding matches locally and further afield.

MWDW also has a network of hundreds of regular reporters who contribute sightings and a smaller number of observers who do regular effort-based watches.

[www.mwdw.net](http://www.mwdw.net)

SCUBA diving is a popular hobby in the Isle of Man and is also attracting increasing numbers of visitors. We are slowly developing schemes to encourage recreational divers to record important information on marine species and habitats. The UK Marine Conservation Seasearch programme involves initial classroom training to fill in two different levels of survey forms. A number of Manx divers have been trained in the Seasearch methods and we are slowly increasing the number of recreational dives that contribute important marine information (Fig 13).

<http://seasearch.wisshost.net/>

### **Challenges:**

Lack of local scientific expertise, especially after the loss of a well-respected research laboratory is an ongoing challenge but a combination of developing local capacity and external links is working slowly to fill the gaps.

Funding is an issue for larger marine survey and monitoring projects, particularly more comprehensive seabed surveys. Collaboration with universities with access to European funding, UK Research Council grants and other scientific funding sources may be an option.

### **Opportunities:**

Working in partnership with other organisations to develop effective survey and monitoring has been beneficial. Developing more links with universities would be very positive.

Working with UKOTs and CDs to share ideas and resources on cost-effective approaches to marine survey and monitoring would be beneficial.

### **Education and awareness raising at every level – the special challenge for marine management.**

Environmental education is discussed in detail elsewhere but marine conservation presents a special challenge. The majority of the species and habitats which we are trying to conserve are invisible to all but a minority of the population. This is perhaps more of an issue in the cooler waters of temperate islands where it is much more difficult to get people face to face with the marine environment.

In the Isle of Man we are benefitting from the current interest of the UK media in British marine and coastal life. A number of different TV series have featured underwater footage from the British Isles, including the Isle of Man.

In the Isle of Man, the Manx Wildlife Trust takes an important role in environmental education and employs a part time Education Officer who works with schools and other organisations to raise environmental awareness and encourage fieldwork.

Manx Basking Shark Watch has taken a key role in marine awareness raising through the best known Manx marine species, the basking shark. Their visibility and accessibility make basking sharks an excellent focus for generating interest in the marine environment. Basking sharks can be seen easily from land at two of the island's coastal towns and this gives people a real connection with the Manx marine environment.

The Wildlife and Conservation Division have been



Figure 14. Cool Seas Roadshow visits Isle of Man school

promoting marine environmental education since 2004. The Division has run a regular public lecture series, promoted visits of the Cool Seas Roadshow (life-size marine animals such as basking sharks and associated interpretation – Fig 14) to primary schools and run training courses on a variety of marine topics. The Division is also working with the Department of Education to incorporate more marine education into the Manx curriculum. In the Isle of Man there is now a tailor-made Manx curriculum in some subject areas such as history but the Manx marine environment is not yet formally incorporated into the curriculum.

There is the need for more Manx marine and coastal education resources. DAFF and the Department of Education co-funded the UK Field Studies Council to produce the Manx Rocky Shore Resources pack which has been very successful and helped primary school teachers to get their pupils doing rocky shore fieldwork.

### Challenges:

Informing politicians and decision-makers about the importance and value of the marine environment is a huge challenge and a priority. Very little marine education targets these groups but they often have the most influence on the big issues that threaten the marine environment. Is this a challenge elsewhere? How have people addressed it?

### Opportunities:

Many resources and ideas exist for improving marine education provision in schools, and fostering a sense of wonder in and responsibility for the marine environment in children is a priority. To ensure that the wider community understands the need for active marine conservation I suggest that continuing or adult education holds great possibilities. I have run two community “Introduction to Marine

Conservation” evening classes over the past year and they have been very well received and there is a lot more interest in developing open access marine education opportunities further. A great advantage of such classes is that it is a dialogue and the tutor constantly learns from the class as they all bring diverse marine experience.

Sharing experience of how to engage the whole community in marine conservation will be very beneficial. Whether it is economic benefits to convince Government Treasury of the value of our seas, or linking marine litter to stranded leather-back turtles to make an impact on teenagers, the more evidence we can gather collectively, the more effective we can all be in protecting the marine environment (Fig 15).

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- MSPP Consortium. 2006. Marine Spatial Planning Pilot: Final Report. [www.abpmer.net/mspp/](http://www.abpmer.net/mspp/)



Figure 15. Pollack and kelp in Manx waters. (Photo: Caroline Perry)

# The Chagos Archipelago: Its Nature and Future

## Dr John Turner (Chagos Conservation Trust & Bangor University)



Turner, J. 2010. The Chagos Archipelago: Its Nature and Future. pp 209-210 in *Making the Right Connections: a conference on conservation in UK Overseas Territories, Crown Dependencies and other small island communities, Grand Cayman 30th May to 5th June 2009* (ed. by M. Pienkowski, O. Cheesman, C. Quick & A. Pienkowski). UK Overseas Territories Conservation Forum, [www.ukotcf.org](http://www.ukotcf.org)

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### New Ocean Monuments Give President Bush a Blue Legacy

In January 2009, President Bush designated three new Marine National Monuments in the Pacific Ocean totalling more than 505,000 km<sup>2</sup> (95,000 square miles):

- Rose Atoll Marine National Monument (MNM) in American Samoa
- 7 uninhabited islands as the Pacific Remote Islands MNM
- Mariana Trench MNM in the Northern Mariana Islands

Together with the north-western Hawaiian Islands (Papahānaumokuākea) Marine National Monument, which was established in 2006, President Bush designated monuments protecting 869,000

km<sup>2</sup> (335,561 sq.miles) of ocean, a larger area of the world's marine environment than protected by any other person in history!

### Global Legacy Reserves

The Pew Environment Group of the Pew Charitable Trusts have proposed world-scale marine reserves, places where no fishing or extractive activity is allowed, to protect our global marine heritage for future generations and to celebrate our shared ocean legacy. Such Strict Marine Reserves are defined as ocean areas that are permanently and fully protected from activities that remove animals and plants or alter habitats, except as needed for scientific monitoring. They are not seasonal or short term; they must be enforced. Strict Marine







*Size of the Chagos Archipelago relative to southern UK*

Reserves cover 0.01% of the world's ocean compared with Marine Protected Areas which cover 0.6% (although recent Ocean Legacy Reserves will increase these figures by an order of magnitude)

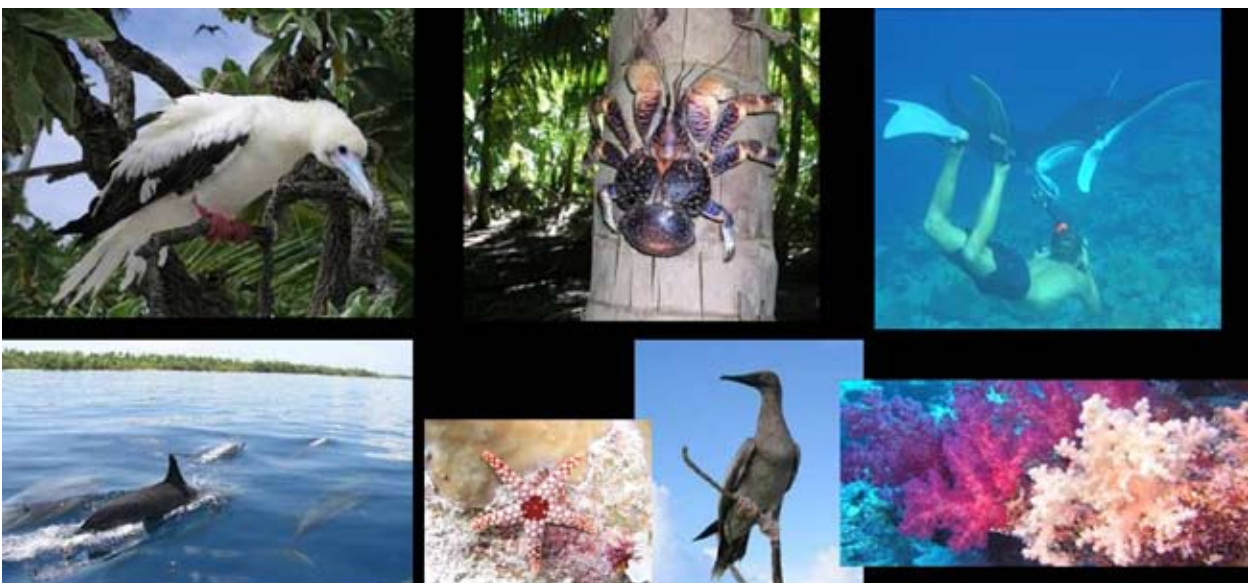
The British Indian Ocean Territory (BIOT) consists of the Chagos Archipelago, and covers an area equivalent to mid-southern England, consisting of 55 islands in a quarter of a million square miles (over half a million km<sup>2</sup>) of ocean. It is the most pristine tropical marine environment on the planet, and Britain's greatest area of marine diversity. Because of the coral reefs that occur in BIOT and the other UKOTs, the UK is ranked 12th in reef area in the world. The Chagos Conservation Management Plan has recently been expanded, proposing to protect 30% of the atolls and reef areas (this is awaiting implementation by the BIOT Administration).

The latest proposal is to create the Chagos Marine Park, on the scale of an Ocean Legacy Reserve. The plans are outlined in the brochure *The Chagos Archipelago: Its Nature and Future* (CCT 2009).

The aim is to encourage the British Government to make Chagos a very large marine protected area, comparable with those of the Galapagos or Great Barrier Reef. Sites like this are few in the world today – those left need the greatest protection

## References

CCT [Chagos Conservation Trust] 2009. *The Chagos Archipelago: its nature and the future*. Chagos Conservation Trust, London (available via the [www.chagos-trust.org](http://www.chagos-trust.org)).



*A little of the exceptional biodiversity of the Chagos*

## Discussion

The discussion and questions to speakers centred on three main themes, and are summarised below under corresponding headings.

### Protected Areas and Spatial Planning

The benefits that would accrue from more research into the effectiveness of Protected Areas and their integration into Sustainable Development Strategies and similar frameworks were noted. It was suggested that the approach to marine spatial planning and Protected Areas in the Isle of Man provided a good model, particularly where different marine zones existed in close proximity. The Isle of Man experience also emphasised the benefits of actively involving stakeholders (in this case, fishermen) in the process of spatial planning and Protected Area management.

### Environmental Democracy

There was widespread dismay at the situation that had arisen in the Turks and Caicos Islands, and warm appreciation and support for all those locally who had fought to protect the environment under such difficult conditions. It was acknowledged that ‘environmental activism’ was particularly challenging in such circumstances; although it could lead to positive results, considerable courage was required to champion environmental causes and good governance where a climate of fear prevailed. It appeared that some of the excesses reported from the Turks and Caicos had been reduced as a result of UK Government intervention, in a general sense and (for example) in relation to the availability of EIAs on previous developments, allowing for the challenging of specific projects. However, the process of ‘recovery’ in TCI was inhibited by day-to-day challenges, such as lack of funds to pay civil service salaries. It was agreed that many lessons needed to be learnt from the recent experience in the Turks and Caicos, and that these would be valuable in guiding future advocacy for good governance and environmental protection in the UKOTs and more widely.

### Legal and policy frameworks

There was some surprise at the extent of differences in relevant legislation that existed across the

UKOTs; some assumed that their common status as UK Territories implied a harmonisation of environmental (and other) legislation. Whilst relevant local legislation needed to reflect local circumstances, it was felt that a greater degree of commonality in approach (and, where appropriate, detail) would be useful, for example, in fostering cross-Territory cooperation and mutual support.

The Marine and Coastal Access Bill currently before Parliament in the UK was noted. This was essentially a piece of British domestic legislation, and did not encompass UKOTs, although UKOTCF had (through the consultation on the Bill) lobbied for it to include access for UKOTs to technical and advisory bodies. It was noted also that the mention of UKOTs in the EU Sustainable Development Strategy was a consequence of petitioning from UKOTCF.

As with Protected Areas, it was noted that robust enforcement measures were required to ensure that policy, and particularly legal, frameworks were effective and adhered to.

# Declaring international protected areas in UK Crown Dependencies and Overseas Territories: the role of the Ramsar and World Heritage Conventions

John Cooper (CORE Initiatives, South Africa)



Cooper, J. 2010. Declaring international protected areas in UK Crown Dependencies and Overseas Territories: the role of the Ramsar and World Heritage Conventions. pp 212-220 in *Making the Right Connections: a conference on conservation in UK Overseas Territories, Crown Dependencies and other small island communities, Grand Cayman 30th May to 5th June 2009* (ed. by M. Pienkowski, O. Cheesman, C. Quick & A. Pienkowski). UK Overseas Territories Conservation Forum, [www.ukotcf.org](http://www.ukotcf.org)

Currently there are 23 inscribed or designated Wetlands of International Importance listed under the Ramsar Wetland Convention in 11 of 19 UK Overseas Territories and Crown Dependencies (UKOTCDs), with a total area of 493,040 ha. In contrast, there are only two Natural Properties inscribed on the World Heritage Convention list within UKOTCDs: Henderson Island, Pitcairn Islands and Gough and Inaccessible Islands, Tristan da Cunha, totalling 401,600 ha. Seven UKOTCDs (Anguilla, Ascension, British Antarctic Territory, Gibraltar, Montserrat, South Georgia and the South Sandwich Islands and St Helena) currently have no registered international sites or natural properties. A UKOTCF report to Defra in 2005 proposed 76 new Ramsar sites in UKOTCDs, including in those that currently do not support a Ramsar site. Eight of these have now been designated. No proposed World Heritage Natural Properties within UKOTCDs are currently listed on the UK's tentative list, although a review of UK's approach to World Heritage Sites is currently underway. The UKOTCF's regional working groups seem ideally suited to pursue the further declaration of international sites within UKOTCDs, by actively advising and by producing proposals, which could extend to producing draft nomination texts. Consideration should be given to the steps needed to ensure that all UKOTCDs support at least one internationally protected area, and to develop priorities for additional or extended sites for those UKOTCDs which already have at least one such area.

John Cooper. CORE Initiatives, c/o 9 Weltevreden Avenue, Rondebosch 7700, South Africa; Animal Demography Unit, Department of Zoology, University of Cape Town, Rondebosch 7701, South Africa; and DST/NRF Centre of Excellence for Invasion Biology, Department of Botany and Zoology, University of Stellenbosch, Pvt Bag X1, Matieland 7602, South Africa. [john.cooper61@gmail.com](mailto:john.cooper61@gmail.com)

## Introduction

Gaining an international status for a protected area can bring several advantages. Firstly, awareness of the protected area is enhanced on a global scale. This increased awareness, can, and often does, bring an increased level of eco-tourism with its ability to “plough back” financial resources into management. Secondly, an international status can smooth the way for funding applications for management and research funds, including to the international registering bodies themselves. Third-

ly, and perhaps most importantly, gaining (or even the act of applying for) an international status helps both move the environmental issues the protected area faces “further up the agenda” of the governmental environmental authorities and develops a sense of pride among (and thus a willingness to lend support from) the local population. This enhanced sense of pride in the local natural environment may be particularly significant in isolated communities, where close familiarity might have resulted in the special habitats and endemic species they husband being taken somewhat for granted.



An international status will help open eyes domestically as to how the World values the communities' natural resources, and to their intrinsic worth.

### **Two major conventions award an international status to natural areas:**

The Convention on Wetlands of International Importance especially as Waterfowl Habitat (Wetlands Convention, <http://www.ramsar.org>), signed

in Ramsar, Iran in 1971, is an intergovernmental treaty which provides the framework for national action and international cooperation for the conservation and wise use of wetlands and their resources. There are presently (updated 11 January 2010) 159 Contracting Parties to the Convention, with 1881 wetland sites, totalling 185 million hectares, designated for inclusion in the Ramsar List of Wetlands of International Importance. The definition of a Ramsar Wetland is a broad one, that allows, for example, the designation of peat bogs,

## **Table 1. Criteria for Identifying Wetlands of International Importance**

### **Group A. Sites containing representative, rare or unique wetland types**

Criterion 1: A wetland should be considered internationally important if it contains a representative, rare, or unique example of a natural or near-natural wetland type found within the appropriate biogeographic region.

### **Group B. Sites of international importance for conserving biological diversity**

#### ***Criteria based on species and ecological communities***

Criterion 2: A wetland should be considered internationally important if it supports vulnerable, endangered, or critically endangered species or threatened ecological communities.

Criterion 3: A wetland should be considered internationally important if it supports populations of plant and/or animal species important for maintaining the biological diversity of a particular biogeographic region.

Criterion 4: A wetland should be considered internationally important if it supports plant and/or animal species at a critical stage in their life cycles, or provides refuge during adverse conditions.

#### ***Specific criteria based on waterbirds***

Criterion 5: A wetland should be considered internationally important if it regularly supports 20,000 or more waterbirds.

Criterion 6: A wetland should be considered internationally important if it regularly supports 1% of the individuals in a population of one species or subspecies of waterbird.

#### ***Specific criteria based on fish***

Criterion 7: A wetland should be considered internationally important if it supports a significant proportion of indigenous fish subspecies, species or families, life-history stages, species interactions and/or populations that are representative of wetland benefits and/or values and thereby contributes to global biological diversity.

Criterion 8: A wetland should be considered internationally important if it is an important source of food for fishes, spawning ground, nursery and/or migration path on which fish stocks, either within the wetland or elsewhere, depend.

#### ***Specific criteria based on other taxa***

Criterion 9: A wetland should be considered internationally important if it regularly supports 1% of the individuals in a population of one species or subspecies of wetland-dependent non-avian animal species.

coastal cliffs and shallow marine waters, as well as what are more usually considered as wetlands (essentially lakes and rivers). Indeed, in practice, what is acceptable is even broader, as witnessed by the inclusion of territorial waters extending out to 12 nautical miles (and this very much deeper than six metres at low tide) within several Ramsar sites, including the UK's Gough Island and Inaccessible Island Nature Reserves in the Tristan da Cunha Group. To qualify for listing, a site must fulfill at least one of the nine criteria developed by the Convention, which relate to such aspects as biodiversity, numbers of water birds and the presence of threatened species (Table 1). In practice, sites are usually designated on more than one criterion.

The Convention Concerning the Protection of the World Cultural and Natural Heritage (World Heritage Convention; <http://whc.unesco.org>), signed in Paris, France in 1972, seeks to encourage the identification, protection and preservation of cultural and natural heritage around the world considered to be of outstanding value to humanity. There are currently (updated 11 January 2010) 186 States Parties, with 890 inscribed properties, of which, however, only 176 are deemed to be natural sites. A natural property nomination is produced addressing up to four criteria, covering aspects of

the geomorphology, habitats, ecological processes, biodiversity and threatened species occurring within the site (Table 2).

The United Kingdom, including its Overseas Territories (less British Antarctic Territory) and Crown Dependencies, is a Contracting Party to the Ramsar Convention (entered into force in 1976) and a States Party of the World Heritage Conventions (ratified in 1984). Currently the UK has designated 169 Ramsar Sites (with a total area of 1.274 million hectares). In contrast, the UK has only four natural sites inscribed on the World Heritage List, with a total listed area of 404 220 ha.

### **International Ramsar Sites and World Heritage Natural Properties within UK Overseas Territories and Crown Dependencies**

Twenty-three (13.7%) of the UK's 168 Ramsar sites fall within its Overseas Territories and Crown Dependencies (UKOTCDs). These sites, however, have a total area of 493 040 ha, or 42.6% by area of the UK's designated sites (Table 3). Of the four UK World Heritage natural sites, two (Gough and Inaccessible Islands, Tristan da Cunha and Hend-

### **Table 2. Criteria for assessing natural properties for nomination to the World Heritage Convention**

The World Heritage Committee considers natural properties to have Outstanding Universal Value if they meet one or more of the following four criteria:

(vii) contain superlative natural phenomena or areas of exceptional natural beauty and aesthetic importance;

(viii) be outstanding examples representing major stages of earth's history, including the record of life, significant on-going geological processes in the development of landforms, or significant geomorphic or physiographic features;

(ix) be outstanding examples representing significant on-going ecological and biological processes in the evolution and development of terrestrial, fresh water, coastal and marine ecosystems and communities of plants and animals; and

(x) contain the most important and significant natural habitats for *in-situ* conservation of biological diversity, including those containing threatened species of outstanding universal value from the point of view of science or conservation.

#### **Notes**

1. The protection, management, authenticity and integrity of properties are also important considerations.
2. Criteria (i) to (vi) apply to cultural properties.

**Table 3. Ramsar Sites within United Kingdom Crown Dependencies and Overseas Territories**

**Crown Dependencies**

***Bailiwick of Guernsey, including also Alderney and Sark* (3)**

Alderney West Coast and the Burhou Islands, 24/08/05 15 629 ha  
Lihou Island and L'Erée Headland 01/03/06 427 ha  
Gouliot Caves and Headland, Sark 09/04/07 4 ha

***Isle of Man* (1)**

Ballaugh Curragh 06/09/06 193 ha

***Jersey* (4)**

Les Écréhous & Les Dirouilles 02/02/05 5459 ha  
Les Minquiers 02/02/05 9575 ha  
Les Pierres de Lecq (the Paternosters) 02/02/05 512 ha  
South East Coast of Jersey 10/11/00 3210 ha

**UK Overseas Territories**

***Bermuda* (7)**

Hungry Bay Mangrove Swamp 11/05/99 2 ha  
Lover's Lake Nature Reserve 11/05/99 2 ha  
Paget Marsh 11/05/99 11 ha  
Pembroke Marsh East 11/05/99 8 ha  
Somerset Long Bay Pond 11/05/99 1 ha  
Spittal Pond 11/05/99 10 ha  
Warwick Pond 11/05/99 2 ha

***British Indian Ocean Territory* (1)**

Diego Garcia 04/07/01 35 424 ha

***British Virgin Islands* (1)**

Western Salt Ponds of Anegada 11/05/99 1071 ha

***Cayman Islands* (1)**

Booby Pond & Rookery 21/09/94 82 ha

***Cyprus Sovereign Base Areas* (1)**

Akrotiri 20/03/03 2171 ha

***Falkland Islands* (2)**

Bertha's Beach 24/09/01 4000 ha  
Sea Lion Island 24/09/01 1000 ha

***Tristan da Cunha* (2)**

Gough Island 20/11/08 229 811 ha  
Inaccessible Island 20/11/08 126 524 ha

***Turks & Caicos Islands* (1)**

North, Middle & East Caicos Islands 27/06/90 58 617 ha

**Table 4. World Heritage Natural Properties within UK Overseas Territories**

**Pitcairn Islands**

Henderson Island 1988 3700 ha

**Tristan da Cunha**

Gough and Inaccessible Islands 2004 397 900 ha

**Notes**

1. The Gough Island World Heritage Natural Property was inscribed in 1998 and included territorial waters to the then limit of three nautical miles. In 2004 the property was extended to include Inaccessible Island and renamed, with the boundaries of both islands reaching to 12 nautical miles, the new territorial limit.
2. Although the 12-nautical mile boundaries of the Gough and Inaccessible Islands World Heritage Property and the Gough Island and Inaccessible Ramsar Sites are the same, different measuring methods have resulted in their areas being listed as of different sizes by the two conventions.

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erson Island, Pitcairn Islands) fall within UKOTs (Table 4), with a total area of over 401 600 ha (99.4%). The high area percentages for UKOTs (there are no World Heritage natural sites within UK Crown Dependencies) are due to the inclusion, with Gough and Inaccessible Islands, of their territorial waters extending out to 12 nautical miles, in both the Wetlands and World Heritage Conventions.

Eleven of the 19 UKOTCDs (or 13 of 21 if Alderney and Sark are counted separately) support Ramsar sites and two (Tristan da Cunha and Pitcairn) support World Heritage natural properties. Only Tristan has sites registered with both conventions. Seven UKOTCDs (Anguilla, Ascension, British Antarctic Territory, Gibraltar, Montserrat, South Georgia and the South Sandwich Islands and St Helena) currently have no registered international sites or natural properties with either convention.

**Table 5. Proposed Ramsar Sites within United Kingdom Crown Dependencies and Overseas Territories (After Pienkowski 2005)**

| Site Name   | Overseas Territory/ Crown Dependency |
|---|--------------------------------------|
|   | Crown Dependencies                   |
| The Ayres   | Isle of Man                          |
| Southern Coasts & Calf of Man   | Isle of Man                          |
| Central Valley Curragh  | Isle of Man                          |
| Gob ny rona, Maughold Head & Port Cornaa                                  | Isle of Man                          |
| Dalby Peatlands   | Isle of Man                          |
| North Herm and Les Amfrocques   | Guernsey                             |
| Orchid Fields at Rocquaine Bay  | Guernsey                             |
| St Ouen's Bay and Les Mielles   | Jersey                               |
|   | Overseas Territories                 |
| Bay of Gibraltar  | Gibraltar                            |
| Devonshire Marsh East and West Basins                                     | Bermuda                              |
| Trott's Pond and Mangrove Lake  | Bermuda                              |
| Walsingham Formation – Karst and Caves                                    | Bermuda                              |
| Harrington Sound and Notch  | Bermuda                              |
| Reef areas  | Bermuda                              |
| Castle Bay Islands and reef   | Bermuda                              |
| Central Mangrove Wetland, Little Sound, Ponds and associated Marine Zones | Cayman Islands                       |
| Little Cayman Crown Wetlands and Marine Parks                             | Cayman Islands                       |
| Salina Reserve  | Cayman Islands                       |
| Barker's Wetland  | Cayman Islands                       |
| Grand Turk salinas, ponds and shores                                      | Turks and Caicos Islands             |
| Salt Cay creeks and salinas   | Turks and Caicos Islands             |
| Turks Bank Seabird Cays   | Turks and Caicos Islands             |
| Caicos Bank Southern Cays   | Turks and Caicos Islands             |
| West Providenciales Wetlands  | Turks and Caicos Islands             |
| West Caicos saline lake and coral reef system                             | Turks and Caicos Islands             |
| Leeward-Going-Through Cays  | Turks and Caicos Islands             |
| Anegada Eastern Ponds and The Horseshoe Reef                              | British Virgin Islands               |
| Fat Hogs and Bar Bays   | British Virgin Islands               |

| Site Name   | Overseas Territory/ Crown Dependency         |
|---|--|
| Sombrero Island   | Anguilla                                     |
| Dog Island & Middle Cay                                     | Anguilla                                     |
| Prickly Pear Cays   | Anguilla                                     |
| Scrub & Little Scrub Islands                                | Anguilla                                     |
| Anguilla mainland wetlands                                  | Anguilla                                     |
| Montserrat NW coasts and marine shallows                    | Montserrat                                   |
| Centre Hills and forested ghauts                            | Montserrat                                   |
| Ascension Island  | Ascension Island                             |
| St Helena Central Peaks                                     | St Helena                                    |
| St Helena inshore waters, stacks and cliffs                 | St Helena                                    |
| Fisher's Valley   | St Helena                                    |
| Nightingale Group   | Tristan da Cunha                             |
| Tristan Island  | Tristan da Cunha                             |
| East Bay, Lake Sullivan and River Doyle                     | Falkland Islands                             |
| Pebble Island East  | Falkland Islands                             |
| Cape Dolphin  | Falkland Islands                             |
| Concordia Beach & Ponds, Limpet Creek and Cape Bougainville | Falkland Islands                             |
| Seal Bay  | Falkland Islands                             |
| Volunteer Point   | Falkland Islands                             |
| Kidney Island and Kidney Cove                               | Falkland Islands                             |
| Cape Peninsula, Stanley Common and Port Harriet             | Falkland Islands                             |
| Swan Inlet and Ponds  | Falkland Islands                             |
| Flats Brook and Bombilla Flats                              | Falkland Islands                             |
| Lafonia ponds and streams catchment                         | Falkland Islands                             |
| Bull Point  | Falkland Islands                             |
| Beauchêne Island  | Falkland Islands                             |
| Jason Islands Group   | Falkland Islands                             |
| Keppel Island   | Falkland Islands                             |
| Hawks Nest Ponds  | Falkland Islands                             |
| Bird Island   | Falkland Islands                             |
| New Island Group  | Falkland Islands                             |
| South Georgia   | South Georgia and the South Sandwich Islands |
| South Sandwich Islands                                      | South Georgia and the South Sandwich Islands |
| Chagos Banks  | British Indian Ocean Territory               |
| Ducie Island  | Pitcairn Islands                             |

| Site Name                | Overseas Territory/ Crown Dependency |
|--------------------------|--------------------------------------|
| Henderson Island         | Pitcairn Islands                     |
| Oeno Island              | Pitcairn Islands                     |
| Browns Water, Pitcairn   | Pitcairn Islands                     |
| Coastal waters, Pitcairn | Pitcairn Islands                     |

### **Proposed international Ramsar Sites and World Heritage Natural Properties within UK Overseas Territories and Crown Dependencies**

In 2005 the UK Overseas Territories Conservation Forum (UKOTCF) submitted a report commissioned by the UK Department for Environment, Food and Rural Affairs (Defra) that reviewed existing and potential Ramsar sites within UKOTCDs (Pienkowski 2005). A total of 76 potential sites was identified in the review for consideration for designation to the Wetlands Convention, each with a draft account prepared in the format required by the Wetlands Convention Secretariat (see below).

Nine of these potential sites have subsequently been designated as Ramsar sites by the UK Government; the most recent designations being of the Gough Island and Inaccessible Island Nature Reserves, leaving a total of 67 identified potential sites within UKOTCDs (Table 5).

No proposed World Heritage Natural properties are currently on the UK's tentative list. However, in December 2008 the UK Department for Culture, Media and Sport (DCMS) released for comment a consultation paper aimed at identifying, protecting and promoting the UK's World Heritage, including within UKOTCDs (DCMS 2008).

### **Applying for Ramsar and World Heritage international status**

The UNESCO World Heritage Committee publishes operational guidelines (<http://whc.unesco.org/en/guidelines/>), which set out procedures for inscription of sites on the World Heritage List, detail criteria for the judgment of outstanding universal value (see Table 2) and provide guidance on

the submission of nominations. Nominations are then reviewed by the World Conservation Union (IUCN), prior to their being formally considered for inscription by the committee. Before a site can be formally nominated it has to be placed on the tentative list held by the convention. Nomination documents tend to be bulky and require maps and photographs. Texts may run to 100 pages or more, not counting the often numerous annexes, such as the texts of management plans. The need to undertake a comparative analysis (not required for Ramsar site designations) adds to the complexity of the task. Because World Heritage properties are regarded as of "outstanding value to humanity", there is no certainty that a nominated site will be accepted, and an unfavourable review usually leads to the withdrawal of a nomination before it comes before the World Heritage Committee.

Further, countries with a number of World Heritage Properties listed (such as the UK) are currently discouraged from submitting new sites, including from, it may be assumed, UKOTCDs. Because of this complexity, it is likely that many (if not most) UKOTCD governments will see the preparation of a World Heritage nomination as a daunting task, to be placed in the "too hard" box, as more immediate environmental issues take up their available capacity.

In contrast, designating a Ramsar wetland site is a relatively simple exercise, that appears to be more within the reach of UKOTCDs to effect. There is no comparative analysis required, and once a Party has designated a site, the Ramsar Secretariat restricts its role to assessing that the site meets the requirements of the Convention for defining a wetland of international importance (see Table 1) and that the text (for which a format called an "Information Sheet on Ramsar Wetlands (or RIS) is available) has been properly completed along with the required map. The RIS should be "succinct" and not normally exceed 12 pages in length. An "Explanatory Note and Guidelines for completing the Information Sheet on Ramsar Wetlands (RIS)" document ([http://www.ramsar.org/ris/key\\_ris\\_e.htm#note](http://www.ramsar.org/ris/key_ris_e.htm#note)) sets out in comprehensive detail how to prepare a designation.

Further, there is no formal requirement for a management plan for a prospective Ramsar site to be in place, unlike for the World Heritage Convention where it is stated as a requirement for a nomination. For the Wetlands Convention, the Contracting Party makes the decision by designation, again

unlike for the World Heritage Convention, where the States Party make a nomination with no certainty it will be successful.

Finally, both conventions allow for existing sites and properties to be extended. Such extensions may well be a simpler process to follow than proposing a new international site. Within a UKOTCD context, this route has already been followed, when the UK successfully applied in 2004 for an extension of the Gough Island Wildlife Reserve to include both a larger marine component and the Inaccessible Island Nature Reserve, under the new name of Gough and Inaccessible Islands World Heritage Property (see footnotes to Table 4).

### **A way forward for UK Overseas Territories and Crown Dependencies**

The UKOTCF's regional working groups seem ideally suited to pursue the further declaration of international sites within UKOTCDs, by actively advising and by producing proposals, which could extend to producing draft nomination texts. Where capacity and/or available finances are limiting within UKOTCDs (as seems to be the usual case), then the UKOTCF could work in tandem with the various UKOTCD governments to make funding applications and help appoint contractors to draft texts. Such a procedure was broadly followed by Tristan da Cunha in successfully applying in 2007 for a small grant (GBP 3000) to the UK's Overseas Territories Environment Programme (a joint programme of the Department for International Development (DFID) and the Foreign and Commonwealth Office; [www.ukotcf.org/OTEP/index.htm](http://www.ukotcf.org/OTEP/index.htm)) to complete Ramsar Information Sheets for the Gough Island and Inaccessible Island Nature Reserves. The Tristan Government then contracted with Conservation and Restoration (CORE) Initiatives, a South African-based environmental consultancy, to produce the two RISs and electronic maps. This task was made easier by the existence of draft RISs for the two island reserves, produced by UKOTCF two years previously (Pienkowski 2005). In fact, draft RISs prepared by the UKOTCF exist for all 67 of the proposed Ramsar sites within UKOTCDs (see Table 4), making any UKOTCD government able to "hit the ground running" in working towards a designation.

The situation for World Heritage Sites is, as stated above, more complex. However, the principle of utilizing the skills and knowledge base and interest

of the UKOTCF and the members of its regional working groups still applies, although it seems likely that more input from the responsible UK Government departments will be required.

### **Working towards a "wish list" for new international sites in UK Overseas Territories and Crown Dependencies**

It is proposed that, in principle, all UKOTCDs should support at least one internationally protected area. Currently Anguilla, Ascension, British Antarctic Territory (BAT), Gibraltar, Montserrat, South Georgia and the South Sandwich Islands, and St Helena have no designated sites. BAT falls within the competence of the Antarctic Treaty and is thus a special case, which is not considered further here (and anyway has not been included within the UK ratification of the Wetlands Convention).

Ramsar Sites have been proposed (Table 5) for all six of these UKOTCDs, totalling 14 sites. For two UKOTs (Ascension and South Georgia and the South Sandwich Islands) the whole territory has been proposed for listing in the Wetlands Convention (Pienkowski 2005). Designation of a site (or sites) within the latter UKOT may be seen as problematic as the territory is claimed by Argentina. However, this dispute did not deter the UK from designating in 2001 two Ramsar sites (Table 3) within the Falkland Islands (which are also claimed by Argentina). The list of sites on the Ramsar web site notes that the Argentine Republic has disputed the Falkland sites "by diplomatic notification", which, it can be assumed, it would do once more if the UK designated a site within South Georgia and the South Sandwich Islands. The situation with the BIOT and Mauritius appears broadly analogous (Chagos Conservation Trust 2009).

Which Ramsar sites are first chosen for designation from (or from outside) the potential list will largely depend on each UKOTCD determining its own priorities, but the following have been suggested for consideration (M. Pienkowski *in litt.*): Sombrero Island and Dog Island & Middle Cay, Anguilla; Ascension (most protected areas on island as a consolidated site); Centre Hills, Montserrat; South Georgia (effectively whole island); and Central Peaks, St Helena. Given the dry nature of much of Ascension, the proposed extent includes the cloud forest, the island's turtle beaches and seabird colonies, and certain other areas important



for wetland invertebrates and marine organisms. Such an argument may also be applied to leaving out the glaciated and mountainous interior of South Georgia (D. Christie pers. comm.).

In relation to the World Heritage Convention, in the first instance UKOTCDs would need to request that the properties they would wish to be nominated be added by the UK to its tentative list. Once that step had been achieved, then a process of applying for funds and contracting out the preparation of a nomination document would need to be followed. The World Conservation Union usually (but not always, as was the case with the Gough and Inaccessible Islands World Heritage Property - where no inspections were carried out, due largely to the difficulties of arranging short-time access) provides an expert to make an on-site evaluation of a nominated site, so UKOTCDs would need to factor this into their work schedule and budgets.

In the absence of a UKOTCD-wide review of prospective properties, and based on the very high value and status expected of a World Heritage natural property, the Chagos Archipelago, British Indian Ocean Territory and the Island of South Georgia appear worthy of inclusion on the UK's tentative World Heritage list (see DCMS 2008). Nomination of the former site could perhaps be linked with a large Marine Protected Area that has been proposed for the archipelago (Chagos Conservation Trust 2009; Turner, this volume). It has been recommended that the UK's tentative list be revised (DCMS 2008), so the time seems right to consider proposing the inclusion of these two UKOT sites. It is interesting to note that both these localities are considered to be managed as if they were already registered as World Heritage natural properties (Sheppard & Spalding 2003, Pasteur & Walton 2006, DCMS 2008, Chagos Conservation Trust 2009). However, the disputed status of both Overseas Territories makes either nomination to the World Heritage Convention particularly problematic (D. Christie & J. Turner pers comm.).

In addition, it is suggested that consideration could be given by the Pitcairn Islands to motivating for the extension of the existing Henderson Island World Heritage Natural Property (Brooke *et al.* 2004) to include a marine component. Extensions to existing World Heritage properties do not have to be first placed on the Party's tentative list, so the process will be simplified.

Priorities should also drawn up for additional or

extended international sites in those UKOTCDs which already have at least one such area, as well as giving consideration to updating regularly the 2005 potential list of Ramsar sites (Table 5) with new sites and/or changed boundaries.

## Acknowledgements

Thanks are due to Mike Brooke, Darren Christie, Mike Pienkowski and John Turner for valued discussions and for pointing the way to relevant literature. Attendance at the *Making the Right Connections* Conference in the Cayman Islands was funded by the UK Overseas Territories Conservation Forum.

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*Left: Existing World Heritage and Ramsar site: Gough Island, showing non-forested peat bogs (a Ramsar wetland category) and the Critically Endangered Tristan Albatross (Photo: author)*

*Below: Some sites which ought to be Ramsar Wetlands of International Importance but not yet so designated (Photos: Dr Mike Pienkowski)*



*Ascension Island: female Green Turtles return to the ocean after laying.*



*St Helena: Tree ferns in cloud forest*



*Some of the salt-pans at Grand Turk, Turks & Caicos Islands: hugely important for wildlife, closely viewable, but unprotected and being destroyed*



*Cayman Islands: aerial view of the Central Mangrove Wetlands*



*South Georgia: King Penguin colony and glacier*



*Dog Island, Anguilla: Sooty Terns land back in their nesting colony with Brown Noddies*

# Montserrat Centre Hills Management Plan: an example of planning and implementing protected areas at a site scale

Stephen Mendes (Montserrat Department of Environment)



Mendes, S. 2010. Montserrat Centre Hills Management Plan: an example of planning and implementing protected areas at a site scale. pp 221-225 in *Making the Right Connections: a conference on conservation in UK Overseas Territories, Crown Dependencies and other small island communities, Grand Cayman 30th May to 5th June 2009* (ed. by M. Pienkowski, O. Cheesman, C. Quick & A. Pienkowski). UK Overseas Territories Conservation Forum, [www.ukotcf.org](http://www.ukotcf.org)

Montserrat is currently subjected to volcanic activity which has restricted use of two thirds of the island. In the remaining third, the forested highlands make up about 27% of the inhabited area. They are of particular importance in providing communities with a wide variety of useful goods and services, including the only water source. The forest suffers from human-related pressures, such as agricultural encroachment, unregulated hunting, and limited enforcement of wildlife and environmental legislation due to capacity constraints, increasing pressure for infrastructural development and the increasing prevalence of invasive species.

Increased efforts have now been made, building on recommendations made since 2000, to ensure that the remaining forests and their wildlife are maintained and protected. A spatial planning exercise was carried out 1998 to address the future needs of the island. This exercise earmarked areas for conservation, including the Centre Hills.

In 2005, a Defra Darwin Initiative-funded project was launched. Supported by numerous local and international partners, it planned for the creation of a National Park. As part of the process, the local community was engaged through extensive outreach, and legislative frameworks were reviewed. An economic valuation of the area in question was also conducted; preliminary findings are demonstrating that the benefits of a management system, which can enhance and sustain the forest value, far outweigh the costs.

Despite the many challenges faced, especially compounded by the global economic crisis, a comprehensive management plan has been created for the Centre Hills, largely informed through the efforts of spatial data collection. It is sincerely hoped that, with increased capacity, this plan can be implemented and that it will serve as a blueprint for management of other biologically diverse areas on island and across the Caribbean.

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Montserrat, a quaint little island of 102 km<sup>2</sup>, is located in the Leeward archipelago of islands, 16° 45' N 61° 10' W, 27 miles (44 km) south west of Antigua. It is one of the founding Members of CARICOM and the sub-regional Organisation of Eastern Caribbean States (OECS).

Currently, the biodiversity of the island is under the stewardship of the Department of Environment,

formed in late 2006. The Department is yet to have a full complement of staff to carry out its mandate. An NGO, the Montserrat National Trust, also has responsibility to ensure that the island's heritage, both natural and built, is preserved for future generations. It too is in need of enhanced capacity.

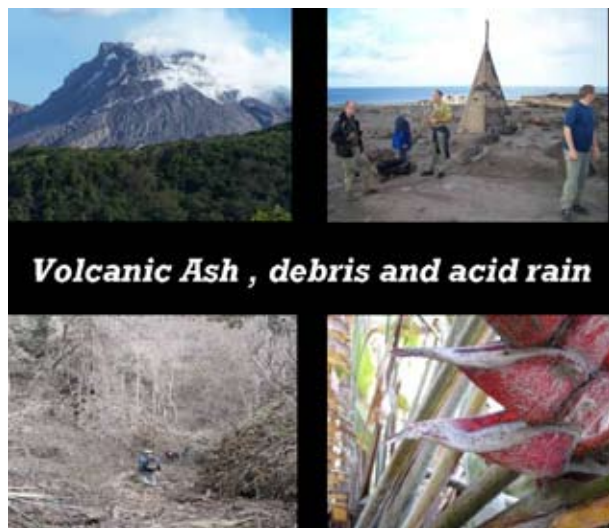
The natural environment of Montserrat has been wrought over the years by habitat destruction.





Since the seventeenth century, at least 30% of the lowlands were totally cleared for colonial sugar production. By 1670, the island's ecosystems came under increasing pressure as a law was passed that contributed to the drastic destruction of forest cover. It stipulated that "all owned land be cleared every year as a condition, confirming continued ownership." Unfortunately, the colonial Governors of the time also clung to myths that the forests exuded harmful vapours which caused "fevers and agues". Thus the slaves of the day were ordered to chop the forests down.

An initial attempt to curb the unchecked damage came in 1702, when a law was passed to protect all



**Volcanic Ash , debris and acid rain**

ghauts (streams/rivers) on the island. This encouraged the prolific planting of fruit trees that still remains a tradition today. Most ghauts are filled with breadfruit, mangos, mammie apple and hogplums.

Since the mid-1990s, the ongoing volcanic eruption has effectively wiped out at least 60% of the island's natural vegetation, and impacted marine fauna and flora with ash deposition. Of the 39.5 square miles of land, only 14 square miles can now be occupied by the human population.

The Centre Hills remain the last forested area of the island and occupy approximately 27% of the usable land.

Following the start of volcanic activity, planners realized that they would have to mobilize quickly to ensure that development on the northern third of the island could be expedited. The Centre Hills, though home to species of global importance, and providing the prime watershed for the entire island, was becoming subject to many pressures:

1. Volcanic ash, debris and acid rain



**Global Biodiversity Importance**

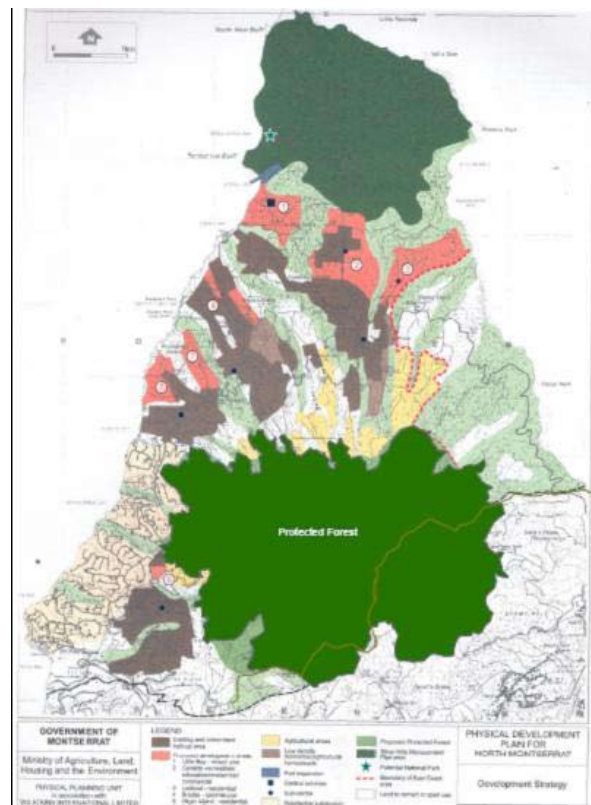
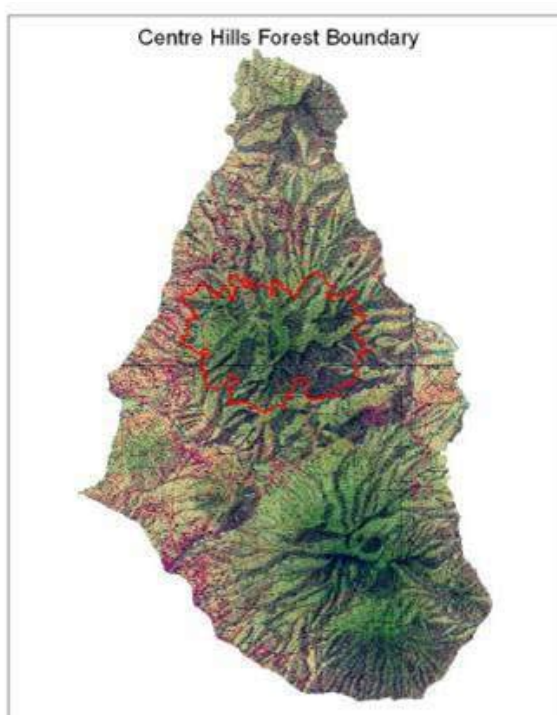


**Development Pressures**



2. Development pressure: land for agriculture, pasture, road infrastructure, and housing
3. A growing number of invasive species that could impact on biodiversity. Many of the problems resulted from the departure of farmers who had to abandon their livestock as a result of the eruption. Such animals include goats, sheep, cattle and pigs.

Early attempts at conservation included the proposed protection of all lands over 1500 feet (500 m) in elevation, although laws have not been made to implement this. However, the Forestry Act of 1956 gave some measure of management and protection. Specifically more targeted to the Centre Hills, the Wildlife and Protected Areas Act of 1996 was passed; this demarcated the Centre Hills Forest boundary as we know it today. This measure of protection was complemented by the Physical



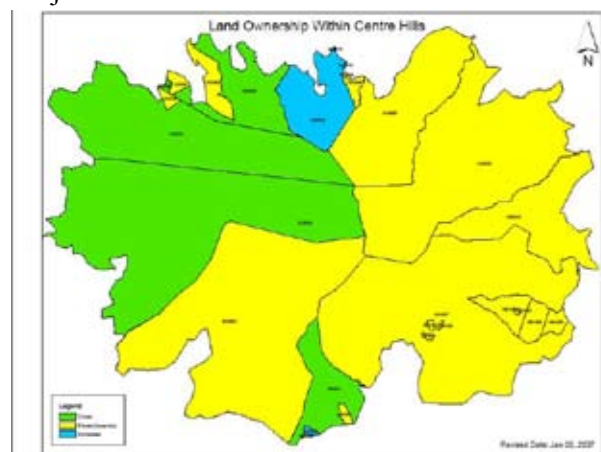
*Physical Development plan for the north of Montserrat*

Development Plan 1998-2008, which suggested the designation of the area as a protected forest.

Officials from the Physical Planning Unit were quoted as saying;

- “Montserrat is a small island and it is essential that we have a balance between the natural and the built environment.
- “Centre Hills is critical to the Island’s development, based on what it contributes (watershed, biodiversity, mitigation for soil erosion, storm protection).
- “Planning needs to be organised so that the built environment can co-exist with the natural one.”

Through a Darwin Initiative grant, the Centre Hills Project came into existence in mid-2005. This





3-year project was intended to enable the people of Montserrat to conserve the Centre Hills. The project included:

- In-depth biodiversity assessment within the forest boundary. This included the creation of numerous biodiversity assessment points throughout the forest, and recorded data for birds, bats, insects, plants, amphibians and reptiles. A report was compiled and is available on the Durrell website ([www.durrell.org/library/Document/Durrell\\_Cons\\_Monograph\\_1\\_Full\\_Report.pdf](http://www.durrell.org/library/Document/Durrell_Cons_Monograph_1_Full_Report.pdf)).
- An economic valuation of the area. This was a pilot study in order to introduce techniques in valuing the ecosystem services of the Centre Hills. It was thought that placing a monetary value on these services, would make it easier for the person on the street to better appreciate the value of biodiversity. It is also a good tool to persuade decision-makers. The study highlighted also the need for additional data to be collected in order to get optimal results.
- Awareness raising, so that the general public would better appreciate the values of the natural area.

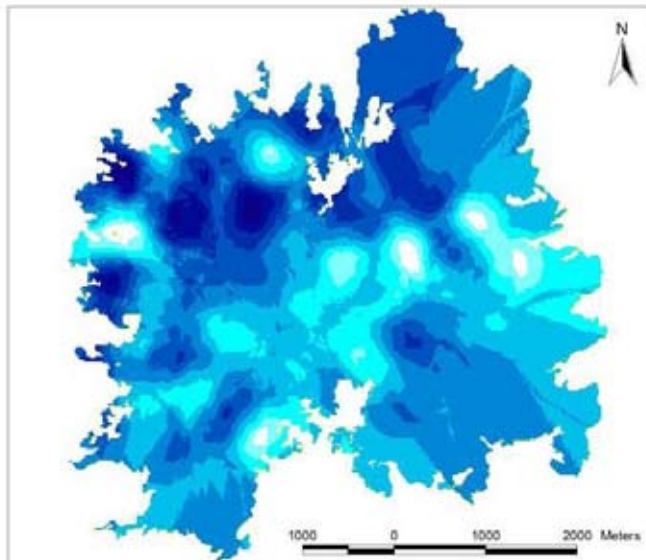
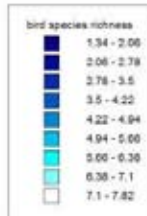
As the project progressed, it was realized that there would be a need to review current legislation, to take into account, the project findings, to meet multilateral agreement requirements, and to provide a legal framework for the Department of Environment. This legislation is still under review.

## The Management Plan

The costs of full implementation of this Plan, developed by the project, is estimated (including staff costs) at US\$ 900,000 per annum.

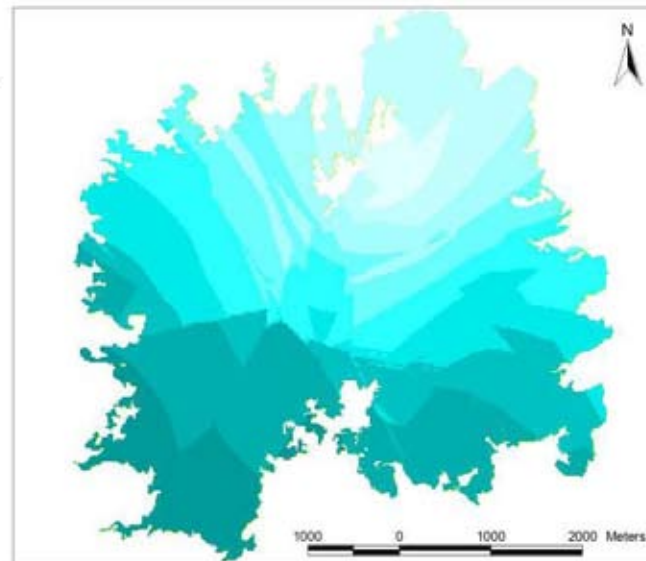
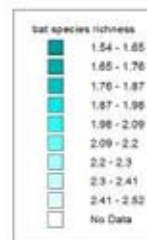
Bird species richness in Centre Hills

Interpolated by kriging using a linear with sill model and a 450 m search distance



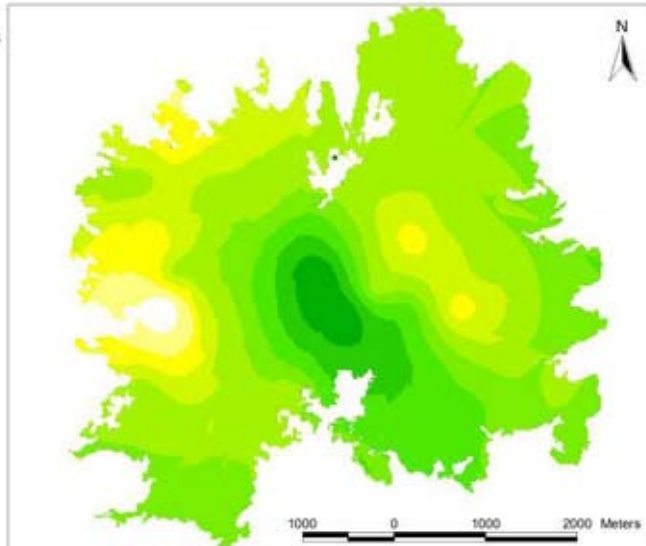
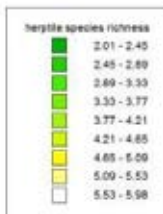
Bat species richness in Centre Hills

Interpolated by kriging using a circular model and a 2 km search distance



Herpetile species richness in Centre Hills

Interpolated by kriging using a circular model and a 2 km search distance



The Plan's aims are to:

- Promote sustainable livelihoods of resource users in and around the Centre Hills
- Conserve biodiversity, habitats, and ecosystem





# Challenges for a small isolated island group - progress on the Pitcairn Islands environment management plan, designated protected areas and sustainable development

Noeleen Smyth (National Botanic Gardens, Dublin, Ireland; for Pitcairn Islands Council)



Smyth, N. 2010. Challenges for a small isolated island group - progress on the Pitcairn Islands environment management plan, designated protected areas and sustainable development. pp 226-228 in *Making the Right Connections: a conference on conservation in UK Overseas Territories, Crown Dependencies and other small island communities, Grand Cayman 30th May to 5th June 2009* (ed. by M. Pienkowski, O. Cheesman, C. Quick & A. Pienkowski). UK Overseas Territories Conservation Forum, [www.ukotcf.org](http://www.ukotcf.org)

The Pitcairn Islands are exceptionally remote, lying at the south-eastern extremity of the central Polynesian island chain, south of the Tropic of Capricorn. The people of Pitcairn have always been astutely environmentally aware, as their lives have always depended on the fine balance between population size and resource availability. Current plans revitalise Pitcairn with new infrastructure, but also bring environmental risks, and mitigating against these presents a major challenge.

The Pitcairn Islands need to develop and safeguard their unique environmental features and develop ways to enable visitors to experience these special features without damaging or downgrading the environment. Local Government Ordinances provide much of the basis for environmental management in the Pitcairn Islands, and these are integrated and commented on within the new Environment Management Plan for the island group.

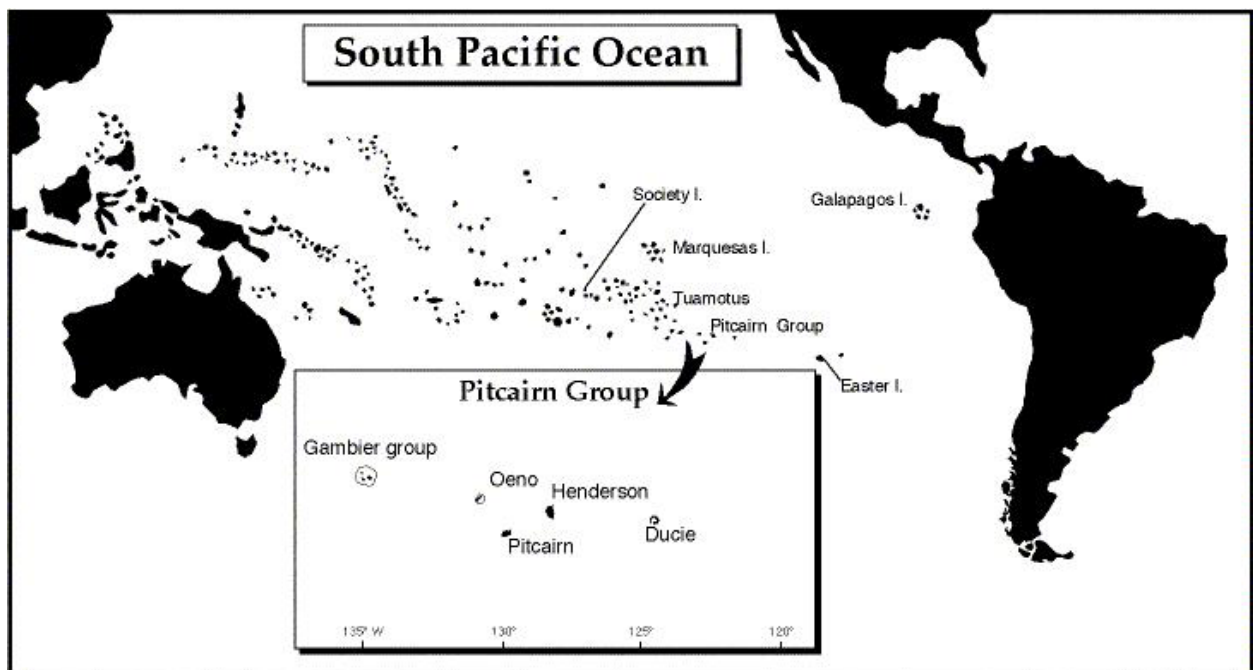
Dr Noeleen Smyth (for Pitcairn Islands Council), National Botanic Gardens Dublin, Glasnevin, Dublin 9, Republic of Ireland. [nsmlyth@tcd.ie](mailto:nsmlyth@tcd.ie)

The Pitcairn Island group comprises four islands located in the South Central Pacific Ocean. The islands, a UK Overseas Territory, are exceptionally remote, lying at the south-eastern extremity of the central Polynesian islands south of the Tropic of Capricorn (1570km west of Easter Island; 5350km north-east of New Zealand, Fig.1). The group consists of two atolls, Oeno and Ducie (the most southerly atoll on earth), the raised atoll of Henderson (a World Heritage Site) and the high volcanic island of Pitcairn itself.

The people of Pitcairn have always been astutely environmentally aware, as their lives have always depended on the fine balance between popula-

tion size and resource availability. The Pitcairn laws through the 19th Century reflect the people's concerns about the environment and its sustainability. Pitcairn Island itself is very isolated and only in recent months has regular shipping to the island been arranged. There is no safe port or harbour for ships to land (Figure 2), and recent infrastructure projects have begun to address this issue. A new harbour or safe port is planned for Tedside on the west side of the island.

Currently plans are underway to revitalise all aspects of Pitcairn Island with new infrastructure, power generation, communications, and transport links through French Polynesia, which will



*Figure 1. The location of the Pitcairn Island group.*

bring tourism and more cruise ships to Pitcairn and other islands in the group (Jaques 2006). This development will also bring environmental risks, and mitigating against these risks presents a major environmental challenge for the group.

Ducie, Oeno and Pitcairn Island have sites identified for listing under the Ramsar Convention (Pienkowski 2005). Pitcairn has mostly disturbed habitat (with less than 30% of the island covered in native forest) but complimentary analysis has highlighted that most of the vegetation types and many of the threatened species on Pitcairn would be conserved if three areas were to be set aside as nature reserves (Tautama, High Point & Down Rope) (Kingston & Waldren 2005). There is also a need for new reserve areas to include areas of cultural importance such as Down Rope, Christian's Cave and Henderson's Caves. No marine protected areas are listed for any of the island group.

The Pitcairn Islands need to develop and safeguard their unique environmental features and develop ways to enable visitors to experience these special features without damaging or downgrading the environment. The Pitcairn Environment Management Plan has set out a series of actions

and recommendations under four main headings: Environmental Development, Economic Development, Biodiversity and Supporting Measures which would help the Pitcairn group protect and safeguard the environment while this stage of development is underway (see discussion under The Pitcairn Islands Environment Management Plan poster, Section 2).

Using some the unique biodiversity on Pitcairn to support the actions outlined in the Management Plan to protect the environment is one way of providing funding. Currently an eco-trail on the island is proving very popular with cruise-ship visitors. On this trail, signage has been erected highlighting the endemic plant species, problems with invasive species and local uses of plants. A small charge to visitors for use of this trail is one way to fund some



*Figure 2. Bounty Bay, Pitcairn Island, the current harbour.*



of the actions outlined in the Management Plan. Other resources such as a proposed guidebook to the flora and fauna of the islands could also help support conservation actions.

One of Pitcairn's most charismatic and attractive endemic plants *Abutilon pitcairnense* (Figure 3) is under consideration for commercialisation, and funding is currently being sought to raise an ornamental hybrid for sale using this critically endangered endemic as a parent. This funding method was employed very successfully at the Eden project in Cornwall where retail sales of *Impatiens* "Ray of Hope", bred using the critically endangered *Impatiens gordonii* as a parent, raised money for the conservation of other rare and endangered Seychelles plants with profits from the sales directly going back to the Seychelles.

The need for long-term funding, and novel and sustainable ways of raising funds to ensure the long-term protection of the environment, are a crucial step in this development phase of the Pitcairn group. A recent article in the *New Scientist* magazine (Young 2009) highlighted the fact that, to save and maintain global biodiversity, we need to be investing funds in tropical islands where the most important and "endemic rich" biodiversity is found. This "endemism richness" factor makes islands nine times more valuable than continental areas in terms of global biodiversity.

The Local Government Ordinances developed by the Island Council (Treadwell 2001) on environmental management of the Pitcairn Islands, integrated with the Environmental Management Plan for the island group, provides both the direction and actions needed to maintain and enhance the local environment.



Figure 3. *Abutilon pitcairnense* a critically endangered Pitcairn endemic plant

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# BVI's *System Plan*: an example of planning and implementing protected areas at a national scale

Joseph Smith Abbott (Director, British Virgin Islands National Parks Trust)



Smith Abbott, J. 2010. BVI's *System Plan*: an example of planning and implementing protected areas at a national scale. pp 229-233 in *Making the Right Connections: a conference on conservation in UK Overseas Territories, Crown Dependencies and other small island communities, Grand Cayman 30th May to 5th June 2009* (ed. by M. Pienkowski, O. Cheesman, C. Quick & A. Pienkowski). UK Overseas Territories Conservation Forum, [www.ukotcf.org](http://www.ukotcf.org)

A comprehensive approach to protected area planning was followed during the process leading to final approval of the *System Plan for Parks and Protected Areas in the British Virgin Islands* in 2008. Prior versions of the System Plan were prepared in 1981 and 1986, with the assistance of the Eastern Caribbean Natural Areas Management Programme (ECNAMP). The latest review of the Plan built on the outcomes of an OTEP funded project designed to assess the status and health of Territorial coastal and marine resources in 2006. Baseline information gathered throughout the two-year process led to the design of various options related to the design of the Protected Area system, which was derived from a collaborative effort between international partners. MARXAN software was employed as the planning tool to explore options related to Protected Area design. Assumptions ranging from target species and habitats to be included and protected, the selection of marine areas to increase resiliency within the system, and target percentage of representation within the Protected Area system were entered into the software, and various maps were prepared and presented to all stakeholders on the four major islands. A multi-sectoral, year-long process of consultation led to the determination of a preferred Protected Area design which was submitted and approved by both the Board of the National Parks Trust and ultimately, the Government of the British Virgin Islands. The ten-year plan articulates the complement of Protected Areas declared under the National Parks and Fisheries Acts, which serve conservation and sustainable development purposes, the policy direction and institutional arrangements guiding Protected Area management at the national level.

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The policy support for Protected Area system planning was established in 1980, when the Government of the British Virgin Islands (BVI) requested the assistance of the Eastern Caribbean Natural Areas Management Programme (ECNAMP, now CANARI) in the identification of marine areas for inclusion in the system of National Parks and Protected Areas. That study resulted in the preparation of the first *System of Marine Parks and Protected Areas for the British Virgin Islands* in 1981. The study was further amplified by an additional assessment undertaken in 1986, which defined terrestrial areas for inclusion into the system. Inclusion of terrestrial areas took place as of 1986 resulting in the declaration of 20 terrestrial and one marine

National Parks. Moreover, the National Parks Trust managed a distributed network of marine areas through its Moorings Programme; however, these areas lacked formal designation, thereby limiting the scope of protective measures available to ensure the protection of marine resources in these areas. This sub-system became a network of “parks without the paper” as opposed to “paper parks”.

A parallel and complementary process to system planning was the revision of the National Parks Ordinance and the Marine Parks Ordinance. The latest legislative reform effort was undertaken as part of an institutional strengthening exercise in



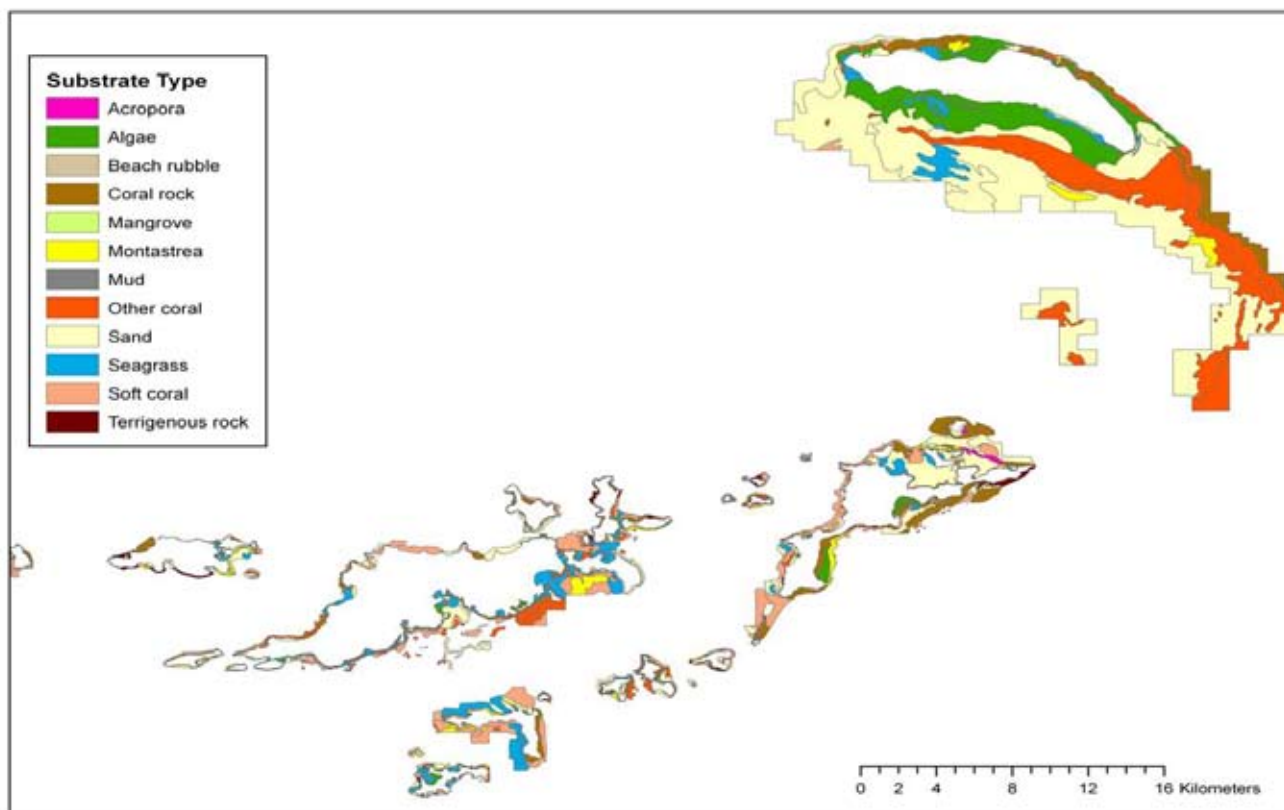


Figure 1. Coastal resources map for the British Virgin Islands

conjunction with the Island Resources Foundation starting in 2004. That process culminated with the update of Protected Area legislation in 2006. The inclusion of the requirement for the production of a System Plan for the Territory was an integral part of the legislative review process. Specifically, Section 10 of the National Parks Act entitled *Establishment of a Network or System of Protected Areas* states that:

“The parks and other protected areas established under this Act comprise a protected areas system and to guide the development and management of the system and specific areas within the system, the Trust shall prepare and periodically update, as needed, a protected areas system plan.”

The *Protected Areas System Plan for the British Virgin Islands 2007-2017* was approved by Cabinet in January 2008 and tabled in the House of Assembly March 2008. Various Protected Areas were established under the National and Marine Parks Ordinances from the Trust’s inception. Most declared Protected Areas were terrestrial in nature.

Various agencies within the Territory have the ability to declare Protected Areas. For instance, in addition to the National Parks Trust, the Conservation & Fisheries Department can declare Fisheries Protected Areas and can set aside Marine Parks under the Fisheries Act and its Regulations. Ad-

ditionally, the Physical Planning Act has provisions for the declaration of Environmental Protection Areas. Whilst the emphases for the declaration of individual areas may vary based on the primary purpose the area may serve, there was a collective recognition amongst all agencies with responsibility for Protected Area declaration and management that in order to further the conservation of Territorial natural resources and to avoid fragmentation and dissipation of effort, it was beneficial to integrate all types of Protected Areas beyond those declared under the National Parks Act into the latest version of the System Plan. The System Plan, therefore, articulates the need for the protection of various types of Protected Areas, which have or may be declared under the National Parks Act, the Fisheries Act or the Physical Planning Act. The System Plan excludes detailed site development issues thereby apportioning that discussion to site management plans.

Information required for the formulation of the System Plan was derived from the implementation of multi-year, UK-funded activities. An Overseas Territories Environment Programme project, managed by the National Parks Trust in collaboration with the Conservation & Fisheries Department, led to the update of the Territory’s coastal atlas between 2004 -2006 (Figures 1 & 2). Work also included an assessment of the efficacy of the Trust’s Marine Conservation Programme (MCP). Assess-



Figure 2. Diving of marine areas under the coastal resources and atlas update project

ment of the MCP was important, as the Trust managed various marine sites throughout the Territory without formal designation. In the British Virgin Islands there are *de facto* “parks without papers” as opposed to “paper parks”. Secondly and equally important, work implemented under a Darwin Initiative Project assessing the biodiversity of Anegada, spearheaded by the University of Exeter’s Marine Turtle Research Group, in collaboration with the National Parks Trust, Conservation & Fisheries Department, Royal Botanic Gardens Kew and the Royal Society for the Protection of Birds, provided critical site information to support the creation of various types of Protected Area on that island.

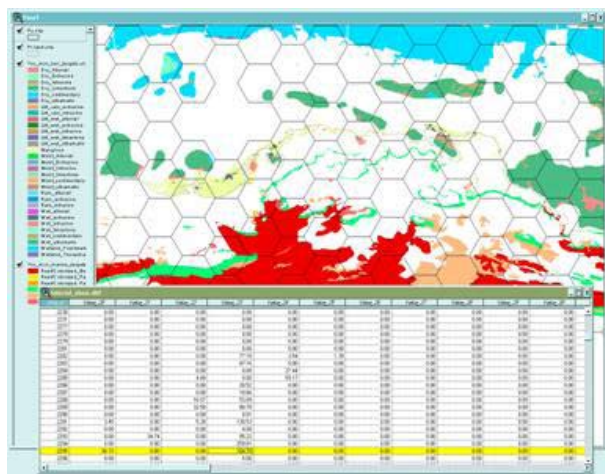


Figure 3. Marxan software was utilized to analyse areas containing target marine resources.

System-wide Protected Area design was conducted using MARXAN software (Figure 3). MARXAN was used to process and analyse GIS-based data, which was collated as part of an integrated national effort of data collection and sharing, to derive various Protected Area network options. The Nature Conservancy (TNC) facilitated the process of capacity building, training and assisting with the

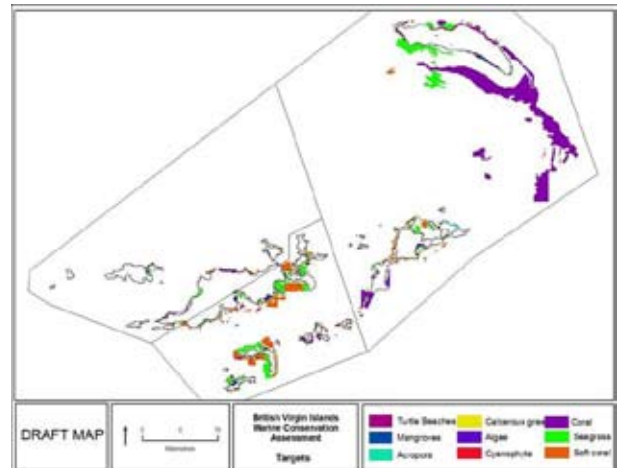


Figure 4. The Territory was divided into three regions and MARXAN was employed to analyse areas containing target habitats. 30% of target habitats were ultimately identified inside of each Territorial region.

design of the system. The marine component of the network was designed with resilience in mind. Therefore, to ensure representativeness and build resiliency within the Protected Area network, the Territory was divided into regions which were individually processed through MARXAN to achieve inclusion of target habitats (Figure 4). System design parameters included the determination of a target to conserve 30% of marine habitats by clustering areas of high biodiversity value and lock in special areas such as existing Marine and Fisheries Protected Areas. Existing and proposed terrestrial areas comprising at least 10% of land area were included in the final system design. Terrestrial site selection was based on: (a) the criteria and work performed in 1986 during that year’s revision of the System Plan, (b) areas which were acquired or donated by Government or private landowners, and (c) areas identified on Anegada as part of the Darwin Initiative’s biodiversity study.

Three rounds of public meetings took place over the span of two years. Public meetings were held on all four of the major islands (Tortola, Virgin Gorda, Anegada and Jost Van Dike) during each consultative phase. The first round of meetings focused on the presentation of various options generated by MARXAN of an ideal Protected Area network. Stakeholders, through a process facilitated by TNC, were presented with three options which varied by the degree of clustering of Protected Areas (Figure 5).

Scenarios ranged from the first, which comprised a larger number of areas of smaller size, to the third, which comprised fewer areas of greater relative size. Stakeholders were asked to select their opti-

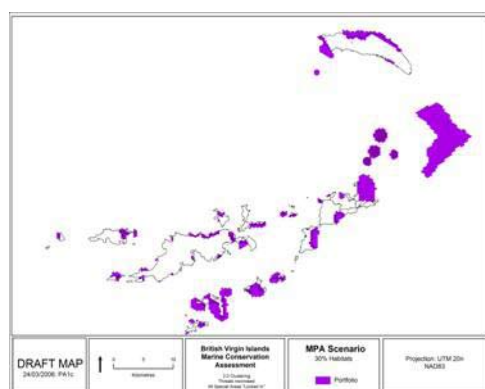
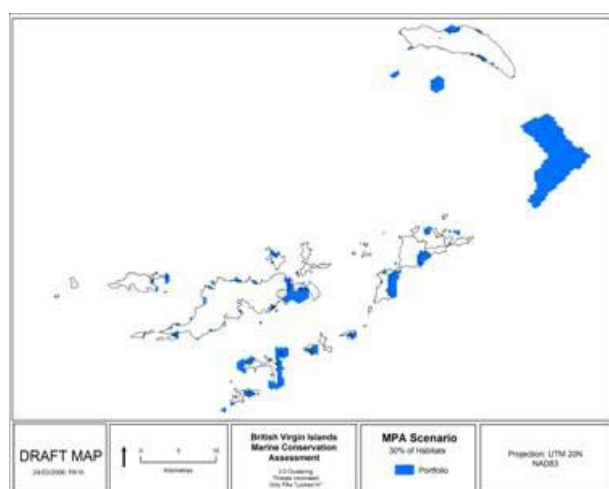
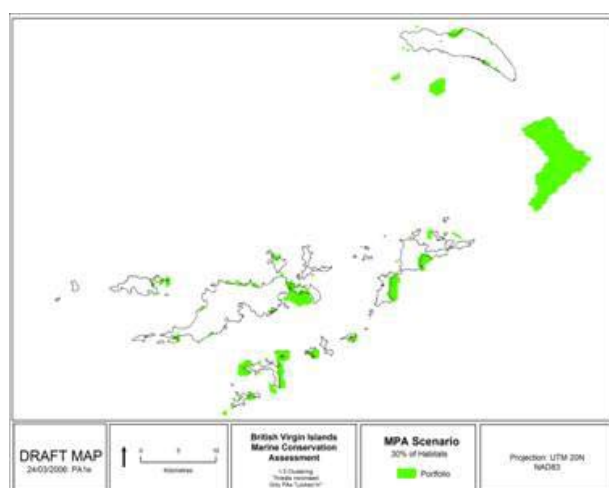


Figure 5. Marine Protected Area scenarios presented to stakeholders during the consultative phase

mal choice. Conflicts in terms of an area's active use and conservation goals were identified during the consultative process. Wherever a conflict arose between an area's current use and the proposed conservation goals, this was identified on maps which were marked up by users, and highlighted for further discussion. Insofar as possible, overall conservation targets were achieved by "swapping" the area actively being used with another of equal conservation value not being used. Ultimately, stakeholders opted for a network with fewer areas of greater size. Finally, a critical and useful output

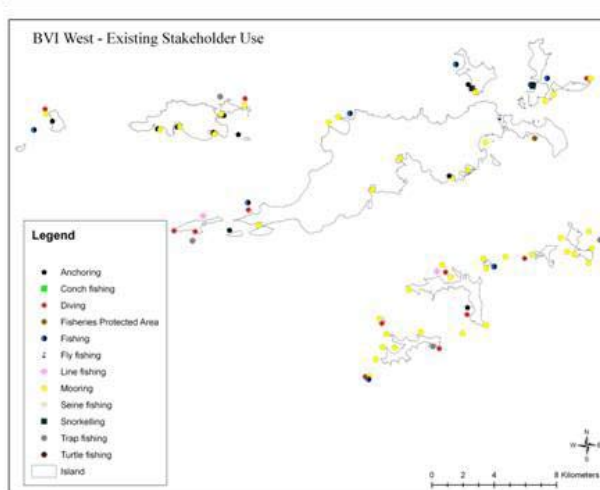
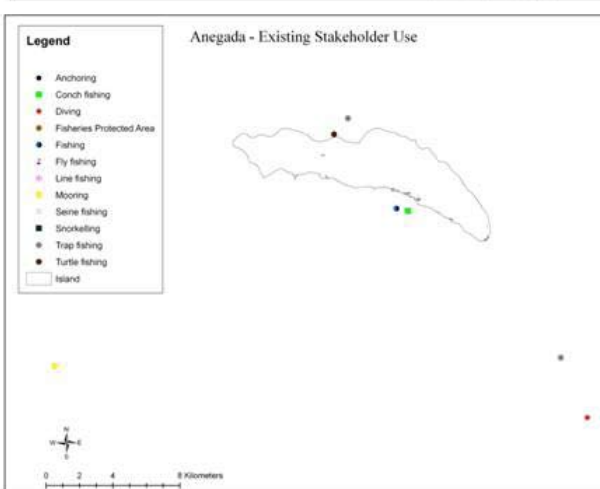
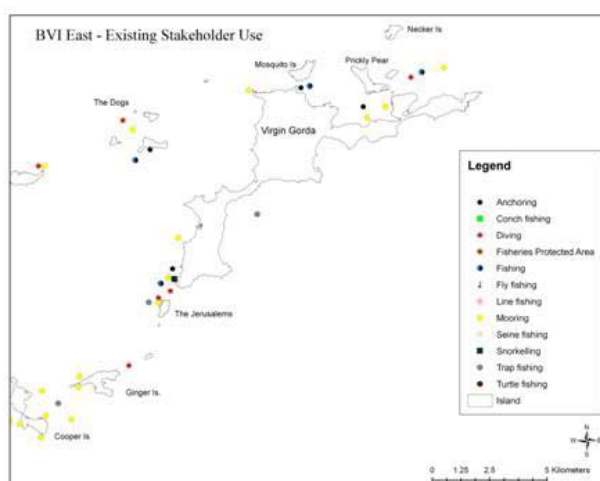


Figure 6. Stakeholder maps generated through the consultative phase of system design

of the public meetings was the generation of a stakeholder use map which documented the manner in which areas were being employed (Figure 6).

The preferred choice for the network of Protected Areas was presented to the same stakeholders to assure them that their input was recognised and adopted (Figure 7). Final consensus on system





Figure 7. Consultative phases of the network of Protected Areas and the System Plan

design was sought and secured during this consultative round. The System Plan was re-drafted taking into account all of the information and input received at various meetings related to Protected Area network design.

A preliminary draft of the Plan, inclusive of its goals and objectives, was presented to various stakeholders at a third round of consultation facilitated by Island Resources Foundation. Input was sought and the Plan was refined. The Plan, upon completion, was approved by the Board of the National Parks Trust, the Ministry of Natural Resources & Labour, Cabinet and the House of Assembly in 2008. The Plan contains maps detailing all of the marine and terrestrial Protected Areas which have been declared under either the National Parks or Fisheries Acts (Figure 8).

Ultimately, the System Plan provides the policy framework for the management of Protected Areas in the British Virgin Islands by:

- Defining the network of Protected Areas to be managed by various agencies with responsibility over the subject matter;
- Stating the overarching goals for the system of Protected Areas;
- Articulating the institutional arrangements established for Protected Area management;

- Defining the support systems needed for system development and management during the Plan period;
- Prioritising major issues to be addressed in Protected Area management for the next ten years; and
- Affording opportunities for evaluating progress in Protected Area system development over the next five years.

## Acknowledgements

The National Parks Trust would like to thank the following local and international partners which have supported system planning in the British Virgin Islands:

International Partners:

CANARI

Darwin Initiative

IUCN Iguana Specialists Group

Island Resources Foundation

Royal Botanic Gardens, Kew

Royal Society for the Protection of Birds

The Nature Conservancy

UK Overseas Territories Conservation Forum

UK Overseas Territories Environment Programme

Warwick University

Local Partners:

Attorney General's Chambers,  
Government VI, UK

Conservation of Fisheries, Gov-  
ernment VI, UK

BVI Tourist Board

Survey Department, Government  
VI, UK

Town & Country Planning, Gov-  
ernment VI, UK

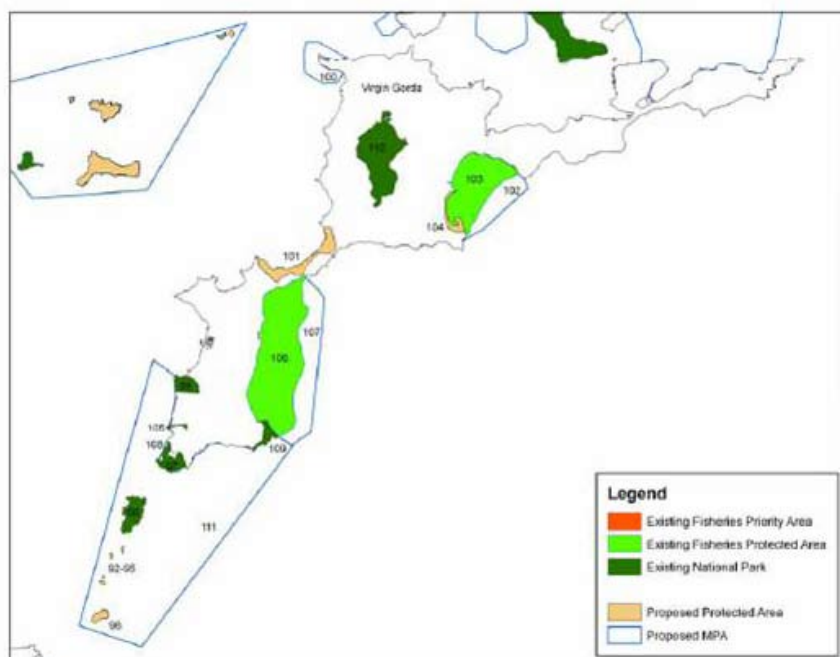


Figure 8. System Plan's map with Protected Areas declared under the National Parks or Fisheries Acts

## Discussion

The discussion and questions to speakers centred on two main themes, and are summarised below under corresponding headings.

### International Conventions and Site Designations

The role of the UK Government in the designation of international sites in UK Overseas Territories and Crown Dependencies (UKOTCDs) was discussed. The UK Government is responsible for extending its ratification of international conventions to cover a given UKOTCD, where the Territory concerned wishes to be included. Similarly, the UK Government is responsible for the international designation of World Heritage Natural Properties and Ramsar Wetland Sites of International Importance in a UKOTCD, where the Territory or Dependency itself wishes to advance this.

Experience, including from small islands outside the UKOTCDs, suggests that obligations under international conventions (such as those relating to site designations) could put pressure on the resources available in small, local communities. Whether such pressure is real or perceived, it could result in local reluctance to sign up to such obligations, particularly if the necessary support was not readily available from (for example) the UK Government. Some designations (including those related to EU mechanisms, which are not applicable to most UKOTCDs) were seen as very complex in their requirements, and could involve unforeseen pitfalls. Also, some designations required, in

practice or principle, consideration of the built (as well as the natural) environment in landscape-level planning, and issues such as the integration of on-going consumptive use of natural resources within plans.

In response to a question as to what happens when it is the UKOTCD Government that transgresses the terms of the designated status, UK officials indicated that UK Government should intervene, possibly with reference to an environmental lawyer.

### Management Plans

It was noted that the process of designation of World Heritage properties and Ramsar sites required that a management plan be produced and submitted as part of the designation process, or within reasonable time - as is good practice also for protected areas designated domestically. These management plans tended not to be prescriptive in terms of methodology, focusing instead on outcomes. In addition, there was an on-going duty to report on the condition status of each site to the relevant convention. It was noted that several (but not all) existing management plans for UKOTs were available on the UKOTCF website ([www.ukotcf.org](http://www.ukotcf.org)) - and that additional plans could be added as they became available. Submission of other relevant documents was always welcome. CANARI also maintained a database of documents that might provide useful reference material, e.g. relating to other Caribbean countries.



*From left: Rob Thomas, Noeleen Smyth, Stephen Mendes, John Cooper and Joseph Smith Abbott*