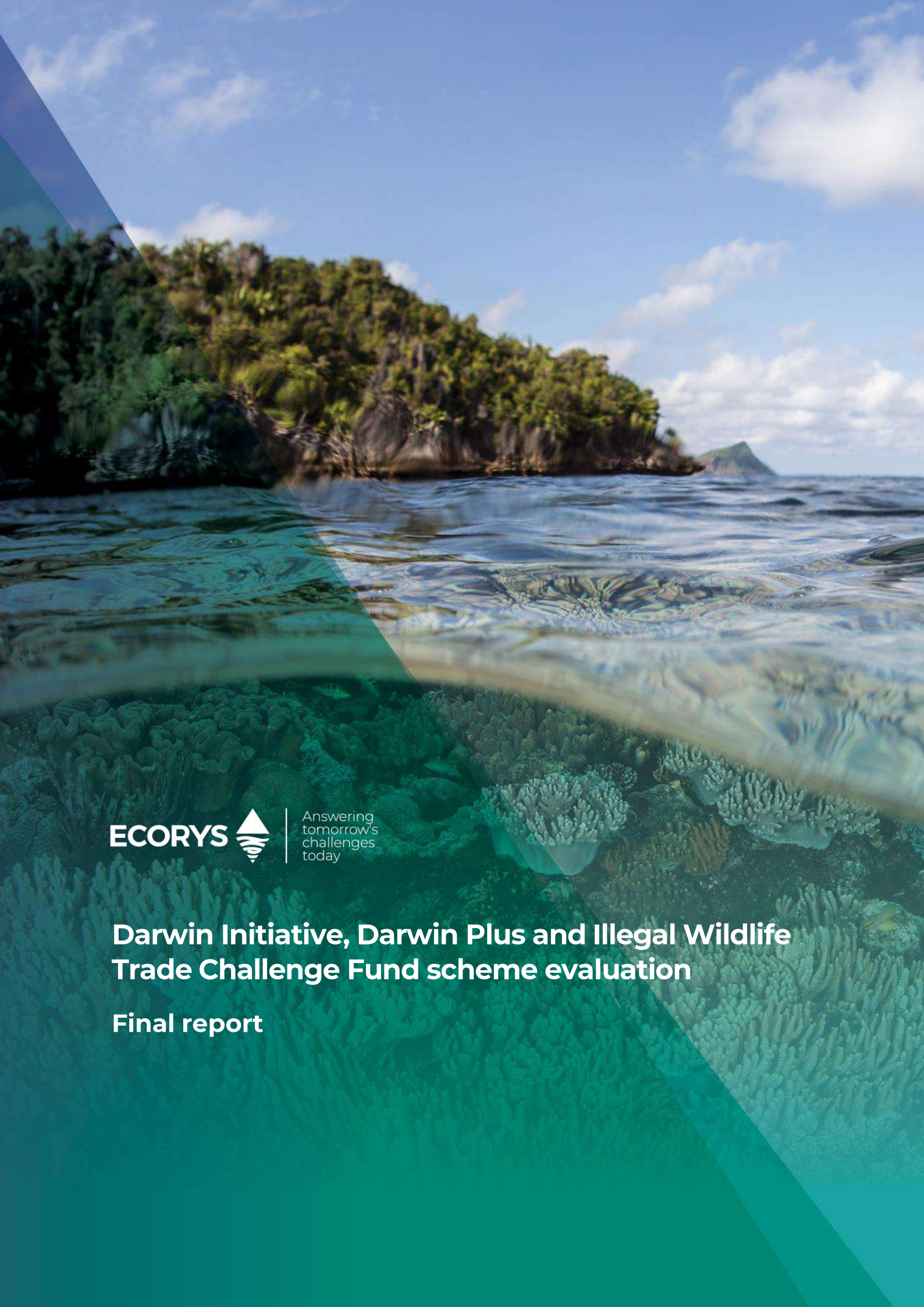

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Darwin Initiative, Darwin Plus and Illegal Wildlife Trade Challenge Fund scheme evaluation

Final report

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This report

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Executive summary

Introduction

In the last 50 years, there has been a catastrophic and unprecedented decline of the earth's biodiversity which continues to accelerate across the globe. Human activity has been the primary cause of this decline and our unsustainable use of nature's resources is endangering both current and future generation's prosperity. The trade of illegal wildlife also threatens some of the world's most iconic species with extinction. Despite worldwide recognition of these challenges in the form of numerous international commitments, significant barriers exist which complicate efforts to address these issues.

The Darwin Initiative and Darwin Plus are a cornerstone of the UK's bilateral aid to tackle biodiversity loss and, together with the Illegal Wildlife Trade (IWT) Challenge Fund, form a complementary and globally renowned portfolio of competitive grant funds. They aim to fund projects that are innovative, scalable, replicable, and support the building of local capabilities and capacity and, since 1992, they have funded 1,305 projects in 159 countries, amounting to a total of £203 million. The overarching goal of the three funds is to rise to the challenge at hand and achieve transformational change that will tackle the illegal wildlife trade and halt or reverse biodiversity loss in line with global agreements.

Purpose and scope of the evaluation

In September 2020, the Department for Environment, Food and Rural Affairs (Defra), commissioned Ecorys to undertake an evaluation of the three funds, henceforth collectively referred to as 'the scheme'. The scope of this evaluation includes all projects since the beginning of the scheme across all countries of operation. The evaluation has the following key objectives: assess the impact of the scheme; identify gaps in logic and draw out key lessons to understand how the scheme can be improved; facilitate clearer communication of the scheme's key achievements; and make suggestions for establishing effective monitoring and evaluation (M&E) systems. The results of this evaluation will enable Defra to improve the quality of the scheme going into the future, as well as to showcase Defra's contributions to global biodiversity and environmental protection ahead of upcoming international conferences.

Evaluation approach

There are three components to our approach. Firstly, we took a theory-based approach to assess the contribution of the scheme to its stated objectives. We developed theories of change for each initiative that informed the design of our data collection methods and over the course of the evaluation revised these theories of change in line with our findings. At the same time, we conducted analysis at both project level and scheme level and used process tracing to understand causal pathways. We focused on the contributions made by the scheme, and the weaknesses of the design and delivery of projects and the scheme, with a focus on understanding impact and sustainability. This provided us with in-depth understanding of the mechanisms behind change and the external factors that influence the scheme's impact.

Secondly, we took a mixed method approach to collecting data which allowed us to build a rich picture of all of the elements of the scheme, and to triangulate results from different sources to try to ensure our conclusions were robust. Finally, our approach was participatory, engaging with key stakeholders such as Defra, NIRAS-LTS International (the fund manager, henceforth "LTS") and the expert committee and advisory groups throughout the evaluation to ensure ownership of the findings and recommendations.

Data collection

Semi-structured interviews: We conducted 122 interviews: 11 interviews with 23 strategic stakeholders at a scheme wide level, and approximately 111 interviews with 286 stakeholders in our six country case studies. Our interviews included: those administering the scheme at LTS (5); HMG staff at Defra and FCDO (7); members of

each initiative's expert committee or advisory group (11); project leaders (27); and project partners, external stakeholders and beneficiaries (236).

Desk review: We conducted an extensive desk review of available sources including scheme documents, thematic reviews, briefing and information notes and documentation on similar programmes. We also sampled 100 completed and ongoing projects which covered all funds; Darwin Initiative, Darwin Plus, , and IWT Challenge Fund (IWTCF). This sample covers all regions, all major ecosystems, all IWTCF approaches to tackle the illegal wildlife trade, and various time periods and grant sizes. For each of the 100 projects we reviewed 4-5 documents including applications and how they scored, annual and final reports, and external reviews of these annual and final reports. We used tailored project assessment frameworks as tools to guide the collection and analysis of relevant project data.

Five country case studies: A sub-sample of 30 of our projects is focused on 4 countries (Bolivia, Indonesia, Kenya, and Nepal) and one UK Overseas Territory (British Virgin Islands). These countries were selected to enable us to cover major regions of interest, and a good coverage of project types per country. Country specific desk reviews and semi-structured interviews were conducted by in-country researchers in local languages and focused on building rich and granular stories of the impact of projects as well as detailing the factors that influenced their perceived effectiveness. For projects in these countries, we also conducted value for money analysis and assessments of the degree to which projects are sensitive to gender, equity, and social inclusion.

Portfolio review: We used existing monitoring data collected for all projects to conduct analysis of the overall portfolio as well as present results from our sample in the context of the overall scheme.

Findings

Relevance: To what extent have the three funds contributed to meeting the targets of relevant Multilateral Environmental Agreements (MEAs)?

We found that there is strong alignment between the activities of the scheme and various MEAs, particularly the convention on biodiversity. All sampled projects had either direct aims around biodiversity, focusing on key threatened species or ecosystems, or indirect biodiversity aims stemming from broader environmental aims, such as enhancing the protection, management and/or use of key habitats. They most often tried to address the following threats: illegal and unsustainable killing or harvest; habitat degradation; and habitat loss, and did so predominantly in forests and marine, coastal or island areas. IWTCF projects most commonly focused on strengthening law enforcement, with elephants, pangolins and rhinos the most common species addressed.

Projects are highly aligned with the needs of the countries they operate in; almost all within our sample aimed to meet specific needs and priorities of the country within which they were operating, most commonly by targeting specific obligations under treaties and conventions, at either the national or international level. Many projects also aimed to target species that were threatened in the country or of particular use to the country's ecosystem/livelihood strategies.

The UKOTs as a group comprise a uniquely rich heritage in terms of global biodiversity and, with over 30 thousand native species, represent a special responsibility in global conservation. However, they have limited financial and human resources and there is a pressing need for better environmental and biodiversity management. Darwin Plus is currently the only fund that explicitly promotes biodiversity in UKOTs and thus, through strengthening institutional capacity to protect nature there, is uniquely relevant.

The other main international goals that the Darwin Initiative explicitly aligns with and aims to contribute to are the Sustainable Development Goals and most projects in Darwin Initiative and IWTCF (although not Darwin Plus) had aims around poverty/sustainable livelihoods. The majority of projects that had aims around poverty/sustainable livelihoods intended for these aims to be achieved as a result of efforts to protect and enhance biodiversity/broader environmental aims (or vice versa), and all projects reviewed with these aims were designed to have synergies between them. Projects achieved synergies between biodiversity and livelihood

outcomes primarily through alternative livelihoods, effective ecosystem management, awareness raising and capacity building and research on alternative land use. However, the relationship between poverty/livelihoods and biodiversity is complex and there remains disagreement amongst stakeholders on how best to address the dual challenge of human development and biodiversity conservation.

Nature and climate are closely linked and over the past decade the challenge facing the Darwin Initiative has been changing as threats to biodiversity have become increasingly global with the acceleration of climate change. The UK Government's policy priorities have responded to this growing issue and in recent years climate change has become a more formal priority of the scheme. However, the majority of projects do not have aims around climate change adaptation or mitigation, and do not contribute directly to climate change goals. Multiple stakeholders were concerned about scope creep in the scheme and noted the challenge of retaining the scheme's uniqueness, which is its focus on biodiversity, in the context of multiple global challenges (poverty) and crises (climate).

Effectiveness and impact: To what extent has each initiative achieved its objectives and intended impacts?

One measure we used to assess which project activities have performed effectively was to look at their achievement against expectations. By this measure we found the strongest activities are research/conservation planning; work around education and awareness raising; and work to manage species and populations. Almost all projects worked well with in-country partners and met their expectations in this area. The weakest activities are: work around developing, adopting, or implementing policy or legislation/ensuring effective legal frameworks; work around strengthening law enforcement and criminal justice systems; and work to enhance or provide alternative livelihoods.

Our portfolio analysis of monitoring data on performance against outcome expectations showed that Darwin Plus projects have performed best and IWT Challenge Fund projects performed least well. For our sample we also assessed the achievement of different types of outcome against expectation. The best performing outcome areas were: broader (non-biodiversity) environmental aims; biodiversity; and building capacity to address the aims of the scheme. The achievements around poverty and sustainable livelihoods are weaker, although performance in this area for Darwin Initiative projects has improved since the scheme became ODA-funded.

We also assessed the absolute achievement of impact of projects in our sample, rather than impact relative to expectation, and found the following.

- IWTCF capacity-building efforts have the strongest impact; and in turn there is a strong relationship with the project's impact on IWT and biodiversity.
- Darwin Plus projects have a strong impact on the broader environment; compared with the other funds, they demonstrate the highest impact in broader environment areas, such as the restoration and protection of ecosystems.
- Capacity building is effective at impacting biodiversity outcomes; Projects that had high impacts on capacity building also had high impacts on biodiversity, suggesting a core causal link between the two.
- Biodiversity and poverty impacts are equally strong; the same percentage of projects achieve high impact in the area of poverty and sustainable livelihoods, as those that achieve high impact in biodiversity.
- Since the scheme became entirely ODA funded in 2015 impact on poverty has increased; newer projects have larger impact on poverty and sustainable livelihoods than those prior to 2015.
- IWTCF projects are ambitious and impactful: IWTCF projects were less likely to meet expectations than Darwin Initiative projects, but a high proportion of them (50%) had high impact on the IWT.

When looking at the funds separately we found substantial evidence of impact for each.

Darwin Initiative

These projects have made significant contributions to reducing threats to biodiversity loss, particularly in protecting species from overexploitation, halting the unsustainable use and management of species and ecosystems; and, through grassroots and top-down action, reducing the fragmentation, degradation, and loss of critical habitats from human and economic pressures. They have contributed to this through four primary outcomes.

Firstly, they have developed effective conservation support mechanisms, that promote the sustainable use, management, protection and recovery of key species and habitats. Secondly, they have developed impactful knowledge products that contribute to: greater local, national and international knowledge of key biodiversity conservation issues; the identification of current and future biodiversity priorities; and the formulation and enhancement of policies. Thirdly they have influenced conservation-oriented behaviours amongst local people and local government that has increased awareness and willingness to promote and practice biodiversity conservation. Finally, they have facilitated multi-level engagement and coordination which has connected local and national stakeholders and enhanced their capabilities in biodiversity conservation.

These primary outcomes were supported by the achievement of a number of intermediate outcomes which include: increased ownership of project outputs by in country stakeholders; effective participation of local communities and indigenous people; improved wellbeing (income, employment, health and food security); and greater social capital and empowerment. As a result of the primary and intermediate outcomes the Darwin Initiative achieves, there is evidence that some projects have directly contributed to the conservation status of species, whilst others have discovered unknown populations of highly endangered species in new areas.

Darwin Fellowships

There is strong evidence that the experience gained through Darwin Fellowships increases the biodiversity knowledge and expertise of Fellows especially in their ability to identify, study and produce recommendations on biodiversity and species of ecological importance. The Fellowships are valued by Fellows and contribute to successful careers in relevant areas, and some make important contributions during their fellowships. However, because continued employment and skills transfer in their host institution is not guaranteed, there is mixed evidence on how much they benefit their host institutions in the long run.

Darwin Plus

Darwin Plus projects have a strong, positive impact on the capacity of UKOTs to deliver long-term strategic outcomes for the natural environment, which enhances protection of biodiversity ecosystems in these areas of regional and global biodiversity importance. They strengthen the skills of predominantly government stakeholders in tools and techniques for data collection, evidence based planning and decision making, and sustainable marine management practices. They have contributed to the following primary outcomes. Firstly, Darwin Plus projects contribute to the implementation and strengthening of marine management areas and plans and marine spatial planning processes. Secondly, they support the mainstreaming of conservation in government decision-making. Thirdly they successfully disseminate results, share lessons, and support the implementation of similar outputs in other UKOTs in their region.

As a result of the outcomes above, there is evidence that some projects have directly contributed to reduced key threats to UKOTs' natural environments, including unsustainable management and use of resources, climate change, invasive species, and plastic waste pollution. They also have contributed to the conservation of species, primarily through enhancing the collection and monitoring of biological and ecological data in UKOTs. Projects have also improved climate change monitoring by generating baseline data and understanding of ecosystems and climate change conditions, and measuring and modelling the impacts of climate change on livelihoods, such as fisheries, as well as the marine environment.

Illegal Wildlife Trade Challenge Fund

There is strong evidence that the IWTCF has contributed to reduced threats to endangered species. It has done so through reduced human-wildlife conflict, greater IWT awareness, and changes in behaviour. It has also increased capacity to detect wildlife crime; increased arrests, seizures, and prosecution; and increased the penalties for engaging in the IWT, all of which have supported an overall greater deterrence effect in source, transit, and consumer countries. These outcomes have been achieved through delivering projects in four core areas: developing sustainable livelihoods, strengthening law enforcement, supporting effective legal frameworks, and reducing demand for IWT products.

Capacity building is the most important element of strengthened law enforcement and judiciaries in many cases training hundreds of different actors in the detection and enforcement of IWT activity, as well as the management and use of intelligence tools and databases. Some projects implement systems and databases that collect, consolidate, classify and analyse IWT crime information; and others set up successful multi-agency and transnational cooperation mechanisms to share information and coordinate enforcement operations to tackle IWT criminal networks.

Fewer projects aim to ensure effective legal frameworks, but we find evidence that some projects have strengthened policy and legislation, judicial prosecution processes, and penalties for IWT crime as a result of revising national-level policy and capacity building. Legal framework outcomes however are often more difficult to fully achieve and demonstrate within the project timeframe than other outcomes, and often the links to poverty reduction are only indirect.

There are multiple examples of projects successfully developing sustainable livelihoods by providing local people with suitable alternatives to poaching, such as ecotourism, and thus reducing the attractiveness of the illegal wildlife trade and the unsustainable killing or harvest of endangered species. There are also impressive examples of demand reduction projects using mass awareness campaigns to promote simple messages which are then widely recognised, although measuring changes in demand remains challenging.

As a result of the outcomes above, there is evidence that some projects have directly contributed to the improved status of species in source countries. Where measurement is feasible, projects have demonstrated improved or stabilised population numbers, as well as measurable decreases in the killing of both target and additional endangered species, clearly demonstrating their contributions.

Factors affecting impact

We found that across countries in our case studies the most common factor affecting impact was the degree of government engagement. In Kenya, Indonesia and Nepal government support and recognition of conservation policy and regulations, as well as the enactment of key reforms, has been a significant driver of biodiversity impacts. Obstacles to effective government engagement, such as bureaucratic delays, weak capacity of governments or disruptive national elections all negatively affected project impact. The support of local organisations is also key to impact, and severe weather and the Covid-19 pandemic were significant barriers across all countries.

Other factors that increased the likelihood of impact include: effective assessments of local needs; projects taking advantage of key entry points in design and implementation; long term collaboration and involvement of credible and suitable host country partner organisations; and the support of other organisations.

Efficiency: To what extent is the scheme delivering value-for-money?

We assessed the overall governance of the scheme, and the findings are mixed. The administrative service provided by LTS is performing well and was highly praised by stakeholders. On the other hand, high turnover of Defra staff managing the scheme in recent years has impacted on continuity and institutional knowledge. Defra

and FCDO staff have greater involvement in the IWTCF Advisory Group than the counterpart committee for the Darwin Initiative and Darwin Plus, and this is seen to be valuable. In-country partners are key to project delivery and were most commonly expected to: conduct data collection; lead capacity building activities, such as training for stakeholders; and manage activities within the country (such as fieldwork).

There was a general lack of coherence and coordination at multiple levels. Coherence of the scheme within countries it operates in is questionable partly because expert committee reviewers do not have information on other projects being funded in a country or region and are reliant either upon their own knowledge of the country context or the applicant sharing this information. The extent to which the funds coordinate with one another and provide a unified approach to tackling their respective areas is unclear and similarly there was also a general desire to improve the coherence and coordination of funding at national and international levels. We also found that learning opportunities for the scheme were missed due to insufficient feedback loops in the current monitoring and evaluation system.

Despite some of these issues of coherence and coordination there is widespread agreement amongst strategic stakeholders that the scheme provides very good value for money. A key strength of the scheme is the requirement for projects to find matched funding which leverages external funds into the schemes. On average, projects obtain additional sources of funding equal to 71% of the size of the awarded grant and in some cases, this can be much larger, especially in the case of pro-bono advertising leveraged.

Our scheme level analysis of monitoring data found encouraging indicators of good management by projects with 98% delivering within budget, 88% completed on time and 66% largely or fully met their output milestones on time. Current projects which have been operating over the COVID-19 pandemic reasonably offered it as an explanation for recent major delays. The scheme is generally flexible to respond to requests by projects to reallocate funds and where requests for changes were not made, projects adapt well to emerging circumstances by securing substantial time and resources in-kind or obtaining additional sources of funding. A substantial proportion of projects do not effectively identify risks at application stage, yet most fully mitigate or partially mitigate risks that arise during project implementation. Most projects that were negatively impacted by risks were due to external factors outside of the project's control.

Sustainability: To what extent have benefits of the funded projects continued beyond project funding, and what benefits have been long-lasting?

The scheme does not currently monitor impact beyond the life of projects, which makes any systematic assessment of the sustainability of benefits challenging. We therefore found limited evidence of sustainability although there were several notable examples of impressive sustainability being achieved with evidence to back up the claims. Projects most commonly aimed to achieve sustainability through: the dissemination of research products, capacity building for relevant stakeholders, or introducing more sustainable management techniques. Formal plans for exiting a project and leaving sustained impact are important to increasing the likelihood that outcomes are sustained, yet not all projects have robust exit strategies.

We found that 94% of the projects in our sample had been planned and implemented in a way that made it 'very likely' or 'somewhat likely' that their outcomes and impact would be sustained. The most prominent feature of projects that were sustainable were that they showed financial sustainability after completion. Strong capacity building and stakeholder engagement components in project planning and implementation were also key. Projects that considered how knowledge was going to be transferred after completion promoted sustainability, as did building a collaborative network to sustain partnerships. Knowledge sharing and awareness raising was another way to promote sustainability including dissemination of materials, publicity strategies and building communication channels. The most important external barriers to sustainable impact were a lack of political or institutional will to continue work/investment towards project outputs, as well as conflict, and market conditions.

We found that almost half of projects build upon other projects funded across the scheme and most commonly utilised and built upon the design, management, outputs, and outcomes of older projects. Previous projects that

strengthened local capacity were useful for implementing new activities. Another common way projects built upon one another was through collaboration (such as sharing data and findings) with other scheme funded projects being implemented simultaneously. Project lead organisations which have implemented a large number of similar projects in the past are able to build upon this institutional knowledge.

Equity: How gender, equity, and social inclusion sensitive are the funds?

After the introduction of the Gender Act 2014, we observe a notable increase in the degree to which projects mainstreamed GESI considerations into their design and implementation, yet in many cases this improvement has been limited to gender. Stakeholders acknowledged that although gender has been thought about deeply over recent years, the other issues of social inclusion are complex and still not well understood by projects, or indeed some members of the expert committee and advisory groups, partly due to their cultural and social complexity.

A common feature of projects was that although they demonstrated GESI thinking or principles in their applications these were not later incorporated into project design. Similarly, projects were effective at identifying key stakeholders, but less effective at meaningfully engaging with them. Projects demonstrate good use of standard ethical protocols but do not often tailor these products to the local context. A good proportion of projects have gender balanced teams, but it is rare for project partners to have GESI specific expertise, or for projects to train partners or team members in GESI issues. The majority of projects made their work accessible to their target audiences including through using non-literary formats , tailoring outputs to different dialects , or getting approval on cultural sensitivity from relevant national agencies .

Overall projects were aware of GESI issues and included indicators, but this was generally limited to data disaggregated by gender and not other key GESI characteristics, and Darwin Initiative projects were more likely to report GESI indicators than IWTCF projects. In our sample about half of the projects were deemed to have some benefit for marginalised groups such as women, girls, ethnic minorities, indigenous groups, or recent immigrants. The majority of projects did not consider salient trade-offs during project design and/or implementation and this was true of both Darwin Initiative and IWTCF projects.

Lessons learned:

We draw out the key lessons on project level processes from our evaluation:

1. Project design: Projects should develop strong logframes; use these to inform resource allocations; have sufficient knowledge and experience of local context; be designed to be participatory; and build upon and work with other projects.
2. Project management: Projects adapt to changing circumstances; clearly identify risks during project design and integrate 'Do No Harm' principles into their work.
3. Monitoring and evaluation: Strong M&E systems increase the chances projects will achieve their targets; collaborative M&E processes should be encouraged; projects should provide more supporting evidence to their claims of achievements.
4. Collaboration: When working with partners projects should clearly identify management structures; have regular and tailored methods of communication. When working with other stakeholders projects should ensure ownership and buy-in of local stakeholders and allocate sufficient time and resource for managing the relationship.
5. Influencing policy: To influence changes in policy projects should plan clearly their influencing strategy.

Recommendations to Defra

Relevance

1. Clarify definition of biodiversity to make a clear differentiation between 'biodiversity' and 'ecosystem services'.
2. Improve the guidance to applicants to help projects understand the major global challenges and how they can design projects to be compatible with multiple goals

Effectiveness

3. Improve advertising of the scheme and encourage applications from in-country NGOs:
4. Simplify the application forms of the scheme
5. Improve transparency of selection process
6. Act as a hub to facilitate new project relationships (esp. Darwin Plus)

Impact and monitoring of results

7. Place greater emphasis on project potential at application stage
8. Place greater emphasis on absolute impact when measuring project success.
9. Baseline monitoring at project start-up linked to ex-post impact evaluation 2-3 years after project close.
10. Implement more project evaluations

Efficiency

11. Consult broader constituency when making strategic decisions and setting funding priorities:
12. Improve cohesion of funds between each other at strategic level.
13. Ensure all projects in UKOTs to be delivered through Darwin Plus
14. Improve information sharing with the expert committees

Sustainability

15. Increase project length and funding available
16. Scale or replicate successful projects

Equity

17. Increase diversity of the expert committees along the following criteria: representation of HMG specialists, nationalities, professions (IWTAG), Representation of OTs (DPAG), Gender (DPAG)
18. Promote the mainstreaming of Gender, Equity, and Social Inclusion (GESI) principles and practice

Contents

Figures

Tables

1. Introduction

In this section we summarise the global threats we face, how challenge funds can help address these threats, and the three funds in the scheme.

1.1. Global threats to biodiversity

Biological diversity is the variability among living organisms and the ecological complexes of which they are part, including diversity within species, between species, and of ecosystems. In the last 50 years, there has been a catastrophic and unprecedented decline of the earth's biodiversity which continues to accelerate across the globe. Human activity has been the primary cause of this decline, and in particular the following activities have been direct drivers: changes in land and sea use, direct exploitation of organisms, pollution, and invasive alien species[1,2]. Human induced climate change is another direct driver and not only does it contribute to biodiversity loss, but biodiversity loss also reduces nature's ability to mitigate climate change. As the Dasgupta review makes clear, our sustainable use of natural resources is endangering both current and future generation's prosperity[3].

A related but distinct challenge the world's biodiversity faces is the trade of illegal wildlife, which threatens some of the world's most iconic species with extinction; there are currently more than one million species (of eight million recorded) which are threatened with extinction[4]. Estimated to be worth up to c. £5-17bn per year[5], it is the fourth most lucrative transnational crime after drugs, weapons and human trafficking[6]. The trade threatens sustainable livelihoods, fuels government corruption, and undermines public health by increasing the risk of zoonotic disease outbreak[7]. The worldwide recognition of these shared challenges has resulted in numerous international conventions, the most prominent of which are the Convention on Biological Diversity (CBD) and the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES).

Intersecting these issues of biodiversity and the illegal wildlife trade is poverty. There are clear direct and indirect links between biodiversity loss and the multidimensional elements of poverty, including cash income and asset accumulation, health, water and sanitation, access to natural resources, gender and social inequalities, governance, and agency in decision-making[8,9]. These are often beneficial, but they can also cause conflict or harm, such as human-wildlife conflicts. It is well documented that as biodiversity loss continues to escalate, further instability and abrupt changes will be met, particularly amongst marginalised communities[10]. However, the evidence base on the relationships between biodiversity loss and poverty reduction is relatively limited, given that synergies are inherently complex, often making the causal links difficult to disentangle and measure, and evidence commonly lacks experience from field practitioners, funders and poor people themselves on whether, how and to what extent biodiversity can alleviate poverty.[11]

The current scale of loss and rate of extinctions have not been matched for several million years, and the window for action is rapidly closing[12], however a number of barriers exist which further complicate efforts to address

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[1] IPBES (2019): Summary for policymakers of the global assessment report on biodiversity and ecosystem services of the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services. Link.
[2] Cooke et al. (2020). Teaching and learning in ecology: a horizon scan of emerging challenges and solutons. Link.
[3] Dasgupta, P. (2021), The Economics of Biodiversity: The Dasgupta Review. Link.
[4] IPBES (2019): Summary for policymakers of the global assessment report on biodiversity and ecosystem services of the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services. Link.
[5] Nellemann et al. (2016). The Rise of Environmental Crime – A Growing Threat To Natural Resources Peace, Development and Security. Link.
Note: This figures reflects CITES listed species only, and does not include illegal logging and fishing.
6 European Commission. (2015). The EU Approach to Combat Wildlife Trafficking. Link.
7 European Commission. (2015). The EU Approach to Combat Wildlife Trafficking. Link.
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9 Chambers R. (1995). Poverty and livelihoods: whose reality counts? Link.
10 Roe et al. (2014). Which components or attributes of biodiversity influence which dimensions of poverty?. Link.
[11] IIED (2014). Poverty and biodiversity: evidence about nature and the nature of evidence. Link.
12 Cooke et al. (2020). Teaching and learning in ecology: a horizon scan of emerging challenges and solutons. Link.

these issues. Within both public and private spheres, organisations are failing to sufficiently account for environmental externalities of policies and practices, or to allocate adequate resources to the issue, resulting in a persisting financing gap[13]. The fact that economies are embedded within the environment, and not external to it, is too often overlooked[14]. Governments and policymakers (at the regional, national, and international levels) are also failing to implement necessary policies which promote more sustainable practices, either due to competing priorities or a lack of will to do so[15].

Moreover, information gaps often obscure the most effective and/or efficient policies and practices – data either does not exist, is restricted, or is not available in a usable format[16]. All of these barriers are exacerbated by inequalities which prevent marginalised groups (who rely on biodiversity for their daily needs and are typically disproportionately impacted by biodiversity loss) from participating in policy discussions, thus causing local and indigenous knowledge to be overlooked[17].

1.2. Challenge funds

The Darwin Initiative, Darwin Plus and Illegal Wildlife Trade funds are all based on the principle of a challenge fund. Challenge funds are mechanisms for delivering development assistance for a specific purpose via a competition between multiple organisations. There is not a specific approach prescribed to meet the development challenge, but rather applicants propose their own approaches to meeting the challenge. Applications are judged on how successfully they meet pre-determined eligibility criteria, rather than on their individual potential, as is the case for most other funding mechanisms which are more open and less rigid[18].

Challenge funds solicit proposals relating to a broad sector such as agriculture or education, but typically highlight more specific strategic themes that applicants are advised to focus on. In turn, the proposals are evaluated against a transparent scoring criterion by multiple members of a selection committee – common criteria include innovation, sustainability, and cross-cutting themes[19]. Challenge funds are 'defined in time' – they operate for a set number of years through incrementally established rounds[20]. There are several important advantages to using a challenge fund model[21]:

- Since collaboration is often recommended, projects are more likely to reflect local needs and challenges, as they will have received greater input from local organisations.
- Because applicants design their own approaches to meeting the challenge (as opposed to a prescribed approach), innovative solutions are often proposed.
- Challenge funds offer technical assistance to successful applicants, based upon lessons from previous projects, as well as the expertise of the fund's staff.
- Challenge funds have the potential to influence further organisations and funding by producing systemic innovations with demonstrated effects.
- The competitive nature of the funding offers the funder greater assurance of performance and quality.

13 Bigger et al. (2021) Beyond The Gap:Placing Biodiversity Finance in the Global Economy. Link.
[14] Dasgupta, P. (2021), The Economics of Biodiversity: The Dasgupta Review. Link.
[15] Dellas and Pattberg. (2011). Barriers and opportunities in biodiversity governance: a feasibility assessment of strategies to reduce biodiversity loss. Link.
[16] Lehmann et al.. (2017) Lifting the Information Barriers to Address Sustainability Challenges with Data from Physical Geography and Earth Observation. Link.
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[18] Brain et al. (2014) Meeting the Challenge: How can Enterprise Challenge Funds be Made to Work Better?. Link.
[19] UNDP., (2016) Enterprise Challenge Funds. Link.
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1.3.Defra's three challenge funds

Darwin Initiative[22]

The Darwin Initiative was established in 1992 and has, to date, supported more than 1,220 projects across 159 countries to tackle biodiversity loss with over £150 million of funding. While the aims of the Initiative have changed over time, its main aim has been to support developing countries to conserve biodiversity and reduce poverty, and to meet objectives under multilateral environmental agreements, such as the CBD,[23] and other international commitments, specifically the Sustainable Development Goals (SDGs). In 2021, the Initiative expanded its aim to ensure that funded projects are innovative, scalable, replicable, and support the building of local capabilities and capacity to achieve transformational change. The overarching goal is to halt and/or reverse biodiversity loss in line with global agreements, and simultaneously support the livelihoods of local people, generating evidence of win-win solutions for both biodiversity and poverty reduction.

Funding is distributed primarily through Darwin Initiative Main (grants of £50,000–£500,000, average of £193,664) but is also available through Darwin Initiative Partnerships (grants of up to £10,000, average of £8,364) which support new organisations in developing applications; and fellowships which support individuals in acquiring skills and knowledge (average grant size of £17,195). The initiative intends to develop Darwin Initiative Extra (grants of £600,000-£5,000,000) to support the scaling of successful projects; and Darwin Initiative Innovation and Rapid Response (grants of £10,000–£200,000) to support the highest priority and/or most time-sensitive challenges. The initiative has an expert committee known as the Darwin Expert Committee.

Monitoring data[24] reveals that Darwin Initiative projects implement a number of different approaches and tools. Using available data, the most common approaches and tools observed include species management and conservation (51% of Darwin Initiative projects); sustainable use and consumption (46%); ecosystem management and conservation (45%); and livelihoods (45%)[25]. The most common project activities identified from our sample[26] are: education and awareness raising (87%), in-country local training and capacity building (83%), research/conservation planning (74%), and managing habitats and ecosystems (52%).

Darwin Plus

Established in 2012, Darwin Plus helps the UK meet its objectives under several multilateral agreements, such as the Ramsar Convention, Cartagena Convention for the Caribbean, and the London Convention on the Prevention of Marine Pollution. It also helps to deliver the UN Sustainable Development Goals (SDGs), particularly SDG 14 and SDG 15 on 'life below water' and 'life on land' respectively. Darwin Plus' objectives and delivery model are similar to that of the Darwin Initiative but focus upon the UK's overseas territories (UKOTs), with particular emphasis on improving conservation, protection, and/or management of the marine environment. With the notable exception of the British Antarctic Territory, most of the UKOTs are islands. To date, 122 projects have been supported by Darwin Plus, most commonly in St Helena, Ascension, and Tristan da Cunha, with an average funding value of £188,044[27]. The initiative has an expert committee known as the Darwin Plus Advisory Group.

Monitoring data, where available, reveals that the most common approaches and tools applied by Darwin Plus projects are similar to those of the Darwin Initiative, which include: ecosystem management and conservation

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[22] For further details on the funds, how they are delivered, their evolution, and their place in the landscape of conservation programmes see inception report chapter 2.
[23] Other multilateral environmental agreements include CITES, the Nagoya Protocol on Access and Benefit Sharing (ABS); the International Treaty on Plant Genetic Resources for Food and Agriculture (ITPGRFA); the Ramsar Convention on Wetlands; and the Convention on the Conservation of Migratory Species of Wild Animals (CMS).
[24] Monitoring data is available only for 592 projects, representing Darwin Initiative (N=472) and Darwin Plus (N=120). Given the incompleteness and potential inaccuracies of this monitoring data; it should be interpreted with some caution. The reasons for incomplete data are explained in the evaluation's inception report.
[25] Percentages represent the proportion of projects, against the total number of projects, within each approach listed (e.g., 241 of 472 Darwin Initiative projets, 51%, involve species conservation and management).For further details on common approaches used see Annex 2: Reference Data.
[26] Standard monitoring data (for all three funds) does not report project activities and therefore here we extract this information from individual project documentation and report the percentage of our sampled projects that had certain project activities.
[27] https://www.darwininitiative.org.uk/project/funding-scheme/darwin-plus/

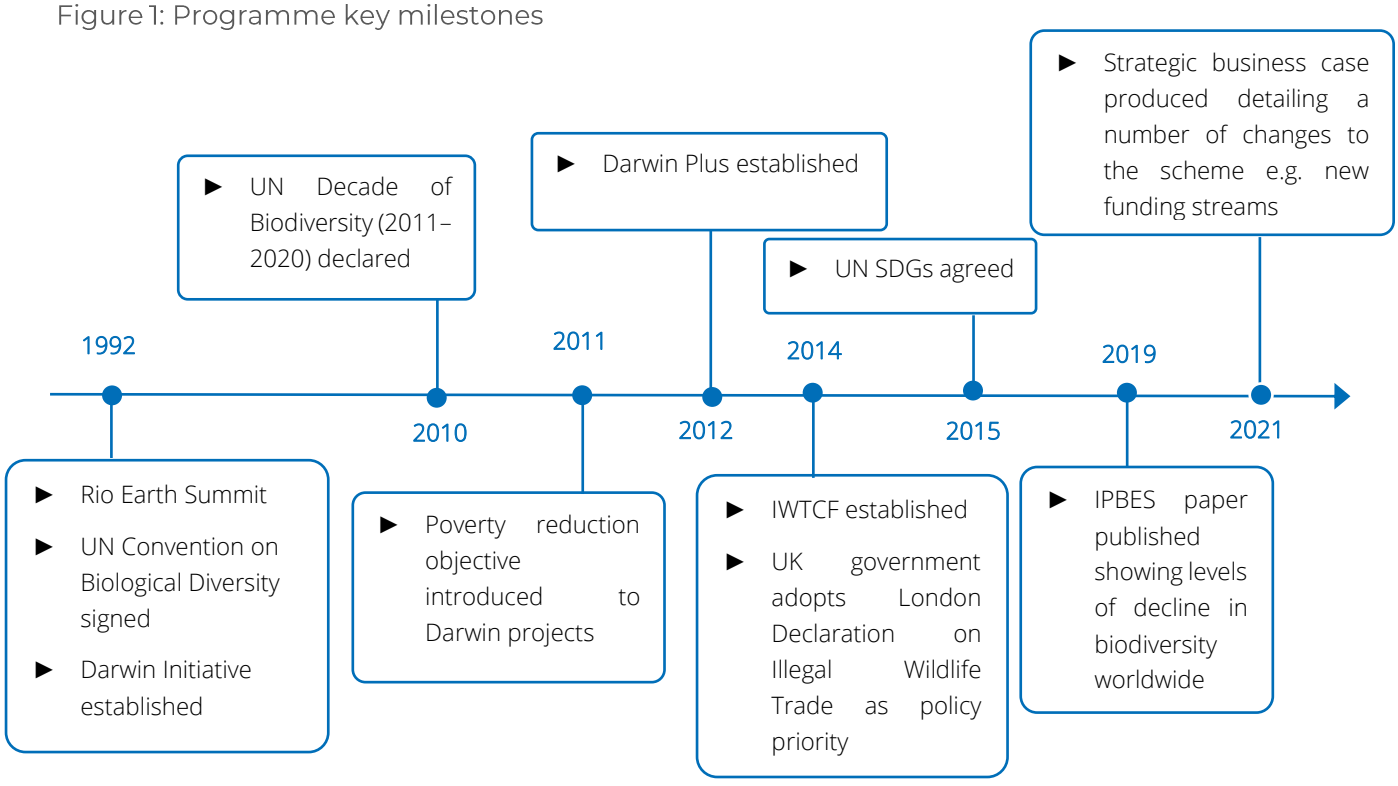
(64% of projects); national strategies and cross-sectoral integration (48%); and species management and conservation (45%). The most common project activities identified from our sample are: work to manage habitats and ecosystems (83%); in-country national training and capacity building (83%); and research and conservation planning (83%).

Illegal Wildlife Trade Challenge Fund

The Illegal Wildlife Trade Challenge Fund (IWTCF) was founded in 2014 and contributes to the UK government's commitments to tackling the illegal wildlife trade and to meeting the UK's objectives under the 2018 London Conference on the Illegal Wildlife Trade. To date, the fund has supported 85 projects with an average value of £314,151, and has the following objectives: sustainable livelihoods, law enforcement, policy and legislation, reduction of demand, capacity building and knowledge sharing. The IWTCF shares similar goals to the two Darwin funds in terms of supporting biodiversity and conservation but was created primarily to respond to the growing realisation of the link between the illegal wildlife trade and organised crime, and the threats that this poses to countries' security and prosperity. The fund has an expert committee known as the Illegal Wildlife Trade Advisory Group.

The most common project activities identified from our sample of IWTCF projects are: local (88% of project) and national (62%) training and capacity building; and strengthening law enforcement and/or criminal justice systems (88%).

Figure 1: Programme key milestones



Source: Communications with LTS International

1.4. Theories of change

Over the period December 2020 – April 2021 we developed theories of change (ToC) for each of the three funds. These are found in full, together with accompanying detailed narratives in Annex 3. These ToC have helped to guide our analysis and will help to guide future analyses of the programme as well as provide a useful reference for the scheme's management and expert committees in the future.

Each ToC was informed by existing scheme documentation – particularly the business cases[28] and discussions at a preliminary ToC workshop held in December 2020 with relevant stakeholders. Counterparts at Defra and expert committee members have provided written feedback that has been incorporated into each ToC[29]. Each ToC has the following common components:

1. Challenge: This includes a challenge statement and evidence that there is a challenge to be met.
2. Barriers: Factors which create difficulties in achieving the challenge.
3. Drivers: Factors that exacerbate the barriers.
4. Inputs: The main categories of activities that will be conducted by projects to achieve the programme's outputs and outcomes, in order to work towards the overall desired impacts.
5. Outputs: The direct, tangible and quantifiable products or services delivered as a result of activities completed.
6. Outcomes: The desired long-term changes in behaviour or systems that the project is working to achieve, based directly on the initiative's principal aims.
7. Impact: The long-term strategic aim that the programme intends to have.
8. Programme delivery: An overview of the initiative, describing the different funding streams and the size of grants available.
9. Assumptions: The conditions that are necessary for inputs, activities, outputs, and outcomes to successfully work.

Darwin Initiative

The Darwin Initiative aims to tackle the current unprecedented loss of biodiversity that is being experienced globally, primarily as a result of human activity. It is believed that we are currently at a 'tipping point', and immediate action is imperative to avoid the negative consequences already being experienced from dramatically accelerating, such as deteriorating food security, health, and sustainable livelihoods[30]. Several 'drivers' have been identified which are believed to be facilitating biodiversity loss, including pollution, climate change, invasive species, and unsustainable resource usage. However, substantial amounts of literature reveal that there are a number of key barriers to tackling these drivers, as well as biodiversity loss more generally, most prominently:

1. Information gaps: There is limited research and awareness (amongst all stakeholder groups) of the relative (dis)advantages of different policies and practices, or more sustainable alternatives[31].
2. Financing gap: Public and private finance consistently falls short of necessary investments for biodiversity[32].

28 There was no theory of change for the scheme before this evaluation. The following sources were used to inform the theory of change a) Existing impact pathway documents created by LTS b) Guidance documents for Applicants for Darwin Initiative round 27 c) Thematic Reviews on Relationships between Poverty and Biodiversity d) Darwin Initiative Information Notes, Learning Notes and Briefing Papers e) The Global Biodiversity Outlook from the Convention on Biological Diversity f) The Global assessment report on Biodiversity and Ecosystem Services 2019 by IPBES (Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services). Additional sources cited in this paper were also informed the design.

[29] The current versions may see a final iteration in line with comments from Defra on the first version of this report.

[30] Dasgupta, P. (2021), The Economics of Biodiversity: The Dasgupta Review. Link.

[31] Lehmann et al. (2017) Lifting the Information Barriers to Address Sustainability Challenges with Data from Physical Geography and Earth Observation. Link.

[32] Bigger et al. (2021) Beyond The Gap: Placing Biodiversity Finance in the Global Economy. Link.

3. Government failures: Governments are failing to implement policies which promote combatting biodiversity loss, either due to competing priorities, a lack of political will, or the aforementioned information gaps[33].

4. Market failures: Biodiversity is an externality which is rarely accounted for in private behaviours[34].

5. Inequalities: Inequalities exacerbate government and market failures by preventing the participation of marginalised groups who are typically disproportionately impacted by biodiversity loss and hold indigenous knowledge that is frequently overlooked[35].

The Darwin Initiative provides funding to combat these drivers and barriers. Funded projects typically conduct biodiversity-related research, offer training and skills development for local stakeholders, promote sustainable livelihood and poverty reduction, and/or establish partnerships between local and international stakeholders. The initiative promotes the identification of cross-cutting themes, as well as the use of new, innovative approaches.

Consequently, evidence is produced to guide future biodiversity management, policies and projects, the capabilities of local stakeholders is enhanced, and poverty is reduced. In turn, communities benefit from more sustainable policies and practices which lead to gains in biodiversity and poverty rates, and progress towards international agreements such as the CBD is supported.

Underpinning the initiative at each stage of the process is high-quality monitoring and evaluation, and the desire to achieve transformational change through scalability and replicability of project activities. The model rests on several key assumptions, such as: (i) poverty reduction and biodiversity aims are compatible and can thus be achieved simultaneously with trade-offs at manageable levels; (ii) key stakeholders – such as government officials, private firms, and local people – are willing to implement recommended changes; (iii) external factors such as political conflicts and natural disasters remain at manageable levels during project implementation; (iv) high-quality, scalable applications are received; and (v) funding remains available throughout project implementation and, where necessary, beyond, to ensure sustainability.

Darwin Plus

Darwin Plus functions in a similar manner to the Darwin Initiative, with largely the same expected inputs, outputs, outcomes, and impacts. However, due to Darwin Plus' sole focus on UKOTs (rather than developing countries, as in the Darwin Initiative), certain contextual factors are more prominent. For instance, because the UKOTs are small islands, the threat towards biodiversity loss posed by rising sea levels is substantial. Additionally, the UKOTs are regarded as having particularly low governmental capacity (in terms of both human and technological resources), meaning that the barriers relating to governmental failures are exacerbated[36]. Finally, the UKOTs face specific threats of invasive species, which particularly impact breeding birds, with at least 22 considered threatened or near threatened[37].

The programme delivery also differs, with funding channelled through only two streams: the 'main' stream (which functions similarly to the Darwin Initiative Main stream) and the 'fellowships' stream, which supports individuals to acquire skills and knowledge. Furthermore, the Darwin Initiative's emphasis on poverty is not shared within Darwin Plus.

IWTCF

[33] Dellas and Pattberg (2011). Barriers and opportunities in biodiversity governance: a feasibility assessment of strategies to reduce biodiversity loss. Link.
[34] Bigger et al. (2021) Beyond The Gap:Placing Biodiversity Finance in the Global Economy. Link.
[35] Soaga et al. (2014). Economic inequality and biodiversity loss in eriti community forest wetlands, Ogun State, Nigeria. Link.
[36] Carine et al. (2015) Identifying Evidence Gaps to Support the Conservation and Sustainable Management of Biodiversity and Ecosystem Services in the UK Overseas Territories. Link.
[37] Hilton and Cuthbert (2010). The catastrophic impact of invasive mammalian predators on birds of the UK Overseas Territories: a review and synthesis. Link

The IWTCF aims to tackle the widespread and lucrative transnational illegal wildlife trade (IWT) that threatens some of the world's most iconic species. In the past two decades, close to 6,000 species have been identified as under threat by the IWT, and almost every country plays some role in the trade[38]. The IWT destroys biodiversity and ecosystems, threatens livelihoods (particularly those of marginalised groups)[39], denies government revenue and, in turn, fuels corruption[40], and undermines public health. However, there are a number of barriers to tackling the IWT:

1. Weak IWT law enforcement: Limited human and technical capacity, paired with poor infrastructure, hinder law enforcement's efforts to combat the trade. Similarly, although the issue is transnational, there is typically weak coordination between international law enforcement, and minimal information-sharing such as best practices[41].

2. Complex and resilient IWT supply chains: Trends in IWT can change rapidly, and are often intrinsically linked with other structural issues such as poverty and the environment[42].

3. Lack of incentives to stop participating in the IWT: Projects typically concentrate on preventative measures, and thus overlook the aforementioned related structural issues – for instance, if communities are not provided with an alternative to the trade, rates are unlikely to be dramatically decreased[43].

4. Weak judicial responses to IWT crime: Low incarceration rates for crimes leads to participation in IWT activities becoming more appealing[44].

5. High consumer demand for IWT products

The IWTCF provides funding to combat these drivers and barriers. Funded projects typically develop and/or improve IWT-related legal frameworks, offer training and skills development for local stakeholders – especially those in law enforcement, promote sustainable livelihood and poverty reduction for those affected by the IWT, and/or establish partnerships between local and international stakeholders. The fund also promotes the identification of cross-cutting themes, as well as the use of new, innovative approaches.

Consequently, evidence is produced to guide future IWT management, policies and projects, the capabilities of local stakeholders is enhanced, and poverty is reduced. Furthermore, policies are tools are developed to reduce consumer demand for IWT products. In turn, communities benefit from more sustainable policies and practices which lead to gains in IWT and poverty rates, and progress towards international agreements such as the CITES is supported.

As with the other two schemes, underpinning the fund at each stage of the process is high-quality monitoring and evaluation, and the desire to achieve transformational change through scalability and replicability of project activities. The IWTCF is recognised as strategically relevant, given the UK's position as a long-standing global leader in efforts to eradicate IWT[45].

The underlying assumptions of the fund's model are similar to those of the other two funds, with the additional assumption that poverty reduction and IWT-related aims are compatible and can thus be achieved simultaneously and, where relevant, trade-offs are manageable.

We present the three ToC diagrams in the following pages.

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[38] UNOCD., (2020) World Wildlife Crime Report. Link.
[39] Brashares et al. (2014) Wildlife Decline and Social Conflict. Link.
[40] Walker, D., (2017) ITW and its relation to criminal organisations. Link.
[41] Maher and Sollund (2016) The Illegal wildlife trade. European Union Action to Fight Environmental Crime. Link.
[42] Esmail et al. (2020). Emerging illegalwildlife trade issues: A global horizon scan. Link.
[43] Roe et al. (2017) First line of defence: engaging communities in tackling wildlife crime. Link.
[44] Couper and Walters (2018) Regulation at the trade in illegal wildlife. Green Crimes and Dirty Money. Link.
[45] Masse et al. (2020). Conservation and crime convergence? Situating the 2018 London Illegal Wildlife Trade Conference. Link.

Figure 2: Darwin Initiative ToC

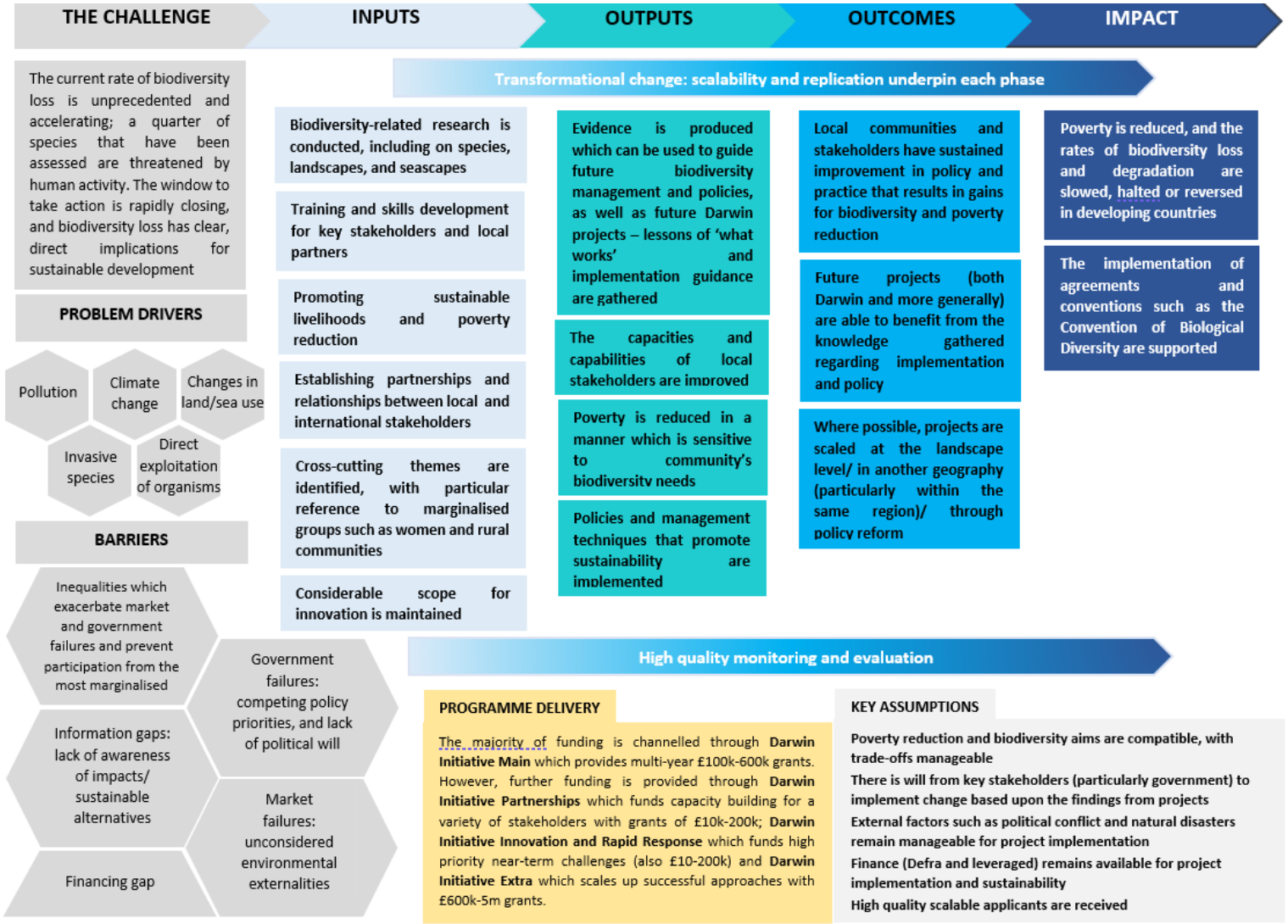


Figure 3: Darwin Plus ToC

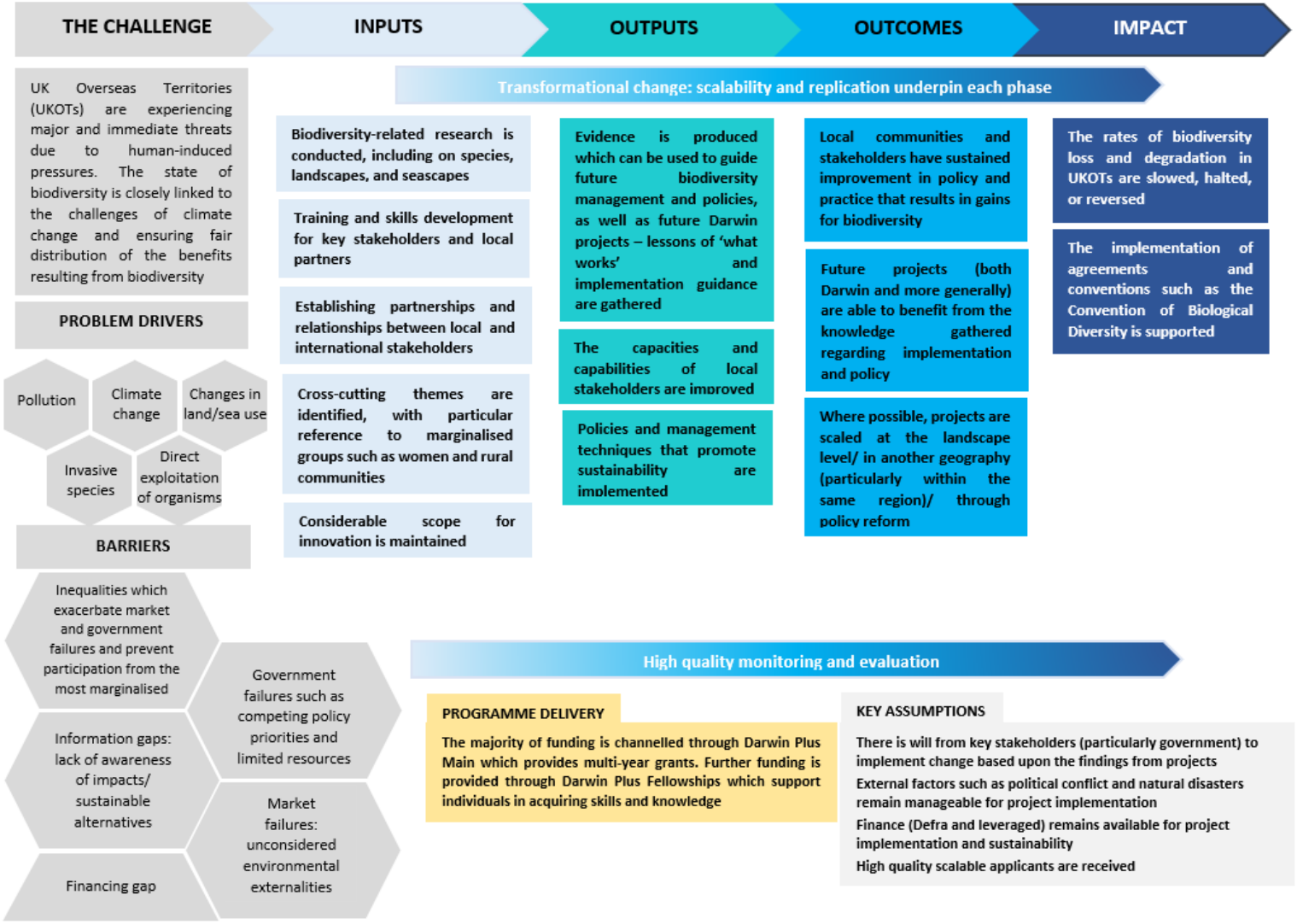
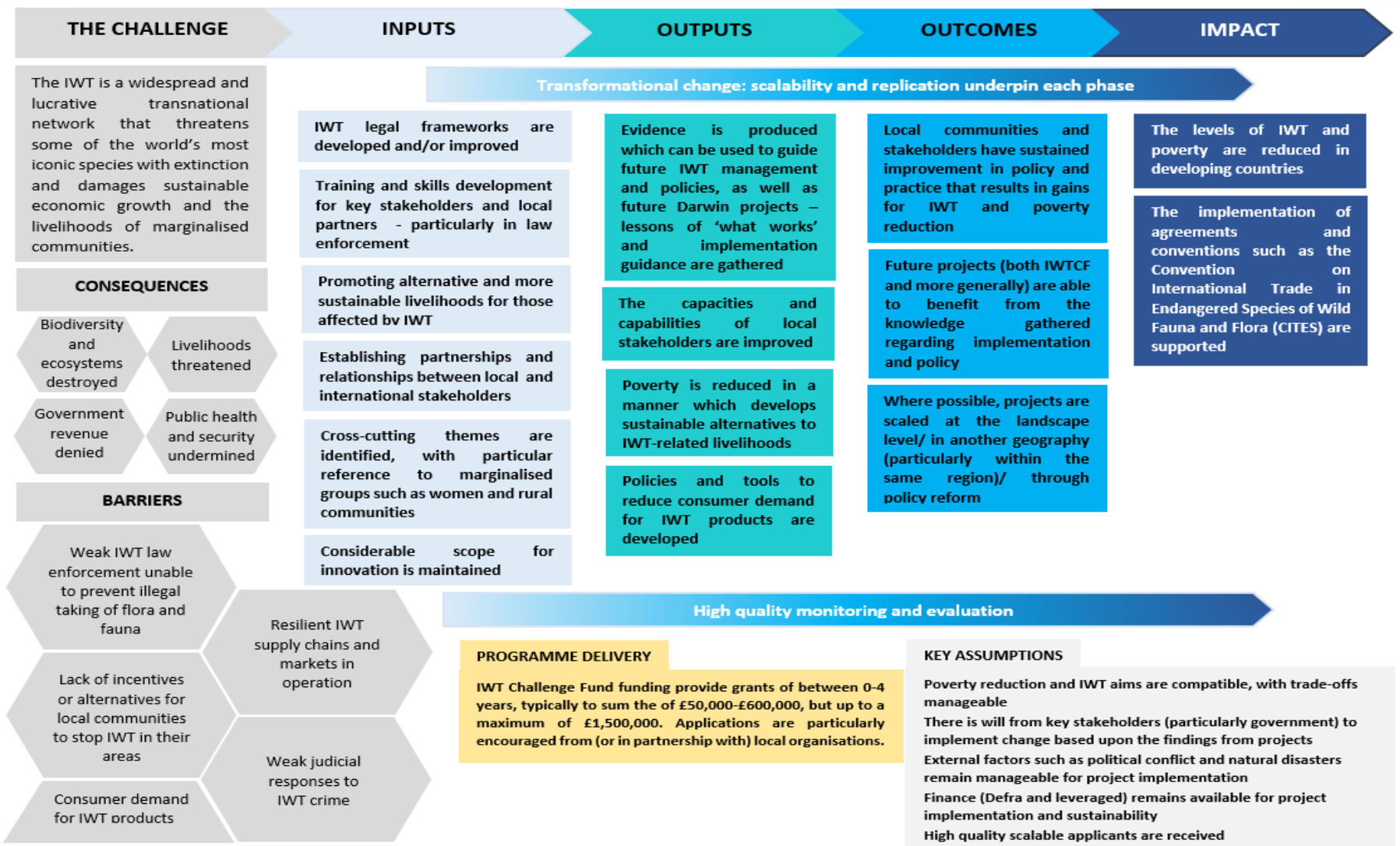


Figure 4: IWT Challenge Fund ToC



2. Evaluation approach

In this section we outline the evaluation's purpose, approach, analytical design, country case studies and activities to follow.

2.1. Evaluation purpose, objectives and scope

In September 2020, as the sole funder of the initiatives, Defra, commissioned Ecorys to undertake an evaluation of the Darwin Initiative, Darwin Plus and IWTCF, henceforth collectively referred to as 'the scheme', with the following key objectives:

- Assess the impact of each initiative in tackling key objectives and understand contributions towards meeting the UK's international commitments.
- Identify gaps in logic and draw out key lessons, challenges, strengths and recommendations to help Defra prioritise future work and understand how processes/grant schemes can be improved.
- Facilitate clearer communication of key achievements to the public, UK government departments, and development and academic partners.
- Make key suggestions for establishing effective M&E systems that will ensure regular monitoring of the scheme beyond the evaluation.

We aim to answer the following overarching evaluation questions (structured according to the DAC criteria).

- Relevance: To what extent have the three grant funds contributed to meeting the targets of relevant MEAs?
- Effectiveness: To what extent has each initiative achieved its objectives and intended impacts?
- Equity: How gender, equity and social inclusion-sensitive are the funds?
- Sustainability: To what extent have benefits of the funded projects continued beyond project funding, and what benefits have been long-lasting?
- Efficiency: To what extent is each initiative delivering value-for-money?

All evaluation sub-questions and the methods we use to answer each, can be found in the full evaluation framework in Annex 4. The scope of this evaluation covers the following aspects:

- Time: All projects since the beginning of each scheme (1993 was the beginning of the Darwin Initiative) up to March 2021 (the end of the data collection for the impact evaluation) are within the scope of the evaluation. We do not exclude projects from the 1990s but do give a heavy weight in our sample to projects in the last 10 years.
- Geography: All countries where there have been Darwin, Darwin Plus or IWTCF projects are within our scope.

The results of this evaluation will enable Defra to improve the quality of the funds going into the future and also showcase Defra's contributions to global biodiversity and environmental protection ahead of upcoming international conferences. These include the 15th Conference of the Parties to the Convention on Biological Diversity, and the 26th Conference of the Parties to the United Nations Framework Convention on Climate Change in Glasgow in November 2021.

2.2. Data collection methods and sampling

The overall approach was theory based, systematic and participatory, using mixed methods to answer the evaluation questions. We collected data from three main sources. We conducted a desk review of available documents, including: scheme documents, project documents, thematic reviews, briefing and information notes and documentation on similar programmes. In addition, we used project assessment frameworks as tools to guide the collection and analysis of relevant project data for our sample (see below). Our portfolio review used existing monitoring data collected for all projects and allowed us to conduct an analysis of the overall portfolio as well as present results for our sample in the context of the overall scheme. We conducted interviews with 23 programme strategic stakeholders who understand the programme as a whole which informed our scheme-wide analysis. Furthermore, we conducted interviews with approximately 250 project-level stakeholders, including beneficiaries. All interviews were semi-structured and followed tailored discussion guides.[46]

We sampled projects (both completed and ongoing) from each initiative using an iterative and purposive process, and took a two-tiered approach (see Annex 5 for more detail):

- Tier 1 covers 100 projects (7.5% of the portfolio). It allows us, within the resource envelope for the evaluation, to cover different time periods, varying grant sizes, all regions, all major ecosystems and, for IWTCF projects, all four approaches used to tackle the IWT. The split across the three funds is 50% Darwin Initiative, 31% IWTCF, 15% Darwin Plus, and also 4% Darwin fellowships. For these 100 projects, we reviewed key project documents.
- Tier 2 covers 30 projects, and is a sub-sample of the 100 Tier 1 projects. This sample was selected to enable us to: cover major regions of interest through five countries (Bolivia, Indonesia, Kenya, Nepal and Vietnam) and one UK overseas territory (British Virgin Islands), and have good coverage of project types per country (4-6 projects per country). For these 30 projects, we conducted primary data (both virtual and in-country interviews, as well as site visits) as well as an additional document review. Tier 2 projects had a greater focus on value for money, sustainability, and gender, equity and social inclusion.

We conducted analyses at two levels: scheme level and project level. Our scheme-level analysis relied on our portfolio review and strategic stakeholders' interviews. It focused on the scheme's contribution to MEAs, the internal factors that drive scheme effectiveness and the aspects of the general environment that enable projects, and therefore the scheme, to be successful. Our project-level analysis allowed us to deepen our understanding of the causal pathways linking project inputs to outputs, outcomes and impact. It also allowed us to explore the contribution of projects to outcomes and the factors that enable or hinder their achievement.

We also conducted five concise country case studies, which focus on the local context of each country and how relevant external factors influenced the effectiveness of the projects. We thus have rich stories of the effectiveness of projects and the impact they had for each country. The evaluation also assessed the extent to which each initiative is delivering value for money (VfM) at both the scheme and project level, and whether they are achieving the right balance between economy, efficiency, effectiveness and equity, in addition to the scheme's sustainability and cost-effectiveness. We developed a bespoke gender, equity and social inclusion (GESI) framework, which assessed the degree to which projects and the scheme are GESI-sensitive and consider power and safeguarding issues.

Changes to evaluation design since inception

The following contextual factors influenced the evaluation's design since inception:

- Changes in UK overseas territory case study: Due to the emergent South African COVID-19 variant and travel restrictions, field visits by UK-based researchers to St Helena, Ascension and Tristan da

[46] See Annex 6 for a full list of stakeholders interviewed.

Cunha as originally planned were not possible. As a result the evaluation team, in consultation with Defra, decided to change the UKOT country case study to the British Virgin Islands (BVI).

- Ongoing travel restrictions: Due to COVID-19 travel restrictions it was not possible to visit the BVI within the timeframe of the evaluation. Remote fieldwork is being currently completed there and the final results will feed into the final draft of this final report before publication. We do not expect any dramatic changes to the results; only additional rich detail for interpreting the Darwin Plus results.

Despite these changes, we have made no departures from the Terms of Reference (ToR).

Summary of evidence available prior to this evaluation

During our inception phase we reviewed the evidence available on the scheme to date and summarised it in our inception report. We give a brief summary of these sources and their limitations below.

The impact of each initiative can in part be understood as the cumulative impact of project-level impacts. Monitoring data is collected for each project and compiled in databases and is able to be analysed at the level of each initiative. Internal project monitoring reports provide some evidence of impact, including annual and final reports and report reviews, and mid-term review reports. Since 2007, the Darwin Initiative has implemented a process to make information about all projects available through its website[47]. Much of the available evidence exists at the project level. The Darwin Initiative has also published information on the effectiveness and impact in scheme-level documents, including closed-project evaluations, LTS syntheses of annual and final report reviews, thematic reviews, information and briefing notes, and a Darwin Initiative gender analysis. However there are various limitations of these documents.

A review of other publications found that there is no system in place to synthesise results at the scheme-level; effectiveness is currently evaluated on a 'project-by-project basis' based on logical frameworks and final report narratives (Cunningham and King, 2013). One of the main limitations of this impact reporting by the Darwin Initiative is that evidence of impact generated ex-post is not synthesised and analysed at the scheme level (Howe and Milner-Gulland, 2012). Furthermore, there is almost no evidence produced by external organisations or from publications such as peer-reviewed journal articles. There are also particular limitations of the current evidence base due to the challenges of measuring impact at the project level, including: the three-year lifecycle of a project; the M&E capacity of projects and financial constraints; weak or missing metrics and indicators to measure impact; and a lack of objectivity in self-reporting of project achievements against objectives (White, 2019)[48]. However, such limitations are not unique to the scheme and are found across existing approaches to conservation evaluation[49].

2.3. Analytical approach

Project assessment frameworks – Design

We developed *'project assessment frameworks'* to enable systematic assessment of our Tier 1 and Tier 2 samples of projects and to help to answer the review questions. These frameworks set out all of the questions (alongside guidance for our team on how they should be answered to promote consistency) and are informed by the questions in the overarching evaluation framework. The frameworks were piloted by our team of researchers and adapted based on what we learnt.

For our sample of 100 Tier 1 projects, we extracted relevant data from the project applications, the application review forms, annual reports, annual report reviews, final reports, and the final report reviews. For our sample of 30 Tier 2 projects, we used an additional project assessment framework to review these documents in more depth (see Annex 1 of the interim report for the full framework), and conducted

47 https://www.darwininitiative.org.uk/project-search/
48 This list draws upon the work of White, C. (2019). Towards an Approach for Making Evidenced-Based Funding Investments and Ensuring Effective Progress Towards Global IWT Policy Goals, DEFRA internal document.
49 These issues are considered in more detail at the end of Annex 4 of the evaluation's inception report supplementary materials

between three and four interviews per project with key project stakeholders through our country fieldwork. These Tier 2 project assessment frameworks collected additional data and evidence, in particular on value for money, and gender and social inclusion. These topics are not covered by Tier 1 because of the level of detailed information required. In addition, the interviews focused on projects' contributions to impact and the sustainability of projects' impact. We conducted these semi-structured interviews using a topic guide, tailored for particular types of stakeholders and for particular projects. Our in-country researchers analysed all of the qualitative data from the interviews for each project and fed this evidence back into the Tier 2 project assessments.

Project assessment frameworks – Analysis

Completed project assessments have been collated in Excel for analysis across all of the projects in our sample. For this final report, we have included in our analysis all of the Tier 1 and Tier 2 project assessments (100 Tier 1 projects, including 30 Tier 2 projects). The Tier 1 projects include 50 Darwin Initiative Main projects, 4 fellowships, 15 Darwin Plus projects, and 31 IWTCF projects. The Tier 2 projects include 13 Darwin Initiative Main projects, 4 fellowships, 4 Darwin Plus projects, and 9 IWTCF projects, covering Bolivia, Kenya, Indonesia, Nepal, Vietnam and the British Virgin Islands.

For the analysis for this final report, we have conducted a quantitative analysis of closed responses across the whole sample of projects, as well as a detailed qualitative analysis of the open responses. For the analysis for this final report, documentary evidence and interview evidence from interviews with project stakeholders conducted during our fieldwork have been considered together for projects in the Tier 2 sample.

Scheme-level analysis of monitoring data

Existing monitoring data collected and collated by LTS International was acquired by the evaluation team from programme-level databases. The data was then merged, cleaned, and formatted to allow the analysis detailed in our evaluation framework[50]. The analysis includes creating summary statistics and producing graphs that help to understand the make-up of the programme portfolio. We also compared project annual and final report review scores by initiative, which reflect levels of achievement. The latter included analysing the predictive value of report review scores over time, as well as the relationship between report review scores and various project characteristics, using statistical correlation. This analysis helps us to present results from our project assessment frameworks within the context of the overall scheme.

Analysis of strategic stakeholder interviews

A qualitative analysis of strategic stakeholder interviews was conducted. The evaluation team systematically analysed interviews according to evaluation questions and sub-questions (see Annex 4), extracting relevant key insights and consistent themes. This informed the evaluation's scheme-wide analysis, in particular process-related evaluation questions, including those on strengths and weaknesses related to impact and sustainability; process lessons regarding the design, application, implementation and completion of each initiative; and general insights on how to improve scheme design.

2.4. Activities to follow

In the remaining phase of the evaluation, we will produce the following evaluation outputs:

1. Findings presentations: We will discuss our findings with Defra to explore improvements to the schemes. There will be separate meetings for the Darwin Initiative/Darwin Plus, and the IWTCF (August/September 2021).

50 This is found in Section 3.4 of the Inception Report, and Annex 5 of the Inception Report Supplementary Materials.

2. M&E recommendations: We will develop M&E recommendations in consultation with Defra on a range of potential indicators on process, outcome, and impact, and the viability of these based on past performance (October 2021).

3. Policy brief for sharing key lessons in collaboration with Defra (November 2021).

4. Final presentation slide deck to disseminate the findings of the final report to each scheme's respective expert committee or advisory group (December 2021).

Findings

3.Relevance

In this section, we summarise our findings on the extent to which the scheme is contributing to meeting the targets of relevant MEAs[51].

3.1.Alignment with international conventions

The Darwin Initiative and Darwin Plus are seen to be key to the UK's efforts to meet its obligations under the CBD; and to help countries poor in financial resources to meet their own obligations under various conventions. The CBD is the overarching convention and the MEA most referred to in application forms of Tier 1 Darwin and Darwin Plus projects, as well as CMS and CITES. Over time projects have been required to describe their alignment with conventions more clearly, thus newer projects reviewed were more explicitly aligned with the conventions. Stakeholders also emphasised the importance of other conventions including the Plant Convention, ITPGRFA, Ramsar, and UNFCCC[52]. The Darwin Expert Committee (DEC) tries to ensure coverage across conventions however it was noted that because the targets of these conventions are so broad, it is difficult for a project to not relate to at least some of them.

Using monitoring data, we see alignment at the portfolio level with specific targets within CBD; these are found in Figure 13: Portfolio contribution to CBD Targets (monitoring data) Figure 14: Portfolio contribution to CBD Articles (monitoring data). Self-reported contributions to specific articles are found in Figure 13: Portfolio contribution to CBD Targets (monitoring data) Figure 14: Portfolio contribution to CBD Articles (monitoring data). Both figures are found in Annex 2 Reference Data. Monitoring data also shows that the most common contributions to CBD cross-cutting issues are through projects addressing i) identification, monitoring, assessment, and indicators; ii) communication, education and public awareness; and iii) the sustainable use and consumption of biodiversity.

In our final analysis, all sampled projects had either direct or indirect aims around biodiversity. 92% of projects had direct aims around biodiversity, focusing on key threatened species or ecosystems, whereas the remaining 8% had indirect biodiversity aims stemming from broader environmental aims, such as enhancing the protection, management and/or use of key habitats. Projects most commonly tried to address the following threats to biodiversity: illegal and unsustainable killing or harvest (55%), habitat degradation (42%), habitat loss (31%), alien or exotic invasive species and climate change (13% each, respectively). Illegal and unsustainable killing or harvest is highest given all IWTCF projects in our sample address this threat[53]. Monitoring data shows that for the Darwin Initiative the main biome location of these activities is forest (36%) and marine, coastal and island (33%). For Darwin Plus, 91% are located in marine, coastal and island.

In our sample of IWTCF projects, the commonly referred to MEAs were the London Declaration on the Illegal Wildlife Trade, the Kasane Statement on the Illegal Wildlife Trade, and CITES. The IWT theme most commonly addressed was 'strengthening law enforcement'. The next most common were ensuring effective legal frameworks and developing sustainable livelihoods to benefit people directly affected by IWT. There were far fewer projects focused on reducing demand for IWT products[54]. For IWTCF projects in our sample, projects'

51 These include: the UN Convention on Biological Diversity (CBD), the Nagoya Protocol on Access and Benefit Sharing, the International Treaty on Plant Genetic Resources for Food and Agriculture, the Convention on International Trade in Endangered Species of Wild Flora and Fauna, the Ramsar Convention on Wetlands; the Convention on the Conservation of Migratory Species of Wild Animals, the UN Framework Convention on Climate Change (UNFCCC), and the UN Sustainable Development Goals (SDGs)
52 For acronyms see list above
53 See Annex 2: Reference Data Figure 16: Projects aiming to address different threats to biodiversity (interim sample) and Figure 17: Project aims by scheme (interim sample).
54 Figures on IWT theme for our sample (S) versus monitoring data (M): Law Enforcement (S: 87%, M: 86%), Sustainable Livelihoods (S: 48%, M: 38%), Legal Frameworks (S: 40%, M: 18%) and Demand Reduction (S: 16%, 19%). The discrepancy for legal frameworks is due to previous law enforcement projects having integrated legal framework components prior to the introduction of this as a separate theme.

activities are mainly located in drylands (55%) and forest (26%) biomes, although some are also cross-biome, transboundary projects. Monitoring data shows that the most common IWT species addressed are elephants (18% of all projects), pangolins (13%) and rhinos (10%).

3.2. Alignment with country priorities

Almost all of the 100 projects in our sample aimed to meet specific needs and priorities of the country within which they were operating, most commonly by targeting specific obligations under treaties and conventions, at either the national or international level. For instance, the CBD or the nation's National Biodiversity Strategy and Action Plan, although some applicants still do not refer explicitly to both and stakeholders emphasised it was important that the project leads understand the rules and laws in the country they wish to operate in.

Many projects also aimed to target species that were threatened in the country (such as the Indonesian tiger or gurney's pitta) or of particular use to the country's ecosystem/livelihood strategies (such as medicinal roots in Morocco or bean production in Malawi). They did so through gathering information on species distribution and related habitats, as well as threats to the resources (such as invasive species, unsustainable farming, or pollution). For example, one project aimed to reduce plastic debris which was threatening endangered sea turtle populations.

Several projects targeted improvements in the country's tourism sector (primarily through reducing IWT) – for example, the Kenyan tourism sector lost approximately US $455 million in 2014, in large part due to the decline in and continuing threat to rhino and elephant populations (an important wildlife tourist attraction). Other projects targeted countries that were 'primary concerns' within the IWT since they were key transit countries (such as Malawi) or key consumers of the products of the IWT (such as China and Vietnam with pangolin products). These projects often focused upon awareness raising and improvement law enforcement.

In Annex 8: Country case studies, we provide rich detail as to ways in which projects align with national priorities in each of our country case studies.

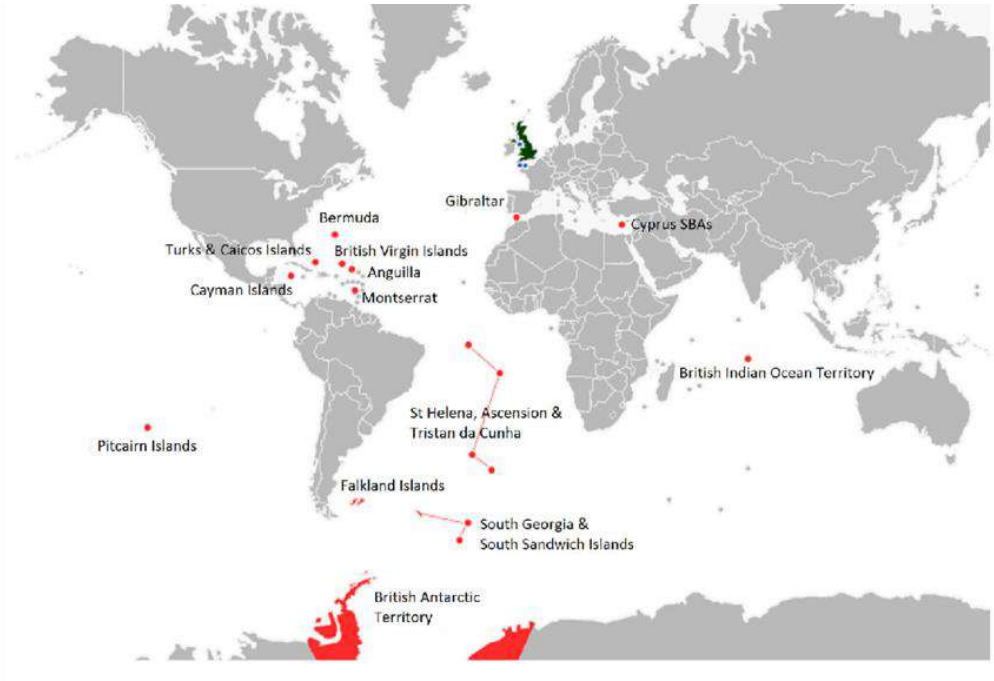
3.3. The unique relevance of Darwin Plus

Geographical setting and its influence on biodiversity

The UK's 14 overseas territories are globally distributed with distinct clusters in the Caribbean and South Atlantic. They are predominantly maritime and either tropical or subtropical, however colder latitudes are represented by South Georgia, South Sandwich Islands and the British Antarctic Territory (BAT). Of the UKOTs, 11 are relatively remote islands or archipelagos. Gibraltar is linked to the European mainland but is biologically and geologically distinct from it. The remaining two territories, the Cyprus Sovereign Base Areas and BAT are small parts of larger landmasses. Twelve of the UKOTs are small, isolated islands that are globally significant in terms of biodiversity because of the unique ecosystems and large number of rare and threatened species they support. In a recent review of biodiversity in all 14 UKOTs, some 65,259 species records were obtained, including 32,216 native species of which 1,549 are endemic to a single UKOT[55]. There were particularly high numbers of endemic insects (519), vascular plants (182), arachnids (149) and crustaceans (127), but also 74 endemic species of vertebrate. In terms of unique biodiversity, the UKOTs dwarf the UK which has few endemics, most of which can be considered a subspecies of species with a wider distribution. The UKOTs as a group comprise a uniquely rich heritage in terms of global biodiversity; they also represent a special responsibility in global conservation.

[55] Churchyard, T. et al. 2016. The biodiversity of the United Kingdom's Overseas Territories: a stock take of species occurrence and assessment of key knowledge gaps. Biodiversity Conservation 25:1677-1694.

Figure 5: Locations of the UKOTs



With the exception of Gibraltar and Cyprus, the human population on the UKOTs, if present at all, comprises relatively small and isolated communities that are highly reliant on the natural environment for their livelihoods, particularly through fisheries and tourism. According to a review of threats and constraints to environmental management[56], their unique setting brings a variety of limitations to current protection for the islands, including insufficient financial support, out-dated environmental legislation, reluctance of UKOT governments to address climate change and a lack of long-term projects to manage climate change and other kinds of persistent threats. There are indications that some of these constraints have eased over the past decade. It should be noted that the island territories include vast areas of ocean which have substantial economic, strategic and biological importance for the territories.

The oceanic setting and small size of many UKOTs brings a number of challenges to the conservation of biodiversity. The localised distribution of endemic species increases their vulnerability to damage from development. The islands are also highly vulnerable to invasive alien species which have devastated the flora and fauna of many oceanic islands. Additional vulnerability of both human populations and biodiversity comes from climate change. This may come in the form of increasingly severe weather events which can devastate forested habitats and coastal communities, flooding, sea level rise, sea surface temperature rise, rainfall variations and rises in average air temperature.

Biodiversity management

The UKOTs have limited financial and human resources and are highly dependent on Darwin Plus for managing their biodiversity. Biodiversity in UKOTs was described by one stakeholder as 'the UK's most interesting and at-risk wildlife' and stakeholders acknowledged that Darwin Plus is the only current fund that explicitly promotes this biodiversity in UKOTs. This is particularly pertinent now that UKOTs are ineligible for EU-wide biodiversity funding following the UK's exit from the European Union. It was noted that UKOT applications are typically much weaker than other applications and this is the result of a lack of capacity. Often in these small territories there is only one

[56] J. Forster, I.R. Lake, A.R. Watkinson and J.A. Gill 2011. Marine biodiversity in the Caribbean UK overseas territories: Perceived threats and constraints to environmental management. Marine Policy 35: 647-657.

person in government working on multiple issues and the need to build capacity in biodiversity conservation in these states is therefore pressing.

Darwin Plus has a notable legacy of supporting invertebrate conservation on St Helena, arising from project training and up-skilling of local and international staff. Likewise, on Tristan da Cunha, Darwin Plus has been supporting the island's conservation department, which now leads on all biosecurity and biodiversity work on the islands, and Tristan da Cunha is now said to have become an island of conservationists. Similar sustained contributions by Darwin Plus have also been recorded on the Falkland Islands with habitat restoration, the Cayman Islands with coral restoration and British Virgin Islands with native plant conservation.

Environmental management

Darwin Plus has funded projects focussing on wider environmental management including use of remote sensing, bathymetry and GIS technologies in land use and sea use planning, fisheries management, other natural resources, tourism and climate change effects. The need for improved management of severe weather events is evidently increasing, as is the need for strategic planning of marine resources which in the case of islands cover an area that is many times greater than the terrestrial area. The UKOTs would like greater adherence of projects to their own territory-based regional plans. Darwin Plus does contribute to the wider environmental concerns of the UKOTs but has a fundamental responsibility to protect biodiversity. All parties recognise that there is a balance to be struck between the needs of UKOTs and the central biodiversity objective of the Darwin Plus fund.

Climate change

Darwin Plus has pioneered the use of remote sensing and GIS mapping as a planning tool in the emergency response to hurricanes on the BVI. The tools were used in a wide variety of applications varying from the mapping of sensitive marine habitats such as coral reef and seagrass, mapping of endangered plant species, forest damage, invasive plants, and the analysis of vulnerability of human settlements to flooding in relation to the presence and depth of protective mangrove forest. This technology is immensely powerful and Darwin Plus has provided a valuable service to BVI by introducing it, however because of limited technical capacity there is a danger that the transfer of advanced technologies will not be sustained without further assistance from Her Majesty's Government (HMG). There is a clear need for use of satellite and GIS mapping tools in the UKOTs as a whole. Longer-term funding on a regional basis is required to embed the new technology within UKOTs.

Livelihoods

UKOTs are closely dependent on their natural resources, including fishing and ecotourism. There is an opportunity for Darwin Plus to have a greater role in livelihood development by adding value to existing island enterprises and providing new forms of employment such as for fishermen doubling as boatmen and guides for marine mammal tourism, as diving guides and instructors for reef tourism, or as botanical and biodiversity guides in the terrestrial ecotourism sector.

Institutional needs

Representation of UKOTs: Feedback from UKOTs includes the request for consultation on funding priorities set for each Darwin round, and the opportunity to help set those priorities. They would like Darwin Plus to fund wider environmental work in the UKOTs, rather than a narrow focus on biodiversity. It was noted that the Darwin Plus Advisory Group is not sufficiently representative of the territories; it is unclear how widespread this perception might be within the UKOTs. The existing advisory group has been put together with care to ensure that the Group has the necessary range of experience required for effective biodiversity conservation. It was suggested that perhaps additional long-term environmental funding should be allocated separately to complement the work of Darwin Plus.

Moving ODA-eligible UKOTs back to Darwin Plus: There is strong feedback from across the FCDO and UKOTs that all of the territories should be funded through Darwin Plus, rather than the ODA-eligible UKOTs being funded through Darwin Main project streams. This will help to improve collaboration, through regional and cross-territory projects, and prevent duplication; and provide a fairer system for accessing environmental/biodiversity funds, as those that are ODA-eligible have to compete for funding globally. In this respect, it is perhaps worth noting that Darwin Plus, which followed the previous joint FCO/DFID Overseas Territories Environment Programme (OTEP), was specially designed to meet the needs of the UKOTs and address their environmental priorities.[57]

Partnerships with non-governmental organisations (NGOs): There is a tendency for individual UKOTs to partner with one or a small number of UK NGOs or expert institutions. This has the undoubted advantage of building trust and efficiency in the partnership which in turn helps with capacity-raising especially with respect to biodiversity, climate change and other wider environmental issues. It also encourages the establishment of regional networks of expertise as the NGOs may well be working on different UKOTs with broadly similar projects. However, the same tendency encourages a 'silofication' of development aid, whereby the territory may gain in one aspect of environmental expertise but not in others. For example, it may become skilled in protecting certain groups of species but gain little help in sectors such as fisheries, tourism and remote sensing. In addition, staff costs are high in UK and other developed nations, so it is a possibility that the majority of Darwin Plus funding may not reach the UKOT. Although, the skill of the experts can be framed as the real investment in the UKOT. One way to gain the best of both worlds – the efficiency of working with the same partner and the richness and scope of working with a variety of different partners – is through regional programmes which open up access for single UKOTs to a number of different kinds of expertise. This will also help to build regional expertise and self-reliance. This kind of programme, however, would require more funding than is available for Darwin Plus projects.

A successful partnership with OT governments: The small size of most OTs and their special relationship with UK has encouraged a close partnership between Darwin Plus projects and OT governments, where Darwin Plus has supported projects that are increasingly aligned with UKOT needs and government priorities related to biodiversity conservation and environmental management, largely due to increasing the capacity of UKOT governments to influence the kind of projects that are funded. Such a unique partnership between UKOTs and Darwin Plus has also supported sequential projects within OTs that continue to build capacity, and seed further projects both within the focal OT and beyond to other OTs and countries. It has also mainstreamed public awareness of UKOT native fauna and flora to such an extent that the name 'Darwin' has in some cases become synonymous with learning about biodiversity and local people have become advocates for the natural environment.

These various scheme-level outcomes reflect the unique strengths of the Darwin Plus programme. They are a testimony to the original concept. They furthermore comprise a significant contribution to biodiversity conservation in the Caribbean, South Atlantic, Antarctic and beyond, especially with regard to conservation of the unique and highly vulnerable fauna and flora of oceanic islands and the particular threats facing them.

3.4. Poverty and the Sustainable Development Goals

The poverty-biodiversity nexus

In 2011, FCDO (then Department for International Development) started co-funding Darwin projects (via Defra) and ODA eligibility requirements were introduced to the funds[58]. ODA funding requires projects to directly

[57] Two internal documents were consulted: 'Feedback from OTs following Darwin Plus roundtable' and 'Feedback from OTs on Darwin OT environmental funding'.
58 Darwin Initiative has received ODA funds partially since 2011 and entirely since 2015. Darwin Plus projects only receive ODA funding for projects in ODA eligible UKOTs and since the IWT Challenge Fund's establishment in 2014 all projects have been funded by ODA.

enhance the welfare and economic development of poor people with objectives addressing poverty reduction and gender equality, alongside improving biodiversity and conservation in countries on the Development Assistance Committee (DAC) list of ODA-eligible countries.

Some stakeholders argued that the intersection of the challenge of human development whilst also conserving biodiversity is often overlooked in conservation programmes and that attempts to address them are siloed into one or the other. A unique selling point of the Darwin Initiative is that, since 2011, it has evolved away from pure biodiversity and forced conservationists to address the tensions and synergies between both. Some stakeholders argued that at its core, driving change in conservation is about driving change in people and that we need to understand how people use natural resources and who will benefit from the future success of conservation. They argued that other funds can be for pure research into conservation of species but that the challenging element of conservation is human behaviour change and that few other schemes uniquely fall at this nexus. The objectives of poverty and biodiversity are equal and inseparable for the Darwin Initiative, which recognises the centrality of people living alongside nature and builds local constituency that will maintain those changes going forward.

However, the relationship between poverty/livelihoods and biodiversity is complex and there remains disagreement amongst stakeholders on how best to address the dual challenge. Prior to the ODA funding, the Darwin Initiative focused on species and habitats and now the scheme is more focused on synergies between biodiversity conservation and human development. There was general agreement amongst stakeholders that the links between poverty and biodiversity in projects have improved over time, especially those run by larger NGOs, but that it has been quite difficult to communicate the poverty goal to some implementing organisations. Some applicants focus on one area or the other but not both and in cases where projects focus on critical species and habitats but do not support human development, they are filtered out in the first stage. Some stakeholders argued that the addition of human development aims took attention away from the Darwin Initiative's previously strong core biodiversity focus and that this tension continues to be visible in Darwin Initiative Strategy Days. One noted that some proposals that address livelihoods can be formulaic without strong evidence linking the two.

Alignment with the SDGs and planned synergies across activities

In addition to the biodiversity MEAs the SDGs are the other main international goals that the Darwin Initiative explicitly aligns with and aims to contribute to. Only in recent years have projects begun to refer to the SDGs partly because the SDGs were only ratified in 2015. The most commonly referred to SDGs were numbers 1 (No poverty), 2 (Zero hunger), 5 (Gender equality), 12 (Responsible consumption and production) and 15 (Life on land). Interestingly, we observe no clear mention of SDG contributions in our sample of Darwin Plus projects.

Most Darwin and IWTCF projects had aims around poverty/sustainable livelihoods, but few Darwin Plus projects had such aims (see Figure 17: Project aims by scheme (interim sample) in Annex 2). Projects aimed to address poverty/sustainable livelihoods directly, indirectly and/or through research[59]. Substantially more aimed to address it indirectly than directly. Of the projects that aimed to address poverty/sustainable livelihoods, 54% aimed to do this directly, 65% aimed to do it indirectly and 28% aimed to do it through research.

The majority of projects that had aims around poverty/sustainable livelihoods intended for these aims to be achieved as a result of efforts to protect and enhance biodiversity/broader environmental aims (or vice versa) (80%), rather than addressing the dual biodiversity-poverty aims with standalone activities. The remaining 20% of projects are judged to have no synergies, and it is suggested that this is due to project characteristics alone. These projects were either: implemented before the introduction of ODA and poverty reduction requirements (est.

59 The contribution that a project makes may not be a direct one (such as a project creating eco-tourism jobs or through activities that help secure increased income for local communities, and therefore reduce the need to generate income through poaching) but an indirect one (such as a project improving the integration of national biodiversity planning into tourism planning to create incentives for growth in the eco-tourism industry, improved security through capacity building of local enforcement agencies or increasing the voice of marginalised communities). Projects may also address poverty through practice orientated research e.g., through activities that expand the knowledge base on IWT and poverty. Projects might aim to address poverty/sustainable livelihoods in a combination of these ways e.g., both directly and indirectly, or indirectly and through research

2011); Darwin Plus or fellowship projects, neither of which are ODA-funded or mandated to address poverty or sustainable livelihoods; or a IWTCF project in one case, where there are no clear poverty/sustainable livelihoods objectives presented.

At the same time all projects reviewed with aims around poverty/sustainable livelihoods were designed to have synergies. These aims were to be achieved as a result of efforts to protect and enhance biodiversity/broader environmental aims (or vice versa), rather than addressing the dual biodiversity-poverty aims with standalone activities. We give two examples of strong synergies between poverty reduction and environmental goals in Figure 18: Strong synergies between poverty reduction and environmental goals in Annex 2.

Direct contributions to sustainable livelihoods

Projects achieved synergies between biodiversity and livelihood outcomes primarily through the following:

1. Alternative livelihoods included training local people to participate in alternative livelihood strategies, such as training in beekeeping and entrepreneurial skills; and the establishment of nurseries and conservation areas which improved local people's food security and could be used for commercial purposes. In other cases, reduced deforestation enabled local communities to diversify their livelihoods and ensured the sustainability of existing activities.

2. Effective ecosystem management led to improved/sustained biodiversity together with increased yields and more sustainable farming activities for local people. For example, the promotion of more sustainable agroforestry practices ensured reduced forest loss and, in turn, improved food security.

3. Awareness raising and capacity building activities encouraged small holder farmers to use more advanced/sustainable farming techniques, such as integrated pest management, which led to improved environmental management (due to factors such as reduced pesticide usage) and, in turn, improved incomes for farmers. The removal of pests also ensured increased crop productivity.

4. Research on alternative land use was used to promote more sustainable forest management, such as more sustainable farming techniques which improve soil management and water security, which is a more sustainable livelihood.

Several projects employed more than one of these methods in collaboration – for instance, they established alternative livelihood methods (such as in farming a new crop) and also provided local people with training in this method, as well as researching how to integrate into local or national-level markets for this crop.

Indirect contributions to more sustainable livelihoods

The list above are all considered fairly direct synergies which lies in contrast to projects with only indirect effects on sustainable livelihoods. It was found that the links between IWT and sustainable livelihoods in IWTCF were often more indirect and tenuous than for the other two funds. For example, the list details the most common ways in which IWTCF projects improved livelihoods and it was clear that some of the connections to poverty are more tenuous:

1. Improvements in Ecotourism: The protection of species through improved law enforcement led to regions being safer which in turn leads to an increase in ecotourism and the livelihoods of local communities.

2. Alternative livelihoods in law enforcement: New employment opportunities for local people in law enforcement by, for example, hiring members of the local community to support in wildlife protection and management. These types of improvements in turn reduce incentives for locals to participate in IWT.

3. Improved governance: Some projects argued that a reduction in IWT leads to decreases in illicit financial flows which in turn improves good governance and community livelihoods.

4. Increases in the availability of bushmeat: For legal hunting by locals.

5. Reduced damage to ecosystems: This leads to increased livelihood opportunities and the diets of local communities. For example, the protection of pangolins had knock-on effects for local communities because the pangolin keeps crop-damaging pest populations in check, thus contributing to improved yields, but such outcomes were not common.

However, there were a few good examples of clear links to poverty reduction including a project that was administered by a UK organisation and a local conservancy delivered and employed locals to raise awareness for conservancy in Kenya. Also, some stakeholders working on demand reduction projects noted that IWT products are mainly consumed by middle class people and therefore the links to poverty and poor people are inherently less direct.

3.5. Climate and evolving government priorities

Over the past decade the nature of the challenge facing the Darwin Initiative has been changing. Threats to biodiversity have become increasingly global with the acceleration of climate change and, the opening of many global markets for wildlife products bringing with it a related rise in zoonotic disease outbreaks. Nature and climate are closely linked[60] and stakeholders noted that although the formal aims of the schemes are largely unchanged, the UK Government's policy priorities have responded to this growing issue and in recent years climate change has become a more formal priority of the scheme. However, this has only happened relatively recently and for this reason we see that of the projects included in our analysis, few had aims around climate change adaptation or mitigation (see Figure 16: Projects aiming to address different threats to biodiversity (interim sample) and Figure 17: Project aims by scheme (interim sample) in Annex 2) and none of the application forms in our sample made reference to the United Nations Framework Convention on Climate Change (UNFCCC).

Similarly the majority of the projects do not contribute directly to climate change aims or goals. Of those that did, climate change mitigation and/or adaptation was typically achieved through reducing forest loss by promoting more sustainable agroforestry practices (including by educating local people on such practices), reducing the use of wood as primary fuel, and reforesting. Projects also aimed to contribute through research which established baselines and knowledge to improve individual's and community's capacity to monitor and mitigate the effects of climate change in the future.

Multiple stakeholders were concerned about scope creep in the scheme. They noted the challenge of retaining the scheme's uniqueness, which is its focus on biodiversity, in the context of multiple global crises. Stakeholders, including members of the DEC, mentioned that they were sceptical of incorporating climate change as a major goal of the scheme and that they worried that the scheme was trying to tick too many boxes. They noted that there were large amounts of funding already going towards climate issues and that it would be a shame if the scheme evolved into a more general climate fund. These reservations are valid and yet the globalisation of threats is not a static issue. Its intensity will continue to increase. Inevitably the scheme will have to address it as a primary threat, probably in the near future.

The task that faces the scheme is to transform itself into an institution that can tackle these new challenges without impairing but rather improving its past performance in conserving and restoring biodiversity. This is the

[60] Sutherland, W., Broad, S., Dias, M., Clout, M., … Thornton. A., (2020) A 2021 Horizon Scan of Emerging Global Biological Conservation Issues. Trends in Ecology & Evolution. Link

overriding institutional challenge for the Darwin Initiative and we provide some suggestions on how to overcome it in Section 9 Recommendations.

4. Effectiveness and impact

In this section, we summarise findings on the extent to which the scheme has achieved its objectives, intended impacts and why. We also explore what particular outcomes have been achieved for each initiative as well as factors that affect impact.

4.1. Achievements against expectations

Activities/outputs

We measured the performance of projects by the degree to which they met the targets they made in their applications. Traditionally, a successful project is one that meets its log frame indicators. With the project documentation available to us for our sample of projects, we used our project assessment framework tool and made judgements of performance against the level of expectation in the project's application. Where projects had changed and adapted over time, researchers made judgements about whether the level of ambition (rather than exactly what was anticipated) has been met. Performance was judged by reading the latest annual report or final report of the project.

The strongest areas of activities/outputs in terms of achievement against expectations (judged by the percentage of Tier 1 projects that at least 'largely met' their expectations in this area[61]) were:

- Research/conservation planning (59 of 71 projects, 83%): These are actions that improve the information base on ecological, socio-economic and policy attributes, which help to inform conservation decisions and relevant action. A clear example of this happening comes from Papua New Guinea[62], where the project established 8 research sites, 11 research projects, and sampling protocols, which were locally driven and informed the establishment of CART at Mt. Wilhelm as one of the best studied rainforest altitudinal gradients in the tropics. The project collected specimens' records for 700 bats, 2,500 birds, 14,500 insects and 1,800 plants; and established baseline data on the distribution of species, and ecological interactions to monitor future climate changes.
- Work around education and awareness raising (55 of 66 projects, 83%): These are actions that facilitate improved understanding and influence behaviour of people. For example, a project in Cambodia[63] delivered a social media campaign which reached a total of 706,050 Cambodians, averaging 117,675 people per month, and had 57,617 post engagements. It also conducted local outreach activities, including environmental education to students, and communication campaigns to local villagers.
- Work to manage species and populations (25 of 31 projects, 81%): These are actions that directly involve species themselves and are often community or grassroots led. This is often closely linked to research conducted on target species, although can include management strategies. For example, in Thailand, a project[64] established species-level measures to prevent the extinction of gurney's pitta, including captive breeding and construction of holding pens. Another example is in Malawi[65], where the establishment of 'elephant community wardens' introduced patrolling of critical areas of elephant species' core range in the Cardamom Mountains, closely monitoring and detecting illegal activity that will threaten the species.

[61] Options for reviewers in the project assessment framework were: 'fully met/exceeded'; 'largely met'; 'met to a limited degree'; 'not met at all'; 'not part of the project'; 'insufficient information'. Each project may have more than one type of activity hence the overlap of projects doing both research/conservation planning, and work to manage species and populations.
[62] DAR22002: Complete altitudinal rainforest transect for research and conservation in Papua New Guinea.
[63] DAR23027: Cultural and economic incentives for endangered species conservation in Cambodia.
[64] DAR13030: Gurney's Pitta research & Conservation in Thailand & Myanmar.
[65] IWT022: Disrupting ivory trafficking conduits with coordinated law enforcement in Malawi.

The weakest areas of activities/outputs in terms of achievement against expectations (judged by the percentage of Tier 1 projects that did not at least largely meet their expectations) were:

- Work around developing, adopting or implementing policy or legislation/ensuring effective legal frameworks (27 of 59 projects, 46%): These are actions that establish or strengthen frameworks within the processes of government, civil society or the private sector to make conservation goals official, facilitate their accomplishment, and/or enhance their effectiveness. Difficulties here lie in the complexity and long-term nature of implementing policy outputs. An example where a project has not met expectations comes from the Caribbean[66], where direct influence in policymaking has been difficult to assess and possibly limited in the duration of the project. There are no amendments to policy design as a result of the work of the project, nor did the project measure evidence uptake by policymakers as an indicator of informing policy. These limitations are linked to the observation that, at the time of the project, both Anguilla and the BVI were only beginning to recognise and consider Marine Protected Area policies. The project, however, does well to acknowledge the complexities of influencing policy design and implementation in a region where protected areas only exist as boundaries on maps.
- Work around strengthening law enforcement/criminal justice system (11 of 27 projects, 41%): This area of outputs/activities is mostly found in IWTCF projects. Many projects faced challenges in measuring progress and meeting log frame targets on the training of law enforcement units and the judiciary, the formation of law enforcement units and intelligence sharing mechanisms, or lower numbers of detection, patrols, and criminal cases. For example, a project in Indonesia[67] was unable to fully deliver its outputs on reviewing enforcement data, and the facilitation and strengthening of interagency information sharing in Ula Masen and Kerinci Seblat National Park, and progress on wildlife crime patrols, investigations and training has been slower than expected.
- Work to enhance or provide alternative livelihoods (14 of 40 projects, 35%): These are actions that improve the wellbeing of people who depend upon, and have impacts on, the species/habitats of interest to conservation, such as introducing new livelihood activities that promote biodiversity and ecosystem conservation, including relationships with wildlife in the case of the IWT. The achievements of outputs here are weaker due to challenges in both the establishment of some livelihood activities and training local people to engage in these new activities. One project[68] trained or involved fewer individuals than expected in some livelihood activities and 'cascade training', where farmers train others, was also only partially successful. Another project[69] established community-based organisations, which were also trained but were unable to fully implement the business plans developed for livelihood activities due to delays, such as initiatives for communal vehicles and milk storage facilities for cattle-based products.

More detail on the reasons why different types of activities are stronger or weaker are explained in Section 4.4.

Other elements of project success are not captured in standard project indicators. For example, projects often worked well with in-country partners. 90% of projects at least 'largely met' their expectations in this area, with 51% fully meeting/exceeding the level of expectation in their application. One strategic stakeholder also described successful projects as those that are flexible, practice adaptive management, understand systems and seize opportunities to influence.

Outcomes and impacts

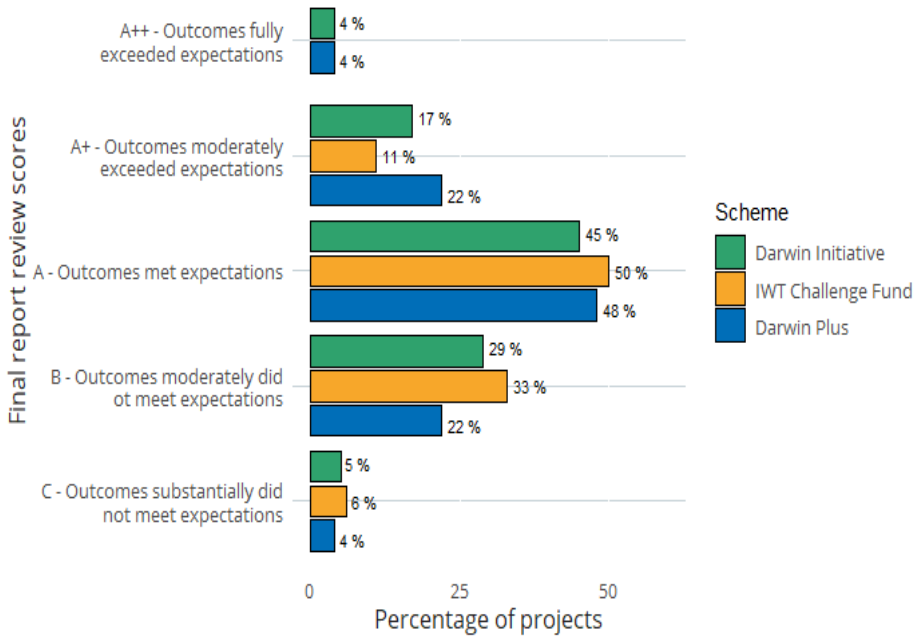
Members of the schemes' expert committees or advisory groups score project applications against a set of criteria to determine the suitability of projects for funding, including their technical excellence, alignment with priorities, potential to achieve impact and legacy on biodiversity, and on welfare and poverty reduction where applicable.

[66] DPLUS007: Using seabirds to inform Caribbean marine planning.
[67] IWT049: Reducing IWT in Sumatra across two globally important tiger landscapes.
[68] DAR21014: Reconnecting poverty-alleviation to biodiversity conservation in Kenya's Eastern Arc Mountains.
[69] DAR22015: Sustainable management of an Ethiopian rangeland for biodiversity and pastoralists.

Average application score for our sample of 100 projects is 80%. When disaggregated by scheme, the average application score is highest for IWTCF projects (84%), and lowest for Darwin Initiative projects (78%), with Darwin Plus in between these (80%).[70] This concise range for average application scores across schemes suggests that projects funded are of high potential.

External reviewers score projects annually and at completion against their log frame expectations. During each annual reporting year, we found that most projects are scored as likely to be 'largely achieved'[71]. However, when we look at the portfolio of projects, we see that the likelihood of achieving outcomes over each annual reporting decreases. This is not the case for Darwin Initiative projects, however, where the likelihood of achieving outcomes increases over each annual reporting period (see Figure 20 in Annex 2). For the 213 projects for which final report review scores are available, 67% met or exceeded these expectations, 28% moderately did not meet these expectations and 5% substantially did not meet these expectations. Performance on final report review scores was highest overall for Darwin Plus projects and lowest for IWTCF projects (see Figure 6 below). For the projects within our sample for which annual report review scores are available, we observed similar patterns of performance.

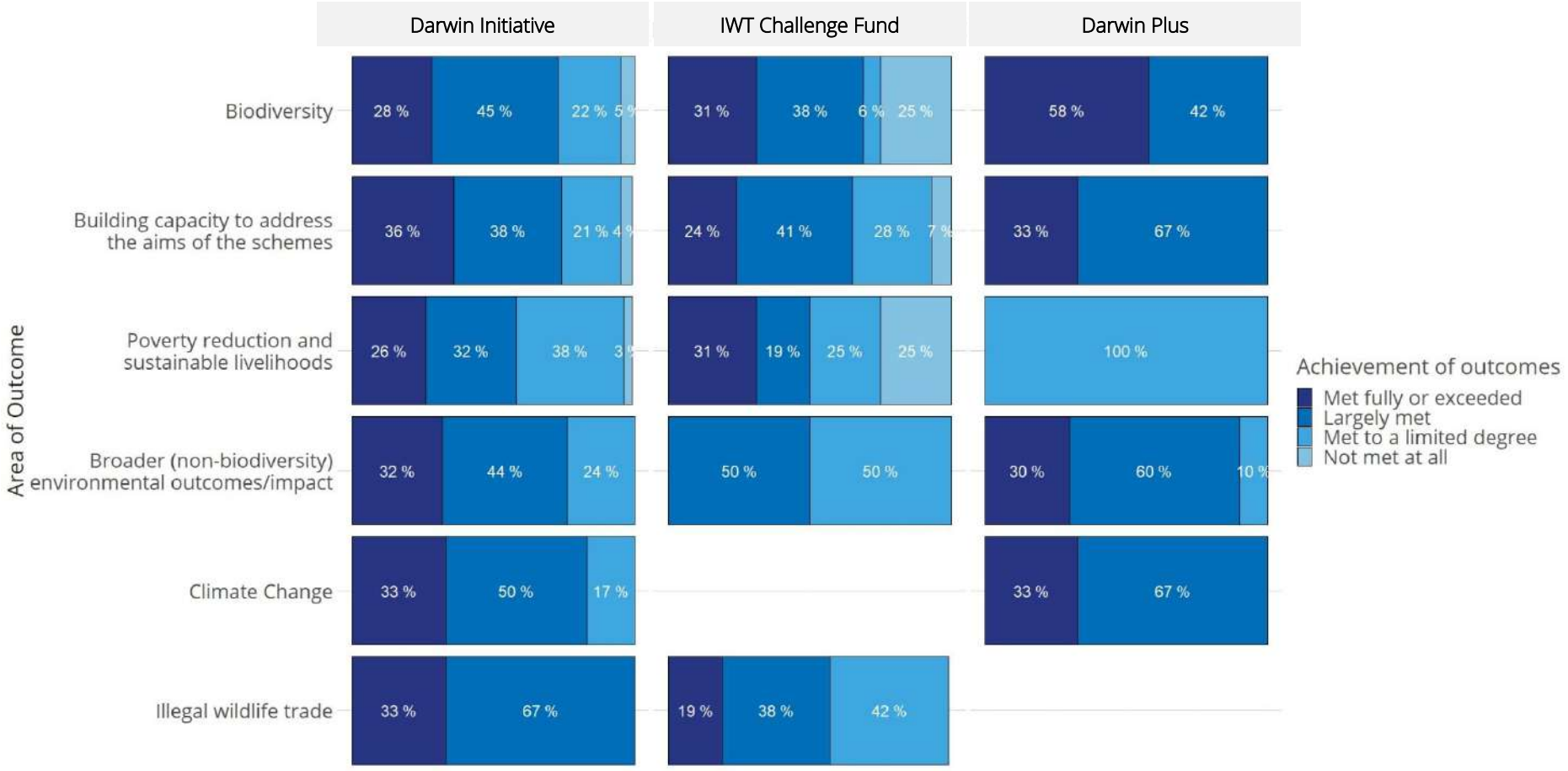
Figure 6: Final report review scores at portfolio level (monitoring data)



Note: Data is available only for 213 projects for which final report review scores are available.

[70] *Sample sizes are Darwin Initiative (N=50), IWT Challenge Fund (N=31), Darwin Plus (N=15). Average application scores for Darwin Fellowships (N=4) is 74%, but is excluded from the analysis given the small sample size.*
[71] The proportion of projects that score 'outcomes are likely to be largely achieved' are as follows: 57% at Annual Report Review 1 (N=309), 50% at Annual Report Review 2 (N=227), 56% at Annual Report Review 3 (N=59).

Figure 7: Rating of achievement against expectation for different areas of outcomes/impacts



Note: Darwin Initiative (N=50), IWT Challenge Fund (N=31), Darwin Plus (N=15)

The strongest areas of outcomes/impacts achieved against expectations[72] were:

- Broader (non-biodiversity) environmental aims (29 of 37 projects, 78%): This outcome area focuses on the extent to which projects protect or enhance ecosystem services, such as through sustainable use and more effective management of the natural environment. 77% of Darwin Initiative projects and 89% of Darwin Plus projects with aims in this area at least largely met their expected outcomes.
- Biodiversity (54 of 71 projects, 76%): This outcome area focuses on the extent to which projects directly contribute to reducing threats, or improving the conservation status of threatened species, habitat types, or endemic species. Interestingly, 100% of Darwin Plus projects at least largely achieve outcomes against expectations at application stage, compared to 73% of Darwin Initiative projects and 69% of IWTCF projects in our sample.
- Building capacity to address the aims of the schemes (70 of 92 projects, 76%): This outcome area focuses on the extent to which projects strengthen the capacity of host countries in biodiversity conservation, the protection of the natural environment and/or reduce the IWT, including at multiple geographic levels. 100% of Darwin Plus projects at least largely achieve outcomes against expectations set at application stage, compared to 75% of Darwin Initiative projects and 64% of IWTCF projects.

These results are perhaps not surprising given the scheme's focus on biodiversity and capacity building. It was noted by stakeholders that the focus on capacity building has increased over the last 15 years, and it is now central to all projects working well and supporting sustainability of impact. In-depth qualitative analysis of these outcomes are presented for each initiative later in this section.

The weaker areas of outcomes/impacts, in terms of achievement against expectations, were:

- Illegal wildlife trade (19 of 30 projects, 63%): This outcome area focuses on the extent to which projects have strengthened law enforcement, ensured effective legal frameworks, developed sustainable livelihoods, and/or reduced demand for illegal animal products to combat the IWT. Only 56% of IWTCF projects at least largely met their outcome expectations. 100% of Darwin Initiative projects fully met their expectations for IWT outcomes, although the number of projects is relatively small.
- Poverty/sustainable livelihoods (28 of 52 projects, 54%) (see Figure 7**: Rating of achievement against expectation for different areas of outcomes/impacts**): This outcome area focuses on the extent to which projects promote multidimensional wellbeing, including increased income and income-generating activities, improved food, water and energy security; and empowerment and involvement in governance, among other benefits.

The reasons for these relatively weak areas of achievements against expectations are largely due to challenges in measuring and demonstrating achievements. For example, it is often difficult for IWTCF projects to measure changes in deterrence and poaching pressures, due to lag times, attribution issues, and difficulties in indicators of measurement (e.g. species-level changes), and in some instances for arrest and prosecution data due to limited public availability. On the other hand, difficulties in demonstrating outcomes for IWT are observed in areas such as limited action upon intelligence information generated; less arrests, prosecutions and convictions than anticipated; and limited or no development of key enforcement and legal framework mechanisms that were intended to support the protection of IWT species. Reasons for underachievement of poverty and sustainable livelihoods outcomes include not implementing key local capacity-building and livelihood structures (see an example in Figure 21**: Examples of projects that failed to meet outcome/impact expectations around poverty/sustainable livelihoods** in Annex 2).

72 Judged by the percentages of projects which planned outcomes/impacts in particular areas, for which we found sufficient information to make a judgement, which met fully/exceeded or largely met the level of expectation in their applications.

4.2. Absolute impact achieved

For each *completed* project in our sample, we assessed the scale of outcomes/impacts achieved across different areas including biodiversity and poverty/sustainable livelihoods[73]. This enabled us to analyse absolute achievement of impact, rather than impact relative to expectation. We made the scale of impact scores as comparable as possible across different areas[74]. Scores for scale of outcomes/impacts for different areas are disaggregated by initiative in Figure 8: Scoring for scale of outcomes/impacts for different areas of outcomes/impacts.

We found the following:

- IWT capacity-building efforts have the strongest impact: The area with the strongest absolute impact scores was the IWT's capacity-building efforts. There is a strong relationship between the projects' scale of impact on the IWT and biodiversity[75]. IWTCF projects in particular demonstrate a high scale of impact across all three of these areas compared to Darwin Initiative and Darwin Plus projects.

- Darwin Plus projects have a strong impact on the broader environment: Darwin Plus projects demonstrate the highest impact in broader (non-biodiversity) environment areas, aligning with our findings in the section above.

- Capacity building is effective at impacting biodiversity outcomes: Projects that had high biodiversity impacts also had high impacts on capacity building, suggesting a core causal link between the two. The two are correlated [76] and it appears that capacity building contributes to or catalyses biodiversity impacts. Our analysis of outcomes for each scheme demonstrates evidence supporting this finding (see next section).

- Biodiversity and poverty impacts are equally strong: Across the three funds, the same percentage of projects achieve high impact in the area of 'poverty/sustainable livelihoods' as those that achieve high impact in 'biodiversity' (31% each). Darwin Initiative projects are more likely to achieve high impact in poverty and sustainable livelihoods (38%) compared to other schemes. Although we only observed a weak correlation between poverty and biodiversity impact scores, we do find strong examples or projects with successful synergies at achieving both (see Figure 22: Achieving both biodiversity and poverty and sustainable livelihood goals in Annex 2)[77].

- Since 2015 impact on poverty has increased: The scheme has been entirely ODA-funded since 2015 and we observe more projects meeting or largely meeting expectations around poverty/sustainable livelihoods compared with those started prior to 2015 (63% vs 37%). Similarly, we observe newer projects achieving higher impact scores for poverty/sustainable livelihoods. IWTCF projects often provided insufficient information for us to make a judgement on their impact on poverty/sustainable livelihoods, but where information was available, they performed the least well of the three funds (71% had minimal or no impact on poverty/sustainable livelihoods).

- IWTCF projects are ambitious and impactful: IWTCF projects were less likely to meet expectations than Darwin Initiative projects, yet a high proportion of them (50%) had high impact on the IWT. This could be interpreted that they are 'ambitious' and potentially riskier than Darwin Initiative projects, which aligns with the challenge fund nature of the scheme.

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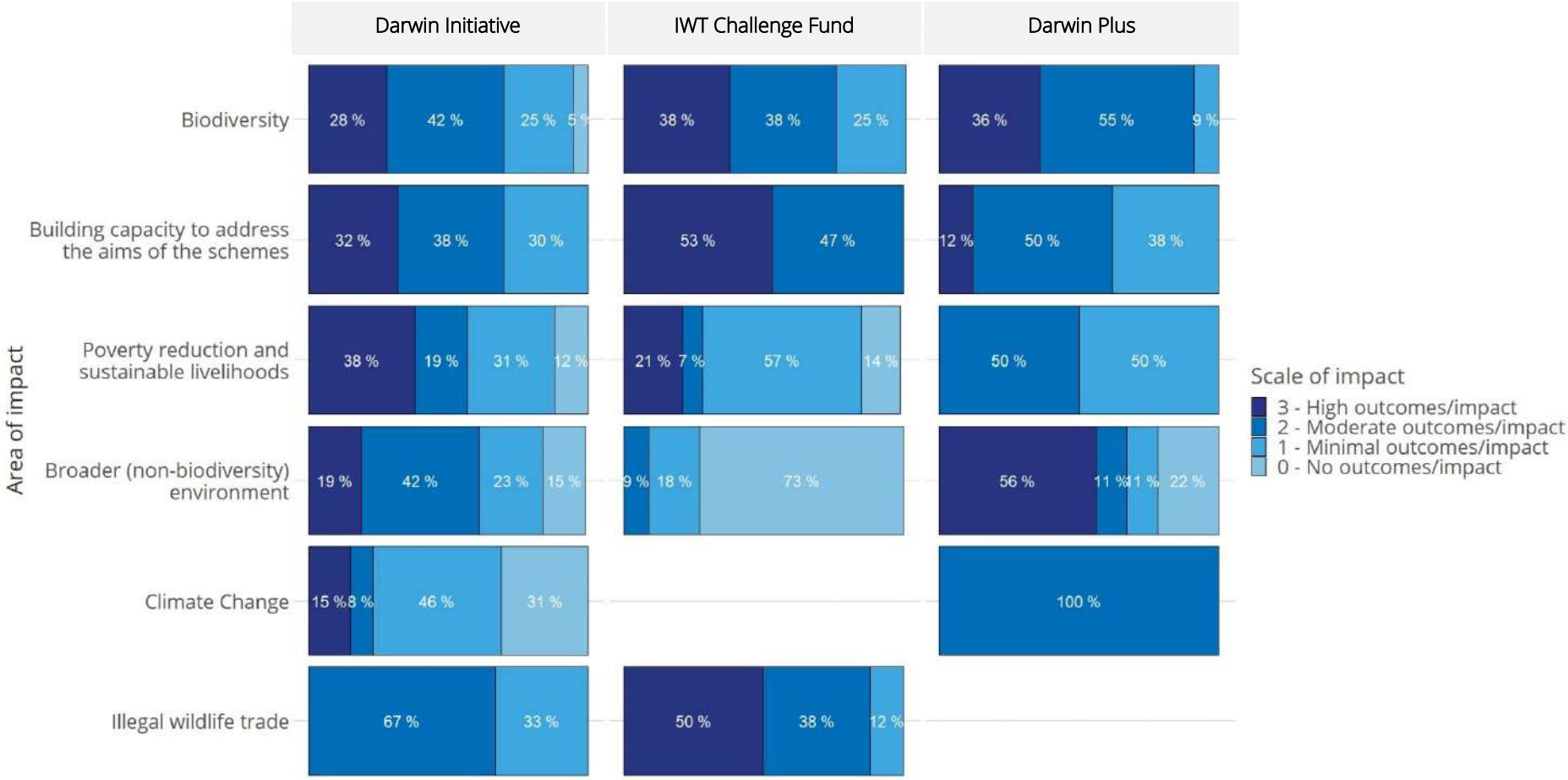
[73] We did not score Fellowships because the scale of outcomes/impacts is likely to be much less; the cost of fellowships is far less than other projects.
[74] See Annex 7 for details of these scales.
[75] The Spearman's correlation coefficient is equal to 0.75, showing a strong positive relationship. This is statistically significant at the 10% level.
[76] The Spearman's correlation coefficient is equal to 0.38, showing a weak to moderate positive relationship. This is statistically significant at the 1% level.
[77] The Spearman's correlation coefficient is equal to 0.28, showing a weak positive relationship. This is statistically significant at the 10% level.

Figure 8: Scoring for scale of outcomes/impacts for different areas of outcomes/impacts



Note: Darwin Initiative (N=50), IWT Challenge Fund (N=31), Darwin Plus (N=15)

Below we present our analysis on outcomes for each scheme, collating the evidence for each outcome area together to understand how these align to the objectives of each scheme.

4.3. Darwin Initiative

Primary outcomes

Darwin Initiative projects have made significant contributions to reducing threats to biodiversity loss, particularly in protecting species from overexploitation, halting the unsustainable use and management of species and ecosystems; reducing the fragmentation, degradation, and loss of critical habitats from human and economic pressures through both grassroots and top-down action; and, to a lesser degree, eradicating invasive alien species to foster native species recovery. From our analysis, we found that the Darwin Initiative has primarily achieved this through strengthening the enabling environment, laying the foundations for more effective biodiversity conservation and the enhancement of ecosystem services.

First, the most common outcome is Darwin Initiative's development of effective conservation support mechanisms, which most commonly included local, regional, and national protection or management structures that promote the sustainable use and management, but also the protection and recovery of key species and habitats. Such structures included multi-level protection plans, community-based organisations and user groups, and the establishment of buffer zones and protected areas, which are often community-managed, and cover vast areas of priority landscapes relevant to the biodiversity issue(s) or threat. Not only are these structures a successful outcome of projects, but they are also expected to play a long-term role in facilitating future biodiversity conservation action.

For example, in Kenya, one project[78] has facilitated the preparation and formal adoption of the Tana Delta Indigenous and Community Conservation Area Management (ICCA) plan (2019–2029). This established an effective community-based, government-approved conservation agreement spanning 116,867 ha, supporting the management of all natural resources, minimising conflicts, and reducing and controlling unsustainable resource use practices threatening the Tana-Delta's unique biodiversity. The project overall led to increases in mangrove forest cover, as well as the establishment of further community wildlife conservancies. However, there is also evidence that not all of these have been successful, or that outcomes of their implementation are still yet to be observed.

Second, Darwin Initiative projects have developed impactful knowledge products that contribute, or will contribute, to biodiversity conservation, such as the publishing of baseline information, datasets on biodiversity, ecological and socioeconomic information, and learning products, such as best practice guidelines and technical reports. There is evidence that, in the dissemination of such outputs, these have contributed to greater local, national and international-level knowledge, including a better understanding of social-ecological interactions between development and biodiversity conservation. It has also contributed to the identification of current and future priorities, including areas and species of biodiversity importance, and future biodiversity and environmental research. It has also led to the formulation and enhancement of policy; and subsequent conservation cooperation and action within and beyond the host country.

For example, one project in Indonesia[79] demonstrates that datasets, maps, research and publications have provided Indonesian government staff with the tools necessary for careful decision making to maximise community forestry management effectiveness in Kalimantan, facilitating greater understanding of social-ecological interactions to identify where and which conditions are most impactful, improved governance, and sustainable management of forests. This is already shown to have an impact, and is significantly likely to continue reducing deforestation and benefitting local livelihoods. Another project in Nepal[80] raised

[78] DAR24013: Balancing water services for development and biodiversity in the Tana-Delta.
[79] DAR23033: Marrying community land rights with stakeholder aspirations in Indonesian Borneo.
[80] DAR18005: Understanding, assessing and monitoring ecosystem services for better biodiversity conservation.

awareness on how information of ecosystem services can be used to develop better biodiversity conservation strategies, where recommendations have been accepted and used by stakeholders to promote forest ecosystem management, including other Asian countries. The knowledge product has also been shared at CBD COP and contributed to Nepal's 6th National Report to the CBD in 2018.

Third, a number of Darwin Initiative projects have created conservation-oriented behaviours amongst local people, including youth, as well as local and regional government stakeholders, increasing awareness and willingness to promote, practice, and mainstream biodiversity conservation in some instances. For example, one project[81] strengthened biodiversity awareness amongst government and communities, including indigenous peoples and youth. Conservation education and awareness programmes support the integration of knowledge into village regulations, as indigenous and local people are more aware of the importance and value of protecting the forest and wildlife, and similar capacity building amongst provincial government stakeholders has led to the implementation of district spatial plans. This has contributed to the sustainable management and strict protection of Raja Ampat's terrestrial and marine biodiversity at both the local and provincial level. However, a number of projects also present limited evidence on how improved awareness may translate into behaviour change, as well as into local, regional and/or national policy and biodiversity conservation practices, sometimes affiliated with the scope and scale of projects.

Fourth, some projects have facilitated multi-level engagement and coordination, not only enhancing the capabilities of local and national stakeholders to support biodiversity conservation, including communities, NGOs, governments, academic institutions or researchers; but also connecting the local to the national, particularly through the enhanced capacity and empowerment of local people. This has supported projects to further leverage and build momentum for the success of biodiversity conservation in some host countries. A common example is the success of multi-stakeholder engagement between local, regional and national stakeholders to more effectively manage and protect forested areas together[82]. Another example is projects feeding local-level action and research into host countries' national biodiversity strategies and action plans (NBSAPs) and other national action plans. A project in Guyana[83] is integrating traditional knowledge across several South American countries' national action plans based on local experience. However, in some projects, it is often assumed or expected that local recognition and governance models will be disseminated and translate into a national-level change, which a number of independent report reviewers state may not always be the case.

Intermediate outcomes

The four primary outcomes above were supported by the achievement of a number of intermediate outcomes.

Much of the above are the result of capacity-building outcomes of Darwin Initiative projects. There is clear evidence from our analysis that projects have built both 'hard' and 'soft' capacity in host countries at different levels, including organisational structures, policies and procedures on the former (such as conservation mechanisms, knowledge products, multi-level engagement and coordination), and social, relational and behavioural capacities on the latter, such as conservation leadership, commitment and values (for example, conservation-oriented behaviours). Collectively, projects have educated and trained substantive numbers of stakeholders, including in-country partner organisations; NGOs; MSc and PhD students; different levels of government, including high-ranking officials; and local community members, including the poor, women, youth, indigenous peoples, and village leaders. The most important outcome of building the capacity of these groups is their increased capabilities to take ownership over the continuation of project outputs, such as the enhancement of environmental knowledge, research, sustainable livelihoods, policy and governance at multiple levels. For example, in one project[84], community

[81] DAR24007: Ridge-to-reef conservation and sustainable livelihoods in Raj Ampat.
[82] Some examples include DAR7149: Tabunan Forest Biodiversity Conservation Project; DAR18003: Supporting indigenous and local organisations to implement CBD Article 10(c); and DAR24006: Enhancing forest biodiversity and community resilience to Tajikistan's changing climate.
[83] DAR24026: Integrating Traditional Knowledge into Guyana's Conservation Policy-Making and Practice.
[84] DAR23031: Science-based interventions reversing negative impacts of invasive plants in Nepal.

forest user groups and district forest offices have taken ownership over restoration activities in the forest areas, and the project's generation of science-based knowledge has been incorporated into community forest management plans and operations approved by government district forest offices. Furthermore, there is evidence that these stakeholder groups institutionalise and transfer capabilities at the local, national and international level, such as to other members of the community, within and across government departments, and to other countries.

There is also clear evidence across many Darwin Initiative projects that reduced threats to biodiversity has been achieved by the effective participation of local communities and indigenous peoples, primarily through sustainable livelihood approaches and the formation or strengthening of community management structures. This not only involves local people in biodiversity conservation, supporting the implementation of conservation support mechanisms and conservation-oriented behaviours outlined above, but also produces multi-dimensional wellbeing benefits that create the economic and social space for local communities to engage in biodiversity mainstreaming. The number of people and households that benefit from sustainable livelihoods varies, although there are a number of projects where these outcomes positively influence thousands of households[85], although this is often likely to be indirectly. These activities are also reaching some of the most vulnerable individuals in some cases, however this is not always clear.

The main benefit evidenced is that of improved individual or household income, which in some cases is also more resilient to changes due to income diversification. For example, one project's[86] insurance, handicraft and corral schemes benefited 5,926 households by insuring 12,980 livestock, protecting over 7,500 livestock, and involving 164 household members across 5 communities in 35 handicraft schemes, smoothing income and supporting the reduction of livestock losses. Indirect benefits are also posited of the expansion of community-based incentive schemes is posited to benefit nearly three times as many people than anticipated. There is also evidence that increased income is being invested into longer-term issues, such as housing and education, compared to purely subsistence[87].

Projects are also creating greater employment opportunities, such as in agroforestry, aquaculture, and ecotourism, amongst others, which creates further potential for income generation for other community members. In addition, some projects demonstrate evidence of sustainable livelihoods leading communities to substitute away from illegal or unsustainable activities, such as illegal mining, logging and hunting[88]. However, it is observed in some projects that employment and this substitution effect can stem from short-term employment, such as in the construction of facilities for the purposes of fieldwork, which only leads to short-term benefits.[89]

Darwin Initiative projects have also improved health and food security, such as better respiratory health and reduced periodic hunger and food poverty, respectively. For example, one project[90] introduced the production of biochar and improved cooking stoves, creating smoke-free cooking environments that diminished respiratory diseases caused by smoke inhalation, whilst reducing firewood consumption, cooking time, as well as crop yields through the application of biochar to farming. Another project[91] reduced hunger and periodic food poverty from climate-related hazards such as droughts through the implementation of drought- and pest-resistant crops, associated diversification of crops, and the integration of more efficient farming techniques.

Less tangible wellbeing benefits are also observed in the form of greater social capital and empowerment as a result of increased confidence, problem-solving abilities, and decision-making capabilities. Where evidence is present, this can often be attributed to capacity building, where enhanced capacity and skills

[85] (DAR24013: Balancing water services for development and biodiversity in the Tana-Delta.
[86] DAR22004: Collaborative conflict management for community livelihoods & snow leopard conservation.
[87] For example, DAR21018: Conservation and sustainable use of marine turtles, Southwest Madagascar.
[88] For example, DAR24007: Ridge-to-reef conservation and sustainable livelihoods in Raj Ampat; DAR24011: Wildlife-friendly agroforestry and sustainable forest management in Bolivian indigenous territories; and DAR18015: Addressing the illegal trade in the critically endangered Ustyurt Saiga.
[89] For example: DAR22002: Complete altitudinal rainforest transect for research and conservation in PNG; and DAR25001: Preventing Borneo's peatland fires to protect health, livelihoods and biodiversity.
[90] DAR23031: Science-based interventions reversing negative impacts of invasive plants in Nepal.
[91] DAR23020: Sustaining biodiversity, livelihoods and culture in PNG's montane forests.

to undertake new sustainable livelihood opportunities and contribute to the conservation agenda in turn promotes greater ownership and empowerment.

Although these are less observed due to a lack of measurement and reporting, one project[92] evidences some degree of transformative impact, where women reported greater clarity and hope about the future, positive changes in intrahousehold relationships and decision-making power, and increased independence. Social capital and empowerment is also enhanced by greater recognition and/or rights of local and indigenous communities to drive sustainable use and the integration of traditional knowledge and customary laws and institutions in local biodiversity conservation[93].

In some cases, there is evidence that biodiversity conservation efforts have increased the efficacy and benefits of sustainable livelihoods. Direct benefits have been observed, such as in the form of increased stocks, security of stocks for crops, fish and livestock, although indirect impacts from enhanced ecosystem functioning are evidenced as likely to deliver greater environmental benefits and opportunities for stakeholders living in and around nature as a result of projects' efforts. However, this impact is not yet measurable in many cases. Research-oriented projects have also assessed the conditions in which sustainable livelihood approaches are most effective, strengthening evidence-based knowledge, recommendations and awareness on the importance of biodiversity for poverty reduction[94]. An example of significant wellbeing benefits is shown in Figure 9: A notable example of significant wellbeing benefits in Bolivia.

Figure 9: A notable example of significant wellbeing benefits in Bolivia

DAR24011: 'Wildlife-friendly agroforestry and sustainable forest management in Bolivian indigenous territories'

This particular project demonstrates a clear contribution to better addressing current debates between pure and practical conservationists. Everything indicates that it is possible to build a strong case in favour of more balanced approaches to conservation, and showcase that it is possible to find a balance between the improvement of the livelihoods of poor and vulnerable indigenous populations, and the conservation of the forests and protection the wildlife. It is clear from interviews with local producers that they are experiencing important changes in their attitudes towards the use and conservation of the forest. Local producers manifest that the most valuable learning they got from their participation in the project is the realisation that the production of high-quality cacao and coffee not only is possible, profitable and sustainable, but also and most importantly, that it is compatible with, and can greatly benefit from, the conservation of the forest and protection of the wildlife.

However, specific interventions will always be needed to address specific issues in regards to the use and conservation of forests. The comprehensive approach of this project, addressing every single aspect of the process of production and commercialisation of cocoa and coffee, showcases that the whole process is perfectly compatible with local peoples' livelihood aspirations, the conservation of forests and the protection of wildlife, and that this understanding is critical to transformative changes in attitudes and practices demonstrated.

Projects supporting livelihoods are not always effective, and sometimes fail, especially over the longer-term, due to factors such as unfavourable biophysical conditions for crops and tree nurseries, and market access and volatility for livelihood products. Furthermore, the measurement of poverty reduction benefits are

[92] DAR23027: Cultural and economic incentives for endangered species conservation in Cambodia.
[93] For example, DAR21018: Conservation and sustainable use of marine turtles, Southwest Madagascar.
[94] Examples include DAR19023: NBSAPs 2.0:Mainstreaming Biodiversity and Development; and DAR23033: Marrying community land rights with stakeholder aspirations in Indonesian Borneo.

difficult to demonstrate, especially for policy and research-oriented projects given intended changes are indirect and the pathway from research to policy development, adoption and implementation is uncertain.

For a small subset of Darwin Initiative projects in our sample, there is evidence of enhanced capacity to adapt to climate change as a result of sustainable livelihood approaches, particularly through greater awareness of climate change risks, and the strengthening and diversification of local livelihood, as observed in projects in Bolivia[95] with respect to implementing more climate change compatible farming methods and enhancing capacity in sustainable agroforestry practices. In addition, there is evidence that these projects also present indirect evidence of climate change mitigation resulting from reduced deforestation and enhanced protection of carbon stores. For example, in Indonesia, one project[96] strengthened the capacity of firefighting teams and prevention networks, and peat rewetting and seedling reforestation on previously burnt areas is contributing to mitigating carbon emissions from Sebangau National Park's peat swamp forest, demonstrating evidence that all fires have been prevented, zero hectares have been lost, and over 150 ha of land has been replanted.

Cumulative impact

As a result of the primary and intermediate outcomes the Darwin Initiative achieves, there is evidence that some projects directly contribute to the conservation status[97] of species, which is recognised to be an important element of reducing threats to biodiversity. For example, one project[98] provides evidence of an increasing trend in orangutan population density estimates, demonstrating a healthy and viable population, and biodiversity metrics also show the project has contributed to enhanced species composition and relative abundance in Sebangau National Park. Projects' particular efforts in effective population and habitat management, the removal of alien invasive species and the reduction of human and economic pressures and behaviours which encroach upon and negatively influence critical habitats have supported these species-level outcomes.

Some projects have also discovered unknown populations of highly endangered species in new areas, expanding research efforts and signalling shifts in conservation status[99], as well as discovering extant species previously thought to be extinct[100]. These have primarily been the result of biodiversity identification and monitoring, which not only supports the identification of stable or improving species-level changes, but has also generated foundational information to enhance the conservation status of more species than anticipated now and in the future. For example, in one project[101], monitoring of Andean bears led to the identification of hundreds of other species. This strengthens understanding and continuing monitoring on essential information which contributes, or will contribute, to shaping the conservation status of a large number of species.

4.4. Darwin Fellowships

Our Tier 2 evidence demonstrates that the biodiversity knowledge and expertise of Fellows increased. They improved their ability to identify, study, and produce recommendations on biodiversity, particularly for species with ecological importance. For example, Dr Lokesh Shakya of Nepal[102] strengthened skills in data management and georeferencing, producing baseline information on orchids in Nepal, and identified new

[95] DAR20021: Forest Futures: Livelihoods and sustainable forest management in Bolivian Amazon and DAR24011: Wildlife-friendly agroforestry and sustainable forest management in Bolivian indigenous territories.
[96] DAR25001: Preventing Borneo's peatland fires to protect health, livelihoods and biodiversity.
[97] This includes the active protection, avoided mortality, and measurable stability or improvement in composition, abundance, and reproductive indicators of critically endangered, vulnerable and near-threatened species.
[98] DAR25001: Preventing Borneo's peatland fires to protect health, livelihoods and biodiversity.
[99] For example, DAR11025: Cross-border conservation strategies for Altai Mountain endemics; and DAR24013: Balancing water services for development and biodiversity in the Tana-Delta.
[100] For example, DAR7149: Tabunan Forest Biodiversity Conservation Project.
[101] DAR25011: Andean bears and people: coexistence through poverty reduction.
[102] EIDPS021: Lokesh Ratna Shakya

country records of species and characterised undescribed species, publishing several outputs including scientific journal papers and a database.

In-country evidence from Bolivia and Nepal demonstrates that fellowships, from the perspectives of fellows, are an important contributing factor for their successful careers. For example, since completing a fellowship in Bolivia in 2014[103], Dr Hibert Huaylla is now the director of the National Herbarium of Moquegua, part of a regional group of scientists that studies plants species in South America, and is still linked to Kew Gardens (host institution) having developed various other studies in collaborations with them since.

However, there is mixed evidence that fellows have benefited their host institutions. Positive impacts have been observed in Nepal fellowships, through applying their knowledge and support to institutional research activities. However, in Bolivia, the reality for Dr Hibert Huayalla and Dr Daniel Soto[104] as fellows was that there may not always be a full guarantee of incorporation or employment, and ability to apply knowledge learnt, based on their experience.

Due to this, evidence of fellowships contributing to the transfer of knowledge and to host country implementation of conventions is observed in Nepal, but to a lesser degree in Bolivia based on our analysis. A good example of this in practice, however, is Dr Sangeeta Rajbhandary's research in Nepal[105], which contributed to improved legal protection for fern species in Nepal, including amongst the government, which has also helped spread greater awareness about the value of ferns. Nepal has also facilitated the completion of several students' theses on fern and fern allies.

4.5. Darwin Plus

Primary outcomes

Darwin Plus projects have a strong, positive impact on the capacity of UKOTs to deliver long-term strategic outcomes for the natural environment.

The most common outputs of Darwin Plus projects are research and capacity building efforts, and the primary outcome of Darwin Plus projects that results from research and capacity building (which are the most common outputs of these projects) is the significantly likely implementation or strengthening of Marine Management Areas and Plans, or Marine Spatial Planning processes in UKOTs. The effectiveness of research and enhanced capacity is apparent through enhanced skills, tools, and techniques for data collection and monitoring the natural environment, better-informed planning and decision-making, and the sustainable management and protection of marine ecosystems and biodiversity.

Such outcomes provided evidence of the mainstreaming of conservation in government decision-making in UKOTs. One project in Tristan da Cunha[106], for example, informed an updated Fisheries Management Plan, recognised by the Marine Stewardship Council; built capacity of the Fisheries Director which led to wider, diversified fisheries and marine protections, decision-making on whole-Economic Exclusion Zone plans, and newly reduced and sustainable quotas; and supported the refinement of marine management plans based on the relevant importance of future impacts. There are, however, still a number of projects where policy changes are yet to be observed, such as the drafting and finalising of legislation on and implementation of marine management systems, but there is still clear evidence amongst all Darwin Plus projects analysed of the growing interest, ownership, and participation of UKOT stakeholders; particularly for national governance in the sustainable management of marine resources[107].

[103] EIDPS020: Hibert Huayalla
[104] EIDPS020: Hibert Huayalla and EIDPS031: Daniel Soto, respectively.
[105] EIDPS035: Sangeeta Rajbhandary
[106] DPLUS062: Securing the future of the Tristan marine environment.
[107] For example, DPLUS071: Fine scaling the design of Falkland Islands Marine Management Areas.

These impacts on the sustainable management and protection of the natural environment in UKOTs are possible due to the enhanced capacity of government stakeholders. Evidence from the British Virgin Islands demonstrates the most significant outcome of Darwin Plus support is the enhanced capacity of government stakeholders in particular, as BVI government departments are not only more experienced and equipped to conserve biodiversity, but they are increasingly having greater influence on which projects are funded, i.e., those contributing more directly to government priorities, including where capacity building will be most effective. BVI Government stakeholders are now able to apply advanced survey and GIS mapping skills to the management and administration of important terrestrial and marine habitats and expand protected area networks and improve species protection. Importantly, this is the result of sequential projects delivered over many years in the BVI, in addition to government stakeholders committed to protecting and conserving biodiversity.

in certain contexts, the involvement, greater awareness, and empowerment of local stakeholders, such as youth and fisherfolk. For these local stakeholders, Darwin Plus projects indirectly secure greater livelihood benefits, particularly through a stronger voice in decision-making arenas, greater ecosystem functioning to benefit the fishing industry, the potential for greater ecotourism opportunities, and greater resilience to environmental disasters, such as hurricanes[108]. In the British Virgin Islands, it is observed that the multitude of projects implemented over time have contributed to the public's awareness of its native fauna and flora to such an extent that the name 'Darwin' has in some cases become synonymous with learning about biodiversity and local people have become advocates for the natural environment.

Some Darwin Plus projects also successfully disseminate results, share lessons, and support the implementation of similar outputs in other UKOTs in their region. One project in the British Virgin Islands[109], for example, held supported territory-coordinated mangrove restoration work, and wider dissemination of lessons and training were achieved at three regional meetings involving all Caribbean UKOTs. Fieldwork confirms this finding, where projects have been able to seed further projects both within the British Virgin Islands and beyond to other OTs and countries. Although, overall, there are a number of projects in the Darwin Plus scheme where evidence on this is not available.

Cumulative impact

Through this work, it is clear that Darwin Plus projects have reduced key threats to UKOTs' natural environments, including unsustainable management and use of resources, climate change, invasive species, and plastic waste pollution (although this is only observed for one project located in the British Indian Ocean Territory)[110]. There is also evidence that Darwin Plus projects support the conservation of species, primarily through enhancing the collection and monitoring of biological and ecological data in UKOTs. A project in the British Virgin Islands[111], for example, collected necessary information, including on threatened plant species, to develop a conservation strategy with a protocol on the collection, maintenance, and monitoring of plant material and associated data based on project research, supporting the conservation of island flora. In addition, a project in the Falkland Islands[112] collected novel and valuable biological data from poorly studied inshore and offshore regions, contributing to commitments in the Agreement on the Conservation of Albatrosses and Petrels, and the Convention on Migratory Species for Appendix I and II species of cetaceans, fur seals, and sea lions. The project's research also supports the Falkland Island's Biodiversity Framework.

Darwin Plus projects have also improved climate change monitoring by generating baseline data and understanding of ecosystems and climate change conditions, and measuring and modelling the impacts of

[108] There are many examples here, including DPLUS030: Building systems and capacity to monitor and conserve BVI's flora; DPLUS034: Fassouri Marsh Restoration: a flagship wetland in the Cyprus SBAs; DPLUS039: Sustainable development and management of St Helena's fisheries and marine tourism; DPLUS062: Securing the future of the Tristan marine environment; and DPLUS081: Mapping for evidence-based policy, recovery and environmental resilience.
[109] DPLUS073: Improving small island resilience and self-sufficiency in habitat monitoring and management.
[110] DPLUS090: Reducing the impacts of plastic on the BIOT natural environment.
[111] DPLUS030: Building systems and capacity to monitor and conserve BVI's flora.
[112] DPLUS071: Fine scaling the design of Falkland Islands Marine Management Areas.

climate change on livelihoods, such as fisheries, as well as the marine environment[113]. It is expected that such evidence will contribute to UKOTs' ability to adapt to climate change over the longer-term.

These various impacts reflect the unique strengths of the Darwin Plus programme, comprising a significant contribution to biodiversity conservation in the Caribbean, South Atlantic, Antarctic and beyond, especially with regard to conservation of the unique and highly vulnerable fauna and flora of oceanic islands and the particular threats facing them.

4.6. IWT Challenge Fund

Overall

There is strong evidence that the IWTCF has contributed to reduced threats to endangered species. It has done so through reduced human-wildlife conflict, greater IWT awareness, and changes in behaviour. It has also increased capacity to detect wildlife crime; increased arrests, seizures, and prosecution; and increased the penalties for engaging in the IWT, all of which have supported an overall greater deterrence effect in source, transit, and consumer countries. These outcomes have been achieved through delivering projects in four core areas: developing sustainable livelihoods, strengthening law enforcement, supporting effective legal frameworks, and reducing demand for IWT products.

Strengthened law enforcement

Capacity building is the most important element of strengthened law enforcement and judiciaries. All projects demonstrate a strong capacity building impact, often central to the formation and strengthening of law enforcement units in key IWT-affected landscapes, and in many cases training hundreds of law enforcement officials, police, rangers, customs officials, and other actors in the detection and enforcement of IWT activity, as well as the management and use of intelligence tools and databases, with clear evidence of impact. Projects clearly demonstrate the successful detection, arrest, prosecution, and conviction of IWT criminals, and the seizure of live animal or animal products. A project in Kenya[114], for example, increased conviction rates from 22% at baseline to 65%, and then 92% by the end of the project. Another example is for a project in Indonesia[115], which even in its first year, enabled several sting operations resulting in the arrest and conviction of five individuals who were sentenced and fined, as well as the arrest of a major pangolin scale supplier which led to the seizure of pangolin meat and scales, hornbill beaks and casques, and body parts of other species.

Evidence from enforcement patrols is also enhanced by projects' implemented systems and databases that collect, consolidate, classify, and analyse IWT crime information, which supports the monitoring of offences and individuals at the national, and in some cases transnational, level. In particular, such databases have provided valuable intelligence in identifying previous offenders to support prosecutions, and identifying and disrupting IWT criminal networks involved in the trafficking of tigers, rhinos, elephants, and other protected species, as observed in a number of different projects.[116] Such outcomes are closely linked to the use of innovative methods, which contribute to more effective enforcement and prosecution of IWT crimes. This includes such innovative intelligence tools, but also the investigation of financial transactions and integration of support for private sector actors in the detection of illegal transactions.

Many projects have also set up successful multi-agency and transnational cooperation mechanisms, particularly to share information and coordinate enforcement operations to tackle IWT criminal networks.

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[113] For example, DLUS062: Securing the future of the Tristan marine environment; and DPLUS071: Fine scaling the design of Falkland Islands Marine Management Areas.
[114] IWT028: Building judicial capacity to counter wildlife crime in Kenya
[115] IWT069: Strengthening intelligence-led enforcement to combat IWT between Indonesia and Malaysia
[116] IWT009: Developing law enforcement capability in Malawi to combat wildlife crime; IWT068: A price on their heads – Addressing jaguar trafficking in Bolivia; IWT040: Strengthening transcontinental cooperation to combat IWT between Vietnam and Mozambique; and, IWT027: Strengthening institutional frameworks to combat wildlife trafficking in Indonesia

For example, one project[117] established a multi-agency wildlife crime investigation unit within a government department, leading to successful arrests and convictions; in addition, they hosted transnational investigation workshops to build cross-border investigative capacity. In particular, transboundary efforts have led to increased cooperation, coordination, and innovation in deterrent approaches to poaching and the illegal wildlife trade through field-based knowledge sharing and learning. Overall, multi-level enforcement action resulted in an increase in wildlife crime detection, apprehension, and conviction rates by 200%. There are also other notable examples.[118] Transboundary enforcement outcomes are limited in a few cases, however. One project[119], for example, was only able to discuss greater cooperation and action plans between the Indonesian government and other Southeast Asian governments; another project[120] facilitated strategic discussions on cooperation between China and Laos, but this has not translated into action.

Outcomes on curtailing corruption are not observed, however, and in fact this poses a major barrier to the success of some projects' efforts on strengthening law enforcement and the judiciary. This is observed in a project where corruption remains a significant challenge to successful prosecutions.[121]

Effective legal frameworks

Although fewer projects aim to ensure effective legal frameworks, our analysis finds that some projects have strengthened policy and legislation, judicial prosecution processes, and penalties for illegal wildlife trade crimes as a result of revising national-level policy, and effectively building the capacity of the judiciary to use project-developed best practice guidelines, as well as relevant and alternative laws, to enhance prosecution, strengthen penalties, and increase the rate of conviction. A few notable examples stand out.

One project[122] set in motion a systemic change to the Kenyan justice system, introducing institutional and procedural reforms with a profound and long-lasting impact on conviction rates, penalties, and the efficiency of judicial processes. The project trained up to 200 prosecutors attending cases as State Attorneys at courts country-wide, increased the severity of penalties with sentences up to the equivalent of £500,000 and 20-year or life sentences, and contributed to a Rapid Reference Guide that incorporates Standard Operating Procedures for all agencies on criminal trial procedures.

Another project[123] in Malawi strengthened the effectiveness of legal frameworks and deterrents for illegal wildlife trade crimes by effectively training and establishing a judiciary symposium on the new wildlife legislation and sentencing guidelines developed by the project. The databases developed also support the tracking of individual judges to monitor potential weaknesses in the judicial upholding of guidelines and handbooks developed to standardise sentencing over time. The results of this has been that 100% of poaching and ivory cases investigated have resulted in charges under multiple Acts for offenders, with the average fine having increased by 1000% over the project's lifetime. Finally, a project in Indonesia[124] trained environmental judges, which contributed to a 100% prosecution rate and average sentencing time of between eighteen months and four years, including the disruption of up to ten criminal networks. The project also contributed to the revision of key legal frameworks for species protection and wildlife trade in order to close loopholes. This included Indonesia's Conservation Law (No. 5/1990), revision of which doubled the number of species under protection and strengthened wildlife crime penalties, as well as the country's wildlife utilisation and quota system (Regulation 8/1999). These revisions are still in the processes of being finalised and enacted.

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[117] IWT022: Disrupting ivory trafficking conduits with coordinated law enforcement in Malawi.
[118] For example, IWT014: Bi-national Collaboration to Eradicate Wildlife Trafficking in Belize and Guatemala.
[119] IWT027: Strengthening institutional frameworks to combat wildlife trafficking in Indonesia.
[120] IWT046: Enhancing Enforcement to End Tiger Trade in South East Asia.
[121] IWT031: Combatting IWT in Cameroon through improved law enforcement and community empowerment.
[122] IWT028: Building judicial capacity to counter wildlife crime in Kenya.
[123] IWT009: Developing law enforcement capability in Malawi to combat wildlife crime.
[124] IWT027: Strengthening institutional frameworks to combat wildlife trafficking in Indonesia.

Legal framework outcomes are more difficult to fully achieve and demonstrate within the project timeframe. Revisions to policy and legislation for one Indonesia project[125], for example, are still in the process of being finalised and enacted. Another Indonesian project[126] has increased arrests and prosecutions, but none of the cases followed judicial guidance for CITES Appendix I listed species, developed by the project, as intended.

For projects that have strengthened law enforcement and/or legal frameworks, poverty reduction links are often indirect and difficult to measure. It is observed, however, that the outcomes of interest, according to a number of independent report reviewers, are the fruits of capacity building amongst law enforcement and the judiciary. Where indirect poverty reduction benefits are claimed, these mainly included increased confidence in law enforcement, increased personal security and safety, and the potential for greater ecotourism resulting from an increase in the arrest, prosecution, and conviction of IWT criminals. Some projects, however, are in the process of measuring livelihood benefits using socio-economic surveys, although the exact indicators that would be measured are not clear.

Additionally, in many cases projects are unable to quantify results on livelihood outcomes due to their indirect nature, and long causal links. The most common example of this is that of increased ecotourism in source countries, which many projects claim in applications, and which continue in annual and final reporting. In most cases, however, independent reviewers state it is not clear how this impact on poverty reduction and sustainable livelihoods will occur as a result of projects' interventions, especially for projects that speculate such benefits from shifts occurring in transit and consumer countries.[127] One project[128] summarises that its link to poverty reduction was tenuous and unnecessary (given its main intention of judicial capacity building), with untestable claims on the benefits resulting from it.

Developing sustainable livelihoods

Projects can help to successfully develop sustainable livelihoods by reducing the attractiveness of the illegal wildlife trade and the unsustainable killing or harvest of endangered species. This can partially be achieved through providing local people with suitable alternatives to poaching, including sustainable livelihoods in forestry, agriculture, and ecotourism, which are effective at replacing the otherwise lost income from poaching, and also offer additional benefits that encourage local communities to shift towards wildlife conservation.

For one project in Indonesia[129] which aligns with Islamic values, for example, there is evidence that poachers have committed to stop poaching, and some are now even working in the project's Tiger Protection Units, acknowledging that the illegal wildlife trade does not align with their religious values, and that sustainable livelihoods, and the benefits that arise from these including skills, income, food, and personal security, are more attractive than poaching. Sustainable livelihoods are thus supported by greater awareness of the benefits outside of the illegal wildlife trade, which strengthens engagement further. One project's awareness raising in Nepal[130] allowed communities to find out about other enterprises connected to their own livelihoods, and take advantage of additional funds from the Kenya government; organic agriculture, goat farming, and other local infrastructure, for example.

Projects also effectively mitigate human-wildlife conflicts, primarily through increased awareness, the construction of predator-proof enclosures, and conflict mitigation systems, such as taskforces. Projects reduce or fully mitigate cases of human-wildlife conflict, and this is supported by lower – or no – mortality

[125] IWT027: Strengthening institutional frameworks to combat wildlife trafficking in Indonesia.
[126] IWT049: Reducing IWT in Sumatra across two globally important tiger landscapes.
[127] For example, IWT008: Technology and Innovation Against Poaching and Wildlife Trafficking; and IWT059: Deploying Anti-Money Laundering Typologies to Curb Illegal Wildlife Trade.
[128] IWT028: Building judicial capacity to counter wildlife crime in Kenya.
[129] IWT048: Tackling the illegal wildlife trade in Muslim Communities in Sumatra.
[130] IWT041: Strengthening Community Anti-poaching and Ecotourism in the Western Terai Complex.

rates for species as a result of retaliatory killings (of tigers and elephants, in most cases).[131] Projects also encourage local community members to take responsibility in combatting the illegal wildlife trade, building awareness, willingness, and involvement in reporting crime and decision-making, and promoting wildlife conservation, which is closely linked to outcomes in strengthened law enforcement. This is observed as a result of projects' multi-level governance efforts, where, for example, multistakeholder platforms in one project[132] are enabling communities often underrepresented in decision-making to meet and engage with government officials and other stakeholders to discuss relevant issues, and in another[133], local communities now have the capacity to work with local government in conservation efforts, and are confident in discussing their needs with local government as well. There is also evidence that such approaches in sustainable livelihoods support law enforcement efforts, enhancing intelligence networks and informed action at the local level. One project in Bolivia[134], for example, demonstrates evidence of local indigenous community organisations developing workplans to improve their control and vigilance capacities over their ecosystems, including Official Declarations against illegal wildlife trafficking activities inside their territories.

Sustainable livelihood projects, in tangent with enforcement in some cases, support the removal of several economically and socially destructive activities associated with the IWT, leading to enhanced local economic development and increased security. Furthermore, these projects also support increases in income or product value, contributing to the wellbeing of households. One project[135] achieved notable increases and reductions in expenditure in pilot areas, with positive feedback from community groups and village governments. Reductions in human-wildlife conflict as a result of implementing predator-proof enclosures also have human benefits in the form of reduced mortality and injury, as well as reduced damage to livestock, crops, and property, which are especially valuable given that these are important sources of income. Capacity building has also been successful, with demonstrable knowledge and skills in sustainable livelihood activities promoting sustainable agriculture as well as greater livelihood diversification. In a few cases, there is evidence that sustainable livelihoods have contributed to reduced expenses on fuel and food through the use of home-grown resources, helping villagers to achieve better food security. Finally, the empowerment of communities to take responsibility in reducing the illegal wildlife trade is also evident, including active engagement, and improvement in the sense of engagement, in communities, as well as understanding of wildlife crime and wildlife loss.[136] In a few cases, this supports increased community cooperation, and improved relations with conservation authorities.[137] Despite this, many projects still struggled to measure livelihood benefits with the project timeframe, and for some sustainable livelihood activities and subsequent benefits are yet to be observed. Furthermore, the long-term efficacy and viability of these livelihood activities is also unclear, as it is not certain whether the benefits to former poachers will provide adequate economic incentives not to engage in the IWT, as shared by one project team[138], who also stated that continual work on educating, promoting, and providing alternative livelihoods is required to secure real engagement.

[131] As examples, IWT027: Strengthening institutional frameworks to combat wildlife trafficking in Indonesia; IWT036: Implementing park action plans for community engagement to tackle IWT; and IWT068: A price on their heads: Addressing jaguar trafficking in Bolivia.
[132] IWT055: Combatting illegal wildlife trade in the W-Arly-Pendjari (WAP) landscape.
[133] IWT049: Reducing IWT in Sumatra across two globally important tiger landscapes .
[134] IWT068: A price on their heads: Addressing jaguar trafficking in Bolivia.
[135] IWT048: Tackling the illegal wildlife trade in Muslim Communities in Sumatra.
[136] For example, IWT055: Combatting illegal wildlife trade in the W-Arly-Pendjari (WAP) landscape.
[137] For example, IWT036: Implementing park action plans for community engagement to tackle IWT.
[138] IWT048: Tackling the illegal wildlife trade in Muslim Communities in Sumatra.

Demand reduction

Of the demand reduction projects in our sample, we have observed two groups of demand reduction outcomes. In some cases, reduced demand is an indirect outcome of increased enforcement in consumer countries and the resultant deterrent effect.[139] However, this outcome is challenging to measure; although efforts to measure changes in price and ease of sale are observed, there is insufficient evidence provided by projects. On the other hand, true demand reduction projects are those that directly contribute towards, or achieve, behaviour changes, rather than simply awareness raising in consumer countries, or strengthening of enforcement.

One project[140] was particularly successful at changing attitudes through a mass awareness campaign. With an initial £200,000 from IWTCF Wild Aid and their project partners leveraged additional funding from other donors and $60 million of pro-bono advertising to conduct a mass awareness campaign. This project built upon previous projects that Wild Aid had delivered and promoted the slogan 'When the buying stops, the killing can too', which is now used by various government officials in China when explaining the need to reduce demand for pangolin products. Pangolins have now been upgraded to the highest status of protection in China.

Figure 10: Kung Fu Pangolin

Cumulative impact

As a result of the outcomes above, there is evidence that some projects have directly contributed to the improved status of species in source countries. Where measurement is feasible, projects have demonstrated improved or stabilised population numbers, as well as measurable decreases in the killing of both target and additional endangered species, clearly demonstrating their contributions. One project's development of sustainable livelihoods[141] and strengthening of law enforcement contributed to stabilisation in the number of elephants in Kasungu National Park and Vwaza Marsh Wildlife Reserve for the first time in over 25 years. Furthermore, whilst the project focused on managing African Elephant populations, it also uncovered illegal trading in other species including Black Rhinos and Leopards, highlighting new directions to curtail these. For demand reduction and legal framework projects, this is much more difficult to demonstrate given the long causal pathway between translation of policy development to implementation, as well as reduced consumer demand for changes across the illegal wildlife network to observe the improved status of species.

4.7. Cross country analysis

Our cross-country analysis of evidence from Bolivia, Kenya, Indonesia and Nepal shows that the most common factor affecting impact is the degree of government engagement. In Kenya, Indonesia and Nepal, government support and recognition of conservation policy and regulations, as well as the enactment of key reforms, has been a significant driver of biodiversity impacts. For example, in Indonesia, national and

[139] As examples, IWT027: Strengthening institutional frameworks to combat wildlife trafficking in Indonesia; and IWT049: Reducing IWT in Sumatra across two globally important tiger landscapes.
[140] IWT025: Saving Pangolins by Reducing Demand in Vietnam and China
[141] IWT022: Disrupting ivory trafficking conduits with coordinated law enforcement in Malawi.

provincial support contributed to national social forestry and livelihoods commitments [142] , and in Nepal the government prioritises commitments related to biodiversity conservation, sustainable use and equitable benefit sharing. [143] In Kenya, the introduction of the new Constitution significantly contributed to new conservation reforms and mechanisms, including the Wildlife Conservation and Management Act of 2014 which contributed to creating a more effective enabling environment for two IWTCF projects.[144] In the BVI, close collaboration with government has been the most significant enabling factor of success. For example, one project[145] received support from the BVI National Parks Trust as well as the Governor's office, which facilitated support from all layers of government.

On the other hand, obstacles to effective government engagement negatively affects projects' impact. For example, in Indonesia, bureaucratic delays add a challenging level of complexity to implementation, [146] and Kenya[147], weak technical and financial capacity of governments hinder the implementation of activities, but also sustainability and impact. Only in Bolivia, the influence of disruptive national elections led to months of political paralysis, which affected all policies, plans, programmes and projects which collaborated with governmental organisations. [148]

In Bolivia and Indonesia in particular, the support of government often coincides with local support, where multistakeholder interactions are a key factor affecting impact. For example, in Bolivia, the successes of projects can be attributed to relationships between project lead organisations with national partners, and indigenous peoples' organisations in particular. [149] In Indonesia, the convergence of local village regulations, local government commitments, and greater social knowledge supports the protection and sustainability of wildlife.[150]

Severe weather is also a common factor affecting impact as observed in Bolivia, Kenya and Indonesia. For example, in both Bolivia[151] and Indonesia[152], severe wildfires and dry seasons affected project success; and in Kenya, severe flooding negatively impacted livelihood activities, and also contributed to local conflict. COVID-19 is also common for more recent projects, where restrictions and disruptions affected project management and implementation, most severe in Bolivia and Indonesia.[153]

This cross-country analysis focused more on Bolivia, Indonesia and Kenya, as our analysis found that there is limited information available regarding how the context of Nepal – in terms of ecosystem, governance, and/or society – might have influenced the degree of success reported by relevant projects.

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[142] DAR23033: Marrying community land rights with stakeholder aspirations in Indonesian Borneo.
[143] For example, DAR18005: Understanding, assessing and monitoring ecosystem services for better biodiversity conservation; and IWT041: Strengthening Community Anti-poaching and Ecotourism in the Western Terai Complex.
[144] IWT028: Building judicial capacity to counter wildlife crime in Kenya; and I IWT020: Strengthening local community engagement in combating illegal wildlife trade.
[145] DPLUS026: British Virgin Islands MPA and hydrographic survey capacity building.
[146] This is notable amongst IWT Challenge Fund projects, including IWT027: Strengthening institutional frameworks to combat wildlife trafficking in Indonesia; IWT048: Tackling the illegal wildlife trade in Muslim Communities in Sumatra; and IWT049: Reducing IWT in Sumatra across two globally important tiger landscapes.
[147] DAR20017: Strengthening the capability of Kenyan communities to conserve coral reefs; and DAR21014: Reconnecting poverty-alleviation to biodiversity conservation in Kenya's Eastern Arc Mountains; DAR25032: Biodiversity and Agriculture: addressing scale insect threats in Kenya.
[148] DAR24011: Wildlife-friendly agroforestry and sustainable forest management in Bolivian indigenous territories; DAR25011: Andean bears and people: coexistence through poverty reduction; andIWT068: A price on their heads: Addressing jaguar trafficking in Bolivia.
[149] DAR24011: Wildlife-friendly agroforestry and sustainable forest management in Bolivian indigenous territories; and IWT068: A price on their heads: Addressing jaguar trafficking in Bolivia.
[150] As is observed in DAR24007: Ridge-to-reef conservation and sustainable livelihoods in Raja Ampat; and IWT049: Reducing IWT in Sumatra across two globally important tiger landscapes.
[151] DAR25011: Andean bears and people: coexistence through poverty reduction.
[152] DAR24007: Ridge-to-reef conservation and sustainable livelihoods in Raja Ampat; DAR25001: Preventing Borneo's peatland fires to protect health, livelihoods and biodiversity; IWT048: Tackling the illegal wildlife trade in Muslim Communities in Sumatra
[153] DAR25001: Preventing Borneo's peatland fires to protect health, livelihoods and biodiversity; IWT048: Tackling the illegal wildlife trade in Muslim Communities in Sumatra; and IWT049: Reducing IWT in Sumatra across two globally important tiger landscapes.

4.8. Factors that affect impact

Quantitative assessment of monitoring information

For 39 projects for which there is sufficient data, there is a weak relationship between application scores and final report review scores, therefore this is an unlikely factor in determining project impact.[154] We also tested the correlation of the schemes' current monitoring indicators with final report review scores for all the projects in the monitoring database which had them. We found no strong correlation of final report review scores with any of the following variables[155]

- Standard outputs reported by projects;
- Total funding received;
- Staffing costs;
- High site presence of project leaders;
- High media exposure (number of press articles);
- Number of research outputs.

Annual Report Review scores are also not predictive of project success. For the sample of projects in the scheme level analysis that have Annual Report Review scores on likelihood of achievement, and final report review scores on actual achievement of outcomes, we find little correlation; Annual Report Review scores do not accurately predict the final report review scores.

Insights from strategic stakeholders

From our strategic stakeholder interviews, the following factors were suggested to affect the impact of projects and of the schemes:

- Length of funding cycle: Multiple stakeholders mentioned the relatively short-term nature of the funding cycle, and thought this led to projects being poorly designed, as they tried to achieve too many things within three years.

- Scale of funding: One stakeholder argued that a significant barrier to greater impact of the schemes was the current funding levels, and that inherently this meant they could not have impact at sufficient scale – they also noted that there is not a shortage of potential projects. Another stakeholder suggested that funding worth three times the current levels was necessary to have impact at scale. Others noted the amount invested was 'only a drop in the ocean' and 'only going to scratch the surface'.

- Focus on national priorities: One stakeholder argued that the majority of projects are not prioritising reaching national biodiversity commitments, and that this has slowed down a coordinated effort to have impact.

- Geographic coordination: A few stakeholders said that there is a lack of coordination among projects in the same locality (which can be very large), and that this is preventing concerted/coordinated efforts in specific regions. For IWTCF, one stakeholder thought that if there was greater focus on particular countries or themes, the projects could become greater than the sum of their parts.

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[154] *Using both Kendall's Tau and Spearman's Rho correlation statistics given the ordinal rank nature of the data, correlation figures between application scores and final report review scores for 39 projects in our sample were 0.058 and 0.079 respectively, demonstrating a very weak positive relationship.*

[155] We use the Kendalls Tau test for correlation to take into account the ordinal rank nature of the final report review scores. The correlation coefficients were total funding received (Darwin funds = -0.01, All funds = -0.07), project cost items such as staffing costs (-0.03 – 0.05), a high site presence of project leaders (0.10), high media exposure and dissemination (all dissemination outputs) (0.02 – 0.13), or number of research outputs (-0.10 – 0.11). The sample of projects with final report review scores (A++ to C) was n=213.

- Insufficient ambition for transformative change: One stakeholder thought that in their current form, the projects funded (individually or collectively) do not appear to have long-term transformative change as their intention, thus limiting their potential impact.
- Institutional reputation: The schemes are well known and have built a good reputation over time.

In addition to these findings, our project-level analysis has also identified a range of internal factors affecting impact.

Project design and management

Projects taking advantage of key entry points in design and implementation has been a key enabler of impact across outcome areas, particularly in the Darwin Initiative. This refers to projects responding to key priorities relevant to the issue being addressed. For example, projects are observed utilising government priority policy areas, targeting clear national issues, or responding to relevant revision processes of the National Biodiversity Strategy and Action Plans. One strategic stakeholder argued, however, that the majority of projects are not prioritising reaching national biodiversity commitments, and that this has slowed down a coordinated effort to have impact. Prior planning and scoping work to inform implemented projects is a key factor that enables impact, and is significant across all schemes. Conducting prior site visits, literature reviews, and research, as well as early engagement with key stakeholders (particularly government and the local community) supports projects' understanding of the needs and context of their work, enhancing its effectiveness, and reducing delays during implementation.

Significant factors affecting projects' achievement of impact observed across all schemes is the underestimation of the time, resources, effort and technical complexity required to anticipate challenges, and to plan, coordinate, and complete activities, given these feasibility constraints. A notable type of output relevant to this barrier is projects within policy or legal framework development, as well as poverty and sustainable livelihoods, where some underestimate the time required to achieve related outcomes. In certain cases, however, it is observed that the reason for underestimating these constraints is due to limited awareness of the host county context (for example, when projects operating across a diverse set of contexts and issues do not adequately consider political sensitivities or generalisability, leading to variation in achievement). It is also due to limited awareness of target issues, such as the true extent of IWT, or the efficacy of sustainable livelihood activities – particularly efficiency of markets. There are several instances where projects simply attempt to transfer strategies used elsewhere in the region, which are typically not successful due to highly contextual factors. Such limited awareness is most common amongst IWTCF and Darwin Initiative projects.

Closely linked to the underestimation of time, resources and effort is the issue of limited resources and time. On limited resources, there a number of projects which note the lack of, and need for additional, funding or resources to achieve outcomes. Multiple strategic stakeholders shared similar views on the scale of funding. Many projects also note the challenge of short project timeframes, which produces difficulties in assessing the achievement of longer-term activities and outputs, as well as outcomes, within projects' lifetimes. Multiple strategic stakeholders also mentioned the relatively short-term nature of the funding cycle, and thought that this led to projects being poorly designed, as they tried to achieve many things within three years.

Effective and adaptive management is a key factor affecting impact. Reviewers note that well-defined structures, such as the use of project management committees and, where these are not implemented, the use of regular meetings with project partners, provide a platform for projects to coordinate implementation, discuss updates, identify challenges and mitigation strategies (such as adaptation to assumptions and/or delivery), and share lessons learnt. This helps to ensure the constant input of project partners, and strengthen a shared vision among them on the purpose of the project, enhancing its impact. Other common elements include continuous local needs assessments to ensure implementation is

relevant to the context and kept up-to-date with new information. Poor project management, such as the incorrect estimation of activity/output costs; lack of clear local management structures, coordination and limited on-the-ground staff; unresolved management issues that affect implementation; and poor planning of outputs, particularly those on policy and capacity building, negatively affected intended outcomes. Furthermore, limited identification and mitigation of *probable* risks, such as those related to working across different geographies and cultures, governance challenges, or staff turnover; and relatedly the lack of validating and updating logframe assumptions, affected projects' abilities to adapt, and is observed to negatively affect project outcomes and impact.

Our quantitative analysis finds mixed evidence on the influence of lead organisation and project leader expertise on achievement of outcomes and impact. On the one hand, we do observe that projects on average achieve a higher scale of biodiversity impact when project lead organisations and leaders have demonstrable experience in biodiversity expertise. On the other hand, we observe no difference in poverty and sustainable livelihood achievements between those organisations that have social expertise compared to those without such expertise. However, our qualitative analysis of all projects finds that, broadly, project lead organisations' prior experience and competencies in the region and subject matter does enable achievement where the formation of highly relevant teams with correct expertise, ability to leverage existing relationships with project partners as well as communities, and sufficient contextual and institutional knowledge of working in complex contexts assist in setting realistic targets and increasing the effectiveness of outputs, outcomes, and impact. This is particularly important amongst projects working on IWT issues, mainly in the IWTCF, but also the Darwin Initiative.

In-country partnerships

In-country partnerships are a notable enabler to the achievement of project activities and outputs, particularly the involvement of credible and suitable host country partner organisations with a good reputation and trust in the host country context, as well as highly-regarded technical expertise, including understanding of political intricacies and facilitating relationships with other key (external) stakeholders. The equivalent in the Darwin Plus context is having fully supportive and active partnerships with UKOT government divisions and local NGOs. Across all schemes, we found the positive effects in terms of impact are especially true when they build upon strong, long-term collaborations, including those from previous Darwin projects, as this facilitates a stronger implementing consortium. Projects also benefit from a large, varied, and strongly connected network of highly-experienced stakeholders, including NGOs, global experts, private sector organisations (if appropriate), academic institutions, government authorities, and local people. With such networks, it is found that projects are able to channel and leverage greater resources and mutual interests to the benefit of activities and outputs. Networking and forming new partnerships with emerging stakeholders during implementation catalyses the formation of productive relationships with important knock-on effects, such as synergies with existing work, expansion in reach and scope of activities and outputs, and access to additional expertise and (in-kind) resources or co-funding. The contribution of substantial time, interest, and additional funding and resources in-kind through these partnerships is also a key enabling factor. The role of MSc and PhD students or graduates, which add value to research components at low cost, is also a notable factor for achieving impact.

On the other hand, project outputs are found to be hindered by limited involvement of, or too much reliance upon, project stakeholders. In some cases, limited involvement was unanticipated, resulting from factors such as limited time and staff, changes in institutional and/or financial capacity and organisational structure (e.g. the restructuring or even dissolution of partner and lead organisations), and tension in partnerships. Staff turnover and personnel and recruitment issues, in particular, are a key barrier to partnerships, causing delays in the implementation of activities and outputs. This includes key project individuals, where on a number of projects, staffs' health and circumstantial reasons led to resignation, serious illness, and hospitalisation, causing severe disruptions to project outputs. However, poor planning and management of in-country partners by project lead organisations, including a lack of technical specifications provided for partners, unclear financial responsibilities and obligations, and a lack of

mitigation efforts to reduce challenges faced by in-country partners, led to unmanaged partnership issues, undermining the achievement of outputs and outcomes.

Relationships with other stakeholders

A significant number of projects note the direct involvement of government as partners, or having good relationships with government authorities in host countries, help to alleviate local or national bureaucratic obstacles to implementation, such as securing and accelerating permissions; enable policy development activities and outputs; facilitate institutionalisation processes, such as incorporating training with key personnel; and disseminate project information or recommendations to other areas of government. This is supported by projects creating and/or consolidating good relationships with government agencies in host countries, although a strong willingness or interest among government agencies in supporting the project (such as understanding the opportunity and value of it) is also key to accelerate buy-in and adapt current government activities. This is particularly significant in UKOTs, where the most influential factor in securing achievement in the British Virgin Islands, as well as in other territories, is the close and unique relationship between projects and UKOT governments; although this is greatly facilitated by the small size of most UKOTs as well as the long-term nature collaboration between common NGOs and the territory (e.g. between RGB-Kew and BVI government since 1999). On the other hand, some projects lacked engagement with government officials altogether, especially in early project stages, which affected the achievement of impact.

At a local level, proactive engagement with key local stakeholders influences the achievement of outcomes, particularly in terms of poverty and sustainable livelihoods, as well as the implementation of key biodiversity and ecosystem conservation strategies. Strong consultation with local stakeholders, or the use of participatory methodologies, not only helps projects to explain their value, instil trust and understanding of project activities, and gain approval to enable community support for implementation, but it also promotes locals' engagement in project activities. Pairing project activities with awareness raising sessions, for example, as well as conducting community needs assessments, are observed to promote changes in local people's attitudes, integrating local voices and increasing buy-in, effectiveness, and sustainability over the longer-term.

Monitoring and evaluation systems

A significant factor affecting the measurement of impacts from our process analysis is the quality of monitoring and evaluation systems. Weakness of monitoring and evaluation systems to measure, verify, and report progress on activities, outputs, and outcomes is most common. Whilst some of these barriers are observed in older projects (probably because such systems and concepts were less developed in the past), they are also commonly observed in more recent projects. Many reviewers observed that projects had ineffective systems for measuring progress, with relatively vague logframes; weak or unclear indicators or targets that were not SMART, such as limited use of baselines; lack of measurement on progress across the results chain; and a lack of clarity in reporting progress, both against the logframe and in project narratives in annual and final reports. The implications of this, according to annual and final report reviewers, is that it produces difficulties in credibly measuring and evaluating project achievements. This is also closely related to projects' ambitious indicators and targets created at application stage, such as those on influencing national policy, which contribute to projects far-exceeding their capacity, and many reviewers questioning whether targets could be achieved within project timeframes. On the other hand, the positive impacts of rigorous M&E systems, appropriate targets and indicators, clear baselines, and clear and transparent reporting are also clear, supporting projects' (demonstration of) achievement of outcomes, and their long-term ability to affect positive change.

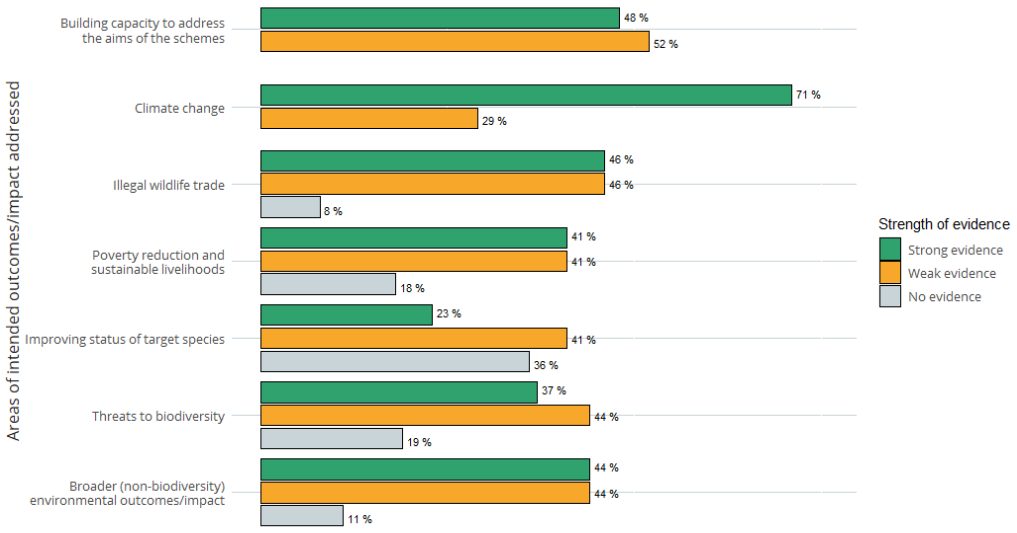
Whilst there was agreement amongst stakeholders that the Darwin Initiative has never been funded at the necessary scale to address the overall biodiversity crisis, there have been lots of examples of projects achieving their output and intermediate outcome goals. What has been less clear to stakeholders is the

extent to which projects have achieved their outcome and impact goals. This was generally acknowledged as a shortcoming of current monitoring and evaluation systems, specifically a lack of medium- and long-term impact data, and not of any inherent scheme deficiencies in delivering projects with impact. However, one strategic stakeholder thought that in their current form, the projects funded (individually or collectively) do not appear to have long-term transformative change as their intention or ambition, limiting their impact.

We assessed the strength of evidence that projects in our sample used to support their reported outcomes/impacts[156], and found that it varies between different projects and areas, although a notable proportion of projects do demonstrate weak evidence of outcomes/impact. This aligns with our findings above on the weakness of M&E, including unclear reporting, lack of supplementary evidence, and limited or no use of baselines to support attribution or contribution to outcomes and impact.

Our final analysis of Tier 2 project assessments found that for biodiversity outcomes/impact on reduced threats and improved species status, projects mostly demonstrated weak or no evidence, and only 22% and 37% of projects respectively demonstrated strong evidence. A greater degree of no evidence is observed for improved species status outcomes/impact (36%). Projects demonstrated equally strong and weak evidence for poverty and sustainable livelihoods outcomes/impact (41% each, respectively), and for broader environmental outcomes/impacts (44% each, respectively). Evidence was somewhat stronger for IWT, although an equal proportion of projects also demonstrate weak evidence (46% for strong and weak evidence), as well as for building capacity to address the aims of the schemes (48%) (see Figure 11: Strength of evidence for different areas of outcomes/impacts). Evidence on climate change outcomes is strongest (71%), although the number of projects is small. Examples of different strengths of evidence is provided in Annex 2, Figure 24: Examples of different strengths in evidence.

Figure 11: Strength of evidence for different areas of outcomes/impacts



Note: Evidence is collected from the Tier 2 sample (N=30). Within each area of intended outcome/impact, the number of projects are: Broader (non-biodiversity) environment outcomes/impact (N=18), Threats to biodiversity (N=27), Improving status of target species (N=22), Poverty reduction and sustainable livelihoods (N=22), Illegal wildlife trade (N=13), Climate change (N=7), Building capacity to address the aims of the scheme (N=29).

External

In our Tier 2 analysis, projects themselves often contribute most to outcomes and impacts across all thematic areas, in contrast to external factors, and this is particularly the case for capacity building

156 For example projects may report success against expectations but provide little supporting evidence in their final reports for this success.

outcomes and impacts. In some cases, there are no other organisations working on similar issues, such as in Nepal,[157] and in-country researchers therefore found project outcomes and impacts to be directly attributable to interventions. Interview evidence highlights, in some cases, that projects facilitate 'external' contributing factors, such as local, regional, and national engagement, and the influences of other strategic interventions.[158] In some cases where there are other organisations working in project areas, interview evidence highlights that projects often focus on specific issues or interventions with attributable contributions to the wider landscape.[159] There are still a range of positive and negative external contributing factors that influence projects' achievements across all outcome/impact areas, however.

Across all outcome areas, the most common external contributing factor is the influence of host country political conditions. This can be positive, such as increasing national and international recognition of biodiversity and IWT issues, and the implementation of favourable policies and regulations that substantiate or catalyse project outcomes. The designation of Andean Bears as part of Bolivia's Natural Heritage, for example, may help in preserving this species from persecution.[160] On the other hand, ambiguous or uncertain negative political conditions such as conflict, political instability, changes in Government-NGO relationships, and unfavourable regulation and legislation, can limit project contributions across all outcome areas. This is common for both Darwin Initiative and IWTCF projects. In Kenya, for example, changes in security and conflict related to severe weather events and elections contributed to negative impacts on sustainable livelihoods, which also undermined the project's biodiversity conservation efforts, such as in the formation and promotion of 'tengefu' management plans; it is uncertain how this has impacted capacity built by the project overall.[161] Many projects also face bureaucratic obstacles from government, including corruption in some contexts, cumbersome administrative processes, such as in approvals or permissions, lengthy political procedures. such as in drafting project-influenced legislations, and issues in engagement with regional and national government bodies. All of these affected project outputs, especially those in policy and legal framework development.

The support of other organisations (including the involvement of key government and statutory authorities or individuals, non-governmental organisations, and local community stakeholders who promote interest and assist in implementation) and other strategic interventions in target areas, such as synergies with broader biodiversity conservation and ecosystem management strategies and wider efforts to address the illegal wildlife trade, are also one of the most common external contributing factors. The presence of similar peatland conservation organisations in Central Kalimantan, Indonesia, for example, has enhanced the actions of several actors, the sharing of results, and the development of collaborative tools to address wildfires, protect key forest habitats and species, and promote the mitigation of climate change.[162] The role of community attitudes in particular is referenced with respect to all outcome areas for Darwin Initiative and IWTCF projects, where proactive and supportive local communities can positively contribute to the achievement of outcomes. Long-standing community tensions, however, such as those between local communities and wildlife authorities in illegal wildlife activities, reluctance amongst local people to engage based on previous failures of livelihood activities, decreasing perceived value of projects to local communities due to other livelihood opportunities, as well as ingrained customs of traditional communities, such as gender norms, are also key factors that have hindered the achievement of outcomes.

In addition to this, weather conditions, such as storms, flooding, and droughts, are a common external factor affecting projects' impact, and can be both favourable and unfavourable. A good example of this is in Kenya, where sustained rainfall and flooding, tied to saltwater intrusion, favoured mangrove regeneration efforts, however the same conditions also contributed to the destruction of rice farms, honey products, livestock activities, and the displacement of people from their homes, greatly affecting broader

157 DAR18005: Understanding, assessing and monitoring ecosystem services for better biodiversity conservation; and DAR23031: Science-based interventions reversing negative impacts of invasive plants in Nepal.
158 IWT020: Strengthening local community engagement in combating illegal wildlife trade.
159 For example, IWT041: Strengthening Community Anti-poaching and Ecotourism in the Western Terai Complex.
160 DAR25011: Andean bears and people: coexistence through poverty reduction.
161 DAR20017: Strengthening the capability of Kenyan communities to conserve coral reefs.
162 DAR25001: Preventing Borneo's peatland fires to protect health, livelihoods and biodiversity.

environmental and sustainable livelihood.[163] The influence of weather conditions is most notable for Darwin Plus projects, where storms greatly affect communication capabilities, transport, and fieldwork.

The outbreak of pandemics and epidemics is another external factor affecting impact; most notably COVID-19, but also the 2003 SARS epidemic. These strongly impacted project outputs and progress by creating a challenging operational environment, although the effects varied from minimal delay with local activities being largely unaffected, to severe levels of uncertainty and potential or actual disruptions to key activities and outputs as a result of travel restrictions or other obstructions to conducting fieldwork. Disruptions, however, are most often observed to negatively impact sustainable livelihood and poverty reduction outcomes through COVID-19's impact on markets. This includes, for example, disruptions to international trade and supply chains for the Nepalese Jatamansi trade, as well as to ecotourism in Kenya and Indonesia. For poverty and sustainable livelihood outcomes in particular, general market failures are also observed. In Bolivia, for example, there was limited capacity and access to local and national markets for goods such as non-timber forest products and coffee production.[164] In some cases, sustainable livelihood efforts are undermined by unsustainable and/or illegal employment in target areas, such as oil exploration or illegal gold mining and logging, as observed in Bolivia[165] and Indonesia.[166] This is a particular barrier to addressing the IWT, where the economic benefits from ecotourism and local product sales must outweigh the benefits of illegal activities, as observed in two projects in Indonesia.[167] There is evidence of several projects implementing market-orientated support and training for local people, however, which helped facilitate their access to markets and supply chains during projects, enhancing poverty and sustainable livelihood outcomes.

163 DAR24013: Balancing water services for development and biodiversity in the Tana-Delta.

164 DAR20021: Forest Futures: Livelihoods and sustainable forest management in Bolivian Amazon; and DAR24011: Wildlife-friendly agroforestry and sustainable forest management in Bolivian indigenous territories.

165 DAR20021: Forest Futures: Livelihoods and sustainable forest management in Bolivian Amazon; and DAR24011: Wildlife-friendly agroforestry and sustainable forest management in Bolivian indigenous territories.

166 IWT048: Tackling the illegal wildlife trade in Muslim Communities in Sumatra.

167 DAR24007: Ridge-to-reef conservation and sustainable livelihoods in Raj Ampat; and IWT048: Tackling the illegal wildlife trade in Muslim Communities in Sumatra

5. Efficiency

This section summarise our findings on the extent to which the scheme is delivering value for money.

5.1. Governance and management

The expert committees have a specific role – to provide advice on the best project applications that fit the criteria – and are widely recognised to be strong in their subject areas. There is, however, a general lack of clarity on the expert committees' role in the governance of the schemes. While they provide a useful sounding board and source of advice to the schemes, they do not have decision-making powers. Recent application guidance priorities, for example, were set by Defra/HMG with little consultation of the expert committees. Committee members are very keen to contribute more to both policy and the strategic direction of the schemes, and to move beyond the judging of project applications.

One stakeholder noted that the IWTAG could be strengthened if there were more involvement of development organisations beyond those that are strictly focused on IWT, as some members of the group do not have a background in development.

The administrative service provided by LTS receives very positive feedback from all groups of stakeholders interviewed, with some describing them as 'providing a phenomenal administrative service that understands processes well'. One stakeholder, however, noted that it was not clear how the relationship between Defra and LTS worked.; for example, it was not clear to others the scope of LTS's responsibilities, nor how Defra optimally manages LTS as the administrative service provider.

Turnover of Defra staff managing the schemes in recent years is seen to have been high by a number of stakeholders, detrimental to the continuity of care of the schemes. One stakeholder expressed interest in taking advantage of the recent widespread adoption of web-conferencing software to get more involvement from FCDO in the Darwin/Darwin Plus schemes. This would allow more engagement with a global constituency and allow for more global governance of the schemes.

Defra and FCDO staff have greater involvement in the IWTCF Advisory Group than the counterpart committee for the Darwin Initiative and Darwin Plus, and this is seen to be valuable. Not only do projects get graded on technical merit, but overall strategic aims and diplomatic processes are incorporated into the decision-making process. This is seen to help the scheme remain relevant and effectively tie in with overall government policy. This difference between the schemes was seen by multiple stakeholders to be a missing component of Darwin/Darwin Plus as it currently stands.

The extent to which the schemes coordinate with one another and provide a unified approach to tackling their respective areas is unclear. It was suggested by one stakeholder that a solution to this coordination challenge was that the chairs of the three schemes, together with the Biodiversity Landscape Fund and respective high-ranking civil servants at Defra, form a conservation steering group to contribute to greater strategic coordination.

Coherence of the scheme within countries it operates in is questionable. Because expert committee reviewers do not have information on other projects being funded in a country or region, they are reliant upon either the application flagging this, or their own knowledge of the country context. It was suggested that a country-by-country summary of other schemes and HMG projects would help reviewers to better judge the value of proposals and avoid duplication of efforts in the same geography.

In-country partners are key to project delivery and were most commonly expected to: (i) conduct data collection; (ii) lead capacity building activities, such as training for stakeholders (usually local communities and students); and (iii) manage activities within the country (such as fieldwork). Partners were also frequently expected to help facilitate contact with local communities due to their pre-existing networks, the fact that they speak the local language, and/or due to generally being more 'approachable' than foreigners. They were further expected to facilitate contact with key stakeholders (particularly government representatives) and provide staff for activities, such as law enforcement and training provision. Finally, partners were sometimes expected to provide thematic expertise and technical advice (particularly that relating to the local context), and work with government officials to ensure that the project operated smoothly.

There was a general desire to improve the coherence and coordination of funding at national and international levels. There are many international players (e.g. Global Environment Facility, Swedish International Development Cooperation Agency, EU Life, US Forest Service, United States Agency for International Development) with a focus on biodiversity and conservation, and there is clear potential for overlap and duplication of resources, but also to share learning. The extent of coordination between governments was not clear to the DEC, nor whether there was a multilateral strategy, The Organisation for Economic Co-operation and Development (OECD) is one potential focal point for donor coordination on biodiversity, and it was suggested that Defra could use the OECD as a more effective forum for exchange.

5.2. Value for money

VfM and leverage

There is widespread agreement amongst strategic stakeholders that the scheme provides very good value for money. Currently, value for money assessments are done on a project-by-project basis, and not at the level of the scheme. This makes scheme-level value for money assessments challenging. Despite the claims from stakeholders that the scheme provides good value for money, there is little supporting evidence for this. It is not clear to stakeholders how Defra conceptualises value for money and, in turn, the expert committees are unclear of what they are looking for regarding value for money. This lack of common understanding around value for money is seen to be detrimental to the schemes. A key indicator of VFM is whether project impacts are sustained beyond the lifetime of a project, and this is covered in the next section on sustainability.

It is widely acknowledged that a key strength of the scheme is the requirement for projects to find matched funding which leverages external funds into the schemes. On average, projects obtain additional sources of funding equal to 71% of the size of the awarded grant, with some variation across the funds; Darwin Plus (98%), Darwin Initiative (73%) and IWTCF (61%). In some cases, however, projects leverage far larger amounts of money. Some projects[168] are particularly successful at leveraging large amounts of, for example, pro-bono advertising.

Meeting targets and staying within budget

Our scheme level analysis of monitoring data found encouraging indicators of good management by projects. 98% of projects deliver within budget (defined as claiming within 10% of the original grant size) and 88% of projects are completed on time (defined as being completed within 3 months of the original end date). This was supported by our in-depth Tier 2 analysis, which found that the majority of Tier 2 projects met their output targets within budgeted costs (77%) according to information within each

[168] E.g. IWT025: Saving Pangolins by Reducing Demand in Vietnam and China

project's most recent Annual or Final Review, with few projects not meeting output targets within budgeted costs (23%)[169].

We found that there is no clear cost item that explains underspends and overspends during project implementation, as these vary on a project-by-project basis. Indeed, most projects are delivered within budget, and are able to balance their expenditures with overspends and underspends in different cost items during implementation. Reasons for underspends can be explained by projects reducing the time or effort required for implementation activities, and overspends are attributed to delays that extend project activities beyond what is expected and budgeted for, such as delays in hiring staff or initiating activities. A common reason why projects are able to manage under- and over-spends is due to the use of matched or co-funding to supplement project budgets and carry any additional spend that arose. Some projects note that while funding in this form can be quite complex and time-consuming, managing the split between Darwin funding and matched funding, projects are still able to be achieved within budget and time.

Similarly most projects had fully met (12%) or largely met (54%) their output milestones on time, although a notable proportion of projects have met output milestones to a limited degree (31%). In some cases, even despite changing logframe and output indicators, projects were not able to meet the level of ambition expected in revised indicators. In most cases, however, it was not actual delays that affected delivery of milestones, but rather under-achievement of outputs. In part, this is due to ambitious outputs that are framed with an outcome orientation, such as engagement or empowerment of local stakeholders from capacity building or livelihood activities. Current projects which have been operating over the COVID-19 pandemic reasonably offer it as an explanation for major delays.

Economy and the cost of inputs

One stakeholder highlighted that they thought there was a mismatch between the scheme's ambition to deliver high-quality projects that require significant management from experts, and their willingness to pay for the subsequent high day rates of the organisations making applications. In some cases, organisations are unable to compete for Darwin Initiative funding because their day rates are too high. The alternative is that they win funding, but must then invest significant unpaid time into supporting local partners and ensuring high-quality reports.

Responsiveness

In some cases, projects adopted flexible approaches to funding allocations at the request of project stakeholders, including project partners, external stakeholders (such as government agencies), as well as local communities based on the adjustment of activities. Despite this, in such cases, and most commonly in responding to emerging priorities, fund reallocations are ultimately facilitated by successful change requests provided by the scheme, approving projects to reallocate funds, in some cases more than once, between different cost items in response to changes in project delivery. It is evidenced that such change requests vary in magnitude, including from minor budget requests to critically urgent requests that are required to alleviate clear, negative consequences. It is observed that this change request mechanism has enabled greater flexibility and adaptive management of the budget between different financial years of the project, particularly in light of the impact of COVID-19. During this uncertain period, the scheme provided no-cost extensions to some projects to support changes in project timeframes.[170] In some projects, change requests were not accepted by Defra, and there is little evidence as to why this was, based on our review of the evidence. One project mentions that it was not allowed to shift funds between different cost items

[169] This figure is contingent on whether output targets had been achieved, in addition to this being within budgeted costs. Therefore, for 23% of projects, the main reason for not meeting this criteria is due to not meeting output targets.
[170] For example, this is observed with DAR25018: Succeeding with CITES Sustainable and equitable Jatamansi trade from Nepal; and DAR25032: Biodiversity and Agriculture: addressing scale insect threats in Kenya.

without a formal change request and subsequent approval, but notes that change requests can take time.[171]

Where projects did not request changes to fund allocations by the scheme, they adapted to emerging circumstances by securing substantial time and resources in-kind, or obtaining additional sources of funding, which is shown to greatly enhance the achievement and extension of project activities as a result of meeting emerging priorities. This can pose potential threats to successful implementation, however, as projects' initial underestimation for budgets means they have to raise additional funds during implementation in order to successfully deliver activities and outputs within costs set by the scheme, which may not always be possible. [172]

Projects were also able to meet emerging priorities through budget adaptability as a result of underspends in earlier stages of implementation,[173] however one project states that instructions from Defra stated that they do not approve carryovers.[174]

Risk management

Our analysis found that 37% of sampled projects did not effectively identify risks at the application stage, while 33% did identify risks and 30% partially identified risks. The explanation for why this variation exists may be because in applications, there is often little mention of risk assessments being conducted to inform them, as well as no clear indication of a risk matrix presenting potential implementation risks. The requirements to report financial risk management appear to vary by funding round.

On the other hand, all projects must list assumptions in logframes, which partly reflects the identification of risks, even if they are not mitigated at design or implementation. For the majority of projects in our Tier 2 sample, the element of risk embedded within assumptions is not explicit, as these are not described nor categorised as risks by the projects, and in some cases, assumptions are narrow and do not reflect a broader set of risks that could occur. Furthermore, in applications, project assumptions and other application details provided often do not identify the likelihood of risking emerging or their impact if assumptions failed to hold true during implementation.

Projects that more effectively identified risks, even if there was no evidence of risk assessments, outlined risk management actions or statements against assumptions listed in their logframe, or provided sufficient detail in the application of health and safety risk assessments, as well as outlining various political, economic, social, environmental and financial management risks to project implementation. These included political conditions, market access, local engagement, expected floods or droughts, or the potential for corruption or bribery. The intention to monitor assumptions as projects progress, as intended by the scheme, is observed in some projects, acting as a risk identification strategy to be used during implementation.

Over half of projects either fully mitigated (44%) or partially mitigated (40%) risks that emerged during project implementation. Only 16% of projects did not mitigate risks that either were expected or emerged. Some projects had insufficient information to make a judgement on the mitigation and management of risks, which was mostly due to projects not having experienced any expected or emerging risks.

During implementation, it is clear that projects monitor key assumptions detailed in their logframes, and most projects are able to put forward specific measures to mitigate the level of risk exposure if experienced. Some projects are observed to have updated their assumptions with the support of report reviews, LTS International, and Defra, but are also found to have internal risk matrices or processes monitor risks, such as the use of project management committees to regularly discuss potential challenges or

[171] IWT027: Strengthening institutional frameworks to combat wildlife trafficking in Indonesia.
[172] For example, IWT006: Educational Children's Videos Reduce Endangered Species Demand in Viet Nam.
[173] DAR18005: Understanding, assessing and monitoring ecosystem services for better biodiversity conservation.
[174] DAR20017: Strengthening the capability of Kenyan communities to conserve coral reefs.

threats. There are, however, still a notable proportion of projects negatively impacted by risks that could have been foreseen, although the main reason for the lack of mitigation is due to external factors outside of the project's control, such as logistical issues, political pressures or security threats, as well as the impacts of COVID-19. The partial or full mitigation of these issues is aided by monitoring of assumptions, positive adaptations to implement in response to both foreseen and unforeseen circumstances, the support of their project partners, as well as the support of LTS International and Defra. There is, however, consensus that risks posed by external factors more generally could have been better identified, and more closely monitored and mitigated, during implementation.

6.Sustainability

This section summarises the extent to which benefits of funded projects continue beyond project funding, and identifies which benefits have been long lasting.

6.1. Evidence of sustainability

It is challenging to impact within three years (the average length of a scheme project) as results may not be measurable for years after, yet the scheme does not measure impact beyond the life of a project.[175] Our analysis of projects largely confirmed the challenge the scheme currently has in measuring sustainability of impact. Overall, we found limited evidence of sustainability. Often, projects' sustainability relied upon the assumption that relevant stakeholders were willing to continue working towards the project's original objectives, primarily government officials, local partners, and local communities. This is because, whilst most of the projects did implement the necessary foundations for achieving sustainable outcomes, such as awareness raising, training, and new technologies, the plans for how the resulting knowledge, skills, and resources would continue to be used were limited. It is generally presumed by projects that relevant stakeholders would continue to make use of outputs after project completion. Consequently, some projects noted that there was a lack of evidence for outputs translating into outcomes, such as awareness-raising efforts translating into behavioural changes, or sustainable management practices being adopted by the wider community, beyond those who had attended training.

With this being said, there were several notable examples of impressive sustainability being achieved, with evidence to back up the claims across a variety of activities. One project established 70 community-based resource co-management associations, which continued to implement their plans to improve forest and water management following the end of the project. Another project dramatically improved the country's judicial capacity, producing significant impacts upon poaching by training around 200 prosecutors.

6.2. Sustainability in project design

At the application stage, projects most commonly aimed to achieve sustainability through:

- The dissemination of research products both nationally and internationally, with the intention that these are used by policymakers and practitioners;
- Capacity building for relevant stakeholders, such as surveillance training for law enforcement officers;
- Introducing more sustainable management techniques, such as agroforestry.

Some projects also aimed to achieve sustainability through the promotion of sustainable livelihoods and the establishment of new partnerships between relevant stakeholders.

Effective exit strategies are important to increasing the sustainability of projects. We therefore evaluated how many of our Tier 2 sample had robust exit strategies. Of the projects in our Tier 2 sample, 36% of project exit strategies during implementation or at completion were judged to be 'robust' (10 projects), 39% 'somewhat robust' (11 projects), and 25% 'not robust' (7 projects). Two projects had insufficient information to make a judgement. Examples on robust, somewhat robust, and non-robust exit strategies are provided in Figure 25: The robustness of project exit strategies during implementation/at completion in Annex 2.

[175] This challenge is not unique to the three funds.

We found that during project implementation, exit strategies are strongest when projects produce research outputs. Projects were less successful in achieving legal reform as a mechanism for sustainability, and there were difficulties in ensuring that local partners had the financial and technical capacity in order to sustain activities beyond the project timeframe.

6.3. Likelihood of sustainability

Due to the lack of evidence in project documentation available for our full sample, we assessed each project's likelihood of sustainability (considering factors such as the robustness of their exit strategies and sustainability plans). Within our sample, where evidence is sufficient, we found that 44% (42 of 94 projects) were judged to have been planned and implemented in a way that made it 'very likely' that the project's outcomes and impacts would be sustained beyond project completion. For 49% of projects (46 of 94 projects), we judged that this was 'somewhat likely', and for 6% (6 of 93 projects) we judged that this was 'not likely'.

Features of sustainable projects

The most prominent feature of projects assessed to be sustainable was that they showed financial sustainability after completion. This includes both clearly outlining leveraged funds, as well as providing evidence for financial self-sufficiency and low maintenance costs that would continue work towards maintaining and enhancing key outcomes.

Strong capacity building and stakeholder engagement components in project planning and implementation were also central to a projects' ability to demonstrate the likelihood of sustainability. Most notably, this is achieved through having a truly participatory design, where strong (and often early) engagement of key communities/stakeholders reinforces local ownership and participant motivation. as well as capacity to sustain, and further project goals. Considering how knowledge was going to be transferred after a project was completed was another factor promoting greater sustainability. This included targeting training participants who were best placed to continue skills and knowledge transfer, as well as leaving behind accessible training guides, toolkits, and equipment for relevant stakeholders to continue to learn from and apply. Building a collaborative network which helped sustain partnerships after project completion was also seen to promote sustainability.

Knowledge sharing and awareness raising is another way in which projects have been successful in their likelihood of promoting sustainability. This included having a strong awareness raising, dissemination, and publicity strategy to enable projects to raise their profiles locally, nationally, and/or internationally, thus attracting further collaboration and investment to continue work towards project goals. Producing accessible, applicable, and lasting research data and resources has also been a significant way to promote sustainability through knowledge sharing. Building communication channels, for example through newsletters, websites, and other creative media outlets, was also assessed to be important for promoting continued dissemination and awareness raising after a project has ended.

A notable, but fairly uncommon, factor that promotes sustainability was a project being part of a wider strategy for biodiversity conservation in the host country. For examples of projects designed to be sustainable, see Figure 26: Examples of varying likelihood of sustainability in Annex 2.

External barriers to sustainability

The following were identified as external barriers to sustainable impact. Lack of political and institutional will to continue work/investment towards project outputs is a key example, particularly highlighted in projects affected by community and institutional pushback, many of which are IWTCF projects. Other contextual factors include conflict, where significant political and security issues deprioritise project outcomes, and market conditions, where a recurring example is the impact of COVID-19 creating

uncertainties within the tourism market, upon which livelihoods outcomes depend for many projects. The dynamic nature of organised wildlife crime requires equally dynamic responses from governments and civil society. For IWTCF projects, this requires continuous adaptation, which may make an endpoint to the project unlikely, and sustainability of impact challenging.

6.4. Building on previous projects

Overall

In our sample, 46% of projects show evidence that they have built upon other projects funded across the schemes. The most common way projects have built upon each other is through projects utilising and building upon the design, management, outputs, and outcomes of older projects. Some projects, for example, built off previously implemented methodologies, utilising a pro-poor sustainable bushmeat harvesting model developed under a previous project[176]. In one case, a project drew upon similar project management structures from a previous project consortium which reported on another Darwin Initiative project.

Capacity building outputs and outcomes under previous projects provide subsequent projects with sufficient local capacity to implement new activities, and this is observed across time and schemes[177]. Another example is observed in the IWTCF, where outcomes from one project influenced high-level political commitment in Vietnam and Mozambique to combat wildlife trafficking, and developed legal frameworks for cooperation, both supporting the newer project's[178] ability to work and allowing it to extend the impact of the previous linked project. Projects also utilise previous projects' findings to support implementation of activities, as well as recommendations and lessons learnt from other projects to inform design and implementation. Interestingly, projects also note that they are informing future projects, where project outputs and outcomes provide the building blocks for applications[179] and implementation[180].

Another common way projects have built upon each other is through collaboration with ongoing Darwin projects being implemented at the same time, providing opportunities to share data and findings, for example, as well as enhancing activity implementation, which in one case is regarded as adding significant value and saving costs[181]. In Darwin Plus, projects state that, in particular UKOTs, they contribute to a portfolio of existing projects, such as in St Helena and the British Virgin Islands. Instances of collaborating with other recipients of grants is observed for the Darwin Initiative, Darwin Plus, and IWTCF schemes. A small number of projects note that they have built upon pre-project funding awards.

Project lead organisations have also implemented a large number of similar projects in the past, and this helps them to build upon previous projects. It is noted[182], for example, that the RSPB had received previous Darwin funding for similar projects, supporting the information and experience required to implement this project. This is observed across old and new Darwin Initiative and IWTCF projects, and a small number of projects mention that they also build off other projects by utilising the same project leaders, partners, and personnel.

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[176] For example, 'DAR24005: Enabling rural poor to help protectbiodiversity of Dja, Cameroon' building upon 'DAR20007: Developing a pro-poor, sustainable bushmeat harvesting model in Cameroon'.
[177] For example, the following projects built upon capacities developed under previous projects. DAR6050: Costa Rican DAISY project; DAR22002: Complete altitudinal rainforest transect for research and conservation in PNG; DPLUS062: Securing the future of the Tristan marine environment.
[178] 'IWT040: Strengthening transcontinental cooperation to combat IWT between Vietnam and Mozambique' links takes advantage of 'IWT002: Cutting out the middle-man: combatting willdife trafficking in Vietnam'.
[179] 'EIDCF006: Strengthening management of the British Indian Ocean Territory marine area' leading to 'DAR19027: Strengthening the world's largest marine protected area, Chagos Archipelago'.
[180] 'DPLUS007: Using seabirds to inform Caribbean marine planning' informing the following 'DPLUS035: BVI seabird recovery planning programme'.
[181] 'DAR19028: Addressing the threat of Invasive Species in Pitcairn Overseas Territory' linked with 'DAR20006: Developing a sustainable marine and fisheries management plan for the Pitcairn islands'.
[182] 'DAR19028: Addressing the threat of Invasive Species in Pitcairn Overseas Territory'.

7. Equity

This section summarises our findings on the the extent to which the schemes are sensitive to gender, equity, and social inclusion and benefit marginalised groups.

7.1. GESI Mainstreaming

Stakeholders acknowledged that although gender has been thought about deeply over recent years, the other issues of social inclusion and safeguarding are complex and still not well understood in projects, partly due to their cultural and social complexity. Members of the expert committees recognised that there was a balance to strike between making applicants think about these issues and plan them into their projects, and imposing their cultural values on project partners or beneficiaries. On the one hand, a stakeholder considered that the Darwin Plus and IWTCF schemes gave 'entirely insufficient' consideration to incorporating gender into projects, and that the target community for applications needs to be better educated on these issues. They suggested that more engagement and support from development professionals working at the FCDO would help the expert committees. On the other hand, there was some caution that an overly prescriptive gender, equity, and social inclusion (GESI) focus could lead to unrealistic indicators and expectations on projects with relatively short timeframes.

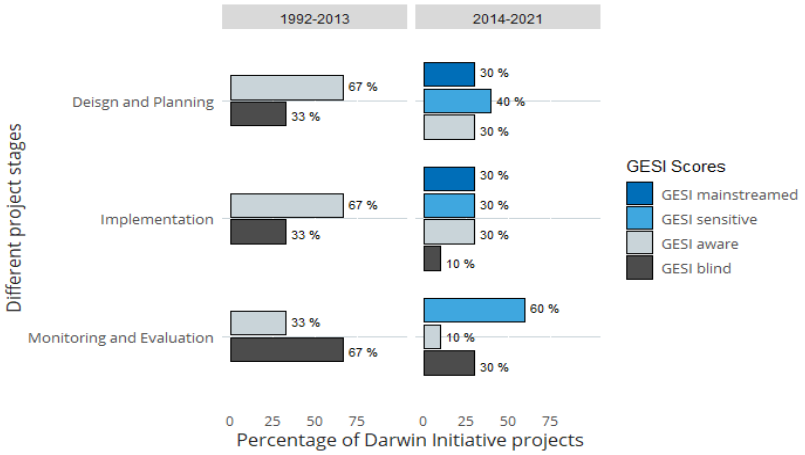
For our Tier 2 sample, we judged the degree to which projects have mainstreamed GESI at each stage. We rated how they did this from GESI Transformative to GESI Blind (Figure 27: GESI ratings for Tier 2 projects across different stages in Annex 2). For contrasting examples of GESI sensitivity in projects, see Figure 28: Examples of different levels of GESI sensitivity in Annex 2. None of the projects in our sample were GESI transformative at the design and planning, implementation, or monitoring and evaluation stages. Across all schemes, projects scored better in their GESI ratings at the design and planning stages compared to implementation stages. Projects scored least well for the monitoring and evaluation stage. However, for Darwin Plus, all projects are scored as GESI blind. Our fieldwork evidence from the British Virgin Islands will provide more qualitative information on this result.

A notable milestone for GESI considerations was the introduction of the Gender Act 2014, which had a notable impact on the degree to which Darwin Initiative projects mainstreamed GESI considerations. Within the sample of projects for which this analysis was possible, there has been a clear improvement. See Figure 12: GESI ratings for projects have improved over time.

A common feature of projects was that, although they demonstrated GESI thinking or principles in their applications (such as the importance of traditional knowledge), these were not later incorporated into project design. GESI-related action plans are rarely developed[183]. A small minority demonstrated strong analysis of GESI issues, however, and used this to inform project design[184]. When context-specific GESI analysis was conducted at design, this resulted in better GESI outcomes/sensitivity during implementation. No projects referenced domestic or international GESI frameworks, and only half included GESI-related indicators in their logframes, mainly related to gender. Overall there was very weak evidence of projects adapting activities to GESI-specific issues as they arose.

[183] Notable exceptions include DAR24007 which included an action plan to include indigenous people in project decision making, and IWT020 which had an action plan to identify differences in opinion and belief systems among different gender, age, and wealth groups with respect to strengthening engagement in combatting IWT.
[184] For example in DAR24007 recognised the different roles, responsibilities and needs of women as well as of the relevant indigenous community as a whole and used these to inform project design.

Figure 12: GESI ratings for projects have improved over time



Note: Evidence is collected from the Tier 2 sample (N=26).

During the planning and design stage, projects are effective at identifying key stakeholders, but less effective at meaningfully engaging with them. Additionally, there is limited identification or engagement of GESI-relevant stakeholders. There are, however, notable examples of projects having sought to engage stakeholders meaningfully, including one project[185] which planned to mainstream gender considerations into the project decision making process through engaging the Ministry of Female Empowerment, and two others[186] which included consultations with indigenous rights and women's rights groups at the planning stages.

Projects demonstrated good use of standard ethical protocols, but did not often tailor these protocols to the local context. Protocols included incorporating good power and safeguarding measures, including the sensitisation of participants and use of Free, Prior, and Informed Consent[187]. Other projects demonstrated no measures in place[188]. Almost no projects completed 'do no harm' assessments.

A good proportion of projects have gender balanced teams, yet it is rare for partners to have specific GESI expertise, or for projects to train partners or team members in GESI issues. A number of projects either had clear inclusion of indigenous people in project decision-making processes, or had clear feedback mechanisms. There was, however, often a lack of intersectionality, as many of these projects lacked strategies or actions to ensure equitable participation of men and women in these meetings. Additionally, whilst projects showed good evidence of including community stakeholders in specific elements, it was rare for them to be involved in governance of the project as a whole; as members of the project steering committee, for instance.

The majority of projects made their work accessible to their target audiences. There was evidence that projects communicated activities (participatory projects) and findings with stakeholders in appropriate ways including using non-literary formats[189], tailoring outputs to different dialects[190], or getting approval on cultural sensitivity from relevant national agencies[191].

[185] DAR23033: Marrying community land rights with stakeholder aspirations in Indonesian Borneo.
[186] DAR24011: Wildlife-friendly agroforestry and sustainable forest management in Bolivian indigenous territories; and DAR24007: Ridge-to-reef conservation and sustainable livelihoods in Raj Ampat.
[187] For example, 'IWT049: Reducing IWT in Sumatra across two globally important tiger landscapes'; 'IWT020: Strengthening local community engagement in combating illegal wildlife trade'; and 'DAR20017: Strengthening the capability of Kenyan communities to conserve coral reefs'.
[188] DAR25032: Biodiversity and Agriculture: addressing scale insect threats in Kenya.
[189] IWT025: Saving Pangolins by Reducing Demand in Vietnam and China; and, DAR25001: Preventing Borneo's peatland fires to protect health, livelihoods and biodiversity.
[190] IWT025: Saving Pangolins by Reducing Demand in Vietnam and China.
[191] IWT006: Educational Children's Videos Reduce Endangered Species Demand in Viet Nam.

7.2. Monitoring

Overall, projects included GESI awareness sufficiently well in Monitoring and Evaluation. Where GESI awareness was present, projects collected disaggregated data, but this was generally limited to data disaggregated in terms of gender and not disaggregated by key GESI characteristics[192].

For the data collected, it was generally reported at the level of outputs (participation of women in training sessions and capacity building activities) rather than through deeper insights into other GESI elements, such as livelihoods benefits[193]. In a few cases, disaggregation extended to wealth status[194] and membership of a certain group/community[195]. Effective collection of GESI data generally involved data collection methods that allowed different groups to express their views freely, such as semi-structured interviews and focus group discussions with women, youth, and the elderly[196].

From our sample, Darwin Initiative projects were more likely to report GESI indicators than IWTCF projects[197]. Some projects had intended to monitor GESI indicators, but failed to deliver, and others planned to incorporate GESI into future reporting. When GESI data was collected, it often lacked consistency across baseline, midline, and endline, and reporting of GESI results often lacked supporting evidence[198]. There was also limited evaluation of GESI issues at the end of projects, and GESI results are generally not analysed sufficiently to understand impact on different groups[199]. Similarly, there were limited lessons learned by projects about how GESI evaluation findings could inform future activities, and most projects did not share such lessons others. Few projects did well at embedding GESI considerations into their sustainability plans, and in general they lacked clarity or specific discussion of GESI issues[200]. In many cases, while national and local actors were engaged in sustainability plans, it was unclear whether their knowledge/awareness had increased to promote GESI. Often, projects did not identify entry points to advance GESI in the future.

7.3. Benefits to marginalised groups

In our sample, out of the 30 projects, 12 (40%) were deemed to have 'some benefit', and 4 (13%) were deemed to have 'extensive benefit', for marginalised groups. The remaining 14 (47%) projects were either determined to have had no benefit for marginalised groups, or to have insufficient information to decide. All the projects that were determined to have 'extensive benefit' for marginalised groups are Darwin Initiative projects, as are 7 of the 12 projects that have had 'some benefit'. Darwin Plus, Darwin Fellowship, and IWTCF projects were more likely to have no benefit for marginalised groups or for there to be insufficient information to make an assessment. In Figure 29: Examples of projects benefiting marginalised groups to varying degrees in Annex 2, we give examples of projects benefiting marginalised groups to varying degrees.

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[192] An exception was 'Science-based interventions reversing negative impacts of invasive plans in Nepal' project (DAR23031). This project monitors and reports outputs and outcomes by gender, socioeconomic status, and location.
[193] Two exceptions are 'Reducing IWT in Sumatra across two globally important tiger landscapes' project (IWT049) and DAR25001. In the latter GESI benefits on income as well as empowerment are reported
[194] DAR24007: Ridge-to-reef conservation and sustainable livelihoods in Raj Ampat
[195] DAR25001: Preventing Borneo's peatland fires to protect health, livelihoods and biodiversity.
[196] DAR25001: Preventing Borneo's peatland fires to protect health, livelihoods and biodiversity.
[197] the three cases where there was more thorough, positive examples of GESI reporting were all Darwin Initiative projects, namely – DAR23031: Science-based interventions reversing negative impacts of invasive plants in Nepal; DAR24011: Wildlife-friendly agroforestry and sustainable forest management in Bolivian indigenous territories; and, DAR24013: Balancing water services for development and biodiversity in the Tana-Delta.
[198] Projects also lacked awareness of GEM scoring and HMG gender audits.
[199] 'IWT020: Strengthening local community engagement in combating illegal wildlife trade' is a rare case where more in-depth analysis did occur: the project identified differences in opinions and belief systems amongst different gender and age-groups, highlighting the implications this has for IWT interventions that rely more heavily on the cooperation of one such group.
[200] One strong example however is 'DAR24011: Wildlife-friendly agroforestry and sustainable forest management in Bolivian indigenous territories'. It ensured continued work with established producer organisations operating under approved and legitimate indigenous management plans and natural resource use regulations.

There is some evidence that women and other marginalised groups have benefited from individual projects. However, in many cases, data monitoring project outcomes and impacts were not disaggregated by relevant demographic features and/or the evidence base for group-specific benefits was not robust (e.g. only anecdotal evidence of impact on women's empowerment). There are several examples where benefits for marginalised groups have been noticed; for example, the 'Strengthening Community Anti-poaching and Ecotourism in the Western Terai Complex' project[201] has focused on areas with a high proportion of ethnic minorities, indigenous groups, recent immigrants, and other marginalised groups. Combatting the IWT and supporting sustainable livelihoods is expected to benefit these communities, including marginalised groups within them.

Because of a relative lack of disaggregated data, it is difficult to assess which factors have enabled or hindered marginalised groups from benefitting from projects. Two examples suggest that the key benefits for women are due to the project providing new employment opportunities and skills through training, however[202]. In another setting, traditional gender roles prevent female involvement in the ecotourism sector; women are more traditionally involved in local product development, where revenue is lower than ecotourism[203]. There was weak evidence of projects having awareness of some of these barriers to participation of marginalised groups. Projects aiming to achieve equal participation of men and women in project activities must have an understanding of what is appropriate in a local context, but this is rarely considered when stating these aims.

The majority of projects did not consider salient trade-offs during project design and/or implementation. This was true of both Darwin Initiative and IWTCF projects, and for the minority of projects in our sample which considered one or more trade-offs, these were between biodiversity protection and poverty reduction/local development. Generally, our sampled projects recognised that they would need the support of local communities to achieve their ecological objectives, especially as these projects could shift livelihood opportunities in these communities, and therefore needed to consider issues related to poverty reduction and local development/economics. It is generally not clear how this was done, or what specific sources of evidence were considered. There was no substantive discussion of other potential trade-offs being considered by the projects.

7.4. Promoting equity: support to project applicants

The guidance available to applicants is recognised to be extensive, but not entirely effective. Applicants can access various forms of advice online, including how to address key themes, and they can also view example logframes and previously successful application forms. This was noted by one stakeholder to be more comprehensive than other funds, yet there is recognition and regret amongst expert committee members that a number of smaller NGOs with strong projects based in developing countries struggle to fill the project application forms in correctly. As a result, large amounts of funding are awarded to larger, UK-based organisations. It is recognised that the guidance available is either underutilised, or in formats that smaller NGOs find inaccessible, and that this is a binding constraint to certain strong projects taking their applications through to stage 2. In some cases, guidance may be underutilised due to a lack of knowledge of its existence or where to find it. More advertising, regional targeting, and direct communications was recommended by one stakeholder to address this issue.

[201] IWT041: Strengthening Community Anti-poaching and Ecotourism in the Western Terai Complex.
[202] IWT049: Reducing IWT in Sumatra across two globally important tiger landscapes.
[203] DAR24007: Ridge-to-reef conservation and sustainable livelihoods in Raj Ampat.

Defra has tried to encourage applications from a broader field.[204] Previously, Defra encouraged larger NGOs to support their project partners to make the applications themselves, and this helped improve their quality. It was noted, however, that this solution was only partial, as it did not reach beyond existing networks of partners. One suggestion from the stakeholders we interviewed to increase the diversity of applications was to promote regional networks and clusters to encourage more grassroots projects. Another potential solution that has already had some success to date is workshops/webinars for potential applicants, especially those applying for the first time. One such webinar for local NGOs in Uganda was mentioned to have worked well. The growth of online workshops in the wake of the COVID-19 pandemic presents an opportunity for improved engagement. Stakeholders noted that if more workshops are to be hosted, this will have budget implications.

Other suggestions for how to improve the current guidance included a greater emphasis on longer term thinking and adapting the marking system so that projects with less immediate (within three years) impact can get funded; policy focused applications, for example. Another suggestion was to have less emphasis on the logframe at the beginning because the nature of innovative and experimental projects is that they will inevitably have a learning component. There is recognition that current practices for sharing feedback (at stage 1 and 2) are useful, but also that the committees could provide more feedback to improve future applications.

[204] Of the 1244 projects for which monitoring data is available, the 5 most common project lead organisations account for 117 of them (9.5%). These lead organisations are: Royal Society for the Protection of Birds (RSPB) (33 projects), Flora and Fauna International (FFI) (29 projects), Zoological Society of London (ZSL) (19 projects), Natural History Museum Entomology (NHM) (18 projects) and the Durrell Institute of Conservation and Ecology (DICE) (18 projects).

Lessons learned and recommendations

8. Lessons learned

This section summarises the process lessons we have learned from our evaluation of the entire scheme and 100 projects.

The lessons below are particularly useful for the programme implementation partner (LTS) and the expert committees. By extension this information will be useful for project applicants and potential applicants.

8.1. Project design

Using strong and well-developed logframes. During application stages, projects' logframes need to be strong and well-developed. Projects that are able to show how proposed outputs will lead to the intended outcomes helps to ensure that the scope of the project is realistic, for example, in terms of geography, activities, targeted species, and timeframe. Furthermore, logframes that use clear language and well defined indicators at application stage support the early identification of underperformance when reporting progress. For those monitoring performance (such as report reviewers) ambiguous wording and alternative interpretations makes assessing progress challenging. In addition, attention to project assumptions is important, although projects may benefit from more clearly distinguishing between explicit assumptions, often presented in logframes, in addition to those that are often implied or hidden, such as the practical or logistical arrangements of in-country partners.

Using logframes to inform resource allocations. Using a sound logframe, projects can better estimate the amount of time and resources for activities, including making explicit considerations such as the resource-intensity of working in remote areas and overcoming potential political obstacles. Furthermore, they can also benefit by demonstrating that, where relevant, there is sufficient resource allocated to collecting a baseline on indicators and monitoring these over the project duration.

Sufficient contextual knowledge and previous experience. When assessing applications for funding, schemes should prioritise projects where the lead organisation has demonstrated experience in the target geographical area; not just the country but the project location or similar settings. This could be through the organisation's past work or a pilot / scoping study the organisation has conducted before applying for funding. It could also be through involving an in-country partner organisation that is closely involved in the project design at application stage. This positive track record is shown to reduce the risk that funded projects are designed without sufficient knowledge of the local context, and less likely to experience delays and diversions away from intended impact. This also applies to having demonstrated experience working with in-country partners, where leveraging pre-existing project consortiums can facilitate the sharing of contextual knowledge, and enhance project design.

Effective and participatory designs. When projects address a specific and recognised gap or need outcomes and impacts are more pronounced. Furthermore, where projects intend to deliver trainings, outlining how the design of trainings and mode of delivery has been or will be adapted to local needs is an important design feature to improve effectiveness. Closely related to this, only a small number of projects used participatory methodologies in project design, despite participation increasing the likelihood that plans are considerate, targets are realistic, and impact is more sustainable through increased local ownership. Another relevant lesson learnt is that project designs which include sufficient time and resource allocation for inception and mobilisation are more effective, although this can be difficult for some organisations who cannot begin preparatory work before project funds are disbursed.

Building upon and working with other projects**.** Project designs can also benefit when building upon or working with existing projects, including pilots, from within as well as across funds. This can also increase cost-efficiency, such as using previously developed outputs where possible, or sharing staff and resources between projects. However, this does not guarantee that additional adaptations will not be needed after the project starts.

8.2. Project management

Adaptive management is reported to significantly contribute to project success and includes adjusting approaches, targets, budgets, as well as the teaming of partners in response to necessary changes in implementation and context to ensure outputs are achieved. A useful strategy identified is to encourage projects to build some contingency into budgets to support internal adaptation processes. Adaptive management is also most effective when needs and adjustments are identified early, as this allows quick action and minimal delay. The continued support and responsiveness of Darwin fund management, in the form of reviewing and approving change requests, was acknowledged by projects as supporting them be adaptive.

Team structures. In some projects, having one person work full-time on the coordination and management of implementation can be useful, especially when they are located in-country and programme administration can benefit from identifying who will be coordinating day-to-day activities more explicitly. Current applications only ask for the project lead and other project staff, which may not necessarily be those implementing regular activities. Where project staff are involved part-time and/or involved under partner organisations, projects can benefit by adapting work schedules and responsibilities to their availability to avoid delays. Where projects need to train in-country project staff, it is beneficial for projects to do this as early as possible in initial stages of implementation, or before. Projects may also benefit from acknowledging the potential for staff turnover, and ensure that knowledge and responsibilities of these individuals are retained within the team structure and implementation.

Risk identification and mitigation. Current Darwin funding applications do not include a risk matrix or inquire about the expected risks and mitigation strategies to be used, such as crisis management plans if relevant. The identification of assumptions for project success is useful, although projects would benefit from better outlining how assumptions will be monitored, with what frequency, and mitigation strategies when assumptions no longer hold true. Projects also benefit from demonstrating that they are sufficiently informed about the risks in target countries and target areas in order to ensure they do not underestimate risks, such as insufficient infrastructure, political or regulatory changes, or duty of care risks to field staff, and thus avoid overly exposing themselves to risk during implementation. This is particularly the case for projects in remote areas and islands, such as in Darwin Initiative and Darwin Plus projects, which can benefit from greater consideration of logistical, safety and duty of care risks of operating in these areas.

The importance of integrating 'Do No Harm'. Risk management is an important component of Do No Harm – avoiding exposing stakeholders to additional risks. Do No Harm assessments can benefit projects, especially in considering gender, equity and social inclusion. For example, it can support the avoidance of unintended alterations to community power dynamics, such as in the case of locally-based Darwin Initiative projects, or the displacement of illegal activity to more remote and unmapped areas for IWTCF projects.

8.3. Monitoring and evaluation (M&E)

Systems and structures for monitoring and evaluation. Strong M&E systems increase the chances the projects will achieve their intended outputs and outcomes, as this can help identify issues early on and support adaptive management if required. They are often more effective when closely linked to a clear and well-developed logframe, including SMART indicators that allow projects to demonstrate clear attribution or contribution to results, so that the state of progress can be accurately monitored by both the project and administration teams. Although greater consultation with the programme administration to assess logframes will provide additional support to ensure the effectiveness of indicators. The reporting of progress achieved against logframe indicators set out at application stage, as well as updated logframes if necessary, supports tracking progress and changes in meeting intended targets, as well as clearly presenting how changes may have affected the level of ambition in project outputs, outcomes or impacts. In addition to this, where projects use external M&E consultants, the active engagement into the project itself by participating in regular steering committee meetings enhances the effectiveness of M&E, rather than simply delivering reports at different intervals.

Collaborative M&E processes. Projects' M&E systems can generate additional value when data is shared with other stakeholders, such as governments, as well as other projects in order to inform future research and baselines for similar activities, outputs, or outcomes. Furthermore, M&E systems that make every possible effort to gather feedback from the communities is also a useful mechanism for project improvement and adaptation, as well as an extra source of evidence for reporting.

Useful approaches to data collection. Projects that are successful often identify how they will collect data on all indicators, and use tailored indicators and targets that are appropriate to the local and/or national context.

Recognising M&E challenges. Projects can benefit from outlining the potential challenges of monitoring and evaluating media campaigns, which can often be difficult, as well as the limitations to methods such as questionnaires, if appropriate. For example, this is particularly the case for demand reduction projects in the IWTCF scheme.

IWTCF indicators. Projects choice of indicator to be monitored can have significant implications on the actions of government partners, for example choosing between conviction versus custodial rates, where the latter may be better able to show deterrent sentencing. Although this may only be applicable to certain contexts.

Integrating contributions from collaborators themselves. In future, projects may benefit from obtaining a contribution to final reporting from collaborators to better gather the value of projects to partner organisations from their perspectives, primarily as this can be difficult to assess second-hand.

Reporting that is clear and of sufficient quality. Understanding progress in reporting is benefitted when projects ensure that the quantity and quality of evidence to support narratives, and that explanations of changes are clearly presented. For example, explicitly linking written claims to specific pieces of evidence, and the use of precise language to describe progress.

Mechanism for reporting on missing information. Programme administration can benefit from requesting project implementers to correct or complete missing information from annual and/or final reports pointed out by independent report reviewers. The ability for projects to do this is also closely tied to having strong M&E systems to identify and report on missing information in many cases.

8.4. Collaboration

Working with partners

Identifying the role and management structures for in-country partners. Furthermore, applications only ask projects to list in-country partners in a general sense. Furthermore, coordinating multiple partners often requires appropriate consortium management procedures, but these are not often made explicit, or enquired about in applications. Therefore, applications can benefit from enquiring about in-country partner management procedures, to identify projects that have clear structure and procedures, and those that may have invested less time into this area of planning. In addition, project applications can benefit from asking projects to clearly classify in-country partners as those involved directly in project management, or as implementation support. This can help identify which partners are critical to project success.

Regular and tailored communication. Regular communication (remote or in-person) with the partners is key to monitoring the project progress, as well as building capacity of, and relationships, with project partners. The exchange of knowledge through communication is useful here, encouraging the sharing of results and lessons learnt. Projects also benefit when they are able to have both formal and informal communications, and the use of technology is a useful method to stay in touch in both ways, particularly when logistical challenges are prominent, such as in the current climate of the pandemic. Although, communication is more efficient when it is adapted to the preferences and capacity of in-country partners, as communication is not one-size-fits-all. It is also beneficial for projects to detail how communication between partners will be maintained, as this will inform the

sustainability of project activities and outputs after completion. The physical presence of lead organisation representatives, or regular visits to project sites, are also beneficial in ensuring the achievement of outputs and outcomes.

Strategic involvement. Projects can produce more successful projects by involving in-country partners in strategic planning, including design, methods, M&E, as well as roles and responsibilities prior to, or at the beginning, of project implementation. This ensures that all relevant partners will better understand project objectives, and, despite having different institutional structures or project background, will

Letters of support. Particularly where the involvement of a specific in-country partner(s) is crucial for the achievement of intended outputs and outcomes, it can be beneficial for projects to state how their participation in the project is guaranteed. Projects can benefit from having letters of support, such as Memorandums of Understanding, from project partners, as this can mitigate the risk of partner organisations withdrawing before project start, or do not keep their commitment during implementation. This is currently not mandatory, but voluntary, and is found to be beneficial to implementation. Where this is not possible, projects may benefit from having a draft agreement prepared to speed up mobilisation of support. Although, on the other hand, it is useful to recognise that letters of support may create potential barriers for involvement, particularly amongst government institutions as project partners. In these instances, it may be better for letters of support to be optional.

Working with other stakeholders

Collaborating with other similar initiatives and institutions. Many projects report benefits from collaborating with other initiatives and institutions beyond official project partners who are working on the same or similar issues in the host country, including those that may not be directly involved in conservation but do have an impact on it. There are also instances where collaborating with regional initiatives can provide essential support to local initiatives developed by projects. Forging in-country collaborations and networks such as this can improve sustainability of achievements after project completion.

Importance of ownership and buy-in with local and national stakeholders. Projects benefit from working closely with government or local partners, as well as engaging with high-level political actors, as this can facilitate ownership at the national and local level. The role of in-country partners is also important here, as they can help establish relationships with key stakeholders. Where it is difficult to establish such relationships, alternative approaches can be used, such as using intermediaries or bringing additional partners on board. Although, there are various factors to consider to ensure ownership and buy-in. Projects benefit from being able to anticipate risks, such as political change when working with governments, and to adapt project activities, such as in response to community preferences to increase buy-in. In addition, when working with communities, being transparent about project objectives and scope, and managing expectations, is also key to achievement. On the other hand, being weary of community and stakeholder fatigue is also key, as communities that do not have a perceived need for the activities may not want to be engaged, for example where there are livelihoods opportunities already available.

Allocating sufficient time and resource for working with other stakeholders. Community-based conservation, and working with national partners, can be resource and time intensive. Therefore, projects that ensure sufficient time and resources to negotiating with communities and mobilising communities is an important lesson for achieving meaningful engagement.

Flows of knowledge. Local and traditional knowledge can be important to consider, therefore projects may benefit from facilitating two-way information flows, rather than the common reality that the flow of information and skills is only from British experts to the local level.

Importance of bilateral cooperation in transboundary IWTCF projects. Transboundary wildlife conservation projects require bilateral cooperation, there projects that facilitate cross-border collaboration tend to be more

effective, especially when there are specific mechanisms in place, such as an IWT cross-border enforcement and intelligence sharing networks.

8.5. Livelihoods activities

Considerate planning of livelihood implementation. Projects that carefully consider timing and sequencing of livelihoods activities can support effective implementation. Early wins, even if small, can help gain community buy-in for larger and more longer term activities. Furthermore, visits to areas where intended outcomes are clearly observed can be a useful way of proving concepts to stakeholders for activities where outcomes take a long time to materialise.

The importance of tailoring to local context. The projects' approaches to developing livelihoods activities should be tailored to the local context, needs and preferences of the communities. More homogenous communities and approaches can promote quick results, however there can be a trade-off between how quickly outcomes can be achieved and how inclusive is the intervention. Projects that question their assumptions, for example whether tourism is always beneficial to poverty reduction, and conduct research to tailor the design of the livelihoods activities to the local context and community needs and preferences can be useful.

Useful ways to sustain livelihood approaches. One way of ensuring the livelihoods activities can be sustained until the intended outcomes are achieved is for the project to focus on developing community-based organisations, using market systems development approach or finding other arrangements where continued activities are likely to be self-sustainable. Although, projects that conduct market research and develop business plans for alternative livelihoods, for example where projects aim to develop cooperatives or small-to-medium enterprises, as this can save time and resource, and support engagement with private sector actors. Furthermore, the use of regional or sectoral networks can also help facilitate private sector engagement.

The extent of income generation. Projects can benefit from being realistic about their level of ambition when it comes to generating new or increased income for local communities. The 3-4 year projects funded by the Darwin scheme often set outcomes that take a lot longer to materialise, without providing mechanisms to sustain the activities until this will be the case.

Monitoring biodiversity-poverty pathways. Where development of sustainable livelihood opportunities is to be achieved through biodiversity protection or vice versa, outlining and monitoring the intended impact pathway is effective. Many projects reviewed assume that improvements in biodiversity will eventually lead to livelihoods outcomes by themselves. If projects specify how this will happen, it often allows them to identify small actions that will increase the chances that it will happen or that it will be sustained. For example, projects can summarise key conservation research findings for use by community members and produce leaflets to ensure that research findings reach local people even if the government will not take any action based on them.

Judiciary and law enforcement for the illegal wildlife trade

Overcoming judicial and law enforcement barriers. In situations where widespread judicial barriers or failures are encountered, it can be effective to engage a small number of particular individuals to act as role models, than trying to reach entire groups, for example when attempting to engage with magistrates. In addition, in countries or areas with high levels of corruption, projects can benefit from developing a map of trusted and less trusted individuals and organisations.

Identifying baseline capacity of law enforcement. Where projects intend to collaborate and build capacity with law enforcement, identifying whether law enforcement offices have the minimum requisite capacity is important for projects to consider. This includes having pre-requisite skills and/or equipment.

Using technology. The use of technology to combat the illegal wildlife trade is helpful. Although, the most advanced technology is not necessarily best suited, and it is important the methodology is suited to the local context, and importantly, that it supports engagement from stakeholders.

The influence of COVID-19 on the Illegal Wildlife Trade. In the case of IWTCF, COVID-19 has both a positive and negative effect – positive in that it supported the reduction in demand for IWT products, but negative in that it reduced the ability to conduct patrols and detect illegal wildlife trade activity.

8.6. Influencing policy

Achieving policy change. Where projects intend to achieve policy change or influence policy, they can benefit from planning exactly what they want to influence and how, such as identifying priorities and suitable entry points to most effectively contribute to policy objectives. This will help to ensure that their level of ambition is practical within the project time frame and budget, and that the long-term impact pathway is more likely to be achieved. Although, it is recognised that designing appropriate targets and indicators can be difficult. Therefore, projects that carefully consider how progress and achievements can be captured have a higher chance of being able to demonstrate their achievements.

From biodiversity research to practice. Where projects expect research outputs to lead to shifts in biodiversity conservation or poverty and sustainable livelihood outcomes, it is important that they clearly specify the pathway to these outcomes. This can help projects identify activities that will contribute to achieving these outcomes or sustaining them – these can often be low cost but significantly improve the project's impact. For example, if research findings are expected to improve conservation planning at the national level, the project can engage with the relevant government institutions to build a relationship and potentially even tailor the format of the research outputs to their needs or preferences. Another example could be translating the research outputs from English to the local language.

Research activities. It can be good value for money to collaborate with other research projects in data collection. In addition, working with well-renowned scientists can help ensure research findings are recognised internationally. However, it is important for projects to keep some separation between scientific research and political discourse.

8.7. Other lessons learned

Ability of Darwin Initiative to handle COVID-19 impacts. In the case of Darwin Initiative projects, it is observed that the Darwin Initiative is very open and agile in solving implementation problems generated by the COVID-19 pandemic, including the solicitation and granting of six-month no-cost extensions and quick responses to day-to-day inquiries. Such flexibility and support is important to project adaptation.

Additional funding and promoting Darwin identity. Projects may struggle to secure additional funding at the end of Darwin scheme support. Therefore, if intended outcomes and impacts cannot be achieved without additional fundings, questioning how additional funding will be secured is important. On the other hand, projects that do receive additional funding from other sources may find it more difficult to discern what the added value of funding provided by the Darwin Initiative or IWTCF, and to promote Darwin identity. Although Darwin rules on the promotion of Darwin identity are appropriate and followed in most cases. Nonetheless, this is a useful point to consider, as it can make recognition and attribution of results challenging in some cases. Although, report reviewers do comment on whether appropriate visibility is given to Darwin identity during project implementation.

Darwin Fellowships. Fellowships are most effective when they address a specific and clearly defined knowledge gap. Although, there are various factors to consider for the success of fellowships, including that Fellows may need a visa and therefore processes to facilitate this may be required; Fellows need to speak the language of the

host country; and that in some cases the Fellowship may too short, however this may depend on how activities are structured.

Training and awareness raising activities. On training, innovative and on-the-job training can be more appropriate than traditional/classroom training. On awareness raising activities, projects that tailor this to community preferences and context, such as considering literacy rates or the remoteness of villages, are more effective. Furthermore, communication activities are enhanced when appropriately resourced.

9.Recommendations

In this section, we present relevant recommendations for Defra as the funder of the scheme.

We thematically organise the recommendations under: (i) Scheme governance and institutional lessons; (ii) Project delivery; (iii) Strategic approach to Darwin projects; and (iv) Monitoring and evaluation.

9.1. Scheme governance and institutional lessons

We have identified a number of areas in which inter-institutional arrangements can be improved.

Task-sharing between expert committees/advisory groups and LTS

The evaluators recommend that expert committees and advisory groups work together with LTS to improve the current system of project assessment. It is important that the project work is more integrated between institutions.

- Co-development of assessment methods that measure project performance. This work comprises methods for assessing a project's performance against its own objectives. Acknowledging that the current scale used by project report reviewers to score project performance is likely to remain, we recommend building upon this system by extending the categorical system (5 categories) to a continuous numerical scale to support future analysis of monitoring information.
- Co-development of methods to assess project impact. This work comprises methods for assessing performance of projects towards the wider scheme objectives such as biodiversity conservation and poverty reduction. This is a new form of assessment that would rank projects against their contribution to scheme objectives in a similar way to the system currently used by expert committees and advisory groups in scoring project applications. By measuring this, the impact of completed projects will be more comparable. In addition, this work also comprises of assessing the degree of innovation in addition to technical excellence proposed by project applicants.

Service recommendations between expert committees/advisory groups and LTS

Currently expert committee involvement with each project comes to an end after it has made sift recommendations on project selection. The management and monitoring of project progress is then the responsibility of LTS. In order to help the expert committees learn about the features of effective and impactful projects, there should be mechanisms to share information on project success. Below we provide various recommendations.

- Improved systems for monitoring: Current systems of monitoring by LTS are cumbersome and inefficient (a Microsoft Access database). Options for more sophisticated Dashboard systems should be considered, such as redesigning the Microsoft Access database to facilitate greater access, use and summaries of project information on project, scheme and portfolio performance. For example, easier-to-use query systems that support scheme- and portfolio aggregated data could be considered. Database developments can also be complemented by other tools, including the Microsoft Power BI Platform for visualisation, or with R and R-Markdown for automated reporting.
- Providing information on project performance: Using the systems outlined above, LTS could prepare tailored briefing notes on request from the expert committees, such as project profile overviews, as well as country profile overviews, for both past and present projects. Relevant information includes project classifications/tagging (e.g. organisation, country and region, biome, threats addressed, species addressed for IWT), application sift scores (indicative of potential impact), and annual and final report review scores (indicative of actual performance against expectations). Performance information will improve as monitoring systems develop further.

- Resource: At a minimum, LTS will need increased resources to improve their monitoring system. We recommend Defra consider either investing in a more comprehensive (automated) information system (outlined above), *or* additional staffing to deliver bespoke services (such as briefing notes) at the request of expert committees and advisory groups, in order to support information sharing of project profiles and performance.

Importantly, these recommendations for information sharing are not only limited to expert committees, as these systems, once developed further, can also support the dissemination of Defra's generation and contribution of global knowledge and best practice on biodiversity conservation and poverty reduction, UKOTs, and the illegal wildlife trade from projects funded under the Darwin portfolio.

Sharing expertise between expert committees/advisory groups and Defra

It is recommended that the institutions serving Darwin and IWTCF share their expertise more extensively than at present. These kinds of arrangements will become increasingly relevant and useful to Defra as the nature of biodiversity threats continues to link up with other related global threats.

- Expert committee / advisory group technical membership. See report recommendation. We suggest that Defra review the current representation of the expert committees with the following in mind:
    - Representation by HMG specialists: Expert committee members are keen to have HMG specialists, such as in poverty and livelihoods, involved in the committees.
    - Diversity of professions (esp. for IWTAG): In line with the challenge fund nature of the scheme and the need to select innovative project with high potential for impact, it is possible that they would benefit from appropriately qualified and experienced lawyers, economists, and other social scientists given the multifaceted nature of the illegal wildlife trade. It is understood that it can be increasingly challenging to coordinate the expert committee or advisory groups the more specific expertise becomes. One option that may support this is to maintain a general advisory group, but with an added specialist group configuration where specialists are determined by schemes' annual priorities.
    - Representation of OTs (for DPAG): The DPAG does not appear to be sufficiently representative of UKOTs. Potentially including a representative from each major region (e.g. one each from the Caribbean and South Atlantic territories) would help improve DPAG's understanding of the needs and priorities within UKOTs in the environmental sector. It would also strengthen the voice of OTs within HMG more generally.
- Expert committee / advisory group strategy days. We recommend involving DEFRA/HMG experts in other disciplines such as climate, landscape, and trade at each of the schemes' annual strategy days, supporting Defra with valuable insights and knowledge. This kind of arrangement will become increasingly relevant and useful to Defra as the nature of biodiversity threats continues to link up with other related global threats, helping to identify conservation and policy priorities. In addition, the professional connections and relations forged in this way will facilitate the sharing of expertise on biodiversity with DEFRA, widening the skill base of the expert committees and advisory groups and building closer ties with other government departments. Furthermore, the OTs wish to be consulted more when Darwin Plus funding priorities are set in each round.[205] We recommend that Defra utilise the expertise and knowledge of both groups in this way.
- Expert committees / advisory groups as a resource. Expert committee and advisory group specialists are formally included as a source of expertise on international biodiversity by DEFRA, which can be called upon for limited but critical advice. Utilising this will further build ties between these institutions.
- Equitable membership. See report recommendation. We suggest that Defra review the current representation of the expert committees with the following in mind:

[205] see Feedback from OTs documents prepared by Patrick Halling, FCDO.

- Diversity of nationalities: Greater representation of voices from the global south and regions that the schemes work in is encouraged.
- Gender (esp. for DPAG): Women are poorly represented in DPAG, which contrasts with the comparatively high representation of women in technical posts in UKOTs.

Longer-term management and coordination

We recommend that Defra improve its service to the Darwin funds through establishing longer-term roles to facilitate the management and coordination of the three schemes.

- Longer-term manager of the three schemes. We suggest Defra consider a longer-term manager of the three schemes who has expertise in biodiversity conservation and the management of complex programmes.
- Increased Defra staff engagement with LTS and Expert committees/advisory groups. Whilst steps have been taken to strengthen Defra's oversight of the schemes during the course of the evaluation, we recommend that Defra intensifies its coordination role between LTS and the expert committees or advisory groups. While LTS provides effective general management of the schemes, helping to build a stronger working partnership across these groups by Defra will ensure that the schemes' operational processes (project selection, MEL, applicant guidance, etc.) are streamlined, that the schemes are in line with Defra's strategic direction and planning, and that synergies and learning between Darwin Initiative, Darwin Plus and IWTCF (and other Defra biodiversity programmes) are maximised.
- Strategic Conservation Steering Group. To facilitate the sharing of expertise and strategic priorities, it is recommended that Defra consider establishing a Strategic Conservation Steering Group to run the three schemes, and enable linkages to other programmes within the Defra's biodiversity conservation portfolio, such as the Biodiversity Landscapes Fund. This will support enable cohesion, coordination and the exchange of information, as well as strategic leadership of the portfolio of schemes. For example, there are various similarities in how schemes construct applications, how they are reviewed, how expert committees and advisory groups might operate, and how projects might be delivered or supported.

9.2. Project delivery

In addition to an improved system for project scoring and monitoring (see sections 9.1 and 9.4), there is scope to improve project performance through the guidance given to project applicants. The advice has improved substantially in recent years under the stewardship of LTS and TAGs, however further improvements are recommended. There is also a need to increase the number of projects led by, or at the very least including substantive involvement of, local NGOs and other partners. More projects entirely led by in-country NGOs will over time strengthen relevance, 'do-no-harm', and in-country capacity to deliver important initiatives.

Guidance to applicants

Four areas for improvements in the guidance given to project applicants are recommended.

- Clarify definition of biodiversity. Defra acknowledge the importance of 'building a better understanding of biodiversity' in their most recent Strategic Case and we encourage them to make a clear differentiation between 'biodiversity' and 'ecosystem services'. Currently the scheme uses the term 'biodiversity' in two senses:
  - The CBD definition of biodiversity as "variability among living organisms from all sources, including diversity within species, between species and of ecosystems"
  - Biodiversity in the sense of ecosystem services such as the services provided by a forest in water retention, carbon sequestration, recreational opportunities and provision of sustainable timber and other natural resources.

  The stated purpose of the Darwin Initiative is "rates of biodiversity loss and degradation are slowed, halted or reversed in developing countries". This cannot happen unless individual Darwin Projects focus

on biodiversity as defined by the CBD; a Darwin Project which only supports 'ecosystem services' can do so without making any significant contribution to conserving or restoring biodiversity. This definition should then be relayed to project applicants through improved Guidance to Applicants with the inclusion of worked examples to clarify the distinction.

- Place greater emphasis on project potential at application stage. Challenge funds should encourage projects with potentially transformative impact.[206] To better embrace this principle the scheme should put a heavier emphasis on impact potential during project scoring. This can be supported by providing a clear definition of what is meant by transformative impact to applicants, and what might be expected. Application forms can prompt applicants in 'Change Expected' and/or 'Pathway to Change' to expand upon how they will aim to contribute to transformative impact. Sift score criteria for Stage 2 projects can be updated to consider this in both biodiversity and welfare and poverty reduction benefits (if relevant to scheme). This can be assessed through review of projects' interim/proxy outcomes, linked to an understanding of the project's theory of change, as well as the robustness of strategies for example to support scaling, replication and/or systems-level changes in biodiversity conservation, by the expert committees and advisory groups.

- Advice on projects with multiple objectives. Our evaluation has provided strong supporting evidence to a central assumption of the scheme; that poverty reduction and biodiversity benefits are achievable, compatible and do not involve trade-offs. Today the world is facing new challenges in the form of global threats to biodiversity from climate change, illegal trade in wildlife and wildlife products and the increasing frequency in outbreaks of zoonotic diseases and infectious diseases which are closely linked to biodiversity loss. The challenge for the scheme is to meet the expanding domain of threats but to do so without diluting a project's outcomes and impact on biodiversity. Best practice guidance, together with case studies for illustration, should be provided with the guidance to applicants. This will illustrate to applicants how projects can include measures, for example, for climate change mitigation and adaptation, and combine them with biodiversity protection to produce powerful impacts on both objectives.

- Greater detail on project relevance. The relevance of projects was not always clear. The application structure could be updated to better define areas of relevance that projects should evidence (particularly within Stage One applications).

Encouraging applications from locally led projects

- Improve advertising of the scheme. Currently potential project applicants in developing countries (e.g. local NGOs) have limited awareness of the opportunities for funding through the scheme. This is partly because of limited advertising of funding rounds. We recommend the scheme advertises itself on a greater diversity of platforms, such as regional associations of local in-country NGOs, FCDO country offices, as well as through hosting virtual or in-person country workshops. It may also include using ODA communication platforms to disseminate the schemes, and also Defra's, biodiversity and environment programming. We also recommend that Defra utilises these channels to facilitate greater engagement, and track its success at attracting more applications led by in country NGOs. At a minimum, application guidelines can place a focus on partnerships that include a credible in-country partner with substantial involvement, relevant skills and local understanding.

- Simplify web form. The current application web form used by projects is complex, and difficult to understand and navigate. This discourages applications from developing countries (that don't have an established UK based or international partner). It is widely agreed that the application form and accompanying guidance require re-designing. This has been apparent to LTS and the expert committees for some time and yet neither have improved the system and forms to the standard and simplicity required. Defra should oversee this process to ensure improvements are implemented to a high standard. One suggestion on how to simply application forms further is:

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[206] The latest business case for the Darwin Initiative defines this as projects that focus on strengthening capabilities and capacities to scale biodiversity conservation impact, including applying approaches to landscape/seascape level, replicating approaches across geographies, and contributing to systems-level changes such as legislative changes.

    - Stage 1 applications would benefit from not requiring organisations to specify a full logframe, and only require applicants to present this at Stage 2. At Stage 1, without the logframe, applications are already required to convey the problem being addressed, and their methodology, activities, changes expected and pathways to change.

- Improve feedback to project applicants: Given the substantial resources currently required to submit a Stage 2 application, Defra and the expert committees/advisory groups could provide enhanced feedback on the reasons for rejected applications to support new organisations making future applications to the schemes. Defra could introduce this through briefing notes, or supplier briefing events to present feedback.

- Score and monitor locally led projects. Application guidelines and scoring criteria should also actively encourage applications that are written, submitted, and led by in-country organisations, with this subsequently monitored by LTS and Defra.

Promote the mainstreaming of GESI principles and practice

We recommend that projects incorporate Gender, Equity, and Social Inclusion (GESI) in the following ways:

- Project design: Projects would benefit from conducting an analysis of contextual GESI issues and risks, and encourage or plan engagement with key stakeholders including marginalised groups. This will ensure that considerations linked to gender and other relevant inclusion criteria are meaningfully integrated during project design.

- Implementation and delivery: We recommend projects develop meaningful action plans on gender during implementation. Projects would also benefit from conducting GESI analysis at this stage to increase awareness of intersecting GESI issues as they arise, and support the clear identification and mitigation of barriers to participation.

- Monitoring and evaluation: Ensure that measurable, inclusion-sensitive indicators are integrated not only into the monitoring of activities, but also projects' outcome and impact targets.

- Project teams: Increased transparency and reporting around the gender and GESI experience of team members and partners will further support efforts to mainstream GESI in each scheme.

9.3. Strategic approach to Darwin projects

There are several distinct advantages to the challenge model adopted by the Darwin Initiative, not least its propensity for picking up innovative new approaches to biodiversity conservation that are embedded in the local context of countries. Nevertheless, there is a widespread acknowledgement that the impact of Darwin projects could be improved through a more strategic approach involving more regional sharing of expertise, longer-term project cycles and linkages to larger programmes.

'Communities of Practice'

- Develop a community of practice: Another possibility for fostering (and better measuring) impact is to develop a community of practice to encourage communications on past, present and future projects, including the sharing of resources and experience, networking, and support, including thematically such as within certain regions, countries and biomes. This might be implemented with inputs from the programme management team, and supported by members of the expert committees or advisory groups who have expressed interest in this platform. This approach would have multiple potential benefits, including supporting feedback on and the development of improved scheme documentation, guidance and processes; facilitating new project relationships and project applications; exchanging learning; supporting the scaling up of impact; as well as generating (self-reported) assessments of impact and sustainability at comparatively low cost (but less robust and comprehensive). An example of where communities of practice can add value is in IWT Challenge Fund, particularly for newer fields of the illegal wildlife trade such as how to develop effective, innovative demand reduction and behaviour change campaigns.

- Act as a hub to facilitate new project relationships between UKOTs: Under the current system of project funding, Darwin Plus projects working in a particular UKOT often partner with the same expert NGO in the UK (or elsewhere) and this system builds long-lasting relationships and capacity of OTs where the number of professionals in the environmental sector is typically very limited. This arrangement however results in siloed expertise and each OT develops capacity in a limited range of environmental concerns[207] that matches the expertise of its favoured partners. To overcome this limitation and build regional expertise and self-reliance, we recommend the development of regional programmes which open up access by single OTs to a number of different kinds of expertise. Additionally, we recommend that an online database (tailored for UKOTs) should be established on the skills available from different UK NGOs and institutions. Both of these recommendations will require more dedicated resource to Darwin Plus.

- Promote projects that link countries in the same biome. Biomes are major habitats which share a large community of plants and animals. There are 5-9 biomes depending on the form of classification. WWF has developed a related concept to recognise 200 ecoregions – 'relatively large unit of land or water containing a characteristic set of natural communities that share a large majority of their species dynamics, and environmental conditions'. FAO have updated their map of global ecological zones which is designed to provide an ecological framework for presenting their forest data. These are just a sample of the geographic classifications available that could be utilised by Darwin as a strategic base for project development. Projects might work with, or be connected to, several countries in the same biome/ecoregion, therefore promoting links further can allow the sharing of expertise in, for example, botanical knowledge, ex situ conservation, invasive species, countering illegal wildlife trade, managing exotic species, severe storm adaptation, sea level rise, and many more challenges.

Coordination between schemes and other funds

Systematic linkages between scheme projects and other governmental funds would provide synergy between funds and increase value for money.

- Coordination between Darwin Initiative, Darwin Plus and IWT Challenge Fund. There was general support from stakeholders for more alignment and closer working and coherence between the three schemes to promote learning. For example, at the application sifting stage, it was mentioned that there should be a process to recognise projects that had applied to the Darwin Initiative but were better suited for the IWTCF, and to then include and fast track these projects for consideration for IWTCF funding. Defra would also benefit from enhancing the efficiency of this referral processes, as through more informal channels, projects when referred are found to miss application deadlines for other schemes due to delays, resulting in waiting for the next round.

- Improve cohesion with other UK Government funds and other large funds. The scheme should also work closely with other HMG government funds, including the Biodiverse Landscapes Fund, as well as other government programmes[208] and international programmes.[209] This will help to ensure cohesion at a strategic level and, for example, support replicability and scale-up. For instance, Darwin projects could test methodologies that link poverty reduction to biodiversity protection in the geographic context of a biodiverse landscape where the approach could be rapidly adopted if successful. Communities of Practice, for example, may be helpful platforms to establish such links.

The unique relevance of Darwin Plus to UKOTs

- Ensure all projects in UKOTs to be delivered through Darwin Plus: Darwin Plus and its predecessor, the joint FCO/DFID Overseas Territories Environment Programme (OTEP), were specifically designed to meet the needs of the OTs and address their environmental priorities. Based on numerous discussions with FCDO, DPAG members and project stakeholders in OTs, we therefore recommend that all the OTs should be funded through Darwin Plus, rather than ODA-eligible OTs being funded through Darwin Initiative.

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[207] The environmental expertise might for instance be confined to one of the following: cartography, fisheries, tourism, endangered species, invasive species, wetlands, climate change, waste management etc.
[208] For example, the German Federal Environment Ministry's (BMU) 'Capacity Building and Finance for National and Local Action on Climate and Biodiversity' programme
[209] For example, the Global Environment Facility's Small Projects Programme (GEF-SPG) and Global Wildlife Programme (GEF-GWP), as well as the World Bank's PROBLUE programme.

This will help to improve collaboration, through regional and cross-territory projects, and prevent duplication. It will also provide a more equitable arrangement across OTs for accessing environmental/biodiversity support in that all OTs will be competing together for the same source of funds. All OTs should then benefit from the planned restructuring of Darwin Plus towards a three-tier structure.

Project size and duration

- Long-term project trajectories: For projects that aim to develop policies, plans and institutions from scratch, the participatory and formal approval processes involved are very time consuming and projects restricted to 3 years in length are not always long enough to have or measure impact. For this reason, the single most common remark on how to improve impact of scheme projects is for there to be some flexibility of project length for longer-term projects to enable new methods or interventions to be embedded within local management systems. There are two approaches we suggest considering. First, we recommend Defra raise awareness of different grant routes, such as obtaining a scoping or partnership grant in advance, to ensure projects are better equipped to produce outcomes and impacts within the three-year timeframe of a Main Project. Second, we recommend that the facility for two-year project extensions be revitalised within the schemes, along with a full system of support and guidance for its use, particularly to support projects that have potential for transformative impact but require more time to fulfil its achievements.
- Scale-up successful projects. Successful proof of concept projects should be scaled up to have transformative impact (for example, through larger funds) or replicated in other geographies (through the current challenge funds). This recommendation is well aligned with the recently submitted Strategic Cases for the funds. Any projects granted phase 2 funding should clearly demonstrate a scaling-up of ambition.

9.4. Monitoring and evaluation

Indicators of biodiversity, poverty reduction and climate change adaptation

These indicators will be used in establishing baselines from which to evaluate project and scheme impacts later down the line. Recommendations on their development will be contained in the final phase of the Darwin evaluation.

- Biodiversity indicators (use of species and conservation threats)
- Poverty reduction indicators
- Climate change adaptation indicators

Rationalise Project Scoring Systems across Entire Project Cycle

Currently the scoring systems used by TAGs to rate project applications are entirely different from those in use for project review. The former rank projects according to external criteria; the latter assess projects against their own internal objectives which does not allow ranking. We recommend that projects are scored in both ways: a) against their own objectives and b) on their overall contribution to the scheme's main objectives relating to biodiversity, poverty reduction and global threats. Collaboration between LTS and TAGs could facilitate this revised system of project scoring.

- Project's Internal Performance. In addition to the current system in use by LTS, which is a criteria for ODA programming within government, we recommend that Defra consider developing a system to provide quantitative scoring of project performance in project reviews.
- Place greater emphasis on absolute impact when measuring project success. We recommend that project impacts be assessed by scoring project outcomes and impacts both against their own objectives, and on their overall (self-reported/evaluated) contribution to the scheme's main objectives of biodiversity, poverty reduction and global threats. By measuring the latter, the impact of completed

projects will be more comparable and these lessons can usefully feed into future project selection by the expert committees. This will also provide greater indication of projects' transformative impact.

- Baseline monitoring at project start-up (linked to ex-post impact evaluation 2-3 years after project close). Stakeholders that we interviewed encouraged the schemes to measure sustainability and impact to understand what drives them and incorporate feedback loops so that the expert committees can learn from this understanding. A critical part of this task is the establishment of baselines at project start-up both for biodiversity (or its threats) and for livelihoods. These can then be repeated during later evaluations to establish impact and help assess sustainability. It may be necessary in some cases to obtain on the ground guidance from projects after they have ended in order to successfully replicate methods.

Logframe

The logframe has been found by TAGs and LTS to provide the most direct and effective method of structuring projects (objectives, outputs, outcomes) and monitoring their implementation during project annual and final reviews. The review process is critical. A project-specific Theory of Change could be used as an alternative but the experience of LTS is that it is already challenging to teach new applicants how to use the relatively simple logframe. Our recommendation is to continue using the logframe for project monitoring.

Ex-post impact evaluations

- Implement more ex-post evaluations: We recommend funding ex post evaluations 2-3 years after project completion for a proportion of projects (e.g., on a biannual basis), potentially using a similar sample stratification strategy employed in this evaluation; as this will provide a fuller understanding of impact and sustainability, and the reasons behind success or failure. The evaluations can be built in as a requirement for the fund manager, or a piece of work for Defra to commission. It would utilise compatible scoring systems in rating outcomes and impacts with those utilised in scoring applications. They would also use compatible monitoring methods to those utilised by projects at start-up in establishing baselines. We recommend that ex-post evaluations be conducted by independent individuals or organisations. Another possibility for measuring sustainability and impact is to utilise a community of practice to encourage the exchange of learning on past, present and future Darwin projects, and enable qualitative assessments of impact and sustainability at comparatively low cost, but would be less robust and comprehensive.

Annexes

Annex 1: Bibliography

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Annex 2: Reference data

Figure 13: Portfolio contribution to CBD Targets (monitoring data)

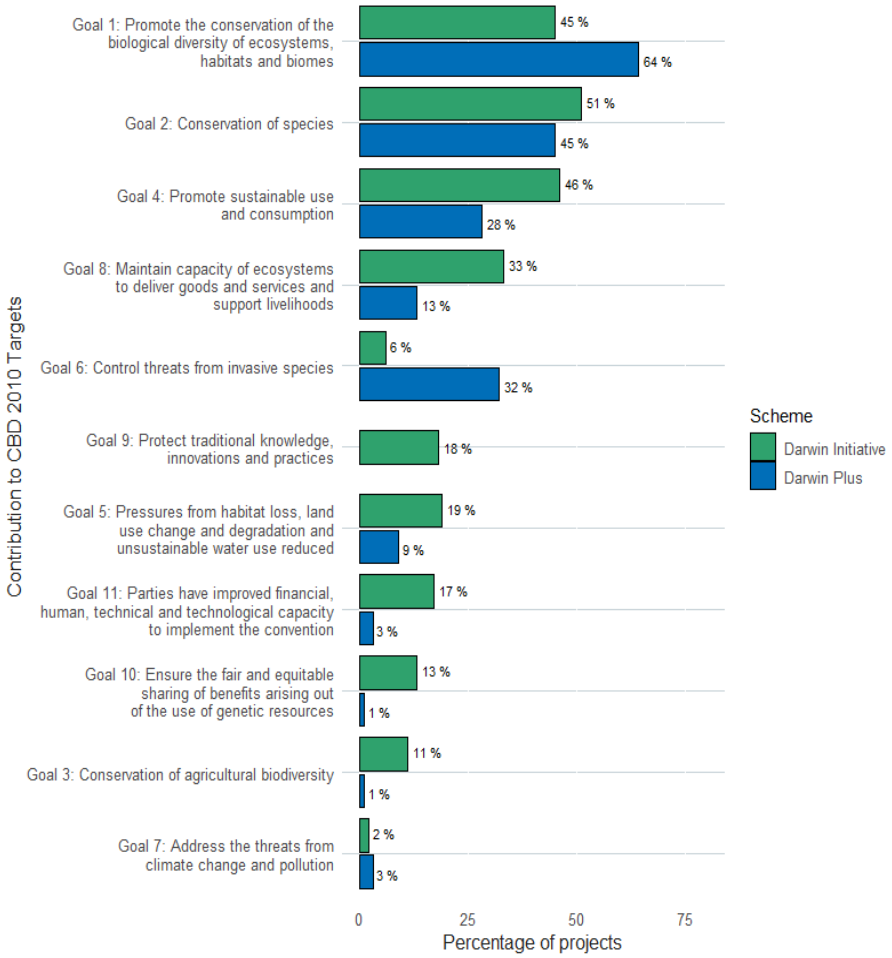
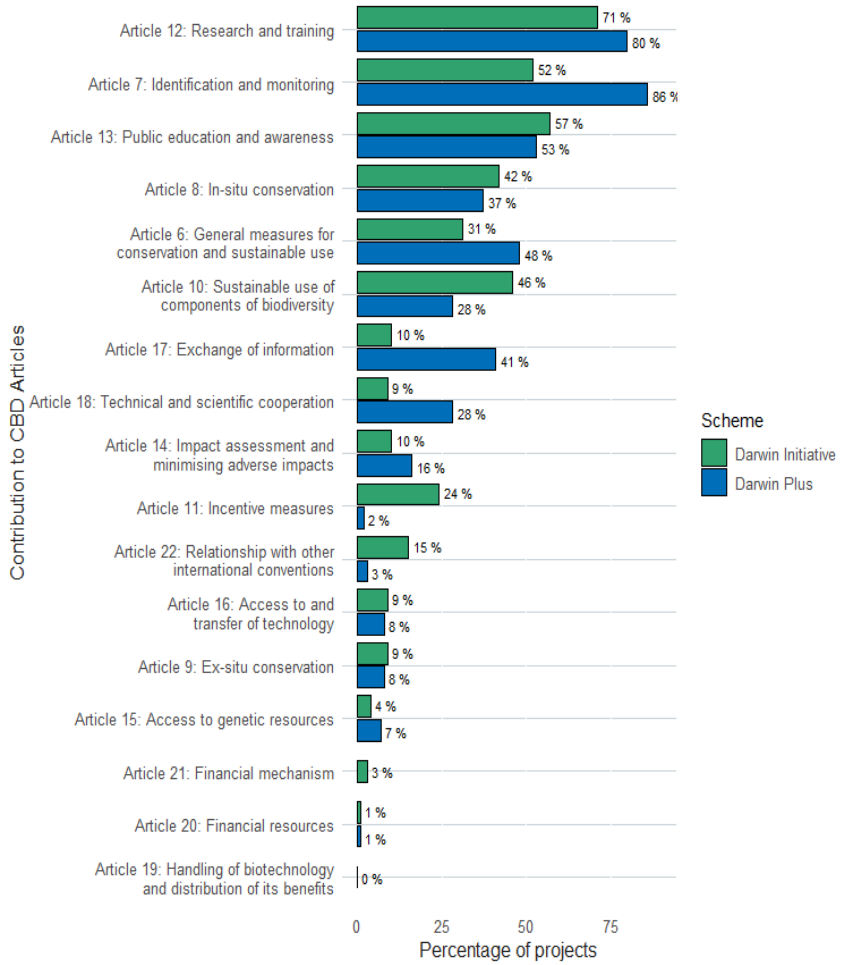
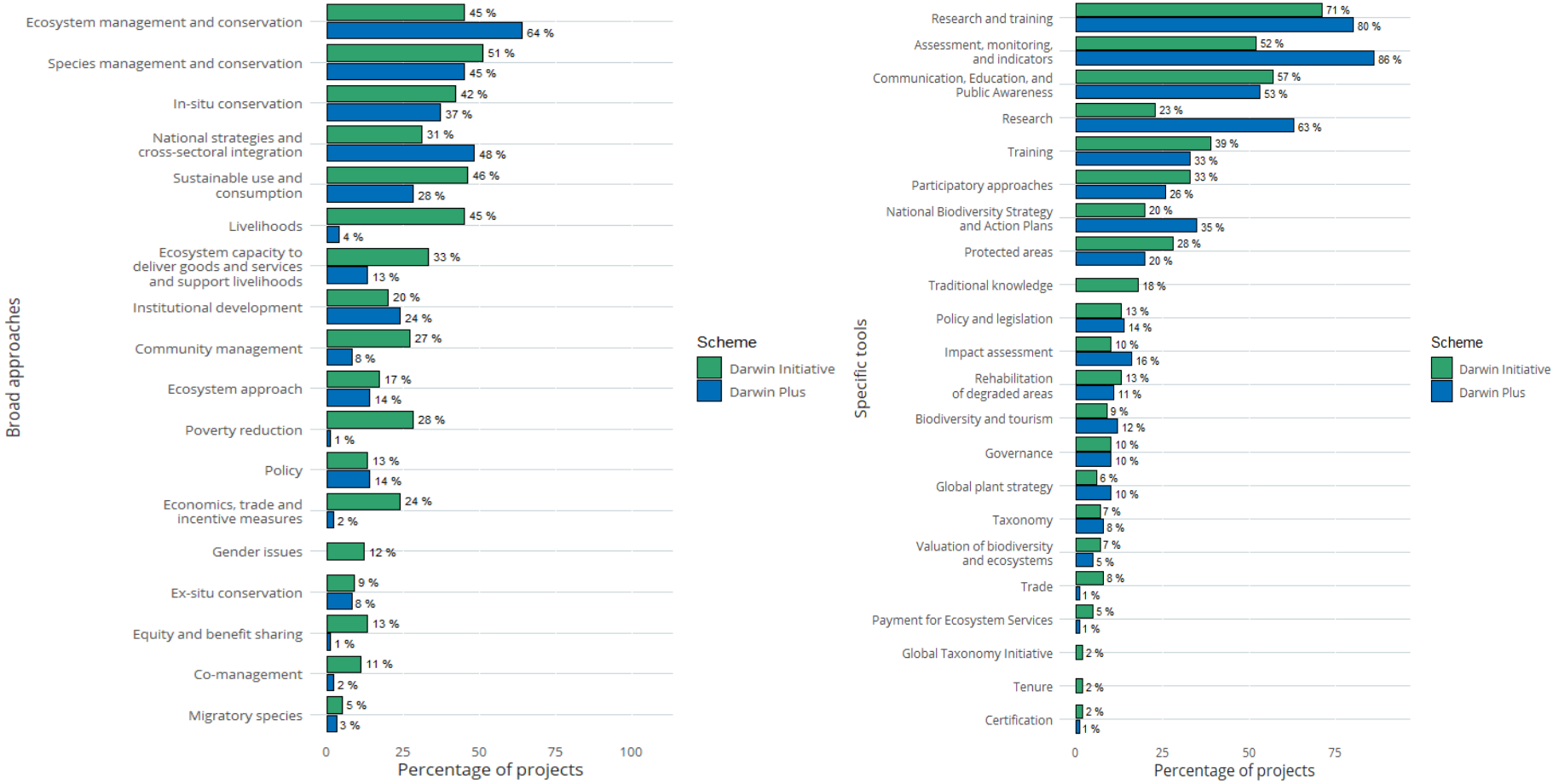


Figure 14: Portfolio contribution to CBD Articles (monitoring data)



Note: Data is available only for 592 projects, representing Darwin Initiative (N=472) and Darwin Plus (N=120). Data should be interpreted with some caution, given there are a relatively high level of FALSE entries that may be due to genuine reasons, but also potential reporting errors. More explanation of data limitations are detailed in the inception report.

Figure 15: Broad approaches and specific tools used (Darwin Initiative and Darwin Plus monitoring data)



Note: Monitoring data is available only for 592 projects, representing Darwin Initiative (N=472) and Darwin Plus (N=120). Data should be interpreted with some caution, given there are a relatively high level of FALSE entries that may be due to genuine reasons, but also potential reporting errors.

Figure 16: Projects aiming to address different threats to biodiversity (interim sample)

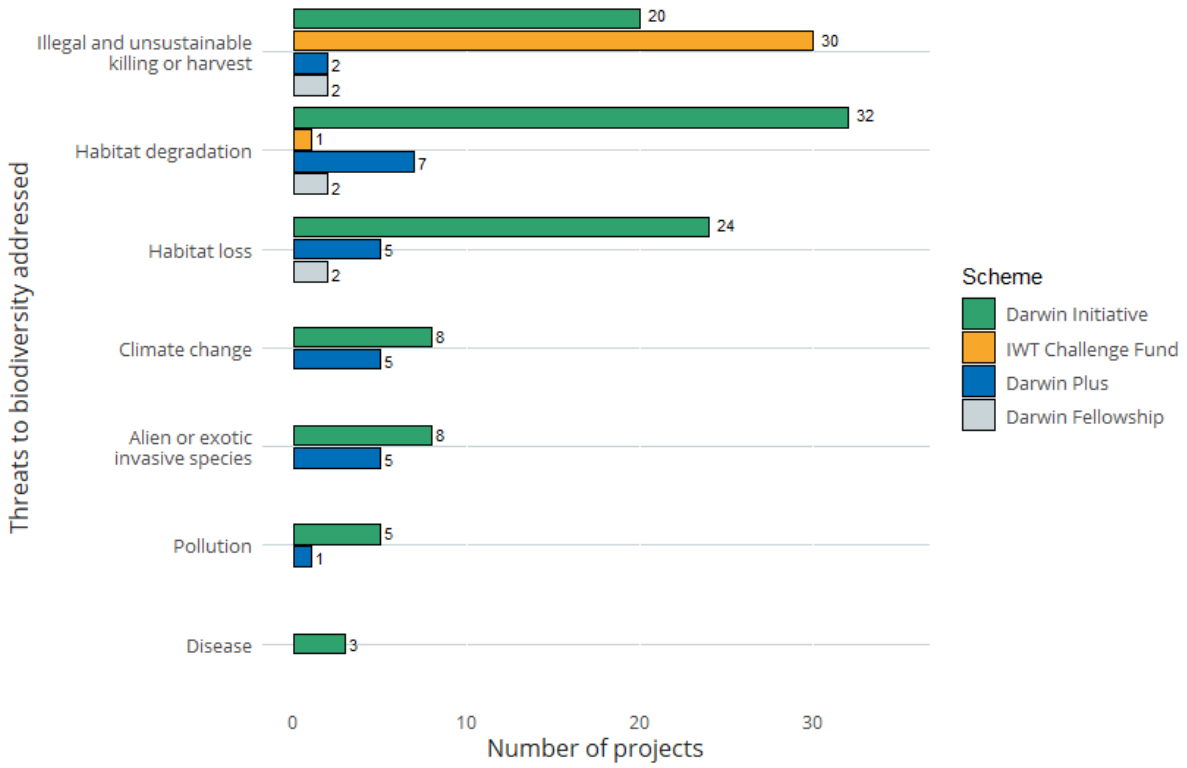
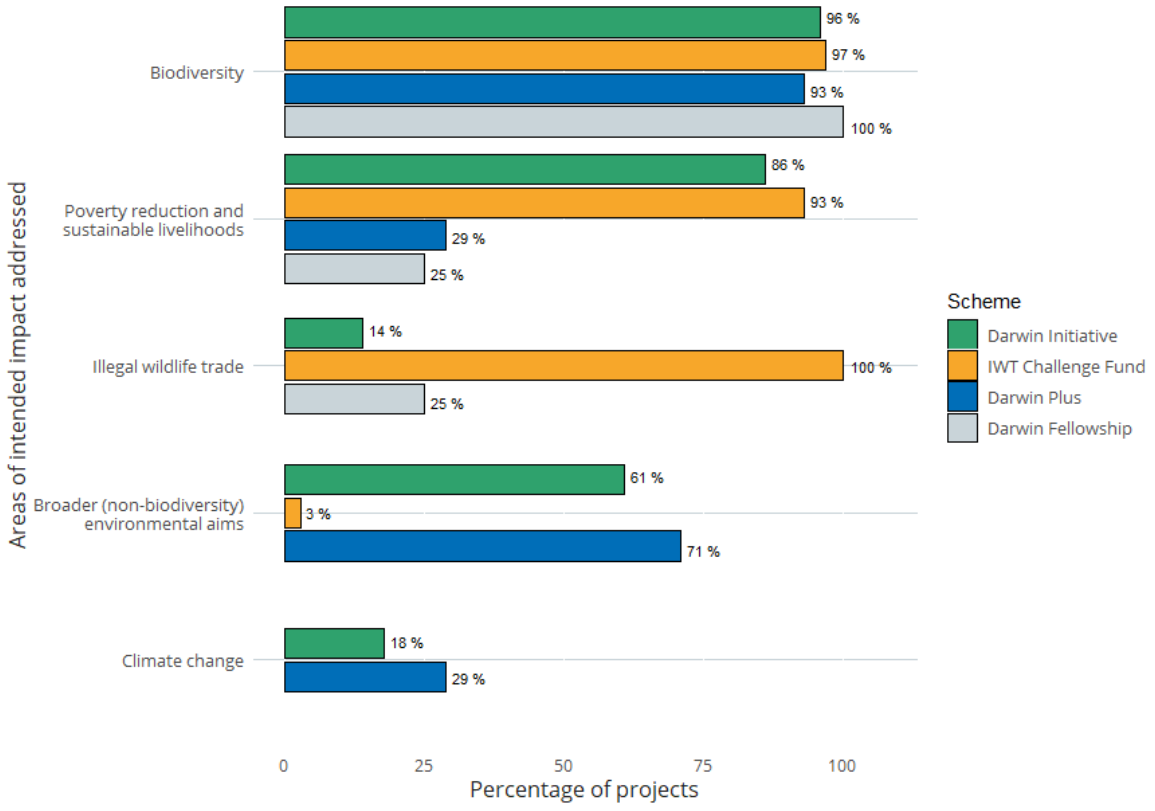


Figure 17: Project aims by scheme (interim sample)



Note: Darwin Initiative (N=50), IWT Challenge Fund (N=31), Darwin Plus (N=), Darwin Fellowship (N=4)

Figure 18: Strong synergies between poverty reduction and environmental goals

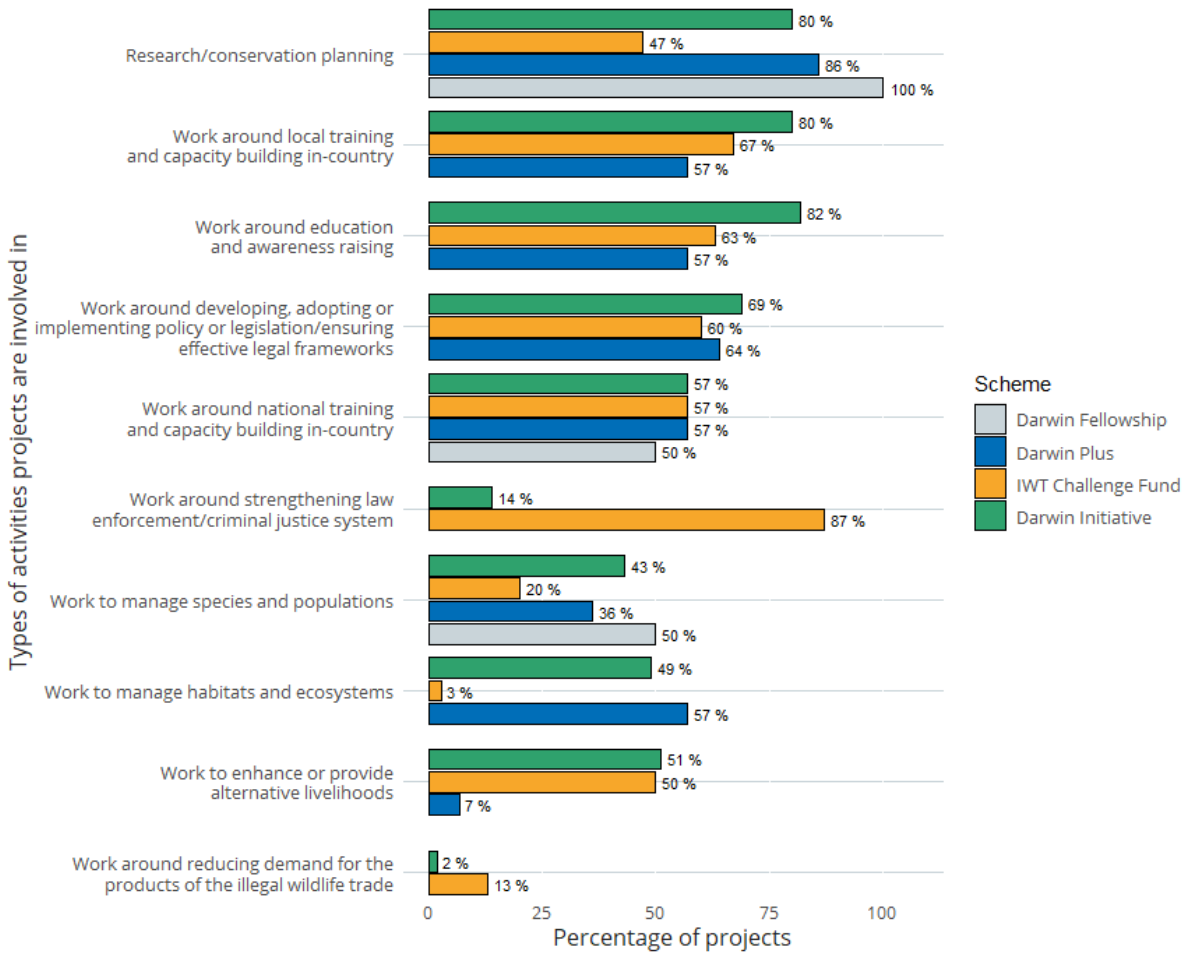
Strengthening local community engagement in combating illegal wildlife trade (IWT020)

A key task of the research conducted by this project was to demonstrate that developing sustainable livelihoods for communities affected by IWT can offset the costs of IWT by transferring wildlife stewardship to communities and reframing African elephants as a "valued asset". Not only does this increase the security of African elephants, but community engagement approaches also intend to provide communities with a stake in wildlife management that allows them to access associated revenues from sustainable use schemes, thus providing livelihood benefits.

Strengthening the capability of Kenyan communities to conserve coral reefs (DAR20017)

The project aimed to achieve better management of coastal resources and fisheries that would lead to greater fish biomass for fishers. Livelihoods were to be enhanced in the long-term by better management of resources and efforts that will protect biodiversity. In addition, it was expected that the participatory planning and learning activities that would be undertaken in order to better manage the resources and protect biodiversity would allow communities to better negotiate and advocate for their needs with decision makers.

Figure 19: Frequency of project activity by scheme (interim sample)

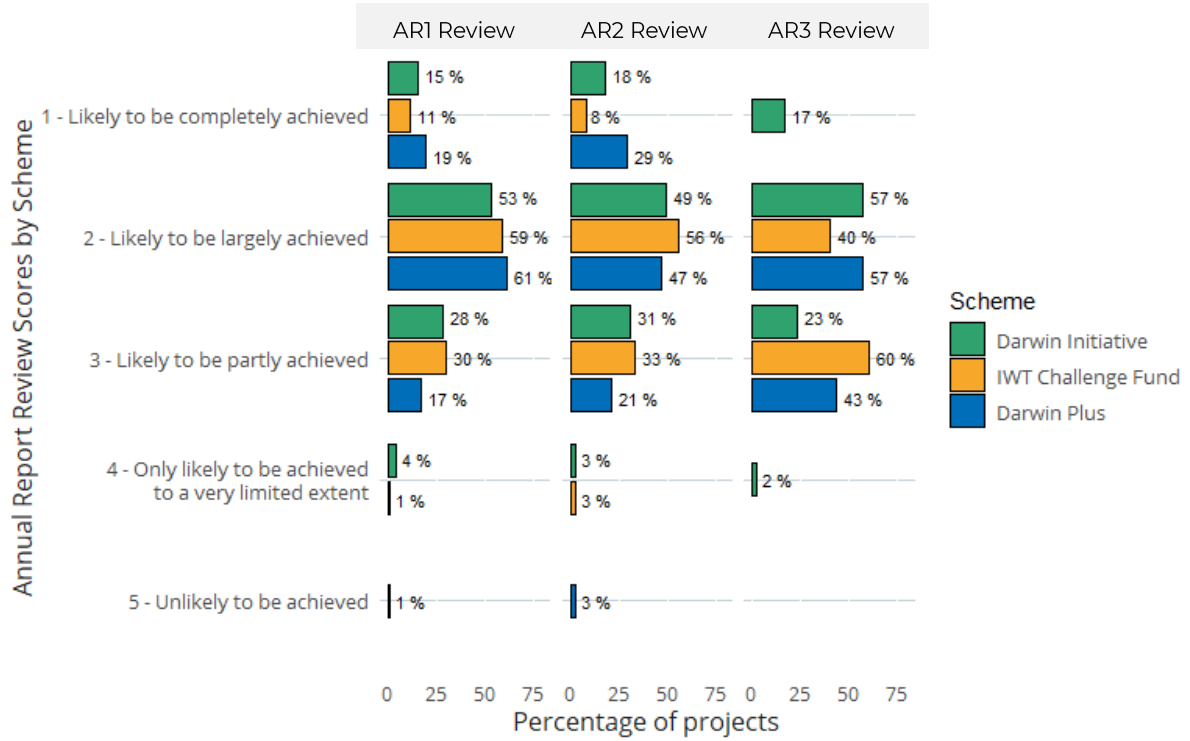


Note: Darwin Initiative (N=50), IWT Challenge Fund (N=31), Darwin Plus (N=), Darwin Fellowship (N=4)

Table 1: Number of projects implementing different activities (interim sample)

Project activities	Number of projects involved in activity
Research/conservation planning	72
Work around education and awareness raising	70
Work around local training and capacity in-country	69
Work around developing, adopting or implementing policy or legislation / ensuring effective legal frameworks	63
Work around national training and capacity building in-country	57
Work to enhance or provide alternative livelihoods	42
Work to manage species and populations	35
Work to manage habitats and ecosystems	34
Work around strengthening law enforcement / criminal justice system	33
Work around reducing demand for the products of the illegal wildlife trade	6

Figure 20: Annual Report Review scores at portfolio level (monitoring data)



Note: Darwin Initiative (N=194), IWT Challenge Fund (N=73), Darwin Plus (N=82).

Source: *LTS monitoring data*

Figure 21: Examples of projects that failed to meet outcome/impact expectations around poverty/sustainable livelihoods

Addressing the threat of Invasive Species in Pitcairn Overseas Territory (DAR19028)

This Darwin project conducted a socioeconomic impact study to understand the impact invasive species are having on the economy and lives of Pitcairn. It found that the socioeconomic benefits accrued through pest eradication in Pitcairn would be minor. The project did not implement its intended biosecurity actions and therefore did not contribute any of the long-term livelihood benefits originally hoped for as a result of these actions.

Project Waylay (IWT005)

The project aimed to increase wildlife law enforcement capacity for tracking illegal consignments of elephant ivory and rhinoceros horn and for investigating identified targets. The capacity developed was less advanced than expected due to the limited existing capacity/infrastructure.

At the application stage, the project aimed to improve poverty outcomes by reducing IWT which would, in turn, increase tourism to national parks, and therefore improve the salaries of workers whose income is largely reliant on the admission earnings. The reduced level of violent crime in the areas was also hypothesised to benefit the local communities who would be safer.

There was no evidence gathered with regards to human development or poverty. The final report states that the project will have a positive impact on poverty by increasing safety, however due to the reduced scale of the project these outcomes are unlikely to have been experienced yet - they may be realised in the future.

Figure 22: Achieving both biodiversity and poverty and sustainable livelihood goals

DAR20017 in Kenya, titled: "Strengthening the capability of Kenyan communities to conserve coral reefs".

The project aimed to contribute to sustainable livelihoods through promoting effective and sustainable management of coastal resources and ecosystems, including coral reefs, which coastal communities depend upon. Coastal resources are found to be damaged by overfishing and use of destructive equipment, amongst other threats. The project expects that through better managed closures of fishing grounds, it will provide long-term benefits through increased fish biomass, which allows for larger, more desirable, and greater value fish species to be caught; and this is supported by previous research conducted by Wildlife Conservation Society. As a result, livelihoods will benefit directly in the longer-term. Furthermore, the project's participatory planning and learning activities are expected to facilitate the better management and protection of coastal biodiversity and lead to improved social organisation within communities to better negotiate and advocate their needs with key decision-makers. This will facilitate networking and alliance-building to improve relationships with key stakeholders such as the Ministry of Fisheries.

Although the strength of the evidence varies, the project's final report reviewer notes that benefits are expected to accrue in improved incomes, health and food security for approximately 900 fishers directly impacted by the project, approximately 1,300 fishers from the larger community within the Beach Management Units as well as roughly 2,300 fishers attending the annual fishers' forum. The project also reported improved capacity of community members to negotiate conflicts, and to confidently interact with national fisheries authorities and other stakeholders, demonstrating built social capital within communities with the potential to be utilised in other spheres of their lives. In particular, the project has raised the confidence and profile of women, increasing their capacity to act as agents of change.

Figure 23: Scoring highly on biodiversity outcomes but low on poverty/sustainable livelihoods outcomes

Disrupting ivory trafficking conduits with coordinated law enforcement in Malawi (XXIWT022)

The project established and operationalised two new Community Enforcement Networks (CENs) around Kasungu National Park and Vwasa Marsh Wildlife Reserve and hired 30 local people across the two networks. At a national level, the project established a multi-agency Wildlife Crime Investigation Unit (WCIU) within the Department of National Parks and Wildlife.

The establishment of local and national organisations to aid in the enforcement of IWT laws had strong outcomes for African Elephants (as well as other non-targeted species). Elephant numbers in both Kasungu National park and Vwaza Marsh Wildlife Reserve moved towards stabilisation for the first time in over 25 years. The project achieved 42 arrests and 31 convictions in 2016 and 50 arrests and 45 convictions in 2017, which is a substantial increase from the 2014 baseline of 28 arrests and 14 convictions.

The project expected to hire 30 community members whose families would benefit directly in terms of income. The project had intended to conduct baseline and endline surveys to collect data pertaining to livelihood outcomes. However, in the end the surveys did not collect much data on livelihood outcomes. Anecdotal evidence suggested that the local community members hired did not experience strong poverty alleviating outcomes because they did not want to spend their money on poverty alleviating expenditures since they were working undercover.

Figure 24: Examples of different strengths in evidence

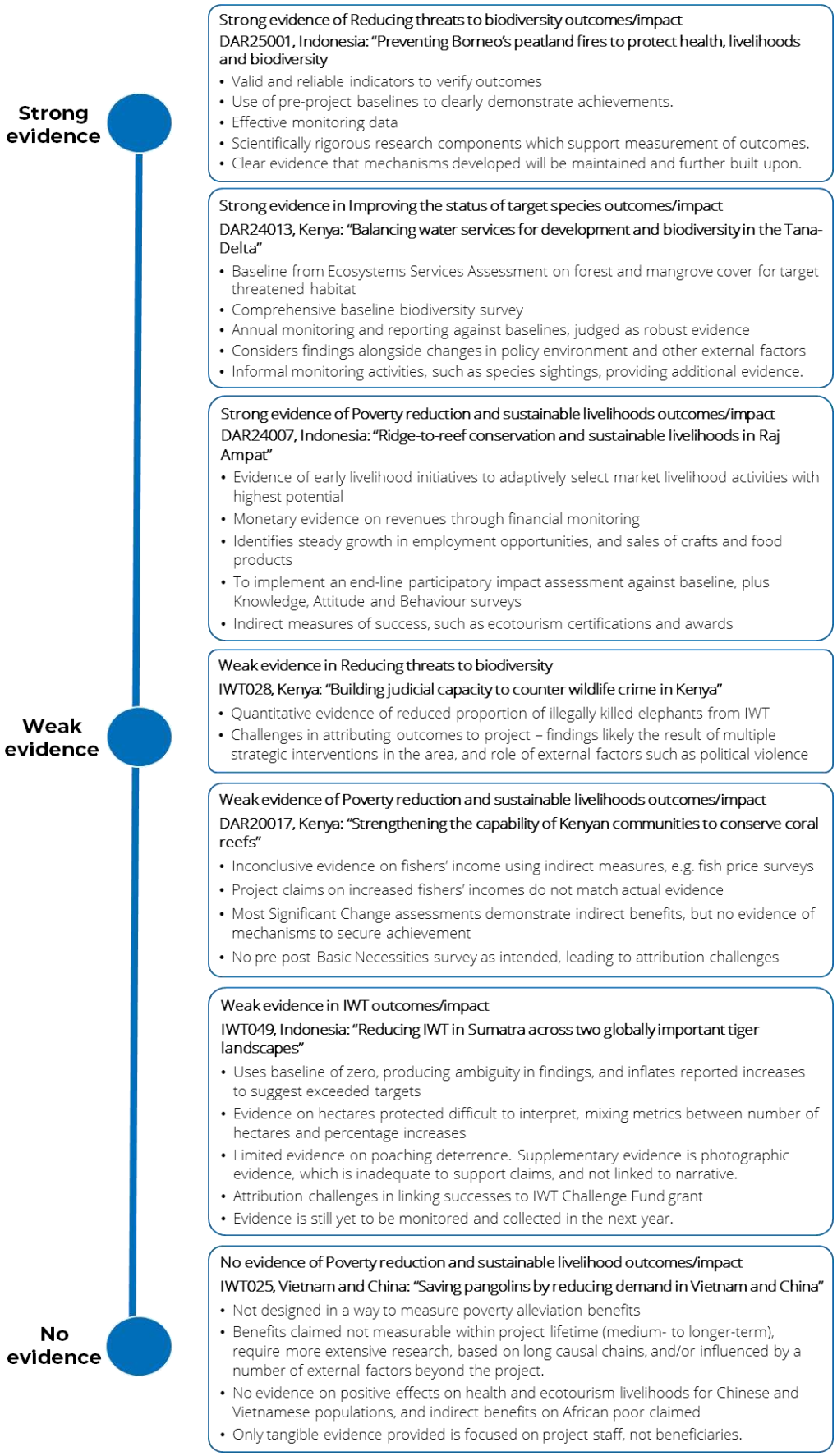


Figure 25: The robustness of project exit strategies during implementation/at completion

Robust exit strategy during implementation – Bolivia - Wildlife-friendly agroforestry and sustainable forest management in Bolivian indigenous territories (DAR24011).

Document evidence reveals that the project's exit strategy covers social, economic and environmental sustainability pathways during project implementation. Social sustainability is being achieved as a result of the project establishing producer organisations operating under approved and legitimate indigenous management plans and natural resource use regulations. Sustainability and legacy are also supported by committed efforts towards the transfer of technical knowledge to producer organisations. Economic sustainability is also addressed during the project through developing a cost-effective control and vigilance strategy; increasing household incomes through improved production, and creating market linkages with niche markets. Environmental sustainability is addressed by improving pre-harvest management, including bird friendly certification, and supporting indigenous territorial governance and control over natural resources.

Somewhat robust exit strategy during implementation - Kenya - Balancing water services for development and biodiversity in the Tana-Delta (DAR24013).

Project document evidence highlights that its exit strategy compared to its application has not changed, and that sustainability is built into its plans, such as in building capacity of county governments and the Tana Delta Conservation Network. However the project does not report on whether additional funding sources have been found to be viable for maintaining the presence of project partners such as Nature Kenya or Royal Society for the Protection of Birds. It is plausible that the continued presence of these project partners in Tana Delta is not predicated on achieving additional funding given their long-term presence and commitment to operating in Tana Delta. In addition, it is unclear from document evidence if, or how, sustainable livelihood activities or capital items will be sustained and maintained after project completion. There is anticipation, however, that a clearer action plan on the roles and responsibilities of project partners after project completion may be provided in the final reporting stage.

No robust exit strategy during implementation – Indonesia - Reducing IWT in Sumatra across two globally important tiger landscapes (IWT049)

This project proposes its exit strategy as excellent, working within existing governance frameworks, strengthening coordination for deterrence, and good visibility amongst government and communities to promote engagement with IWT issues which contribute to sustainable outcomes. However, such claims are optimistic, with report reviewers stating its exit strategy is not well defined about how it will continue these efforts. In particular, a Mid-term Review conducted finds that it is not clear what the true costs of the project were during implementation, and how such costs would be sustained beyond project lifetime. This has particular consequences for the project's long-term commitment in supporting community rangers, where it is not clear how they will be funded. The only substantial evidence provided is the long-term commitment of the project lead organisation to the target landscapes, although this highlights that project sustainability rests on commitment rather than robust mechanisms to ensure sustainability of the outputs themselves. The Mid-term Review also highlighted that the project's development of interagency collaboration forums to facilitate intelligence and information sharing at landscape- and island-wide levels was significantly delayed. This provides a key mechanism for sustaining information exchange post-project, however there is little evidence to suggest that this will be implemented.

Figure 26: Examples of varying likelihood of sustainability

VERY LIKELY - Building systems and capacity to monitor and conserve BVI's flora (DPLUS030)

Securing the BVI populations of globally threatened species in ex-situ conservation collections is a direct result of the capacity building and international collaboration that this project enabled. The ability of local staff to confidently identify, monitor, collect and reproduce the 22 species of threatened plants in BVI will have a lasting legacy far beyond the project. The data collected during the project on species distribution, phenology and status will inform species and habitat management for years to come. The project has provided fundamental baseline information and capacity building for the local organisation that will enable it to respond to local government priorities and requests well into the future.

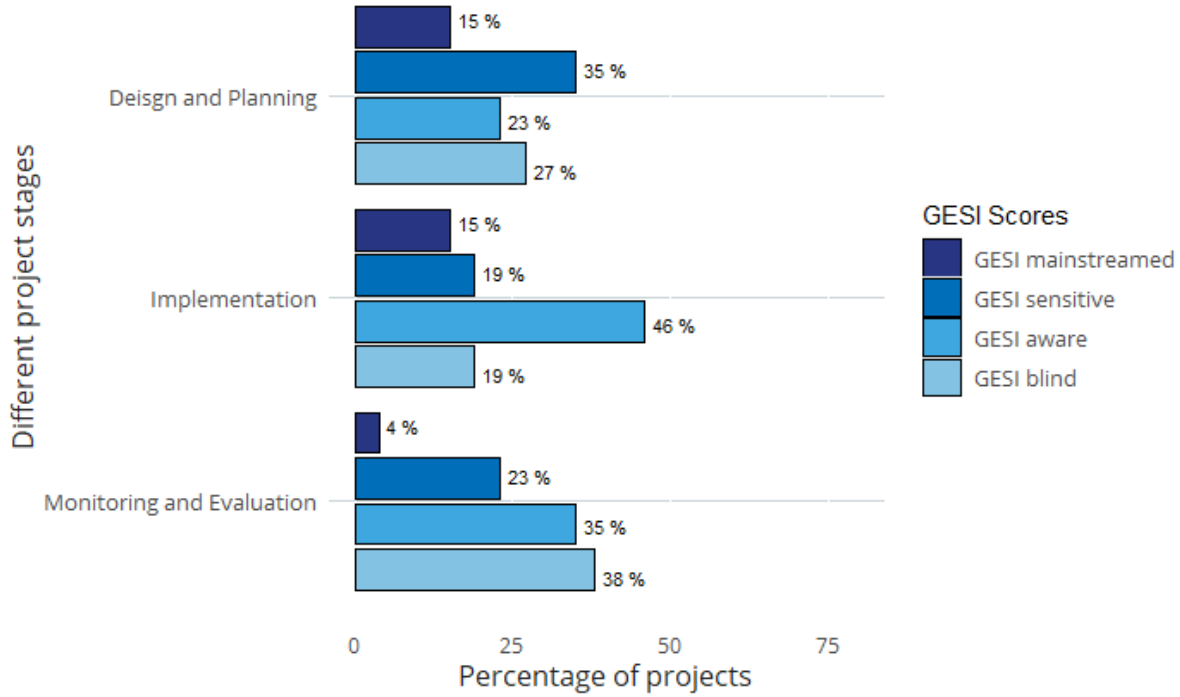
SOMEWHAT LIKELY - Project Biomap (DAR10015)

The project aimed to increase biodiversity knowledge to formulate priority-setting strategies to focus research and conservation action for birds in Colombia. The 'Darwin Database', once published, should prove to be an enduring legacy for conservation work in Colombia that can readily be extended to other taxa by capable Colombians trained within this Darwin Initiative project. The project was also able to successfully establish itself as a model which is already being emulated in other regions, suggesting that it has built strong foundations for scalability and replicability. However, the very real achievements of this project could too easily fade from public view. The Final Report does not make it clear when and how the launch of the Darwin Database will be publicised and disseminated and if there are any strategies in place to encourage its use.

NOT LIKELY - Forest Futures: Livelihoods and sustainable forest management in Bolivian Amazon (DAR20021)

The project did not manage to reach the stage where the alternative livelihood practices promoted would be promoting themselves and spreading through the Pando forest communities. The project did not develop structures that would support the continuation of some of the activities in the long-run. The local NGO is fully reliant on external funds to continue their support - the project managed to secure additional funding for one more year but that is unlikely to be sufficient for the impact to be sustained. The project did develop manuals on the various activities, but it is not clear who will use them in Bolivia.

Figure 27: GESI ratings for Tier 2 projects across different stages



Note: Evidence is collected from the Tier 2 sample. We have excluded Darwin Plus from these results, given all projects are GESI Blind for each project stage. Therefore, the results shown are for N=26, including Darwin Initiative, IWT Challenge Fund and Darwin Fellowships.

Figure 28: Examples of different levels of GESI sensitivity

GESI Mainstreamed in Design and Planning – Indonesia - Ridge-to-reef conservation and sustainable livelihoods in Raja Ampat - DAR24007.

The project demonstrates an extensive mapping of different GESI groups, including women, youth, the poor and indigenous peoples, and integrates intersectionality considerations into project activities and outputs. The project uses a DFID's Sustainable Livelihoods approach, which recognises the intersectionality of peoples' livelihoods and helps focus the project on GESI principles. It recognises women's and indigenous peoples' different roles, responsibilities, needs and aspirations, and recognises the role of intrahousehold gender relations. The project provides an assessment, and intends to positively impact, the customary use of natural resources by indigenous communities through plans for protected areas based on free, prior and informed consent of customary land claims, supporting the preservation and respect of traditional knowledge and practices. The project has comprehensive ethical protocols in place, such as adhering to the Conservation Initiative on Human Rights, and aims to respect rights for free, prior and informed consent in project design and implementation. However, the project does not include any GESI outcome indicators, although it does have a relatively GESI-considerate logframe, providing gender-disaggregated output indicators, and aims to consider the resource use patterns of both women and men where applicable. Furthermore, the project does not mention any relevant international domestic frameworks relevant to GESI, such as Sustainable Development Goal 5: Gender Equality. The project presents generic reference to GESI related risks, and does not provide detail on what these entail in practice, and does not provide a sufficient assessment of how GESI-related risks might emerge or develop during project implementation. The project's budget, in particular for monitoring and evaluation, shows clear use for measuring GESI targets/indicators, although it is unclear whether any of the budget provisions are to respond to emerging GESI – related needs during project lifetime.

GESI aware during Implementation – Kenya - Reconnecting poverty-alleviation to biodiversity conservation in Kenya's Eastern Arc Mountains (DAR21014).

The project demonstrates some evidence of GESI thinking that reflects its project application, such as the recognition of traditional knowledge; engagement with a range of age groups, physical abilities, women and youth; and references a variety of ethical protocols that are in place. However, there is a lack of reporting on the project's stated engagement with all ages, physical abilities, women and youth. For example, the project states that there was an adequate representation of men and women, and in some cases a higher proportion of women, in project activities; however, this is not reported at an activity or output level. A main premise for the project's GESI Awareness is its participatory nature, however evidence is unclear in a variety of aspects. First, there is no evidence of community members involved in decision-making of the project implementation, although the project does state that the wishes and aspirations of the community were captured in management plans. Second, the project states that it ensured men, women, and youth were involved in activities, and encouraged women to become elected in leadership positions, however, there is no reporting on gender or youth participation, nor mention of potential mechanisms. Third, given that the project was conducted by a local organisation, it is assumed that participatory meetings were held in accessible languages, although there is no evidence of acknowledgement or mitigation against potential barriers to participation such as this. Fourth, whilst the project has informed and consulted local communities in project activities, there is no mention of a process for such groups to raise any grievances. The project does not mention its use of Free Prior and Informed Consent, nor Do No Harm approaches.

Figure 29: Examples of projects benefiting marginalised groups to varying degrees

Extensive benefit on marginalised groups – Kenya - Balancing water services for development and biodiversity in the Tana-Delta (DAR24013)

Strong evidence is provided that project activities and outputs have contributed to a reduction produce lost to conflict, and increased produce and income from associated livelihood activities. Furthermore, through the establishment of capacity building activities in the Tana Delta Conservation Network, which is a community organisation that represents local communities to local government and manages the Community Conservation Area, the project has facilitated access for marginalised groups in local decision-making. The TDCN group includes representatives from all different ethnic groups in the Tana Delta.

Some benefit on marginalised groups - Nepal - Succeeding with CITES: Sustainable and equitable Jatamansi trade from Nepa - DAR25018".

The project aims to provide sustainable livelihood opportunities to the communities living in project sites in its aim to improve conservation of Jatamansi, a medicinal plant. The project expects to indirectly benefit marginalised groups through improved conservation, but also directly benefit community members as they often rely on income from harvesting Jatamansi. In particular, this is especially important to marginalised groups in project sites, including Dalits and indigenous peoples. During the project, trade of Jatamansi was limited by Nepalese regulation, which reduced efforts to amend the regulation and enable trade in order to bring benefits to communities, including marginalised groups. The project does not include any specific considerations of marginalised groups in design or delivery and does not aim to improve social inclusion of marginalised groups through its activities.

No benefit on marginalised groups – Indonesia - Reducing IWT in Sumatra across two globally important tiger landscapes (IWT049)

Whilst various benefits to women were expected, they have generally not benefited from the project insofar. The project has struggled to consider gender and contribute to gender equity, particularly given the focus on enforcement and working with government agencies that are significantly male dominated. Gender inequality was also reported as high, given that women might be more at risk from human-wildlife conflict attacks, and may not be necessarily aware of mitigation techniques developed by the project given that only village leaders were encouraged to call the village hotline set up. There is no evidence to suggest that the project has improved the livelihoods of indigenous peoples, or rural people, as actors in forest-edge communities. Furthermore, despite claims that more women are involved in community development activities, GESI benefits are difficult to attribute to the IWT Challenge Fund grant.

Annex 3: Theories of Change

Darwin Initiative Theory of Change

The challenge

The current rate of biodiversity loss is unprecedented and accelerating; a quarter of species that have been assessed are threatened by human activity. The window to take action is rapidly closing, and biodiversity loss has clear, direct implications for sustainable development; marginalised groups often rely most upon biodiversity for their livelihoods, and therefore it is vital that the issues of biodiversity loss and poverty reduction are viewed simultaneously, and approaches are developed that reflect this.

The complexity of the challenge is compounded by the multiple drivers of biodiversity loss, including, but not limited to, habitat loss and degradation, pollution, over-exploitation and unsustainable use, invasive alien species, and climate change. These drivers are in turn driven by wider indirect factors: environmental, social, economic, cultural, and political, such as local and global consumption patterns, and wealth generation; these factors are frequently found to negatively reinforce one another. Additionally, as production becomes spatially decoupled from production, inequalities are exacerbated, with marginalised groups typically baring the costs of resource exploitation that benefits those in more advantaged positions.

Evidence of 'the challenge'

Although the drivers of climate change, loss of biodiversity, and poverty are widely recognised as inter-related, the precise nature of their relationships is complex. Those living in important areas of biodiversity depend disproportionately on wild resources for subsistence, income and trade, their health, and their cultures, and the loss of these naturally functioning ecosystems leaves them particularly vulnerable.

However, the restoration and sustainable management of biodiversity can support the communities who depend on these resources as well as help to mitigate the adverse effects of climate change. A well-documented example is the ecologically sound replanting of mangroves, which can both capture and store carbon and can act as a defence against coastal flooding. If also implemented with viable fisheries management plans, capacity building, and local community rights along with a fair price for marketed commodities, replanted mangroves can support the recovery of valuable fish stocks and improve revenue streams for local people.

However, even that one simplified example lists a range of factors that, to be successful, need to be considered and addressed. If a holistic approach is applied to biodiversity management, it can therefore contribute to addressing these critical challenges. If lessons are shared and projects scaled up, it they can also help mitigate the adverse effects of climate change, whilst providing environmentally sustainable opportunities for improved livelihoods and poverty reduction. Over the last 30 years, the Darwin Initiative has provided the blueprint for such interventions, and this is where it needs to continue to excel, so it's successes can be scaled-up and the programme can have a transformative impact on decreasing biodiversity loss whilst simultaneously supporting the needs and the rights of local people.

Drivers of biodiversity loss

Changes in land and sea use. As human activities transform the environment for different functions, species have become increasingly displaced, injured, or killed, and their habitats lost or degraded, including in and around several biodiversity hotspots. The most widespread form of changes in land cover are agricultural expansion and urbanisation, but also includes other uses such as fisheries, logging, tourism and transport; all driven by increasing

need and demand. These shifts in land use are driving greater deforestation, fragmentation, and habitat degradation.[210] For instance, forest clearing is becoming increasingly common to make way for agriculture and logging.[211] In Southern Chile, the forest landscape has been designated a high priority area for biodiversity conservation, and yet in recent decades, pasture expansion for cattle grazing and commercial plantations has led to dramatic changes in land-use. Consequently, there has been substantial losses in the native forest habitat, fragmentation, and changes in habitat nutrient density and richness – all of this has had negative biodiversity implications.[212,213]

Direct exploitation of organisms. The overextraction of natural resources is a significant driver of biodiversity loss. Common exploitative activities include overfishing, overharvesting, and overgrazing resulting from human-induced activities, which can have significant consequences to biodiversity, including the extinction of birds, mammals, and insects and the disruption of ecosystem functioning.[214] For instance, overfishing disrupts ecological interactions and puts pressure on mammals and frugivorous birds, such as those which play an important role in plant regeneration.[215] The direct exploitation of organisms can also cascade into further changes in land and sea use, such as accelerating habitat loss and habitat degradation, and subsequent loss in biodiversity and ecosystem services. For example, shifts from traditional cultivation of medicinal plants in South Africa to commercial unsustainable exploitation for exportation have created pressures on the land and the threat of extinction to species – particularly because medicinal trees tend to be slow-growing, slow-reproducing, and have specific habitat requirements.[216]

Climate change. Changes in mean temperature and variability of temperatures, as well as increased frequency and severity of extreme weather events all have effects for biodiversity – many species and ecosystems have narrow thermal thresholds, making them particularly susceptible to climate change. Likewise, species are often reliant on seasonal events which are becoming increasingly irregular, such as periods of rainfall.[217,218] Other negative impacts associated with climate change include sea-level rise and ocean acidification. Not only is climate change have strong global impacts on nature, but it also exacerbates the impacts of other drivers of biodiversity loss discussed here,[219] such as the fight against climate change requiring changes in land- and sea-use (the consequences of which are discussed above). For example, as incidents of droughts increase, more dams have to be constructed, resulting in species being displaced or killed.[220]

Pollution. There are many different forms of pollution negatively impacting biodiversity. Plastic pollution, for instance, has now been reported on for more than half a century, and has been found to be present across the globe, within a vast variety of habitats, demonstrating the severity of the issue. It is a notable driver of biodiversity loss, particularly affects a large proportion of both terrestrial and marine species and is difficult to remove from the environment. [221] For example, it can lead to the entanglement of species (when items such as fishing nets are lost or discarded at sea) such as whales and turtles, which causes injury or death. The ingestion of plastics has similar effects.[222] Even freshwater in remote and sparsely populated areas like the Arctic has begun to deteriorate as a result of water pollution.[223] Other types of pollution include the use of fertilisers and synthetic pesticides for

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[210] IPBES (2019). Summary for policymakers of the global assessment report on biodiversity and ecosystem services of the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services. Link.
[211] Sanchez-Bayo and Wyckhuys (2019). Worldwide decline of the entomofauna: A review of its drivers. Link.
[212] Rodriguez-Echeverry et al. (2018). Impact of land-use change on biodiversity and ecosystem services in the Chilean temperate forests. Link.
[213] Miles and Kapos (2008). Reducing greenhouse gas emissions from deforestation and forest degradation: global land-use implications. Link.
[214] IPBES (2019). Summary for policymakers of the global assessment report on biodiversity and ecosystem services of the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services. Link.
[215] Araujo et al. (2021) Implications of overfishing of frugivorous fishes for cryptic function loss in a neotropical floodplain. Link.
[216] Wyk and Prinsloo (2018). Medicinal plant harvesting, sustainability and cultivation in South Africa. Link.
[217] Hughes, A., (2017). Understanding the drivers of Southeast Asian biodiversity loss. Link.
[218] Pires et al. (2018) Interactive effects of climate change and biodiversity loss on ecosystem functioning. Link.
[219] IPBES (2019). Summary for policymakers of the global assessment report on biodiversity and ecosystem services of the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services. Link.
[220] Williams-Subiza and Epele (2021). Drivers of biodiversity loss in freshwater environments: A bibliometric analysis of the recent literature. Link.
[221] IPBES (2019). Summary for policymakers of the global assessment report on biodiversity and ecosystem services of the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services. Link.
[222] Provencher et al. (2020). A Horizon Scan of research priorities to inform policies aimed at reducing the harm of plastic pollution to biota. Link.
[223] Williams-Subiza and Epele (2021). Drivers of biodiversity loss in freshwater environments: A bibliometric analysis of the recent literature. Link.

agricultural production. Drift and runoff reduce the biodiversity of vegetation and insects in the surrounding area of use. For example, pesticides have contributed to large numbers of species becoming threatened or nearly threatened across India, Malaysia, and Indonesia.[224] Landfill leakages and industrial chemicals from factories and mining sites also lead to the acidification of waters, and thus negatively impact aquatic species and those dependent upon them.[225]

Invasion of alien species. There is increasing risk of the invasion of plant and animal species, including in biodiversity hotspots. Invasive species threaten native species and ecosystem services, such as through the transmission of parasites and diseases and increased competition for food sources.[226] In Ethiopia, it was found that invasive species alter the nutrient levels of soil, reduced plant species present, and in turn, reduced the range of ecosystem functions in the region. This had knock-on effects on soil stability, plant species richness and biomass.[227] Furthermore, water bodies that have been degraded through pollution are more susceptible to invasive species, once again illustrating how the drivers of biodiversity loss exacerbate one another.[228] These invasions are caused by the expansion of trade networks, greater human mobility, continuous habitat degradation, as well as climate change.[229]

As highlighted above, it is important to recognise that these drivers are not independent, but rather interact with one another, which can further compound threats to biodiversity loss.[230]

Barriers to addressing 'the challenge'

There are five key barriers to biodiversity conservation that the inputs of the Darwin Initiative aim to overcome. These are also important to address as some of these can contribute as indirect drivers of biodiversity loss, affecting the level, direction, rate and/or intensity of the drivers of biodiversity loss discussed above, as well as action.[231]

Government failures The multiple drivers of biodiversity loss and the associated factors contributing to them require the mainstreaming of biodiversity concerns into decision-making across multiple sectors.[232] However, there is currently insufficient integration of biodiversity issues into broader policies, strategies and programmes and holistic and integrated approaches that consider synergies between social, economic, and environmental drivers have been limited. This is partly due to the perception by policymakers that conservation and economic development are in opposition to one another. Although some trade-offs are inevitable, in broad terms the Dasgupta Review (2021) has shown that there is a strong economic development case for conserving biodiversity, but information gaps (discussed below) result in policymakers and other stakeholders holding such knowledge.[233]

Market failures. Biodiversity is an example of an externality that is rarely considered within private decision-making, particularly with respect to the inefficiencies of production, consumption and exchange of the biosphere's goods and services, and associated behavioural norms.[234,235]

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[224] Gupta, A., (2012). Pesticide use in South and South-East Asia: Environmental Public Health and Legal Concerns. Link.
[225] Sanchez-Bayo and Wyckhuys (2019). Worldwide decline of the entomofauna: A review of its drivers. Link.
[226] Hughes, A., (2017). Understanding the drivers of Southeast Asian biodiversity loss. Link.
[227] Linders et al. (2019). Direct and indirect effects of invasive species: Biodiversity loss is a major mechanism by which an invasive tree affects ecosystem functioning. Link.
[228] Williams-Subiza and Epele (2021). Drivers of biodiversity loss in freshwater environments: A bibliometric analysis of the recent literature. Link.
[229] IPBES (2019). Summary for policymakers of the global assessment report on biodiversity and ecosystem services of the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services. Link.
[230] IPBES (2019). Summary for policymakers of the global assessment report on biodiversity and ecosystem services of the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services. Link.
[231] IPBES (2019). Summary for policymakers of the global assessment report on biodiversity and ecosystem services of the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services. Link.
[232] CBD (2019). Mainstreaming biodiversity in development cooperation. Link
[233] Dasgupta, P., (2021). The Economics of Biodiversity: The Dasgupta Review. Link.
[234] Martinet and Blanchard (2009). Fishery externalities and biodiversity: Trade-offs between the viability of shrimp trawling and the conservation of Frigatebirds in French Guiana. Link.
[235] Dasgupta, P., (2021). The Economics of Biodiversity: The Dasgupta Review. Link.

Inequalities exacerbate government and market failures by preventing the participation of marginalised groups who are typically disproportionately impacted by biodiversity loss and hold indigenous knowledge that is frequently overlooked.[236,,237]

The biodiversity financing gap. Developing country governments face severe financial constraints and do not have the budgets to make the necessary investments. Developing country governments also lack dedicated resources to strengthen the enabling environment for additional protections or investments in biodiversity and tackle perverse incentives for activities such as fossil fuel production and use. However, on top of this, contributions from governments and private stakeholders from more developed countries are also insufficient to close this gap.[238]

Information gaps. It remains a challenge in practice for projects, policies, and programmes to incorporate multiple objectives, partly due to a lack of sufficient knowledge and guidance available on how to achieve the synergies between biodiversity protection, sustainable development and poverty reduction, and climate change mitigation and adaptation. There is also limited knowledge of models of best practice that demonstrate win-win solutions.[239]

Impact

Impact is the long-term strategic aim which the programme intends to have. It will lie beyond the direct control of the programme, so the programme will only have an indirect influence on it. The Darwin Initiative impact statement is:

Poverty is reduced, and the rates of biodiversity loss and degradation are slowed, halted, or reversed in developing countries.

The Initiative aims to achieve this in a manner that is transformational, in that scalability and replicability are at the fore of each stage in the programme's functioning.

This indirect impact in turn will allow the UK and partner countries contributes to Multilateral Environmental Agreements, national-level policy, and Global Goals.

Outcomes

We define outcomes as desired long-term changes in behaviour or systems that the project and scheme are working to achieve. At the scheme-level, these are based directly on the scheme's two principal aims: (i) Protection and enhancement of biodiversity, and (ii) Sustainable development and poverty reduction. The outcomes are as follows:

(i) Biodiversity-related policies are implemented and/or improved, and the management of resources is conducted in a more effective and sustainable manner that promotes biodiversity and livelihoods simultaneously, leading to the conservation and recovery of species. Such policy and management approaches account for traditional knowledge, as well as the needs of marginalised groups such as women

(ii) Future projects (both Darwin and more generally) are able to benefit from the knowledge gathered regarding implementation and policy

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[236] Soaga et al. (2014). Economic inequality and biodiversity loss in eriti community forest wetlands, Ogun State, Nigeria. Link.
[237] Balvanera et al. (2019) Status and Trends –Drivers of Change, in: Global Assessment Report on Biodiversity and Ecosystem Services (Chapter 2.1). Link.
[238] Bigger et al. (2021). Beyond The Gap: Placing Biodiversity Finance in the Global Economy. Link.
[239] Lehmann et al. (2017) Lifting the Information Barriers to Address Sustainability Challenges with Data from Physical Geography and Earth Observation. Link.

(iii) Where possible, projects are scaled at the landscape level/ in another geography (particularly within the same region)/ through policy reform

Outputs

Outputs are defined as short-term, direct, tangible, and quantifiable products or services delivered as a result of project or programme activities being successfully completed. In the first instance, we see the outputs as direct results of the activities and therefore follow the same general typology. The outputs are:

(i) Evidence is produced which can be used to guide future biodiversity management and policies, as well as future Darwin projects – lessons of 'what works' and implementation guidance are gathered
(ii) The capacities and capabilities of local stakeholders are improved to better conduct biodiversity-related activities, such as species and habitat management. For example, postgraduate students are trained in conducting biodiversity surveys, or farmers learn to fish with more sustainable nets
(iii) Poverty is reduced in a manner which is sensitive to community's biodiversity needs – for instance, ecotourism projects established in forest ecosystems
(iv) Policies and management techniques that promote sustainability are implemented

Projects may produce several outputs within one category to achieve outcomes. For example, a project focused on generating research outputs may develop a tool to monitor species diversity, and in turn produce a taxonomic database. Projects may also produce outputs across more than one of these categories.

Inputs

In this impact-focused Theory of Change we define inputs as the things that the programme will support and fund to address its problem statement and achieve the impacts described above.

Management inputs

The Darwin Initiative provides a variety of inputs to ensure that projects funded will be successful. First, the Darwin Initiative provides guidance materials to applicants to ensure that projects align with the objectives of the Darwin Initiative and that projects are designed to increase their success in the application stages and beyond. Second, the Darwin Initiative scheme includes a Darwin Expert Committee (DEC), who not only help inform the application guidance but also review applications to ensure that they recommend only those projects that are most likely to succeed in achieving the intended outcomes and impact – particular emphasis is put on the potential to achieve transformational change through scalability and replication. The Darwin Initiative also run workshops for people invited to Stage 2 to talk them through the process and expectations, as well as giving applicants detailed feedback from LTS and the expert committee in their decision letters in order that they can improve for the future. Advice is provided by LTS during project implementation with the aid of annual and final project reviews.

Project inputs

Prior to receiving Darwin funding, projects typically build local partnerships and leverage their contextual knowledge. They also almost always obtain matched funding from other funders.

Once funding has been received, project inputs most commonly include:

(i) Biodiversity-related research is conducted, including on species, landscapes, and seascapes to improve the information base on ecological, socio-economic and policy attributes, which help to inform conservation decisions and relevant action; for example, generating baseline data through socio-economic surveys and mapping biodiversity attributes to geographic locations

(ii) **Training and skills development** for key stakeholders and local partners to enhance specific skills relevant to biodiversity conservation and/or sustainable use, such as monitoring techniques or the use of a new technology

(iii) **Promoting sustainable livelihoods and poverty reduction** to improve the wellbeing of people who depend upon, and have impacts on, the species/habitats of interest to conservation – for instance, by the construction of fish farms in target communities or developing community management for tourist activities

(iv) **Establishing partnerships and relationships** between local and international stakeholders to improve the efficiency of future activities – particularly if the lead organisation is not locally based, and also to promote the voices of local and/or marginalised communities within policy and practice

Projects usually conduct more than one of these inputs, and eligibility for Darwin Initiative funding requires that every project includes both poverty and biodiversity activities. Additionally, when undertaking project inputs, as mentioned above, projects consider cross-cutting themes such as gender, and high-quality monitoring and evaluation is conducted throughout to enable strong learning within the Initiative.

How the Darwin Initiative learns

The Expert Committee represent an important source of learning by providing expertise, feedback, and strategic insight into the review and selection of projects. They are also involved in annual strategy days for each scheme, which shape the direction of the schemes and are a useful opportunity for gathering and sharing collective learning about the schemes. Annual contractor reports, produced by LTS International, provide scheme-level summaries of key information. These includes summaries of past project activities, key changes between financial years and grant rounds, as well as the identification of trends. The schemes' also have a monitoring and evaluation system, whereby projects report monitoring information and are also assessed externally at the end of the project cycle.

At this stage of the evaluation, we are unable to assess the extent to which the existing monitoring, evaluation and learning systems are working effectively, but one member of the expert committee has highlighted that there is an opportunity for the Darwin Initiative to share more of its learning than it currently does. For example, with project applicants, other similar programmes, with policymakers, and with the wider conservation/development community.

Assumptions and project pre-requisites

At the stage of screening and selection there are a number of pre-requisites that must be met in order for projects to be selected. This information is requested prior to selection and the Darwin Expert Committee use their expertise to ensure that the pre-requisites are met. In addition, project reviews and standard M&E processes also ensure these conditions continue to be met. Assumptions reflect the conditions that are necessary for inputs, activities, outputs, and outcomes to successfully work. They also include contextual factors that are affect various components of the change pathways. Below we list both the project pre-requisites and assumptions at each stage of the scheme's lifecycle:

Table 2: Darwin Initiative assumptions and pre-requisites

Stage	Pre-requisites	Assumptions
Input	Applicants receive sufficient guidance and information to design a successful project with strong biodiversity outcomes in addition to strong poverty reduction	The Darwin Initiative receives a sufficient supply of strong applicant projects tackling biodiversity and poverty Project activities do not duplicate existing work funded by the Darwin Initiative or others

	Expert committees review and sift projects successfully to select the strongest projects Activities engage with necessary stakeholders, such as communities, enterprises, local and national government bodies, non-governmental organisations, and academics Projects fully understand the local complexities and different dimensions of poverty when designing their activities	Turnover in staff and/or partner institutions does not negatively affect project activities
Output	Sufficient monitoring systems are established to measure outputs Gender is adequately considered within project design so that the project does not cause further inequalities but, where possible, can improve equality with regard to and as a result of biodiversity and resource use	Projects that produce outputs with multiple objectives achieve strong synergies in their outcomes
Outcome		Poverty reduction and biodiversity aims are compatible, with trade-offs manageable Outcomes are not exceeded by external pressures on biodiversity/ poverty, and such pressures e.g. political conflict are at manageable levels Policies and practices developed are replicable in a successful manner in other contexts There is will from key stakeholders (particularly government) to implement change based upon the findings from projects Finance (Defra and leveraged) remains available for project implementation and sustainability

Darwin Plus Theory of Change

The Challenge

UK Overseas Territories (UKOTs) are experiencing major and immediate threats to biodiversity due to human-induced pressures. A major challenge is the need to reverse the loss of biodiversity across both marine and terrestrial island species. Island ecology is particularly vulnerable to climate change, and due to remoteness, there is a particular requirement to ensure the fair distribution of benefits resulting from the use of biodiversity with the people who live there.

The complexity of the challenge is compounded by multiple drivers of biodiversity loss, including habitat loss and degradation, pollution, over-exploitation, and unsustainable use, and particularly from invasive alien species, and climate change. These drivers are in turn determined by wider environmental, social, economic, cultural, and political factors, including global and local consumption patterns.

Darwin Plus works within this intersection of barriers and drivers, tackling biodiversity in a holistic manner which accounts for the intrinsic links with climate change and sustainable livelihoods.

Evidence of 'the challenge'

UKOTs are primarily small and remote islands that support a diverse range of priority ecosystem types (mangrove, coral, sea-grass beds, etc.), which hold regionally or globally important concentrations of a large number of rare and threatened species, including a significant proportion of endemic species.[240]

With the notable exceptions of the British Antarctic Territory and Gibraltar, which are part of a continental landmass, most of the UKOTs are individual or groups of islands.[241] Biodiversity in UKOTs is intimately linked with economic and social development. In many UKOTs, communities (and economies as a whole) are often heavily dependent on island biodiversity, deriving from it much of their economic, environmental, and cultural wellbeing. Not only does it provide subsistence (food, fresh water, medicines, fuel), but it also provides the basis for benefitting from sources such as fisheries, forests, and tourism that economies rely upon.[242]

The conservation and sustainable use of biodiversity is therefore integral to sustainable development in UKOTs. However, economic development can impose human-induced threats to biodiversity, such as land-use change, invasive species, and pollution, contributing to both biodiversity loss and diminishment of wellbeing.[243]

Drivers of biodiversity loss

The drivers of biodiversity loss differ between UKOTs depending on their geographic location, local environmental factors, and population size. However, these threats are increasing and visible across the territories.[244]

Climate change: Biodiversity is inextricably linked with climate change. Climate change is a very serious issue in UKOTs, where spatial analyses often show climate change associated pressures posing the greatest threat to all

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[240] Defra (2009). United Kingdom Overseas Territories Biodiversity Strategy. Link.
[241] The 14 UKOTs are: Anguilla; Bermuda; British Antarctic Territory; British Indian Ocean Territory; The British Virgin Islands; The Cayman Islands; The Falkland Islands; Gibraltar; Montserrat; The Pitcairn, Henderson, Ducie & Oeno Islands; Saint Helena, Ascension and Tristan da Cunha; South Georgia and the South Sandwich Islands; Sovereign Base Areas, Akrotiri and Dhekelia (on Cyprus); and The Turks & Caicos Islands.
[242] Convention on Biological Development (CBD). Island Biodiversity: Why is it Important? Link.
[243] Convention on Biological Development (CBD). Island Biodiversity: Why is it Important? Link.
[244] Houses of Parliament (2013). Biodiversity in UK Overseas Territories. Link.

UKOTs, as some territories are certain to experience, or currently experiencing, severe ecological impacts.[245] This ranges from rising frequency and/or intensity of extreme events; to floods, storm surges and coastal erosion; to sea-level rise, ocean acidification, and saltwater intrusion. Climate change can cause drastic changes in natural habitats, causing species to migrate, adapt to new environmental conditions, or potentially lead to species extinction. These issues are particularly acute in island ecosystems like UKOTs given their remote, closed-system nature, endemic richness; and evidence that species on islands are more prone to extinction. This is particularly true for endemic species, which lack adaptation options comparably more to other species.[246,247] At the same time, biodiversity contributes to the regulation of climate on islands, and can provide a vital first line of defence against natural disasters, thus protecting society from the impacts of climate change.[248]

Invasion of alien species: There is increasing risk of the invasion of plant and animal species, including in biodiversity hotspots. Invasive species threaten native species and ecosystem services, such as through the transmission of parasites and diseases and increased competition for food sources. This can alter the nutrient levels of habitats, resulting in widespread ecological changes and potential extinctions.[249] In recent years, the UKOTs have faced particular issues with invasive predatory mammals which threaten native bird species: this has led to 22 threatened or near threatened breeding birds in the UKOTs.[250] The impacts of invasive species are particularly acute on small islands due to low ecosystem resilience and limited governmental capacity and infrastructure.[251] Moreover, water bodies which have been degraded through pollution (discussed below) are more susceptible to invasive species, illustrating how the different drivers of biodiversity loss interact and exacerbate one another.[252] Furthermore, the threat of invasive species in UKOTs further limits adaptation options for endemic species, particularly as it compounds with other drivers of biodiversity loss as climate change.[253]

Changes in land and sea use. As human activities transform the environment for different functions, species have become increasingly displaced, injured, or killed, and their habitats lost or degraded. In UKOTs, changes in land and sea use, such as for mining, agriculture, fishing and tourism; represent a significant threat to biodiversity.[254] This is particularly true for Caribbean UKOTs, where development pressures are a short-term and long-term threat to biodiversity, contributing to habitat loss and degradation.[255]

Direct exploitation of organisms: Overfishing is common in UKOTs, including destructive fishing practices but most pressingly illegal, unreported and unregulated fishing often by external actors. Other exploitative practices include the over-abstraction of freshwater and the pressures of tourism.[256257] However, an increasing threat in particular is the illegal, unreported and unregulated fishing in UKOTs. This can have significant consequences to biodiversity, including the extinction of birds, mammals, and insects and the disruption of ecosystem functioning. Overfishing, for example, disrupts ecological interactions and puts pressure on mammals and frugivorous birds, such as those which play an important role in plant regeneration.[258] It also affects marine life, such as bluefin tuna in Tristan da Cunha which are currently estimated to stand at just 13% of their original biomass as a result of overfishing.[259]

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[245] O'Leary et al. (2018). Evidence gaps and biodiversity threats facing the marine environment of the United Kingdom's Overseas Territories. Link.
[246] Veron et al. (2019) Vulnerability to climate change of islands worldwide and its impact on the tree of life. Link.
[247] Houses of Parliament (2013). Biodiversity in UK Overseas Territories. Link.
[248] Martin and Watson (2016). Intact ecosystems provide best defence against climate change. Link.
[249] Hughes, A., (2017). Understanding the drivers of Southeast Asian biodiversity loss. Link.
[250] Hilton and Cuthbert (2010) Review article: The catastrophic impact of invasive mammalian predators on birds of the UK Overseas Territories: a review and synthesis. Link.
[251] Weber and Weber (2020). Impacts and Management of Invasive Species in the UK Overseas Territories. Link.
[252] Williams-Subiza and Epele (2021). Drivers of biodiversity loss in freshwater environments: A bibliometric analysis of the recent literature. Link.
[253] Houses of Parliament (2013). Biodiversity in UK Overseas Territories. Link.
[254] Maunder et al. (2008). Plant Conservation in the Caribbean Island Biodiversity Hotspot. Link.
[255] Forster et al. (2011). Marine biodiversity in the Caribbean UK overseas territories: Perceived threats and constraints to environmental management. Link.
[256] O'Leary et al. (2018). Evidence gaps and biodiversity threats facing the marine environment of the United Kingdom's Overseas Territories. Link.
[257] Houses of Parliament (2013). Biodiversity in UK Overseas Territories. Link.
[258] Araujo et al. (2021). Implications of overfishing of frugivorous fishes for cryptic function loss in a Neotropical floodplain. Link.
[259] Townhill et al. (2021). Climate Change Impacts on Atlantic Oceanic Island Tuna Fisheries. Link.

Pollution: there are many different forms of pollution negatively impacting biodiversity, such as landfill leakages and air pollution. Since most UKOTs are islands, they are particularly impacted by plastic pollution which entangles species (when items such as fishing nets are lost or discarded at sea) such as whales and turtles, leading to injury or death; the ingestion of plastics has similar effects.[260]

As highlighted above, it is important to recognise that these drivers are not independent, but rather interact with one another, which can further compound threats to biodiversity loss.[261]

Barriers to addressing 'the challenge'

There are four prominent barriers to addressing biodiversity loss in the UKOTs which Darwin Plus aims to overcome. These are also important to address as some of these can contribute as indirect drivers of biodiversity loss, affecting the level, direction, rate and/or intensity of the drivers of biodiversity loss discussed above, as well as action.[262]

Government failures: the multiple drivers of biodiversity loss and the associated factors contributing to them require the mainstreaming of biodiversity concerns into decision-making across multiple sectors.[263] However, there is currently insufficient integration of biodiversity issues into broader policies, strategies and programmes and holistic and integrated approaches that consider synergies between social, economic, and environmental drivers have been limited. This is partly due to the perception by policymakers that conservation and economic development are in opposition to one another. Although some trade-offs are inevitable, in broad terms the Dasgupta Review (2021) has shown that there is a strong economic development case for conserving biodiversity.[264]

On top of this, UKOTs' government departments are often understaffed – particularly those regarded as less priority areas, such as environmental departments. Furthermore, UKOTs often lack the capacity and resources to undertake effective research, or enact conservation and management measurements.[265] Thus, even when funding is sufficient, there is a lack of human capacity and infrastructure to conduct activities / ensure that they are sustained after a project is completed; for example, essential research platforms such as survey vessels.[266,267]

Market failures: Biodiversity is an example of an externality that is rarely considered within private decision-making, particularly with respect to the inefficiencies of production, consumption and exchange of the biosphere's goods and services, and associated behavioural norms.[268, 269] A notable example here is the increasing demands from tourism and associated activities and consumption, where biodiversity considerations may not be given a high profile.[270]

The biodiversity financing gap: the annual cost of biodiversity conservation across the UKOTs is estimated at £16.1 million – a figure that greatly exceeds current expenditure. However, UKOTs are often ineligible for international

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[260] Provencher et al. (2020). A Horizon Scan of research priorities to inform policies aimed at reducing the harm of plastic pollution to biota. Link.
[261] IPBES (2019). Summary for policymakers of the global assessment report on biodiversity and ecosystem services of the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services. Link.
[262] IPBES (2019). Summary for policymakers of the global assessment report on biodiversity and ecosystem services of the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services. Link.
[263] CBD (2019). Mainstreaming biodiversity in development cooperation. Link
[264] Dasgupta, P., (2021). The Economics of Biodiversity: The Dasgupta Review. Link.
[265] Churchyard, T. et al. 2016. The biodiversity of the United Kingdom's Overseas Territories: a stock take of species occurrence and assessment of key knowledge gaps. Biodiversity Conservation 25:1677-1694.
[266] Forster et al. (2011). Marine biodiversity in the Caribbean UK overseas territories: Perceived threats and constraints to environmental management. Link.
[267] O'Leary et al. (2018). Evidence gaps and biodiversity threats facing the marine environment of the United Kingdom's Overseas Territories. Link.
[268] Dasgupta, P., (2021). The Economics of Biodiversity: The Dasgupta Review. Link.
[269] Martinet and Blanchard (2009). Fishery externalities and biodiversity: Trade-offs between the viability of shrimp trawling and the conservation of Frigatebirds in French Guiana. Link.
[270] JNCC (2009). Implications of climate change for biodiversity in the UK Overseas Territories. Link.

funding, either because they are not considered 'developing', or because they are regarded as the UK's 'responsibility'.[271]

Geographical context: as mentioned above, the UKOTs' geographical contexts exacerbate many of the drivers of biodiversity loss. Island geography, and ecology, are more susceptible to climate change and invasive species. Further issues include distance from markets which create additional issues establishing sustainable livelihoods which positively contribute to biodiversity.[272,273]

Impact

Impact is the long-term strategic aim which the programme intends to have. It will lie beyond the direct control of the programme, so the programme will only have an indirect influence on it. Darwin Plus's desired impact is to provide scalable, repeatable and innovative insights, options, and solutions to directly support and incentive further action to put biodiversity in UKOTS on the path to recovery for the benefit of the planet and people. This will, in turn, facilitate the implementation of agreements and conventions such as the Convention of Biological Diversity.

Outcomes

We define outcomes as desired long-term changes in behaviour or systems that the project and scheme are working to achieve. At the scheme-level, these are based directly on the scheme's principal aim to achieve the protection and enhancement of biodiversity, whilst also ensuring improvements in climate change and sustainable livelihoods. The outcomes are as follows:

(i) Biodiversity-related policies are implemented and/or improved, and the management of resources and ecosystems (particularly coral reef, seagrass meadows, mangrove forests, and wetlands) is conducted in a more effective and sustainable manner that promotes biodiversity and livelihoods simultaneously, leading to the conservation and recovery of species

(ii) Future projects (both Darwin and more generally) are able to benefit from the knowledge gathered regarding implementation and policy

(iii) Where possible, projects are scaled at the landscape level/ in another geography (particularly within the same region)/ through policy reform

(iv) Climate change adaptation, mitigation, and monitoring are enhanced

Inputs

In this impact-focused Theory of Change we define inputs as the things that the programme will support and fund to address its problem statement and achieve the impacts described above.

Management inputs

Darwin Plus provides a variety of inputs to ensure that projects funded will be successful. First, Darwin Plus provides guidance materials to applicants to ensure that projects align with the objectives of the scheme and that projects are designed to increase their success in the application stages and beyond. Second, Darwin Plus includes a Darwin Plus Advisory Group comprising UK government officials, representatives from relevant

[271] Forster et al. (2011). Marine biodiversity in the Caribbean UK overseas territories: Perceived threats and constraints to environmental management. Link.
[272] Forster et al. (2011). Marine biodiversity in the Caribbean UK overseas territories: Perceived threats and constraints to environmental management. Link.
[273] O'Leary et al. (2018). Evidence gaps and biodiversity threats facing the marine environment of the United Kingdom's Overseas Territories. Link.

statutory advisory bodies and the UK Overseas Territories Association and external experts with experience of working in the UKOTs. The Group not only help inform the application guidance but also review applications to ensure that they recommend only those projects that are most likely to succeed in achieving the intended outcomes and impact – particular emphasis is put on the potential to achieve transformational change through scalability and replication.

Project inputs

Prior to receiving Darwin Plus funding, projects typically build local partnerships and leverage their contextual knowledge. They also almost always obtain matched funding from other funders.

Once funding has been received, project inputs most commonly include:

(i) Biodiversity-related research is conducted, including on species, landscapes, and seascapes to improve the information base on ecological, socio-economic and policy attributes, which help to inform conservation decisions and relevant action; for example, generating baseline data through socio-economic surveys and mapping biodiversity attributes to geographic locations; or developing knowledge on the effects and causes of COVID-19 and other pandemics

(ii) Training and skills development for key stakeholders and local partners to enhance specific skills relevant to biodiversity conservation and/or sustainable use, such as training in marine survey methods to enhance recording, identification, and data processing; or an overseas visit to another country with appropriate Marine Protection Area to learn about protection. Capacity building of local partners will also increase the likelihood of strong applications from such organisations in the future (as project leads)

(iii) Promoting sustainable livelihoods to improve the wellbeing of people who depend upon, and have impacts on, the species/habitats of interest to conservation – for instance, by the creation of a formalised network of fisherfolk in management of fisheries and marine resources using Caribbean Network of Fisherfolk Organisations (CNFO) model

(iv) Establishing partnerships and relationships between local and international stakeholders (particularly EU member states) to improve the efficiency of future activities – particularly if the lead organisation is not locally based, and also to promote the voices of local and/or marginalised communities within policy and practice

Projects usually conduct more than one of these inputs. Additionally, when undertaking project inputs, as mentioned above, projects consider cross-cutting themes such as gender, and high-quality monitoring and evaluation is conducted throughout to enable strong learning within the scheme.

Outputs

Outputs are defined as short-term, direct, tangible, and quantifiable products or services delivered as a result of project or programme activities being successfully completed. In the first instance, we see the outputs as direct results of the activities and therefore follow the same general typology. The outputs are:

(i) Evidence is produced which can be used to guide future biodiversity management and policies, as well as future Darwin Plus projects – lessons of 'what works' and implementation guidance are gathered

(ii) The capacities and capabilities of local stakeholders are improved to better conduct biodiversity-related activities, such as species and habitat management. For example, postgraduate students are trained in conducting biodiversity surveys, or farmers learn to fish with more sustainable nets

(iii) Sustainable livelihoods are developed or enhanced in a manner which is sensitive to community's biodiversity needs – for instance, ecotourism projects established in marine ecosystems

(iv) Policies and management techniques that promote sustainability and the prevention of species extinction are implemented

Projects may produce several outputs within one category to achieve outcomes. For example, a project focused on generating research outputs may develop a tool to monitor species diversity, and in turn produce a taxonomic database. Projects may also produce outputs across more than one of these categories.

Assumptions and project pre-requisites

At the stage of screening and selection there are a number of pre-requisites that must be met in order for projects to be selected. This information is requested prior to selection and the Darwin Plus Advisory Group use their expertise to ensure that the pre-requisites are met. In addition, project reviews and standard M&E processes also ensure these conditions continue to be met. Assumptions reflect the conditions that are necessary for inputs, activities, outputs, and outcomes to successfully work. They also include contextual factors that are affect various components of the change pathways. Below we list both the project pre-requisites and assumptions at each stage of the scheme's lifecycle.

Table 3: Darwin Plus assumptions and pre-requisites

Stage	Pre-requisites	Assumptions
Input	The scheme's priorities are updated with sufficient engagement and input from individuals and organisations in the UKOTs Applicants receive sufficient guidance and information to design a successful project with strong biodiversity outcomes in addition to climate change and sustainable livelihoods. Particular support is provided for lead organisations based in the UKOTs to support local ownership of projects Advisory Group review and sift projects successfully to select the strongest projects Activities engage with necessary stakeholders, such as communities, enterprises, local and national government bodies, non-governmental organisations, and academics Projects fully understand the local complexities and different dimensions of poverty when designing their activities	Darwin Plus receives a sufficient supply of strong applicant projects tackling biodiversity Project activities do not duplicate existing work funded by Darwin Plus or others Turnover in staff and/or partner institutions does not negatively affect project activities
Output	Sufficient monitoring systems are established to measure outputs Gender is adequately considered within project design so that the project does not cause further inequalities but, where possible, can improve equality with regard to and as a result of biodiversity and resource use	Projects that produce outputs with multiple objectives achieve strong synergies in their outcomes

Outcome		Outcomes are not exceeded by external pressures on biodiversity, and such pressures e.g. political conflict are at manageable levels Policies and practices developed are replicable in a successful manner in other contexts There is will from key stakeholders (particularly government) to implement change based upon the findings from projects Finance (Defra and leveraged) remains available for project implementation and sustainability

Illegal Wildlife Trade Challenge Fund Theory of Change

The challenge

The illegal wildlife trade (IWT) threatens a wide range of species with extinction. From the world's most iconic, such as elephants and rhinos, to the lesser-known forest species, such as rosewood, mahogany, and orchids to a whole range of small mammals, reptiles, birds, and fish species. The IWT also threatens the ecosystems in which these species reside, which reduces their ability to mitigate climate change, as well as damages the livelihoods of local people in the source countries, which can cause instability and impact sustainable economic growth. The IWT is not a victimless crime: it runs on exploitation, fear, and violence and undermines the economies on which developing countries depend.[274]

The United Kingdom has long been considered a global leader in efforts to combat the IWT, and thus the funding of IWT-related projects has high strategic relevance.

Evidence of 'the challenge'

The illegal trade in CITES-listed species is estimated to be worth £17 billion per year, making the illegal wildlife trade the fourth most lucrative transnational crime after drugs, weapons, and human trafficking.[275] The IWT is diverse in species and products, ranging from live animals and plants (terrestrial and marine) to a vast array of products derived from them, including food products, exotic leather goods, wooden musical instruments, timber, tourist curios, and medicines. It is estimated that just short of 6,000 species are impacted by the IWT, and almost every country in the world plays some role.[276] IWT refers to the unlawful trade, smuggling, poaching, and/or capture of live animals and plants, or parts and products derived from them, that does not conform with either national or international laws and regulations governing its trade, for example the Convention of International Trade in Endangered Species of Wild Fauna and Flora (CITES).[277]

Levels of exploitation of some animal and plant species are high and the trade in them, together with other factors, such as habitat loss, is capable of heavily depleting their populations, bringing some species close to extinction and in some cases impacting the ecosystems they contribute to.[278] The worldwide recognition of these shared challenges has resulted in several international conventions, the most prominent of which are the Convention on Biological Diversity (CBD), CITES, and the Convention on Migratory Species (CMS).

Drivers of the IWT

Weak IWT law enforcement. The IWT thrives when law enforcement officers lack the capacity (training and technology) to adequately prevent it, and due to resource shortages (and compounded by information gaps) this is commonly the case in less-developed countries.[279,280] Thus, conviction rates for IWT-related crimes are low.

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[274] Sas-Rolfes et al. (2019). Illegal Wildlife Trade: Scale, Processes, and Governance. Annual Review of Environment and Resources. Link.
[275] Nellemann, C. et al. (2016) The Rise of Environmental Crime: A Growing Threat to Natural Resources, Peace, Development and Security, A UNEP-INTERPOL Rapid Response assessment. Link. There are uncertainties, but various estimates place the value of the global illegal wildlife trade between $7billion and $23billion.
[276] UNODC., (2020). World Wildlife Crime Report: Trafficking in protected species. Link.
[277] UNODC., (2020). World Wildlife Crime Report: Trafficking in protected species. Link.
[278] UNODC., (2020). World Wildlife Crime Report: Trafficking in protected species. Link.
[279] Price, R., (2017). Economic drivers and effects of the illegal wildlife trade in Sub Saharan Africa. Knowledge, evidence, and learning for development. Link.
[280] Jiao and Lee (2021). Strengthening International Legal Cooperation to Combat the Illegal Wildlife Trade Between Southeast Asia and China. Link.

Moreover, when political instability arises, the capacity of law enforcement is further decreased. Weak law enforcement was found to be one of the primary drivers of high demand of illegal ivory (and it follows, elephant poaching) in Sub-Saharan Africa, and when armed conflict broke out in the Democratic Republic of the Congo in 2013, elephant poaching increased fivefold.[281]

Lack of alternatives or incentives to leave the trade for those living in communities which are involved. Often, individuals participate in the IWT in order to satisfy their basic needs. This is increasingly the case as livelihoods become more difficult to maintain due to factors associated with climate change such as higher instances of drought.[282] In Uganda, it was found that the majority of individuals arrested for illegal activities within one national park were extremely poor and lacked alternative employment opportunities. National parks tend to be remotely located and therefore have poor access to markets, minimising the alterative livelihood opportunities for those living nearby - this remoteness creates further difficulties for law enforcement efforts, illustrating how these drivers are inter-related.[283] However, beyond basic needs, case studies have shown that the IWT offers not only paid employment, but in many cases, extreme wealth, far beyond the earning potential in other industries. The trade thus makes relatively poorer paid opportunities appear far less attractive.[284]

Consumer demand for IWT products: High demand for the products of the IWT continue to incentivize individuals to participate – especially those with few other options, as discussed above. The demand-driven nature of the trade is particularly problematic with regards to 'trophy' mammals because of the tendency to favour larger specimens which results in the fittest of the species being hunted and, in turn, can reduce the fitness of future generations, having potential knock-on effects for the wider ecosystem.[285] Recent demand spikes have been found in Latin America, thought to be at least partly influenced by Asian tastes for traditional medicines (as a result of recent Asian migration), and this has been facilitated by political instability in Latin America which has allowed products to move relatively undetected.[286]

Organised crime networks: These networks are extremely sophisticated and highly specialised, which exacerbates the other drivers mentioned above. Seizures of very large quantities of ivory and pangolin scales within the same shipments clearly indicate the existence of such coordinated networks active within the IWT. Organised crime groups are able to more easily trade products in an undetected manner and adapt to new restrictions because of their capacity and resources for such activities. The sophistication of organised crime networks has increased in recent years due to factors such as social media which has facilitated communications.[287] The presence of organised crimes networks has several wider knock-on effects, such as undermining democracy and fuelling corruption within officers who take bribes from the networks. Moreover, because different activities conducted by crime networks are interlinked, the presence of such networks will likely lead to increases in other activities associated with these networks, such as human trafficking.[288]

Barriers to addressing 'the challenge'

Three of the most prominent barriers to addressing the IWT are:

IWT markets are adaptable. Those involved in the trade quickly shift to exploit new vulnerabilities when law enforcement is strengthened in one area, or the trade in a particular product becomes comparatively less attractive (for instance, if demand falls). When one area of operation becomes more highly regulated, criminal

[281] Price, R., (2017). Economic drivers and effects of the illegal wildlife trade in Sub Saharan Africa. Knowledge, evidence, and learning for development. Link.
[282] Lunstrum and Giva (2020). What drives commercial poaching? From poverty to economic inequality. Link.
[283] Duffy et al. (2015). Toward a new understanding of the links between poverty and illegal wildlife hunting. Link.
[284] Lunstrum and Giva (2020). What drives commercial poaching? From poverty to economic inequality. Link.
[285] Rosen and Smith (2010). Summarizing the Evidence on the International Trade in Illegal Wildlife. Link.
[286] Esmail et al. (2020) Emerging illegal wildlife trade issues: A global horizon scan. Link.
[287] UNODC., (2020). World Wildlife Crime Report: Trafficking in protected species. Link.
[288] Witting, T., (2016). Poaching, Wildlife Trafficking and Organised Crime. Link.

operations simply switch to another.[289] This adaptability has been facilitated by freer trade and migration policies in less-developed countries (to facilitate economic growth), which have provided new channels for the circulation of IWT products.[290]

Weak judicial responses to IWT crime. Legislation relating to the IWT in less-developed countries is under-developed.[291,292] For instance, land ownership rights for areas where wildlife live are often unclear – this is illustrated by the fact that, in South Africa, as trends towards strengthening property rights weakened, rhino poaching began to rise. Furthermore, there is a lack of consistency in IWT laws across borders, which encourages hunters to travel to neighbouring countries where laws are weaker. On top of this, sentencing guidelines do not reflect the severity of IWT crimes, essentially creating a 'low risk, high reward' situation.[293]

Poor data. As mentioned above, a lack of data hinders law enforcement efforts, as it leads to a lack of clarity regarding the true scale of the trade within different contexts and inhibits those involved in preventing the trade from being able to accurately select the most effective measures and allocation of scarce resources.[294] Data gaps are particularly significant for plant and fungi species, even though they comprise of a greater portion of illegally harvested species than animal species.[295]

Impact

Impact is the desired long-term change in the condition of people and/or the environment to which the project seeks to contribute through the accumulation of its Outcomes (discussed below). This impact will not be achieved by the project alone - there are likely to be many other factors influencing whether it will be achieved or not. However, each project's desired impact should feed into the overarching desired scheme-level impacts which are to:

Provide scalable, repeatable, and innovative insights, options, and solutions to directly support and incentivize further action to reduce the level of illegal wildlife trade and poverty in developing countries.

This in turn will facilitate and/or produce contributions to multilateral and bilateral commitments to tackling the IWT, such as the London Conference on the Illegal Wildlife Trade (2014 and 2018), the Kasane Statement (2015), and the Hanoi Statement (2016).

Outcomes

We define outcomes as desired long-term changes in behaviour or systems that the project and scheme are working to achieve. At the scheme-level, these are based directly on the scheme's two principal aims: (i) progress in reducing and/or halting the IWT, and (ii) Reduced biodiversity loss and sustainable development. The outcomes are as follows:

(i) Local communities and stakeholders have sustained improvement in policy and practice that results in gains for IWT, with simultaneous improvements in biodiversity loss and sustainable livelihoods. Such policy and management approaches account for traditional knowledge, as well as the needs of marginalised groups such as women

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[289] UNODC., (2020). World Wildlife Crime Report: Trafficking in protected species. Link.
[290] Sas-Rolfes et al. (2019). Illegal Wildlife Trade: Scale, Processes, and Governance. Link.
[291] Price, R., (2017). Economic drivers and effects of the illegal wildlife trade in Sub Saharan Africa. Knowledge, evidence, and learning for development. Link.
[292] Acharya, S., (2019). Trafficking of Wildlife: An Emerging Problem in South Asia. Link.
[293] Price, R., (2017). Economic drivers and effects of the illegal wildlife trade in Sub Saharan Africa. Knowledge, evidence, and learning for development. Link.
[294] Gluszek et al. (2019). Emerging trends of the illegal wildlife trade in Mesoamerica. Link.
[295] Verissimo et al. (2020). Influencing consumer demand is vital for tackling the illegal wildlife trade. Link.

(ii) Future projects (both IWTCF and more generally) are able to benefit from the knowledge gathered regarding implementation and policy
(iii) Where possible, projects are scaled at the landscape level/ in another geography (particularly within the same region)/ through policy reform

Outputs

Outputs are defined as short-term, direct, tangible, and quantifiable products or services delivered as a result of project or programme activities being successfully completed. In the first instance, we see the outputs as direct results of the activities and therefore follow the same general typology. The outputs are:

(i) Evidence is produced which can be used to guide future IWT management and policies, as well as future Challenge Fund projects – lessons of 'what works' and implementation guidance are gathered
(ii) The capacities and capabilities of local stakeholders are improved to better conduct IWT-related activities, such as track IWT supply chains. For example, law enforcement officers are trained in the use of GPS technology
(iii) Poverty is reduced in a manner which develops sustainable alternatives to IWT-related livelihoods
(iv) Policies and tools to reduce consumer demand for IWT products are developed

Projects may produce several outputs within one category to achieve outcomes, or across more than one of the categories.

Inputs

In this impact-focused Theory of Change we define inputs as the things that the programme will support and fund to address its problem statement and achieve the impacts described above.

Management inputs

The IWT Challenge Fund provides a variety of inputs to ensure that projects funded will be successful. First, the Challenge Fund provides guidance materials to applicants to ensure that projects align with the objectives of the Fund and that projects are designed to increase their success in the application stages and beyond. Second, the Fund includes an IWT Advisory Group, who not only help inform the application guidance but also review applications to ensure that they recommend only those projects that are most likely to succeed in achieving the intended outcomes and impact – particular emphasis is put on the potential to achieve transformational change through scalability and replication. Applicants receive detailed feedback from LTS and the Advisory Group in their decision letters in order that they can improve for the future. Advice is provided by LTS during project implementation with the aid of annual and final project reviews.

Project inputs

Prior to receiving funding, projects typically build local partnerships and leverage their contextual knowledge. They also almost always obtain matched funding from other funders.

Once funding has been received, project inputs most commonly include:

(i) IWT legal and management frameworks are developed and/or improved, including law enforcement conducting more effective and frequent patrols/ mapping supply chains; judicial systems improving conviction rates; government bodies developing IWT-related policies; and/or local communities becoming more involved in protecting ecosystems

(ii) **Training and skills development** for key stakeholders and local partners - particularly in law enforcement – to enhance specific skills relevant to the IWT, biodiversity conservation, and/or sustainable use, such as monitoring techniques or the use of a new technology

(iii) **Promoting alternative and more sustainable livelihoods** for those affected by IWT in order to improve their wellbeing by supporting land use planning that reduces the human wildlife conflict (HWC) interface and the incentive to engage in IWT

(iv) **Establishing partnerships and relationships** between local and international stakeholders to improve the efficiency of future activities – particularly if the lead organisation is not locally based, and also to promote the voices of local and/or marginalised communities within policy and practice. International partnerships are also targeted to ensure enhanced cross-border anti-IWT coordination

(v) **Education and awareness raising** about the harms of the IWT to reduce consumer demand for IWT products, such as social media or print advertisement campaigns

Projects usually conduct more than one of these inputs. Additionally, when undertaking project inputs, as mentioned above, projects consider cross-cutting themes such as gender, and high-quality monitoring and evaluation is conducted throughout to enable strong learning within the Fund.

Assumptions and project pre-requisites

At the stage of screening and selection there are a number of pre-requisites that must be met in order for projects to be selected. This information is requested prior to selection and the IWT Challenge Fund Advisory Group use their expertise to ensure that the pre-requisites are met. In addition, project reviews and standard M&E processes also ensure these conditions continue to be met. Assumptions reflect the conditions that are necessary for inputs, activities, outputs, and outcomes to successfully work. They also include contextual factors that are affect various components of the change pathways. Below we list both the project pre-requisites and assumptions at each stage of the scheme's lifecycle.

Table 4: IWT Challenge Fund assumptions and pre-requisites

Stage	Pre-requisites	Assumptions
Input	The scheme's priorities are updated with sufficient engagement and input from individuals and organisations affected by the trade, as well as key stakeholders such as IWTAG and FCDO Applicants receive sufficient guidance and information to design a successful project with strong IWT and biodiversity outcomes in addition to climate change and sustainable livelihoods. Particular support is provided for lead organisations based in less-developed countries to support local ownership of projects Advisory Group review and sift projects successfully to select the strongest projects Activities engage with necessary stakeholders, such as communities, enterprises, local and national	The Challenge Fund receives a sufficient supply of strong applicant projects tackling biodiversity Project activities do not duplicate existing work funded by Fund or others Turnover in staff and/or partner institutions does not negatively affect project activities

	government bodies, non-governmental organisations, and academics Projects fully understand the local complexities and different dimensions of poverty when designing their activities	
Output	Sufficient monitoring systems are established to measure outputs Gender is adequately considered within project design so that the project does not cause further inequalities but, where possible, can improve equality with regard to and as a result of biodiversity and resource use	Projects that produce outputs with multiple objectives achieve strong synergies in their outcomes
Outcome	Learning is streamlined around the round's priority areas, with real time sharing taking place between projects where possible	Outcomes are not exceeded by external pressures on IWT, biodiversity, or poverty, and such pressures e.g., political conflict are at manageable levels Policies and practices developed are replicable in a successful manner in other contexts There is will from key stakeholders (particularly government employees and legal practitioners) to implement change based upon the findings from projects Finance (Defra and leveraged) remains available for project implementation and sustainability IWT, biodiversity, and poverty aims are compatible, and any trade-offs are manageable

Annex 4: Evaluation framework

We present our overall evaluation framework which includes the evaluation questions, assessment criteria, main data sources and type of analysis to be used to answer each one.

Table 5: Evaluation Framework

OECD DAC Criteria	Overarching evaluation questions	Sub-questions	Indicators/Assessment criteria	Project level			Scheme level		Country
				Project document review	Project interviews	Access database	Scheme document review	Scheme-wide interviews	Country case study interviews
Relevance	To what extent have the three grants schemes contributed to meeting the targets of relevant Multilateral Environmental Agreements (MEAs), including: the UN Convention on Biological Diversity, the Nagoya Protocol on Access and Benefit Sharing, the International Treaty on Plant Genetic Resources for Food and Agriculture, the Convention on International Trade in Endangered Species of Wild Flora and Fauna,	a) Do project objectives under each scheme contribute directly to the biodiversity aims or goals of the CBD, CITES, CMS, Nagoya Protocol, the International Treaty on Plant Genetic Resources for Food and Agriculture or Ramsar Convention?	The percentage of projects that have objectives which contribute directly to biodiversity conservation in each scheme (All Darwin Initiative, Darwin Plus and IWT projects on CBD and CMS; 592 Darwin Initiative and Darwin Plus projects on CITES, CMS, Ramsar Convention, World Heritage Sites, UNFCCC, Desertification; proxy indicators for International Treaty on Plant Genetic Resources for Food and Agriculture - Darwin Initiative projects only) Qualitative/quantitative analysis of the relevance of the design of Tier 1 sample projects to global and country biodiversity needs and priorities.	✓	✓	✓	✓	✓	✓
		b) Do project objectives under each scheme	The percentage of projects that have objectives which contribute directly	✓	✓	✓	✓	✓	✓

	the Ramsar Convention on Wetlands; the Convention on the Conservation of Migratory Species of Wild Animals, the UN Framework Convention on Climate Change (UNFCCC), and the UN Sustainable Development Goals (SDGs)? [ToR q7]	contribute directly to the aims or goals of the UN Framework Convention on Climate Change (UNFCCC)?	to climate change in each scheme (592 Darwin Initiative/Darwin Plus projects on whether they contribute to the UNFCCC, climate change biodiversity threats, and to CBD cross-cutting issues on Climate Change and biodiversity) Qualitative/quantitative analysis of the relevance of the design of Tier 1 sample projects to global and country climate change needs and priorities.						
		c) Do project objectives under each scheme contribute directly to the wider poverty reduction aims of the UN Sustainable Development Goals?	Qualitative/quantitative analysis of the relevance of the design of Tier 1 sample projects to poverty reduction and livelihoods goals and priorities, by SDG.	✓	✓	✓		✓	✓
		d) How effective are interventions according to whether they contribute to biodiversity conservation, climate change and poverty reduction goals?	Comparison of project scores by contribution to each MEA (final report score data only available from 219 projects - since 2014/15; MEA data only from Darwin projects) Qualitative/quantitative analysis of the effectiveness of Tier 1 sample projects (by MEA) and the impact of Tier 2 sample projects (by biodiversity, climate change, poverty reduction contribution areas)	✓	✓	✓	✓		✓
Effectiveness/Impact	To what extent has each scheme achieved its objectives and intended impacts?	a) How have projects scored in the past at different stages (e.g. application stage, interim	Comparison of project ratings/statistical correlation between project application scores, annual report review scores	✓	✓	✓		✓	

		and final stages of implementation)? [ToR q5.]	(1,2,3,...,X) and/or project completion scores (A++,...C), for all projects and Tier 1 (from 2014-15 only) - TBC whether LTS can provide linked data Qualitative assessment of internal and external factors behind scoring decisions/trends in scoring						
		b) How have the projects funded under each scheme enabled this? [ToR q.1a]	Qualitative/quantitative analysis of the effectiveness of Tier 1 sample projects (output and outcome levels) and the impact of Tier 2 sample projects, against their original applications/logframes, in terms of: - biodiversity - climate change - poverty/sustainable livelihoods	✓	✓	✓	✓		✓
		c) How effective is the scheme in delivering results/outcomes in certain project activities, geographies, types of partner organisation or overall project contexts? Or in other words, what has worked well or not and in what context? [ToR q1.b]	Percentage of all projects within each category (including by activity; region; biome; partner organisation; threat to biodiversity - e.g. climate change, land use, invasive species, etc. - for 592 Darwin/Darwin+ projects; and by species, etc. - for IWT). Comparison of project scores/average scores within each category (activities, geographies, partner organisation, etc, where possible) - 219 projects with final report scores only Qualitative analysis across Tier 1	✓	✓	✓	✓	✓	✓

			projects of what has worked well (for high performing projects) and what has not (for less well performing projects), in different contexts						
		d) What are the main enablers and barriers to meeting each scheme's objectives? [ToR q.1.c]	Statistical correlation of different internal variables with project scores, including relevance, total funding received (all projects), staffing costs, high project leader site presence, media/public exposure (e.g. number of press articles and other dissemination outputs - 731 Darwin and Darwin Plus projects), research outputs (PHDs, masters, undergrads, etc. - 731 Darwin and Darwin Plus projects), etc. - for 219 projects with final report scores only Quantitative/qualitative analysis across Tier 1 sample of projects to identify key enablers and barriers to success encountered in each scheme (including project relevance), in different contexts	✓	✓	✓			✓
Efficiency	To what extent is each scheme delivering value-for-money? [ToR q 2]	a) How could the grant schemes be improved from the design and application stages to the implementation and completion phases to better achieve their objectives and deliver VfM? [ToR q.4]	Ingredients of highest scoring projects in each scheme. We will investigate relationships between spending under different project categories (staffing, activities, partner organisation, in-country presence etc.) and the project completion scores - 219 projects.	✓	✓	✓	✓	✓	✓

			Qualitative analysis of process lessons at the scheme and project (Tier 1) levels, focused on the design, application, implementation and completion phases, as well as M&E						
		b) How economical, efficient, effective, and equitable are the schemes?	VfM of projects funded under each scheme/comparison across schemes, in terms of: - Economy (Scheme-level): Rigorous and transparent selection of projects based on consideration of VfM and contribution to scheme objectives (Application guidance and scoring criteria); Maintain downward pressure on cost drivers (breakdown of total funding by projects, agency fees, and administrative budget); scheme delivery within time and budget (LTS monitoring data); suitable proportion of funding leveraged compared to overall budget during scheme lifecycle (LTS monitoring data); LTS actively monitoring and managing projects' budget management (LTS monitoring systems and processes, evidence of processes being applied in practice) - Economy (Project-level - Tier 2): Budget management over project duration, projects have systems to report and monitor on spend	✓	✓	✓	✓	✓	

			against VfM metrics and deliver to budget over project lifetime (Original applications, Annual and Final reports and report reviews, Project budgets, Project VfM reporting structures, LTS monitoring data) - Efficiency (Scheme-level): Flexibility and efficiency of fund allocation processes to meet projects' emerging priorities exist and are efficient (Application guidance, Annual contractor's reports, LTS monitoring data on budget change requests on number accepted/rejected and duration); Achievement of target outputs within budgeted costs (LTS monitoring data); Level of collaboration between Defra, LTS International, expert committees and other actors in allocating funds to priorities (High-level interview with Defra, LTS, expert committees, Expert committee guidance, Annual contractor's reports, Strategy day meeting minutes, Meeting minutes) - Efficiency (Project-level - Tier 2): Projects demonstrate evidence of fund reallocation and adaptive management to meet emerging priorities (LTS monitoring data, budget request forms, interviews with project leaders); Achievement						

			of target outputs within budgeted costs (Original applications, Annual and Final reports and report reviews); Projects' output milestones met on time (Original applications, Annual and Final reports and report reviews) - Effectiveness (Scheme-level): Scheme logframe indicators reflect achievement of outcomes and impacts against milestones (LTS monitoring data); Schemes identification and management of risks (Application guidance, annual contractor's report, high-level interviews with LTS) - Effectiveness (Project-level - Tier 2): Project logframe indicators show achievement of outcomes and impacts (Annual and Final reports and report reviews); Projects identify assumptions and risks on an ongoing basis and actively manage and mitigate risks (Original applications, Annual and final reports and report reviews, Budget change request forms) - Equity (Scheme-level): Fair, transparent and accessible application process; Mainstreaming of equity and inclusiveness across schemes; and, Schemes recognise,						

			consider and act on potential trade-offs of projects related to costs and benefits delivered to different groups (High-level interviews with LTS International, scheme expert committees, Expert committee guidance, Application guidance and forms, Annual contractor's report) - Equity (Project-level - Tier 2): Mainstreaming of equity and inclusiveness across projects; Equitable results across gender, socio-economic status and location through disaggregation of reporting; Consideration of trade-offs in design and delivery of project activities and outcomes (Original applications, Annual and Final reports and report reviews). - Cost effectiveness (Scheme-level): Variation in level of achievement of outcomes compared to project size (LTS monitoring data) - Sustainability (Scheme-level): Post-project monitoring in place to track sustainability of projects (LTS reporting after project completion) - Sustainability (Project-level - Tier 2): Sustainability plans / Exit strategies are in place; Funding leveraged to sustain outcomes / continue project (Original applications, Final reports and report reviews)						

			Percentage of scheme funds derived from match funding						
		c) How economical, efficient and effective is LTS International's management of the portfolio?	- Economy: LTS management costs as % of overall scheme costs benchmarked against comparable schemes (LTS financial reporting); LTS procedures to manage cost inputs to ensure good VfM (LTS operational and financial procedures) - Efficiency: LTS supporting achievement of scheme-level outputs through screening, monitoring, and other activities to ensure delivery of output (LTS operational procedures) - Effectiveness: LTS supporting achievement of scheme-level outcomes and impacts through screening, monitoring and other activities to ensure delivery of outcomes and impacts (LTS operational procedures)						
		d) How can a standardised monitoring and evaluation be designed in order to better reflect the impact of funding through the three schemes while retaining the different objectives of each scheme? [ToR q.6]	See above						
Sustainability	To what extent have benefits of the funded	a) What factors have influenced this? [ToR q3a]	Qualitative/quantitative analysis of potential sustainability† of Tier 1	✓	✓	✓	✓	✓	✓

	projects continued beyond project funding, and what benefits have been long-lasting? [ToR q. 3]		sample of projects (based on 256 projects with sustainability textual data and project reports) / Composition of project categories in projects with likely long-lasting benefits compared with composition of project categories for all projects Qualitative analysis of actual sustainability of Tier 2 sample projects, including factors related to sustainability † Note that few Darwin projects have ex post evaluations beyond their active lifetime						
		b) How have projects funded across the schemes built on each other? [ToR q3b]	Percentage of all projects in each scheme that represent follow-on projects (and comparison with final scores achieved) - check with LTS whether feasible Qualitative analysis of the factors/projects that have given rise to follow on work funded under different schemes, based upon the Tier 1/2 samples Qualitative analysis of how projects have built on and complemented each other in case study countries (Tier 2)	✓	✓	✓	✓	✓	✓
		c) How can these lessons be used to improve fund design? [ToR q3c]	Narrative conclusions based on above evidence and data†	✓	✓	✓	✓	✓	✓

			† In drawing conclusions, the evaluators will take account of the limited data available on sustainability and seek ways to rectify this to improve fund design						
Equity	How GESI sensitive are the schemes? (New Q)	a) How effectively has gender (and intersectional issues such as age, poverty status and ethnic group), power considerations, and safeguarding been mainstreamed into projects?'	Indicator on whether projects have broad approaches that cover gender issues (592 Darwin and Darwin Plus projects in database) Deep dive analysis of selected Tier 2 projects to assess: - number of projects scored as GESI transformative, GESI mainstreaming and/or GESI sensitive at design, delivery and M&E project cycle phases, and why	✓	✓	✓			✓
		b) To what extent have the schemes benefited marginalised groups such as women and girls and indigenous communities?	Deep dive analysis of selected Tier 2 projects, to assess: - Evidence of projects identifying and responding to the articulated needs of marginalised groups, and adapting to these throughout project length - Extent to which marginalised groups have been consulted during project design - Extent to which marginalised groups report tangible, sustainable benefits as a result of interventions	✓	✓	✓			✓

Annex 5: Sampling strategy and sampled projects

Below we expand upon our sampling strategy and list our sampled projects: 50 Darwin; 15 Darwin Plus; 4 Fellowships; and 31 IWTCF. Within this, the Tier 2 sample inlcudes projects in: Indonesia (6); Kenya (6); Nepal (6); Bolivia (6); British Virgin Islands (4); and Vietnam (2).

Sampling strategy

During the inception phase we constructed a two-tiered project sample. We explain here in more detail the exact sampling decisions made at each step. The first step was to clean the monitoring data available in the Master Access Database and to identify the number of projects to be sampled per type of award. After excluding scoping projects, post-projects, and partnership projects, we were left with the following 1,029 projects: 750 Darwin projects; 122 Darwin Plus projects; 105 IWTCF projects; and 52 Fellowships. Below are two options for sampling from these groups, proportionate to their relative contributions to each scheme:

- Number of projects per scheme: Darwin Main (73%), Darwin Plus (12%), IWTCF (10%), Fellowships (5%)
- Total value of projects per scheme: Darwin Main (74%), Darwin Plus (11%), IWTCF (14%), Fellowships (<1%)

To sufficiently understand the process and mechanisms of each scheme we chose to sample with slightly different proportions, and instead included representation from Darwin (50%), Darwin Plus (15%), IWT (31%) Fellowship (4%). These proportions were agreed with Defra during the inception phase.

Across the schemes, projects are delivered in 159 countries, across 9 geographic regions[296]. Our Tier 1 sample was selected proportionate to the number of projects in each region. This resulted in projects from the following regions Atlantic and Caribbean, Europe and Central Asia; Middle East/North Africa, Multi-region; Pacific; South and Central America; South and East Asia; Sub-Saharan Africa; and UK Overseas Territories. Our Tier 2 sample focuses on the regions with the highest number of projects (South and East Asia, South America and Central America and Sub-Saharan Africa). Within each region we chose countries with a large number of grants across Darwin *and* IWT. During inception we agreed with Defra the following Tier 2 countries that fulfil this criteria Nepal; Bolivia; Kenya and Indonesia. There is no country overlap between Darwin/IWT and Darwin plus, therefore we have also chosen to include one UKOT in our Tier 2 sample with the largest number of projects over time: British Virgin Islands. Originally, we had intended to use Saint Helena, Ascension and Tristan da Cunha, however due to difficulties faced in organising fieldwork logistics, the team decided that the British Virgin Islands was a suitable alternative case study. This was agreed with Defra during the interim phase. In addition, given that IWTCF Demand Reduction projects are not represented in selected Tier 2 countries; following feedback from Defra, the sampling strategy was extended to include an additional mini-case study of two Demand Reduction projects in one additional country, Vietnam.

[296] When cleaning data we reduced the number of geographic categories from 16 to 12 (e.g. rather than North Africa and Middle East being separate regions we combined to Middle East, North Africa – MENA)

We then simplified the ecosystem/biome indicator into the following 7 categories of biodiversity: Drylands (including dry and sub-humid lands, Rangeland, Tropical grassland and savanna, Temperate grassland, Mediterranean); Forest (including Boreal, Temperate, forest tropical); Marine and coastal biodiversity, (including island biodiversity); Inland Waters (including wetlands); Desert; Mountain; and Polar. Not all projects had administrative data on biome and were categorised as 'missing'. We sampled projects proportionally to the number of projects in each biome.

After calculating the number of projects to be sampled per biome per region per scheme, we undertook an iterative selection process whereby we purposively chose Tier 1 projects along the following criteria (with the following order of preference):

- Tier 2 country: we prioritised the inclusion of projects that were in Tier 2 countries, including the two IWT Demand Reduction projects as part of the mini-case study, to ensure we had a sufficient number for our Tier 2 sample.
- Grant size: We divided projects into the following categories of value (<£150k, £150k-£300k, >300k). Where possible we looked to sample projects, which differed in grant size.
- Time period: We divided projects into the following time periods (prior to 2001, 2001-2011, 2012-2020). If there was no variation in grant size, then time period was used as the primary judgement criteria, with weight attached to more recent projects in order to maximise the availability of stakeholders to interview about outcomes and strengthen impact contribution claims. In particular, Tier 2 country projects were selected with project start dates from 2010 onwards to ensure that Darwin Initiative projects are sufficiently contemporary to be able to explore their impact with stakeholders.
- Completion status: Current and completed projects were selected. If there was no variation in either of these indicators, a random balanced selection of current and completed projects was utilised.

Using this iterative and purposive process we have selected the following:

- Tier 1: 100 projects have been selected into the Tier 1 sample with the following distribution: Darwin (50), Darwin Plus (15), IWTCF (31), Fellowships (4).
- Tier 2: Within this sample we have selected 30 projects into our Tier 2 sample: Kenya (6), Indonesia (6), Nepal (6), Bolivia (6), British Virgin Islands (originally St Helena) (4), and Vietnam (2 Demand Reduction projects).

The total number of Tier 1 projects sampled (100) is roughly 10% of the total population of all projects. The total number of Tier 2 projects (30) is roughly a third of this sample. There we list the title of each project, the scheme it was part of, the country or countries the project was carried out in, the geographic region, the time period it was carried out in, and the relevant biome.

Tier 1 Descriptive Statistics

	IWTCF	Darwin Initiative	Darwin Plus	Fellowships	Total

Scheme	31	50	15	4	100
Time period					
1992-2000		6			6
2001-2011		17		2	19
2011-2020	31	27	15 (including 1 OT Challenge Fund project)	2	75
Funding					
Total funding between Â£150k and Â£300k	12	32	9		53
Total funding greater than Â£300k	14	9	2		25
Total funding less than Â£150k	5	9	4 (including 1 OT Challenge Fund project)	4	22
Region					
Europe & Central Asia	1	5			6
MENA		2			2
Pacific		2			2
South and Central America	2	10	2		14
South and East Asia	10	9		2	21
Sub-Saharan Africa	15	18			33
UKOT		1	15 (including 1 OT Challenge Fund)		16
Multi-region	3	2			5
Biome					
Drylands: Dry and sub-humid lands biodiversity, Rangeland, Tropical grassland and savanna, Temperate grassland, Mediterranean		6			6
Forest: Forest biodiversity, Boreal, Temperate, forest tropical		15			15
Inland Waters: Inland waters biodiversity, Wetland		1	1		2

Marine and coastal biodiversity, Marine, Coastal, island biodiversity		8	13		21
Mountain biodiversity		2			2
Biome not included in admin data	31	18	1 OT Challenge Fund project	4	54
Partners					
Contracting organisation(s)	31	61	14	4	110
International partner(s)	125	159	5		289
UK partner(s)	10	23	2		35
IWT Typology					
Sustainable livelihoods	11 (of 32)				10
Increased enforcement	27 (of 73)				27
Legal frameworks	6 (of 15)				6
Demand reduction	3 (of 16)[297]				5

Tier 2 Descriptive Statistics

Source: *LTS monitoring data*

	IWTCF	Darwin Initiative	Darwin Plus	Fellowships	Total
Scheme	9	13	4	4	30
Time period					
1992-2000					0
2001-2011		1		2	3
2011-2020	9	12	4	2	27
Funding					
Total funding between Â£150k and Â£300k	4	7	2		13
Total funding greater than Â£300k	2	6			8
Total funding less than Â£150k	3		2	4	9

[297] LTS International's monitoring data does not accurately reflect demand reduction themes. This is due to IWT thematic data collected based on applicants' selection of which themes their project contributes to, thus the figure of 16 projects in total as demand reduction is likely an overexaggerated. The 3 projects referenced here are those that are truly demand reduction, focusing on behaviour change.

Region					
Europe & Central Asia					0
MENA					0
Pacific					0
South and Central America	1	3		2	6
South and East Asia	6	6		2	14
Sub-Saharan Africa	2	4			6
UKOT			4		4
Multi-region					0
Biome					
Drylands: Dry and sub-humid lands biodiversity, Rangeland, Tropical grassland and savanna, Temperate grassland, Mediterranean		1			1
Forest: Forest biodiversity, Boreal, Temperate, forest tropical		8			8
Inland Waters: Inland waters biodiversity, Wetland		1			1
Marine and coastal biodiversity, Marine, Coastal, island biodiversity		2	4		6
Mountain biodiversity		1			1
Biome not included in admin data	9			4	13
Partners					
Contracting organisation(s)	9	15	4	4	32
International partner(s)	38	44	1		73
UK partner(s)		7			7
IWT Typology					
Sustainable livelihoods	4 (of 11 – Tier 1)				3
Increased enforcement	7 (of 27 – Tier 1)				7
Legal frameworks	2 (of 6 – Tier 1)				3
Demand reduction	2 (of 3 – Tier 1)				2

Source: *LTS monitoring data*

Annex 6: Scale of impact criteria

We scored all completed projects for their 'scale of outcomes/impacts' in different areas, including biodiversity and poverty/sustainable livelihoods. We did not score fellowships because their scale of outcomes/impacts is likely to be much less because the cost of fellowships is so much below that of other projects. This enables us to analyse what sort of projects are achieving well in absolute terms, rather than relative to their level of expectation at application. Comparing scores against different areas of outcomes/impact is problematic, because these different sorts of outcomes/impacts are different in nature and it is like comparing 'apples and oranges'. However, we have tried to make the scale of impact scores as comparable as possible across different areas.

Area of outcomes/impacts	Scale of impact Score			
	0 – No outcomes/impacts	1 – Minimal outcomes/impacts	2 – Moderate outcomes/impacts	3 – High outcomes/impacts
Biodiversity	No evidence of any likely or achieved outcomes/impacts in this area.	Likely to minimally help at least one threatened species or ecosystem and/or Some limited potential for uptake by policy makers/other projects likely to lead to further biodiversity benefits, although no such uptake achieved so far	Likely to significantly contribute to biodiversity in a limited area OR minimally contribute to biodiversity in a wide area and/or Likely/achieved uptake by policy makers/other projects likely to lead to further biodiversity benefits	Likely to significantly contribute to biodiversity in a wide area and/or Significant likely/achieved uptake by policy makers/other projects likely to lead to significant further biodiversity benefits

Broader (non-biodiversity) environmental aims	No evidence of any likely or achieved outcomes/impacts in this area.	Likely to minimally contribute to broader (non-biodiversity) environmental impacts and/or Some limited potential for uptake by policy makers/other projects likely to lead to further broader (non-biodiversity) environmental impacts, although no such uptake achieved so far	Likely to significantly contribute to broader (non-biodiversity) environmental impacts in a limited area OR minimally contribute to such impacts in a wide area and/or Likely/achieved uptake by policy makers/other projects likely to lead to further broader (non-biodiversity) environmental impacts	Likely to significantly contribute to broader (non-biodiversity) environmental impacts in a wide area and/or Significant likely/achieved uptake by policy makers/other projects likely to lead to significant further broader (non-biodiversity) environmental impacts
Poverty/sustainable livelihoods	No evidence of any likely or achieved outcomes/impacts in this area.	Likely to significantly help 1-10 households OR minorly help less than 50 households and/or Some limited potential for uptake by policy makers/other projects likely to lead to further p/sl benefits, although no such uptake achieved so far	Likely to significantly help 10+ households OR minorly help more than 50 households and/or Likely/achieved uptake by policy makers/other projects likely to lead to further p/sl benefits	Likely to significantly help 100+ households OR minorly help more than 500 households and/or Significant likely/achieved uptake by policy makers/other projects likely to lead to significant further p/sl benefits

Climate change	No evidence of any likely or achieved outcomes/impacts in this area.	Likely to minimally contribute to climate change adaptation or mitigation and/or Some limited potential for uptake by policy makers/other projects likely to lead to further climate change adaptation or mitigation impacts, although no such uptake achieved so far	Likely to significantly contribute to climate change adaptation or mitigation in a limited area OR minimally contribute to such impacts in a wide area and/or Likely/achieved uptake by policy makers/other projects likely to lead to climate change adaptation or mitigation impacts	Likely to significantly contribute to climate change adaptation or mitigation impacts in a wide area and/or Significant likely/achieved uptake by policy makers/other projects likely to lead to significant further climate change adaptation or mitigation impacts
Illegal wildlife trade	No evidence of any likely or achieved outcomes/impacts in this area.	Likely to minimally contribute to tackling IWT and/or Some limited potential for uptake by policy makers/other projects likely to lead to further impacts on tackling IWT, although no such uptake achieved so far	Likely to significantly contribute to tackling IWT in a limited area OR minimally contribute to such impacts in a wide area and/or Likely/achieved uptake by policy makers/other projects likely to lead to impacts on tackling IWT	Likely to significantly contribute to tackling IWT in a wide area and/or Significant likely/achieved uptake by policy makers/other projects likely to lead to significant further impacts on tackling IWT

Building capacity to address the aims of the schemes	No evidence of any likely or achieved outcomes/impacts in this area.	Likely to significantly increase the capacity of 1-4 individuals OR minorly increase the capacity of less than 20 individuals and/or Some limited potential for sustained institutional capacity building, although no such impact achieved so far	Likely to significantly increase the capacity of 5-19 individuals OR minorly increase the capacity of 20-199 individuals and/or Some likely/achieved sustained institutional capacity building	Likely to significantly increase the capacity of 20 or more individuals OR minorly increase the capacity of 200 or more individuals and/or Significant likely/achieved sustained institutional capacity building

Some examples of scores in different areas of outcomes/impacts are provided overleaf:

Improving small island resilience and self-sufficiency in habitat monitoring and management (DPLUS073)

Area of outcomes/impact: Building capacity to address the aims of the schemes

Score: 1 – minimal outcomes/impacts

The project planned to involve the Ministry of Natural Resources and Labour's two main environmental authorities. Four government-wide meetings were held to discuss Territory-coordinated mangrove restoration work. Wider dissemination of methods and lessons was achieved at three regional meetings involving all Caribbean UKOTs.

Science-based interventions reversing negative impacts of invasive plants in Nepal (DAR23031)

Area of outcomes/impacts: Biodiversity

Score: 2 – moderate outcomes/impacts

At the end of the project, 15 Community-based Forest User Groups were successfully engaged in capacity building activities and evidence was provided of the groups capacity to continue the activities even after the project's end. Approximately 481 ha were cleared of invasive plants and 31,000 seedlings of 20 different species were planted. All 15 Community-based Forest User Groups were successfully partnered with District Forest Office nurseries, received seedlings and have been involved in using the plants for land restoration. There is insufficient information on whether the seedlings planted were sufficient for initiating the restoration of the forest areas but the project laid ground for continuing restoration activities. A comprehensive science-based knowledge-base for weed species was established, included horizon scanning of invasive species. Techniques and methodologies were incorporated into formal Community Forest Management Plans and Operations, approved by government through District Forest Offices.

Marrying community land rights with stakeholder aspirations in Indonesian Borneo (DAR23033)

Area of outcomes/impacts: Poverty/sustainable livelihoods

Score: 2 – moderate outcomes/impacts

This project aimed to develop transparent, participatory decision-making processes for approving Community Forest Management applications which meet poverty reduction goals in addition to environmental goals. The project has successfully improved understanding on the social-ecological relationships between poverty reduction/livelihoods, biophysical/environmental factors, and the role of CFM. It has used this understanding to develop monitoring tools and build capacity to support decision-making processes for CFM applications to better meet poverty reduction goals. Various workshops and dissemination of policy briefs have helped to both inform, provide, and train key stakeholders such as governments and NGOs with the tools to undertake monitoring of CFM. There is evidence that some CFM decisions had already been undertaken across the Indonesian part of Borneo using the monitoring and decision-making tools developed as part of the project and there are positive indicators that there will be further take-up.

Saving Pangolins by Reducing Demand in Vietnam and China (IWT025)

Area of outcomes/impacts: Building capacity to address the aims of the scheme

Score: 3 – high outcomes/impacts

The project aimed to improved capacity to intercept smuggled pangolin products and effectively enforce poaching and wildlife trafficking laws. The project held 6 training workshops for rangers, customs officials and enforcement officers in China and Vietnam, training 306 of these actors and equipping them with the knowledge and skills to enforce national and international trade bans. It also trained these officers to better identify and seize illegal products. The project has also begun working with the Supreme Court and National Prosecutors Office, plus other Vietnamese actors, to help Vietnam effectively implement and disseminate its revised penal codes, which strengthens the enforcement of IWT crimes with more severe punishments. However, the outcomes of this is yet to be seen as this was a late addition to the project. In 2017, over 27,400kg of scales/carcasses were seized in Vietnam and China, compared to a baseline of over 7,700kg of scales and carcasses in 2015 and 1,700kg in 2016. This provides suggestive evidence of the capacity built by the project.

Annex 7: Country case studies

Indonesia

Figure 30: Papua Beach, Indonesia (DAR24007)

Overview

Indonesia is a megadiverse country, with globally important habitats for locally and globally significant populations of species, including many threatened, endangered and critically endangered species. For example, Sumatran Provinces, such as Aceh and Riau, are home to endemic species such as Sumatran Rhinoceros, Tigers, Sunbears and Laughing Thrush. However, Indonesia is under threat from considerable and irreversible environmental, social, and economic damage, including forest fires, climate change, deforestation, and land-use change which contribute to habitat loss and degradation[298], as well as the illegal harvesting, overexploitation, or killing of species in the illegal wildlife trade[299]. These are often exacerbated by human activity, such as uncontrolled infrastructure development posing threats to intact rainforests[300], and hunting gangs or criminal networks which drive the poaching and unsustainable killing of endangered species[301].

Local communities' livelihoods in Indonesia are heavily intertwined with nature, as a large proportion of Indonesia's poor live in or around forests. However, multiple threats to biodiversity in Indonesia have negative impacts on livelihoods. For example, the largest lowland rainforest remaining in Borneo in Sebangau National Park provides numerous social and economic functions for local communities. A 2015 regional peatland fire exacerbated by (illegal) human activities burnt over 2.2Mha of forest, with drastic consequences including toxic smoke affecting 69 million people and causing 17,000 premature deaths; poisoned local fish stocks; and £16.1bn worth of economic loss[302]. However, local communities themselves are also a partial driver of habitat loss and degradation, such as local communities' lack of awareness or short-sightedness on IWT issues driving human-wildlife conflict and the continuation of poaching activities, although this is also driven in part by their vulnerability to such species and/or to criminal gangs[303].

Limitations in local, regional and national policy and capacity also restrict Indonesia's ability to overcome these challenges. For example, in Kalimantan, although Community Forest Management systems are a key policy approach to forest conservation and poverty reduction, prior to the project it remained untested and

[298] DAR23033: Marrying community land rights with stakeholder aspirations in Indonesian Borneo; DAR24007: Ridge-to-reef conservation and sustainable livelihoods in Raja Ampat; DAR25001: Preventing Borneo's peatland fires to protect health, livelihoods and biodiversity.
[299] IWT027: Strengthening institutional frameworks to combat wildlife trafficking in Indonesia; IWT048: Tackling the illegal wildlife trade in Muslim Communities in Sumatra; IWT049: Reducing IWT in Sumatra across two globally important tiger landscapes.
[300] DAR24007: Ridge-to-reef conservation and sustainable livelihoods in Raja Ampat
[301] IWT027: Strengthening institutional frameworks to combat wildlife trafficking in Indonesia; IWT048: Tackling the illegal wildlife trade in Muslim Communities in Sumatra.
[302] DAR25001: Preventing Borneo's peatland fires to protect health, livelihoods and biodiversity.
[303] IWT027: Strengthening institutional frameworks to combat wildlife trafficking in Indonesia; IWT048: Tackling the illegal wildlife trade in Muslim Communities in Sumatra; IWT049: Reducing IWT in Sumatra across two globally important tiger landscapes.

underpinned by assumptions that may have counterintuitively undermined forest protection and negatively impacted local livelihoods[304]. With respect to the IWT, it was noted that, prior to the implementation of one project, there were multiple barriers to Indonesia's efforts to disrupt IWT networks. These included: weak institutional structures, poor enforcement intelligence at the local, national and transnational level, and a lack of capacity and political will to act[305].

Alignment with national priorities

Almost all projects are in line with national Indonesian strategies or priorities. These include aims to strengthen Indonesian commitments to address the peatland fire crisis[306], uphold the 2012 Constitutional Court decision on indigenous rights and revised laws on forest management[307], and support and harmonise legal reform processes with Indonesian parliament to revise the Law. No.5/1990 on Conservation and Biodiversity Ecosystem[308]. Some projects are more aligned with local or regional priorities, although these often stem from national interests. For example, one project aims to build upon existing local priorities on faith-based approaches to conservation in Riau, such as Fatwa No. 4 (2014) on the Preservation of Endangered Animals to Maintain Ecosystem Balance, although this is also supported at national level by the Ministry of Environment and Forestry[309].

Building on previous projects

Of the 6 projects evaluated in Indonesia, there is overall little evidence from desk review and in-country fieldwork of funded projects building upon each other. One project built upon the successes of the lead organisation's (World Conservation Society) first grant under another project[310], particularly by focusing on legal frameworks and reform of IWT policy and legislation in Indonesia, and enhancing law enforcement efforts.

Projects, when working in the same regions of Indonesia, do not work in the same target landscapes, although together they address regionally important sections that are relatively close together, for example, projects operating in Sumatra[311]. Some of the projects' lead organisations have previously been awarded other Darwin Initiative or IWT Challenge Fund projects, however there is no clear evidence demonstrating these previous projects were based in Indonesia.

One project[312] in Riau and Western Sumatra does, however, demonstrate evidence of building upon previous non-Darwin grants provided by US Fish and Wildlife Service, the Mott Foundation and USFWS, and IUCN/KFW funding, which were used to catalyse an Islamic response to wildlife trade and biodiversity loss in Indonesia.

Impact

Overall, Indonesia projects at least largely meet their outcomes against expectations in each outcome and impact areas, particularly in biodiversity, illegal wildlife trade, poverty and sustainable livelihoods, and capacity building. 5 of 6 Indonesia projects at least largely met biodiversity outcomes against expectations, and completed projects demonstrate moderate to high scale of biodiversity impact. IWT outcomes are closely linked to biodiversity outcomes in Indonesia, and are observed mostly for IWT Challenge Fund projects, although 1 Darwin Initiative project briefly addresses the IWT as well. Of the 3 IWT Challenge Projects, 2 projects largely met expectations, 1 project had insufficient information, and for one completed IWTCF project, the project demonstrates evidence of high scale of IWT impact. The most notable example representing both exemplary biodiversity and IWT outcomes

[304] DAR23033: Marrying community land rights with stakeholder aspirations in Indonesian Borneo.
[305] 'IWT027: Strengthening institutional frameworks to combat wildlife trafficking in Indonesia' and 'IWT049: Reducing IWT in Sumatra across two globally important tiger landscapes'.
[306] DAR25001: Preventing Borneo's peatland fires to protect health, livelihoods and biodiversity
[307] DAR23033: Marrying community land rights with stakeholder aspirations in Indonesian Borneo
[308] IWT027: Strengthening institutional frameworks to combat wildlife trafficking in Indonesia
[309] IWT048: Tackling the illegal wildlife trade in Muslim Communities in Sumatra.
[310] IWT027: Strengthening institutional frameworks to combat wildlife trafficking in Indonesia built upon IWT016 (same title).
[311] These include: IWT027: Strengthening institutional frameworks to combat wildlife trafficking in Indonesia; IWT048: Tackling the illegal wildlife trade in Muslim Communities in Sumatra; and IWT049: Reducing IWT in Sumatra across two globally important tiger landscapes.
[312] IWT048: Tackling the illegal wildlife trade in Muslim Communities in Sumatra.

is a project in Sumatra[313], which substantially contributed to reduced threats to key species, such as Rhinos and tigers; enhanced law enforcement through increases in arrests; effective legal frameworks for biodiversity conservation; and sustainable livelihoods mitigating human-wildlife conflict. There is evidence that this has led to greater local, regional and national cooperation and a strong legacy to deter poaching and illegal wildlife trade activities.

All projects had poverty and sustainable livelihood aims, where 4 of 6 projects at least largely met achievements against expectations, with 1 project fully meeting expectations. For completed projects, evidence shows projects achieving either moderate or high scale of outcomes/impact. A notable example is in Raja Ampat[314], which supported alternative livelihood options in ecotourism and local product development. Whilst the project is still under implementation, field evidence shows that people are earning significant revenues from livelihood activities, particularly for women who previously did not have direct access to income.

2 of 3 projects with broader environmental aims largely met their expectations, and 1 project met expectations to a limited degree. For completed projects, evidence shows projects commonly achieving moderate scale of impact. A notable example here is in Kalimantan[315], which while currently being implemented, has already displayed exceptional contributions to enhancing the protection, condition and regeneration of the peatland forest in Sebangau Forest. In addition, this is also the only one project which has observable climate change aims, largely meeting its expectations but demonstrating evidence of high scale of impact. The capacity and readiness of fire-fighting teams in tangent with community nurseries' replanting of native tree species in Sebangau National Park are curtailing peatland fires and contributing to the protection and restoration of peatlands.

All projects had capacity building aims to address the aims of the scheme, although the level of achievement varied between meeting expectations to a limited degree, largely meeting and fully meeting or exceeding these (2 projects each, respectively). For completed projects, scale of impact ranged between minimal and high scale of outcomes of impact. The same project above in Kalimantan provides the most notable example of the impacts of effective capacity building.

Country factors affecting impact

National and provincial government support for conservation policy and regulations have contributed to the success of projects, such as on national social forestry and livelihoods commitments and provincial spatial plan.[316] In addition, prior local-level conservation mechanisms and ongoing local support also contributed to project success. For example, in Waigeo and Misool in Raja Ampat[317], nature reserves already have some degree of protections and local village regulations play a role in managing high conservation areas. In addition, in Aceh[318], local government commitments to protecting and maintaining the sustainability of wildlife, support from local police and law enforcement officials, and building upon a level of social knowledge in communities on living alongside elephants has enabled project success. One project in particular highlights important lessons to better enable project success, noting that it is dependent upon how diverse priorities and stakeholders are reconciled. One project[319] benefited from an appropriate mix of sanctions and incentives and an exploration of areas of shared concerns to engage and provide an entry point for dialogue between multiple stakeholders to achieve change.

[313] IWT027: Strengthening institutional frameworks to combat wildlife trafficking in Indonesi
[314] DAR24007: Ridge-to-reef conservation and sustainable livelihoods in Raja Ampat.
[315] DAR25001: Preventing Borneo's peatland fires to protect health, livelihoods and biodiversity.
[316] DAR23033: Marrying community land rights with stakeholder aspirations in Indonesian Borneo.
[317] DAR24007: Ridge-to-reef conservation and sustainable livelihoods in Raja Ampat
[318] IWT049: Reducing IWT in Sumatra across two globally important tiger landscapes.
[319] DAR25001: Preventing Borneo's peatland fires to protect health, livelihoods and biodiversity.

Political obstacles in engaging effectively with government authorities, such as bureaucratic delays, can add a level of complexity to projects which can affect the degree of success intended.[320] Furthermore, annually worsening weather events such as dry seasons and associated forest fires are also noted to have affected, and will continue to affect, project successes.[321] For IWTCF projects in particular, the size of target landscapes and nature of poaching influence the effectiveness of law enforcement patrols, particularly due to lack of enforcement personnel to cover such a wide area[322], and due to smugglers coming from outside the target landscapes being challenging to track[323], and often ahead technically and practically on police operations.[324]

For more recent projects, the COVID-19 pandemic's associated restrictions and disruptions have also made the degree of success uncertain.[325]

[320] This is notable amongst IWT Challenge Fund projects, including IWT027: Strengthening institutional frameworks to combat wildlife trafficking in Indonesia; IWT048: Tackling the illegal wildlife trade in Muslim Communities in Sumatra; and IWT049: Reducing IWT in Sumatra across two globally important tiger landscapes.
[321] DAR24007: Ridge-to-reef conservation and sustainable livelihoods in Raja Ampat; DAR25001: Preventing Borneo's peatland fires to protect health, livelihoods and biodiversity; IWT048: Tackling the illegal wildlife trade in Muslim Communities in Sumatra
[322] IWT049: Reducing IWT in Sumatra across two globally important tiger landscapes.
[323] IWT048: Tackling the illegal wildlife trade in Muslim Communities in Sumatra; and
[324] IWT027: Strengthening institutional frameworks to combat wildlife trafficking in Indonesia
[325] This applies to DAR25001: Preventing Borneo's peatland fires to protect health, livelihoods and biodiversity; IWT048: Tackling the illegal wildlife trade in Muslim Communities in Sumatra; and IWT049: Reducing IWT in Sumatra across two globally important tiger landscapes.

Kenya

Overview

Kenya's landscape contains a remarkable diversity of ecosystems. These include high mountains with unique snow and frost-adapted vegetation; a diversity of forest types including highland, lowland and coastal forests; woodland and grassland; arid and semi-arid land; lakes, rivers and wetlands; and coastal habitats including mangroves, coral reefs and seagrass beds.

The biodiversity and ecosystem services provided by each of these biomes are threatened by conservation challenges such as unsustainable harvest; human-wildlife conflict; insufficient size of protected areas; fragmentation, transformation, and loss of natural ecosystems; and climate change. Coastal ecosystems are threatened by overfishing, destructive fishing, and climate change[326], with only 10% of coastal regions managed within marine protected areas. At a structural level, these threats are driven by a combination of market forces acting on both higher (e.g. ivory, rhino horn, sandalwood) and lower (e.g. bushmeat, grass) value products, a growing population, poverty, the under-valuation of ecosystem services and biodiversity, and weak governance and corruption.

Figure 31: Mombasa , Kenya, DAR 20017

Issues of conservation and poverty reduction are closely linked. On the back of its diverse and impressive landscapes, Kenya has a productive tourism industry which contributes to approximately 15% of GDP[327] and creates substantial employment. High levels of poaching in key tourist areas threaten the tourism sector and the employment that it brings[328]. Additionally, areas of key conservation concern overlap with and sit-beside populations struggling with unemployment, poverty, and marginalisation. For instance, Tana Delta is one of the poorest areas in Kenya with 77% of the population living on less than $1.9 per day (compared to a national average of 36%[329]). It is also a Ramsar site, Key Biodiversity Area and Important Bird Area and includes key ecosystems such as mangrove forests. Similarly, coastal fisher communities are amongst the poorest and most marginalised in Kenya and people lack access to decision making structures that impact their livelihoods. These areas contain key coral reef habitats and support populations of endangered marine turtles.

In 2010, Kenya adopted a new Constitution, a key feature of which was to transfer most Government functions to 47 political and administrative Counties. The previous system was heavily centralised and inhibited the active participation of citizens, excluded communities from decision-making and resulted in the mismanagement of resources. In response to a collapse of public faith in this system, the new Constitution has mandated County governments to engage local populations in governance.

Following this ethos a number of new reforms were enacted including a judicial review programme (2012-2016) and the Wildlife Conservation and Management Act (2014), which promotes public participation in wildlife management. Additionally, it has shaped the strategies of both Kenya Wildlife Service and Kenya Forest Service. Both organisations increasingly prioritise community involvement in natural resource governance through mechanisms such as Community Forest Agreements and Community Conservation Areas[330].

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[326] DAR20017: Strengthening the capability of Kenyan communities to conserve coral reefs
[327] IWT008: Technology and Innovation Against Poaching and Wildlife Trafficking.
[328] IWT028: Building judicial capacity to counter wildlife crime in Kenya.
[329] World Bank article (2018): 'Poverty incidence in Kenya Declined Significantly, but Unlikely to be Eradicated by 2030'. Link.
[330] DAR24013: Balancing water services for development and biodiversity in the Tana-Delta

Devolution – meaningfully enacted in 2013 - has proceeded slowly and with mixed results, presenting institutional challenges for conservation and IWT prevention efforts. A number of County governments continue to struggle with a lack of technical capacity or organisational structure. Similarly, key conservation and judicial bodies are constrained by under-funding and a lack of resources[331].

Alignment with national priorities

Overall, the projects reviewed showed strong alignment with national priorities. Two projects contributed directly to goals under versions of the Kenya National Biodiversity Strategy and Action Plan (NBSAP). Through a programme of participatory fishery closures one project aimed to increase fish-catch as well as protect coral reefs off the Kenyan coast[332]. These objectives align with both biodiversity and poverty reduction goals of the NBSAP. One project planned to train local researchers, biologists and extension workers on scale insect identification, and to raise awareness of the scale insect threat and effective Integrated Pest Management strategies amongst key stakeholder groups[333]. These align with specific NBSAP goals around strengthening research capabilities, technical and scientific cooperation, public awareness and education of biodiversity issues.

Three further projects aimed to build capacity of stakeholders and institutions in areas aligned with broader national policy developments. The Wildlife Conservation and Management Act (WCMA) of 2014 increased potential penalties associated with wildlife crime yet its implementation has been constrained by capacity limitations in the criminal justice system. One project aimed to address this challenge in Laikipia County, through a comprehensive capacity building programme[334]. This included a three-pronged training programme for personnel along the criminal trial process, provision of a court monitor and case management personnel, and development of a regional case management database. Two others were initiated by regional or national institutions[335]. Another aimed to develop the capacity of the two County governments to implement a Land Use Plan and facilitate the involvement of local communities in the process and governance of the Delta[336]. These objectives align with the priorities of the 2010 Constitution.

All projects contributed to Kenya meeting international commitments including the: CBD; SDGs; CMS; Ramsar; London Declaration and Kasane Statement.

Building on previous projects

Three of the six projects reviewed have either been built upon or given rise to another project. Building on their experience gained during one project[337], the IUCN and IIED are currently implementing a cross-border, community engagement project[338]. This project aims to improve access of local communities to local, national and international IWT policymaking. The project directly references at application that the project methodology builds on lessons learned during the previous project.

One project[339], which implemented the Tana River Delta Land Use Plan, built upon experience gained in another[340] which developed a model for delta resource management, balancing livelihoods and conservation needs. Nature Kenya was project lead of the latter and key project partners in the former, and both projects included many of the same key staff.

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[331] 'IWT028: Building judicial capacity to counter wildlife crime in Kenya' and 'DAR24013: Balancing water services for development and biodiversity in the Tana-Delta'
[332] DAR20017: Strengthening the capability of Kenyan communities to conserve coral reefs.
[333] DAR25032: Biodiversity and Agriculture: addressing scale insect threats in Kenya.
[334] IWT028: Building judicial capacity to counter wildlife crime in Kenya.
[335] Both 'DAR24013: Balancing water services for development and biodiversity in the Tana-Delta' and 'DAR25032: Biodiversity and Agriculture: addressing scale insect threats in Kenya'.
[336] DAR24013: Balancing water services for development and biodiversity in the Tana-Delta.
[337] IWT020: Strengthening local community engagement in combating illegal wildlife trade.
[338] IWT060: LeAP Learning and Action Platform for community engagement against IWT.
[339] DAR24013: Balancing water services for development and biodiversity in the Tana-Delta.
[340] DAR21015: Balancing development and conservation in Kenya's largest freshwater wetland.

One project[341] built upon another community-led fisheries management project[342], which covered some of the same geographic area. At application, the follow up project stated it would build on community structures and process put in place by the initial project.

Impact

Overall evidence on the success of the 6 reviewed countries has been mixed, with slightly more evidence of impacts in areas of poverty sustainable livelihoods and capacity building, compared to biodiversity. In terms of capacity building, the 2 IWT Challenge projects achieved their expectations and impact to a greater degree than Darwin funded projects. Where expectations have not been met, this has frequently been down to poorly structured logical frameworks and subsequent insufficient evidence, or difficulties in measuring impact within project timeframes.

Five of the 6 projects reviewed had biodiversity aims, with three meeting expectations and achieving moderate or high impact. Three projects largely or fully met their targets, with a further project meeting expectations to a limited degree. Of the two remaining projects, one did not include specific indicators on biodiversity and the other was incomplete to a point where progress could not be assessed. Of the 4 completed projects, 2 achieved a moderate impact, 1 a high impact and 1 minimal impact. Both IWT Challenge projects included biodiversity aims, which focussed on reductions in illegal killing of key species and achieved either high or moderate impact. A notable example is one project[343] which developed the First Line of Defence strategy for community engagement in IWT efforts. This project strongly contributed to the evidence base on community engagement in IWT and successfully disseminated results to key national and international stakeholders.

Four of the 6 projects included broader environmental aims, 2 of which were complete. Of the 2 completed projects 1 project largely met its expectations whilst the other provided insufficient evidence of achievements. The projects achieved a moderate and minimal level of impact, respectively. DAR20017 achieved the establishment and implementation of management guidelines for fishery closures, including the removal of destructive gears.

Five projects included outcomes and impacts on poverty and sustainable livelihoods. Of the 3 complete projects 2 projects met their expectations to a limited degree and 1 met their expectations fully. Both projects that struggled to meet their expectations did so due to difficulties in showing impact within the timeframe of the project, as well as issues with relevant logical frameworks. Despite not meeting initial expectations all 3 of the completed projects were found to have a high level of impact in this area. One of the 2 IWT Challenge projects had outcomes related to poverty and sustainable livelihoods and expectations were met fully.

The two IWT Challenge projects included IWT related objectives. Of these 1 project met its expectations fully and the other largely. Evidence showed these projects to have a high and moderate level of impact. A notable example is where a project achieved an increase in conviction rates for offences related to ivory or rhino horn from 60% to 93%. [344]

All projects reviewed aimed to build capacity, with 3 of the 4 completed projects achieving a moderate level of impact and 1 project achieving high impact. Two projects, both IWT Challenge projects, met fully their expected levels of capacity building. The remaining two largely met or met to a limited degree their expectations. A strong example is where one project[345] delivered a comprehensive and well-designed training programme which built capacity along the criminal trail process.

None of the projects reviewed had outcomes or impacts related to climate change.

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[341] DAR20017: Strengthening the capability of Kenyan communities to conserve coral reefs.
[342] DAR17016: Conservation and sustaiable management of Kenya's marine and coastal resoruces.
[343] IWT020: Strengthening local community engagement in combating illegal wildlife trade.
[344] IWT028: Building judicial capacity to counter wildlife crime in Kenya.
[345] IWT028: Building judicial capacity to counter wildlife crime in Kenya.

Country factors affecting impact

The process of devolution mandated under the 2010 Constitution and enacted in 2013, impacted on a number of projects. In the cases of two projects[346], the lack of technical capacity and poor organisational structures of nascent County governments hindered activities and outputs. In particular, one of these project's[347] outputs related to environmental management were hindered with possible knock-on effects on biodiversity and livelihood outcomes. On the other hand, one project[348] was able to build directly on the legacy of the previous intervention (development of the Land Use Plan) that had overcome County government weaknesses. This facilitated project success as it enabled the meaningful engagement of both County governments and approval of policies and plans.

Two IWT Challenge Fund projects[349] were enabled by reforms catalysed by the new Constitution including the Wildlife Conservation and Management Act (WCMA) of 2014 and a programme to transform the judiciary (2012-2016). The WCMA introduced a new category of protected area – the Community Conservancy – which, in line with the new Constitution, promotes public participation in wildlife management. These reforms created an enabling environment, informing the timing, design and implementation of the two IWTCF projects. Similarly, the ethos of the 2010 Constitution to enhance community engagement in governance created an enabling environment for 3 of the 4 Darwin projects. For instance, the Water Resource User Groups and Community Forest Agreements implemented in Kenya's East Arc Mountains[350] are mechanisms resulting from the new Constitution, as is the Community Conservancy Agreement implemented in the Tana-Delta.[351]

More recently, one project[352] was facilitated both by growing recognition of the economic importance of the agricultural sector and awareness within State Ministries of the rapidly growing scale insect (invasive species) threat. Conversely the impact and sustainability of this project may be hindered by technical and financial weakness of County government extension services.

[346] DAR20017: Strengthening the capability of Kenyan communities to conserve coral reefs; and DAR21014: Reconnecting poverty-alleviation to biodiversity conservation in Kenya's Eastern Arc Mountains.
[347] DAR20017: Strengthening the capability of Kenyan communities to conserve coral reefs.
[348] DAR24013: Balancing water services for development and biodiversity in the Tana-Delta.
[349] IWT028: Building judicial capacity to counter wildlife crime in Kenya. and I IWT020: Strengthening local community engagement in combating illegal wildlife trade.
[350] DAR21014: Reconnecting poverty-alleviation to biodiversity conservation in Kenya's Eastern Arc Mountains.
[351] Dar24013: Balancing water services for development and biodiversity in the Tana-Delta.
[352] DAR25032: Biodiversity and Agriculture: addressing scale insect threats in Kenya.

Bolivia

Overview

Bolivia is a South American country which stretches from mountain regions in the Andes to rainforest-covered regions bordering the Amazon basin. The T'simane Mosetene, Leco, and Tacana indigenous territories in Bolivia cover over one million hectares bordering and overlapping the Madidi and Pilón Lajas protected areas. This region is globally important for its high biodiversity and stronghold populations of vulnerable wide-ranging species like jaguar and spectacled bear. Key threats to biodiversity here are forest loss and degradation from outsiders engaging in illegal agricultural clearing and settlements, timber extraction, and gold mining. Indigenous communities also extract valuable timber and clear forestland for agricultural use and cattle pastures. This perpetuates a cycle of poverty among indigenous populations since forest loss/degradation negatively impacts community livelihoods, which depend on forest resources, and renders them particularly vulnerable to climate change[353].

The inter-Andean dry forests of Bolivia are among the most fragmented, fragile yet understudied ecosystems and are highly prone to the effects of climate change. They are also home to some of the poorest and most vulnerable populations and communities in Bolivia. In recent years severe droughts have affected agriculture, with crop losses of up to 80% in 2015. As a consequence, people are increasingly changing their main economic activity from arable agriculture to livestock, which not only affects the natural regeneration of the dry forests and demands more land and water, but also increases encounters between people, livestock and the highly endangered Andean bear species[354].

Immigration to the rainforest regions of Bolivia, driven by economic, political and environmental factors, has placed increasing pressure on forests. The forests of Pando Department support a large forest-dependent population, are important for biodiversity and ecosystem services and constitute important buffers for the eastern Andean catchments from the predicted impacts of climate change. Forest loss will reduce Bolivia's ability to meet its obligations under CBD and increase vulnerability to climate change among the poor. 69% of the forest-dependent population of Pando Department are unable to satisfy their basic needs and 34% live in extreme poverty.

More recently, Bolivia has been faced with its gravest wildlife trade crisis since the trade in jaguar skins in the 1980s. Recent demand from Asian markets for jaguar teeth has resulted in 192 documented jaguar deaths, with IWT now the largest threat to jaguar populations, particularly in the Greater Madidi landscape. This is a challenge for the government in terms of its enforcement and communication capacity to address IWT.

Alignment with national priorities

All of the projects are in line with Bolivia's international obligations under the CBD, the Aichi targets and the CITES Convention. However, national priorities and action plans have also played a strong role in the implementation of these projects. In 2011, Bolivia passed a 'Law of Mother Earth' granting all of nature equal rights to human beings in line with traditional indigenous beliefs. More recently, in 2018, the designation of the Andean Bear as a Natural Heritage Species of Bolivia and the creation of a National Conservation Action Plan for the species undoubtedly helped the implementation of one of the Darwin projects[355]. Similarly, the adoption of a National Action Plan for the Jaguar helped to support another.[356] The supporting documentation provided in the project applications also provides strong evidence of project alignment with regional and national government priorities.

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[353] DAR24011: Wildlife-friendly agroforestry and sustainable forest management in Bolivian indigenous territories.
[354] DAR25011: Andean bears and people: coexistence through poverty reduction.
[355] DAR25011. Andean bears and people: coexistence through poverty reduction.
[356] IWT068: A price on their heads: Addressing jaguar trafficking in Bolivia. Bodies responsible for its implementation include the Ministry of Environment and Water, the General Directorate of Biodiversity and Protected Areas, the National Service of Protected Areas, the autonomous departmental and municipal governments, academic institutions and institutions specialised in research and conservation of the biodiversity and social organizations and local communities: https://citesbolivia.mmaya.gob.bo/publicaciones/plan-de-accion-jaguar/

The two Darwin Fellowships[357] were intended to add to the bank of taxonomic skills available in Bolivia for its biodiversity and conservation studies, thus reducing the country's dependence on foreign expertise and helping it to meet its obligations under the CBD. The later Fellowship in 2014 was also in line with the National Plan of Science and Technology (2013).[358]

Building on previous projects

There is little evidence that projects funded by the schemes have built on each other so far, apart from the two participants in the Darwin Fellowship scheme having been involved in Darwin projects prior to starting their fellowships. One project lead organisation used Darwin funding to build on a project previously funded by the Whitley Fund for Nature[359], while another lead organisation had adopted a broader regional approach to all of its projects in the Amazon, included those funded by the schemes[360]. It is worth noting, however, that the project tackling the trade in jaguar parts will receive further scale-up funding from the IWTCF to continue its work[361].

Impact

It is difficult to say how successful the projects in Bolivia have been because three of the four projects examined were still ongoing at the point of this research. In terms of biodiversity, two of the three Darwin projects were meeting or fully exceeding expectations by showing signs of providing a much better understanding of the levels of biodiversity in the project areas, and showing success in increasing the numbers of bird species living in project areas.[362] One other Darwin project did not provide sufficient evidence that the targets on reducing slash and burn practices and protecting forest cover and biodiversity were met.[363]

Addressing climate change was not a clear priority for the Darwin projects, although they sought to address it in a variety of ways, for example, by promoting Inga agroforestry activities to reduce slash and burn practices and support climate change mitigation,[364] and by increasing economic resilience to the hardships caused by the effects of climate change, such as wildfires.[365] However, there is insufficient information to show whether the projects have been effective in this regard.

The projects appear to have chosen innovative topics and products around which to promote sustainable livelihoods, e.g. agroforestry with coffee and cacao, beekeeping, with a keen uptake at the early stages.[366] The ability of projects to monitor and quantify improvements in livelihoods varied however, with one project failing to collect indicator-based information after an initially positive start,[367] while another project showed clear increases in family annual income as a result of project activities.[368] Covid-19 had a negative impact on the ability of project stakeholders to carry out economic activities, such as selling new honey products.[369]

Bolivia is dealing with an increase in IWT, and the illegal trade in jaguar parts in the Greater Madidi region in particular. It is too early to say whether an IWTCF-funded project has had an impact on the levels of IWT in the

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[357] EIDPS020 and EIDPS031 Fellowships with Dr. Hibert Huayalla and Dr. Daniel Soto, respectively.
[358] Ministerio de Educacion, Bolivia (2013). Plan Nacional de Ciencia, Tecnología e Innovación / National Plan for Science, Technology and Innovation. Link.
[359] DAR25011: Andean bears and people: coexistence through poverty reduction.
[360] IWT068: A price on their heads: Addressing jaguar trafficking in Bolivia; and DAR24011: Wildlife-friendly agroforestry and sustainable forest management in Bolivian indigenous territories.
[361] IWT068: A price on their heads: Addressing jaguar trafficking in Bolivia
[362] For example, DAR25011: Andean bears and people: coexistence through poverty reduction; and DAR24011: Wildlife-friendly agroforestry and sustainable forest management in Bolivian indigenous territories.
[363] DAR20021: Forest Futures: Livelihoods and sustainable forest management in Bolivian Amazon.
[364] DAR20021: Forest Futures: Livelihoods and sustainable forest management in Bolivian Amazon.

[365] DAR25011: Andean bears and people: coexistence through poverty reduction.
[366] DAR20021: Forest Futures: Livelihoods and sustainable forest management in Bolivian Amazon; DAR24011: Wildlife-friendly agroforestry and sustainable forest management in Bolivian indigenous territories; and DAR25011: Andean bears and people: coexistence through poverty reduction.
[367] DAR20021: Forest Futures: Livelihoods and sustainable forest management in Bolivian Amazon.
[368] DAR24011: Wildlife-friendly agroforestry and sustainable forest management in Bolivian indigenous territories.
[369] DAR25011: Andean bears and people: coexistence through poverty reduction.

country, although it has successfully achieved some intermediate outcomes and there is a strong commitment from the lead organisation and participating local organisations to continuing it.[370] Other Darwin projects strengthened the capacity of local organisations to monitor IWT-related activity, for example, improved monitoring capacity and logging of illegal incursions into protected territories, and increased awareness of the biodiversity that exists, but it is not clear how this improved capacity translates into more effective enforcement action or behavioural change around IWT.[371]

The more recent projects show evidence of successful capacity building, e.g. training of local parabiologists to map local biodiversity[372] and of indigenous peoples communities to identify and log illegal incursions into protected areas,[373] but Covid-19 greatly restricted the scope for carrying out capacity-building activities. The two Darwin Fellowship projects[374] certainly improved the capacity of the participating fellows, but given their subsequent career paths within and outside Bolivia, there is no clear benefit to the scientific capacity of Bolivia as a whole.

Country factors affecting impact

Three projects which began after 2017 were negatively affected by the disputed general election in October 2019. The election led to months of political paralysis, affecting policies, plans, programmes and projects that were being implemented in collaboration with governmental organisations.[375] Severe wildfires in the second half of 2019 also had a negative impact.[376] An earlier Darwin project noted that the NGOs involved had suffered harassment from government organisations at all levels.[377]

The Covid-19 pandemic had a detrimental effect on projects due to restrictions on travelling to and between project areas. Project staff were unable to organise gatherings of people for training purposes and to monitor progress of projects, and projects had to revisit their logframes and timelines as a result.

Projects aimed at improving sustainable livelihoods have had to deal with competition from the illegal mining sector. High gold prices have meant that target communities have sometimes lost interest in projects in favour of pursing environmentally destructive mining opportunities elsewhere.[378]

One the positive side, the successes of the projects can be attributed to the longstanding relationships between project lead organisations with national partners, and indigenous peoples' organisations in particular.[379] These strong partnerships were seen a crucial factor in projects being able to continue functioning during the Covid-19 pandemic, albeit it in a reduced way.

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[370] IWT068: A price on their heads: Addressing jaguar trafficking in Bolivia.
[371] DAR24011: Wildlife-friendly agroforestry and sustainable forest management in Bolivian indigenous territories; and DAR25011: Andean bears and people: coexistence through poverty reduction.
[372] DAR25011: Andean bears and people: coexistence through poverty reduction.
[373] IWT068: A price on their heads: Addressing jaguar trafficking in Bolivia.
[374] EIDPS020: Hibert Huaylla and EIDPS031: Daniel Soto.
[375] DAR24011: Wildlife-friendly agroforestry and sustainable forest management in Bolivian indigenous territories; DAR25011: Andean bears and people: coexistence through poverty reduction; andIWT068: A price on their heads: Addressing jaguar trafficking in Bolivia.
[376] DAR25011: Andean bears and people: coexistence through poverty reduction.
[377] DAR20021: Forest Futures: Livelihoods and sustainable forest management in Bolivian Amazon.
[378] For example, DAR24011: Wildlife-friendly agroforestry and sustainable forest management in Bolivian indigenous territories.
[379] DAR24011: Wildlife-friendly agroforestry and sustainable forest management in Bolivian indigenous territories; and IWT068: A price on their heads: Addressing jaguar trafficking in Bolivia.

Nepal

Overview

Nepal has tremendous diversity of biomes ranging from tall grasslands, wetlands, and tropical and sub-tropical broadleaved forests in the Tarai and adjoining Siwalik foothills, to alpine meadows above the tree line. A total of 180 ecosystems have been identified in the country, and Nepal's unique geography with its dramatic changes in elevation along the relatively short (150-200km) north-south transect and associated high variability in the physiographic and climatic conditions have resulted in a uniquely rich diversity of flora and fauna in the country.

However, Nepal's biodiversity is threatened by multiple factors. Loss, degradation, and alteration of natural habitats, such as forests, grasslands, and wetlands; overexploitation; invasion by alien species; and pollution of water bodies remain the predominant threats to natural ecosystems. Poaching and illegal wildlife trade and human-wildlife conflict are other major direct threats to forest biodiversity, particularly in protected areas. Natural disasters, such as landslides, glacial lake outburst floods, and drought pose a considerable threat to mountain ecosystems and the people living in those areas. Climate change could have profound impacts in the future, particularly in the mountains. These and other threats continue to increase.

Furthermore, the following factors all contribute to existing risks: demographic changes, poverty, weak enforcement of the law, ignorance of biodiversity values in government and corporate accounting systems, unclear administrative jurisdictions, inadequate awareness and motivation to conserve biodiversity, and a lack of an integrated approach to development planning at the national and district levels. Increasing demand for space and resources arising from the rapidly growing human population are changing vital ecosystems. This has generated concerns around undermining ecosystem functioning and resilience, thus threatening the ability of ecosystems to continuously supply services.

Alignment with national priorities

Overall, the Nepal projects are largely in line with national strategies or priorities. In fact, several of the projects explicitly attributed their success to the fact that they worked in priority areas for the government, which helped to ensure adequate ownership and cooperation. Although all six projects were generally in line with key national issues regarding conservation, biodiversity, and sustainability, three were thought to be particularly well-aligned:

Science-based interventions reversing negative impacts of invasive plants in Nepal[380] was not only closely aligned with the priorities of the Nepalese government, but also was implemented with the Department of Plant Resources and Ministry of Forests and Soil Conservation as one of the project partners. The project focused on addressing the spread of invasive plant species, which the Government of Nepal recognised as a key challenge and listed as a major threat to forest biodiversity in the National Biodiversity Strategy and Action Plan. The project was also aligned with the Government of Nepal's priorities in the specific activities planned - addressing national capacity for surveying and detection of invasive plant species, building knowledge base, raising awareness of the public, informing policy gaps and making bio-briquettes and biochar from invasive plant species.

Succeeding with CITES: Sustainable and equitable Jatamansi trade from Nepal[381]: in 2017 the Government of Nepal adopted an Act aimed at strengthening CITES implementation that unintentionally banned exports of all Appendix II listed species, including Jatamansi. As part of the project, the Ministry of Forests and Soil Conservation of Nepal committed to presenting a proposal to Parliament to amend the Act to allow Jatamansi trade, with consent from the Ministry of Law.

[380] DAR23031: Science-based interventions reversing negative impacts of invasive plants in Nepal.
[381] DAR25018: Succeeding with CITES: Sustainable and equitable Jatamansi trade from Nepal.

Building Capacity for Plant Biodiversity, Inventory, and Conservation in Nepal[382]: the fellowship for Dr Lokesh Shakya aimed to fill a critical gap in the knowledge of Nepalese orchids, improving information available on orchid taxonomy, ecology and distribution using UK and Nepalese herbaria. The account of the orchids was expected to contribute directly to completion of the Flora of Nepal, which has been identified as a priority in the Government of Nepal's 10th Five-Year Plan (2002) and the National Biodiversity Strategy (2002).

Building on previous projects

Although the Nepal projects were being implemented in different parts of the countries and during different time periods[383], they do seem to have learned from each other as well as benefiting from the insight of experienced partners. For example, the lead UK institution for one[384], BirdLife International, were able to build on their extensive prior experience in contributing to the design and implementation of the project. With another[385] it was noted that the project lead and other project partners had been involved in similar research for a long time and that experience was used to shape the design and implementation of the project. Furthermore, the two Darwin Fellows – Dr Lokesh Shakya and Dr Sangeeta Rajbhandary – were previously involved in other Darwin projects. Many of the projects were carried out in coordination with the Ministry of Forests and Environment. As such, they supported cohesive policy improvement and implementation of biodiversity and livelihoods programming related to the commitments of the government. However, likely due to the variation in project timelines and locations, there is minimal specific evidence of collaborative design, implementation, or sharing of findings between these six Darwin projects in Nepal.

Impact

Overall, the Nepal projects appear to have been reasonably successful in terms of meeting – or making considerable progress against– key outcome targets:

All six projects largely met their outcomes on the conservation of threatened species or, more broadly, key areas of Nepal's natural environment; and all achieve a moderate scale of impact. This outcome area is closely linked to capacity building impacts, where five of the six projects at least largely met capacity building outcomes and achieve moderate to high scale of impact. Only one project met their capacity building outcomes to a limited degree. Fellowships in Nepal are good examples of capacity building impact, where strengthened expertise and skills have allowed these individuals to contribute further research and build the capacity of others in biodiversity conservation.[386] Another good example is where a project successfully developed the capacity of both NGOs and government institutions to collect and use information on ecosystem services, and how to use it to inform and develop more effective biodiversity conservation strategies. In particular, it provided accessible guidance on low-cost, less-technical methods to evaluate ecosystem benefits to more easily influence decision-making. The methodology has been used in 27 Important Bird Areas in Nepal, as well as in general forest ecosystems management; and has been used to train other countries in Asia and Africa. There is some evidence that the status of birds and biodiversity in over 10 Nepali sites has shown improvements in trends, although it is unclear how much can be attributed to this project alone. The knowledge generated by the project also contributed to Nepal's National Biodiversity Strategies and Action Plans, particularly Nepal's Sixth National Report to the CBD (2018).

In many cases, these projects were linked to ambitious long-term impacts like the eradication of invasive species.[387] However, the available evidence in this area is weak and primarily anecdotal. This is particularly true

[382] EIDPS021: Building Capacity for Plant Biodiversity, Inventory and Conservation in Nepal.
[383] In 2010-2013, DAR18005: Understanding, assessing and monitoring ecosystem services for better biodiversity conservation; and, in 2017-2021, IWT041: Strengthening Community Anti-poaching and Ecotourism in the Western Terai Complex.
[384] DAR18005: Understanding, assessing and monitoring ecosystem services for better biodiversity conservation
[385] DAR23031: Science-based interventions reversing negative impacts of invasive plants in Nepal.
[386] EIDPS021: Dr Lokesh Shakya and EIDPS035: Dr Sangeeta Rajbhandary on Building Capacity for Plant Biodiversity, Inventory and Conservation in Nepal.
[387] For example, DAR23031: Science-based interventions reversing negative impacts of invasive plants in Nepal.

for more recent projects,[388] where the longer-term effects of programming are yet to be seen. That said, the projects were generally thought to be planned and implemented in a way that supported sustainability with project outcomes and impacts. For example, the design of one project[389] was thought to be particularly sustainable because it not only provided local communities with tools for eradicating invasive plant species but also provided economic incentives to do so. However, one project's[390] sustained impact rests on the assumption that the Nepalese government and civil society will continue to work towards the achievement of objectives of various conventions related to biodiversity.

Four of the six projects included clear objectives around developing sustainable livelihoods. Only one project is assessed as having 'largely' met these objectives[391] while two projects are assessed as having met those objectives to a limited degree.[392] The remaining project had insufficient information to make a judgement. A good example of impact is where one project[393] introduced livelihoods such as the production of biochar, vegetable production and goat rearing, and also distributed improved cooking stoves. The results of these include improved incomes of households in marginalised communities, with an average increase in household income of 25%; increased yields from crops with the application of biochar; and smoke-free cooking environments which reduces the likeliness of respiratory diseases, reduces firewood consumption, but also increases efficiency of cooking time. The project also provided indirect benefits through the eradication of invasive species, improving the condition of forest areas communities depend upon. This project is also the only project that supported climate change adaptation outcomes, by building greater resilience amongst local people against consequences of climate change. In the case of another project, the outcomes that would result from ecotourism enterprises is less clear, including the mechanisms through which this will materialise in practice.[394]

Two projects, including one IWT Challenge Fund[395] and one Darwin Fellowship[396], addressing the illegal wildlife trade largely met their outcomes, although these are still ongoing therefore the scale of impact could not be assessed. The IWT Challenge Fund project in particular still demonstrates significant achievements, including effective action from Rapid Response Teams, supporting reductions in the number of retaliatory killing of wildlife and the poaching of tigers, rhinos, and other wild animals, and observing increasing trends in the number of tigers in the project area. The project also supported transnational enforcement and protection efforts between Nepal and India, particularly through more effective intelligence sharing procedures, promoting continued collaboration between the countries in reducing the illegal wildlife trade.

Country factors affecting impact

Most of the projects are being implemented in close collaboration with the Nepalese government. For example, one project[397] worked with the Department of Plant Resources and received in-kind contributions from the Forest department. It was also noted that at least some of the projects' success is attributable to the Nepalese government prioritising commitments related to biodiversity conservation, sustainable use, and equitable benefit sharing.[398] A couple of projects also attributed success to the support of local communities, who were actively engaged and participating in these projects, especially in the income-generating components.[399] However, overall,

[388] For example, DAR25018: Succeeding with CITES: Sustainable and equitable Jatamansi trade from Nepal.
[389] DAR23031: Science-based interventions reversing negative impacts of invasive plants in Nepal.
[390] DAR18005: Understanding, assessing and monitoring ecosystem services for better biodiversity conservation
[391] DAR23031: Science-based interventions reversing negative impacts of invasive plants in Nepal.
[392] DAR25018: Succeeding with CITES: Sustainable and equitable Jatamansi trade from Nepal; and IWT041: Strengthening Community Anti-poaching and Ecotourism in the Western Terai Complex.
[393] DAR23031: Science-based interventions reversing negative impacts of invasive plants in Nepal.
[394] IWT041: Strengthening Community Anti-poaching and Ecotourism in the Western Terai Complex.
[395] IWT041: Strengthening Community Anti-poaching and Ecotourism in the Western Terai Complex.
[396] EIDPS021: Dr Lokesh Shakya.
[397] DAR23031: Science-based interventions reversing negative impacts of invasive plants in Nepal.
[398] For example, DAR18005: Understanding, assessing and monitoring ecosystem services for better biodiversity conservation; and IWT041: Strengthening Community Anti-poaching and Ecotourism in the Western Terai Complex.
[399] For example, DAR25018: Succeeding with CITES: Sustainable and equitable Jatamansi trade from Nepal.

there is limited information available regarding how the context of Nepal – in terms of ecosystem, governance, and/or society – might have influenced the degree of success reported by relevant projects.

British Virgin Islands

Overview

British Virgin Island's (BVI) vegetation is predominantly made up of cacti, thickets and dry forests with smaller areas of woodland and shrubland. There are rain forests on the upper slopes of the larger islands of Tortola and Virgin Gorda. Marine environments of the BVI consist of 380 km² of coral reefs that range in size from small fragments of a few square metres to the Anegada reef which is made up of close to 77 km² of coral. Anegada is also the home of the Anegada Horseshoe Reef which is the third largest barrier reef in the world. The archipelago has 580 hectares of mangroves of which 75% are found in Anegada. There are also sea grasses, sandy stretches, salt ponds and sub-marine hills and vales.

Figure 32: Intact coastal dry forest on BVI (provided by Sara Bárrios, Royal Botanic Gardens – Kew Science)

To date 360 (11%) of the 3,315 native species recorded on BVI (including plants, vertebrates and invertebrates) have undergone assessment against IUCN Red List criteria. Of the 360 native species, 47 are listed as 'globally threatened', with a further 21 'near threatened' and 12 'data deficient'. The remaining 280 assessed native species are of 'least concern'. Regarding plant species, a long-term programme, by the National Parks Trust of the Virgin Islands (NPT), in partnership with RBG Kew with funding from several Darwin awards, is the conservation of BVI's flora. Nine vascular plant species have been identified as BVI endemics, or near-endemics of limited distribution, and labelled as "Red List Candidates". The flora includes 16 native species of orchid.[400]

BVI is important for Caribbean reptiles. According to a review of amphibians and reptiles conducted in 2010, there were thirty-one indigenous species, eight (26%) of which are endemic and six introduced.[401] The islands have many endemic species of invertebrates. Although some collecting has taken place, much more work in this area is needed to understand their importance to the islands ecosystems.[402] The satyrine butterfly *Calisto anegadensis*, is endemic to BVI and only on Anegada Island.

Threats

BVI faces significant invasive species threats. Cuban tree frog, mongoose, feral rats and feral cats all threaten the native species, and in the marine environment, the introduced lionfish has an impact on marine life and thus the fisheries industry. BVI is also experiencing loss of habitat from local development, particularly the loss of mangrove forest which has long been a concern within the BVI as it reduces the island's natural protection from hurricanes which further damages mangrove. BVI also faces threats of marine pollution, including discarded fishing line and other non-bio-degrading waste, which cause considerable problems to biodiversity, such as the killing of frigatebirds in their colony at Great Tobago, near Jost Van Dyke. Other marine threats arise from anchor damage to coral and sea grasses, and pollution from shipwreck. Finally, BVI faces multiple, significant threats from climate destabilisation. Higher global temperatures and sea-level rise together with an increase in the frequency

[400] Bárrios et al. (2017). Conserving the threatened plants of the British Virgin Islands (BVI). Link.
[401] Edgar (2010). The Amphibians and Reptiles of the UK Overseas Territories, Crown Dependencies and Sovereign Base Areas: Special Inventory and Overview of Conservation Priorities. Link.
[402] Churchyard et al. (2016). The biodiversity of the United Kingdom's Overseas Territories: a stock take of species occurrence and assessment of key knowledge gaps. Link.

and intensity of hurricanes and associated flood events are of great concern, not only damaging infrastructure but also the environment. It is estimated that an increase in temperature will put 20% to 30% of local plant species at greater risk of extinction. In addition, bleaching of coral reefs, which constitute one of the main tourist attractions, is likely to increase. A 2010 report recorded a loss of over 40% of coral in BVI due to bleaching processes. As a result of natural and human induced threats, beaches in the BVI have narrowed by an average of one meter, with extreme cases of up to three meters.

Protection efforts

The National Parks Trust for the Virgin Islands (established in 1961) together with the Ministry of Natural Resources and Labour, has developed a well-structured system of marine and terrestrial protected areas. The Protected Area System Plan of the Virgin Islands, 2007–2017 details the philosophy, management objectives and approach, and areas of national significance designated for protection.[403] Terrestrial areas include national parks, bird sanctuaries, wetlands/salt ponds, forestry and watershed protected areas. Currently, NPTVI manages nineteen land-based national parks (five of which are bird sanctuaries) and one marine park. The Conservation and Fisheries Department manages fourteen fisheries protected areas and Agriculture Department manages six watershed protected areas and one forestry protected area. One Ramsar Site, Western Salt Ponds of Anegada, has been designated. Between Salt Island and Dead Chest Island, *Rhone Marine Park* spans 800 acres of land and water. It is the only national marine park in the BVI.

Environmental priorities of BVI

Details of the Proposed Environmental Management and Climate Adaptation Bill for BVI are provided on the Government website (Aug 2021).[404] The Green Paper outlines the government's approach to establishing legislation to safeguard the environment.[405] The proposed framework also outlines mechanisms that the OT will employ to adapt to the impacts of climate change. Improved environmental management and greater awareness of the manner in which BVI will preserve its valuable and fragile habitats, marine ecosystems and species while building resilience to climate-related hazards are critical outcomes in the green paper. It further states that the value of the natural flora and fauna and special ecosystems shall be highlighted through the designation of Environmentally Sensitive Areas and Environmentally Sensitive Species. Areas and species so designated, such as mangroves, seagrasses, coral reefs, forests and other habitats of importance, will enable the Ministry to ensure their protection within the framework of rational and sustainable development, which affords maximum opportunities for economic growth compatible with the need to protect the environment. Moreover, the bill affords the ability to minimise the impact of invasive species from adversely impacting the unique biodiversity of the Virgin Islands, recognising that natural capital has value for economic purposes, such as the search for cures to diseases and other uses and establishes a framework to ensure that access and benefit sharing by all parties privy to any agreements is equitable and fair.

Alignment with national priorities

Overall, the projects reviewed showed strong alignment with national priorities. Two of the projects made direct contributions to conservation measures in the Government's Green Paper on the Proposed Environmental Management and Climate Adaptation Bill, through contributing and supporting the designation of Environmentally Sensitive Areas (ESAs) and Environmentally Sensitive Species (ESSs) – ecosystems and species that are threatened or endangered and require careful management'. One project[406] delivered a high-resolution marine habitat map that incorporated at least two ESAs (coral and seagrasses), which are fragile and sensitive marine habitats, and revealed a much larger area of seagrass than was previously known. The survey data also improved charts and navigation aids for the approaches to Road Harbour which is the main port for the islands,

[403] Gardner et al. (2008). British Virgin Islands Protected Areas System Plan 2007-2017. Link.
[404] Government of the Virgin Islands: Environment. Website Link.
[405] Government of the Virgin Islands. Green Paper on Environmental Management Climate Adaptation and Sustainable Development for the Virgin Islands. Link.
[406] DPLUS026: British Virgin Islands MPA and hydrographic survey capacity building.

reducing the risk of shipping incidents and associated environmental impacts from spillages and cargo losses. The project therefore contributed to a number of different national priorities and was well-received.

The BVI flora monitoring and conservation project undertaken by RBG, Kew[407] was also relevant to the government's biodiversity conservation priorities. The project provided specialist botanical support to build botanical capacity in the National Parks Trust of the Virgin Islands (NPT), to increase BVI's botanical seed and nursery collections (i.e. build ex situ conservation capacity), and to deploy a botanical database; supporting assessment of 21 of 22 threatened plant species for the IUCN Red List and securing them in the NPT nursery. The project also developed a conservation strategy which comprised a protocol of necessary information for collecting, maintaining and monitoring plant material and associated data for NPT to achieve its goal of conserving the flora of BVI for future generations. Together, this has increased BVI's capacity to manage ESAs and ESSs, both of which are of central importance to the priorities of Government as set out in the Green Paper.

Two other projects had particular relevance to the Government's policy on climate change. The 'Virgin Islands Climate Change Adaptation Policy' (submitted 2012) calls for actions to improve 'Beach and Shoreline Stability' and 'Coastal and Marine Ecosystems', enhancing the resilience of beaches, coastal/ marine and terrestrial ecosystems and fisheries to Climate Change impacts by reducing the stress on these systems from controllable local impacts, such as poor development practices and sedimentation. One project[408] is directly relevant to provisions in the Climate Change Policy, as it set out to improve the health of sea grass, sand dune and mangrove habitats, which all act as barriers that reduce the energy and velocity of waves as they hit the coast, introducing a reef-to-ridge approach to mitigate severe storms. Another project[409] delivered training in Remote Sensing and GIS mapping over a range of environmental concerns, all of which are relevant to the Government's policy on climate change. In addition, one component of training under this project concerned the mapping of an invasive Australian pine (*Casuarina equesitifolia*), which has relevance to the environmental policy on invasive species. Among other specifications, the Proposed Environmental Management and Climate Adaptation Bill will establish an 'Invasive Species Response Group', which in collaboration with the Department of Environment, Conservation and Climate Adaptation, will coordinate all risk management measures, and manage the response, containment, removal, eradication and in-situ destruction of any invasive species that is introduced into the Territory.

Building on previous projects

There is evidence that BVI projects stemming from long-term relationships with UK organisations, supporting built capacity in biodiversity conservation over time. One project in the BVI[410], led by RGB-Kew, can be viewed in the context of a twenty year collaboration between Kew and BVI that has been funded through the Darwin Initiative and Darwin Plus. The ongoing collaboration has provided BVI with the skills necessary to conserve its unique and highly endemic flora, and to promote this natural heritage as an attraction to visitors. A new project is extending this collaboration. Although, a significant observation is that the majority of BVI projects reviewed often provide the building blocks for future projects, with clear evidence that Darwin Plus projects can spread impacts well beyond the immediate project site, acting as seed projects in the Overseas Territories and beyond.

A hydrographic survey project[411] was instrumental in deploying high resolution bathymetric survey work, and following its successful implementation, led to HMG agreeing to survey all of the territorial waters down to 40 metres in 2017/18. Ultimately this work expanded further into a UKOT seabed mapping programme in conjunction with the Blue Belt Programme (all funded under the Conflict Security and Stability Fund). The habitat monitoring and community restoration work of mangrove damaged by the 2017 hurricanes led to similar work throughout BVI under a subsequent and still-ongoing Darwin Plus project.[412]

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[407] DPLUS030: Build systems and capacity to monitor and conserve BVI's flora.
[408] DPLUS073: Improving small island resilience and self-sufficiency in habitat monitoring and management.
[409] DPLUS081: Mapping for evidence based policy, recovery and environmental resilience.
[410] DPLUS030: Build systems and capacity to monitor and conserve BVI's flora.
[411] DPLUS026: British Virgin Islands MPA and hydrographic survey capacity building.
[412] Suggestively, this could be 'DPLUS084: Identifying and conserving resilient habitats in the British Virgin Islands' and/or 'DPLUS085: Post-disaster Restoration of Mangroves (PROM)'.

Another project focusing on the island of Jost Van Dyke[413] extended further across the BVI with project staff sharing ideas and techniques with training organisations/persons on Tortola. The habitat monitoring and restoration work on mangrove habitat that was damaged by the 2017 hurricanes has been scaled up, which linked with another project run by IUCN and the Ministry of National Resources, [414] collectively contributing to BVI's national mangrove restoration programme.

A habitat mapping project[415] arose from similar work undertaken in Anguilla and the observation that BVI really needed a detailed habitat map. Other projects are now building on this project , for example, one in South Caicos and another on important tropical plant areas by RBG-Kew. Project leaders are connected with international charities working in the Caribbean who may apply similar techniques.

Impact

Evidence gathered on the four reviewed projects indicates a high level of success with all projects building capacity across multiple objectives, with all projects at least largely meeting their outcome expectations, achieving moderate to strong impact. Combining projects, the range of contributions under capacity building spanned biodiversity conservation, community training, climate change mitigation, environmental mainstreaming in government, as well as more specific contributions to improved navigational aids at sea, and advanced training in Remote Sensing and mapping tools. In particular, the development and implementation of GIS and advanced survey skills were much appreciated by BVI stakeholders and delivered the most diverse contributions

On capacity building, two of the projects focussed on training in advance mapping tools for marine and terrestrial uses. The main achievement of one project[416] was in delivering high resolution navigational information of great utility to large vessels entering Road Harbour together with a high-resolution marine habitat map that demonstrated much large areas of seagrass (both manatee grass and turtle grass) than previously estimated. The project's mapping of coral and seagrass also provided the information needed to locate less-damaging anchoring areas. The project successfully trained stakeholders in techniques of modern acoustic survey and marine habitat mapping (namely: National Parks Trust, Conservation and Fisheries Department, Shipping Registry, Ports Authority, Department of Disaster Management and the Survey Department). Another project[417] engaged with a broad range of on-island stakeholders to deliver training in Earth Observation and Geographic Information Systems to map a number of terrestrial habitats and species of broad environmental concern: (a) effects of the invasive Australian pine (Casuarina equesitifolia), (b) forestry, (c) mangrove, (d) sargassum weed influx and (e) the coastal dune habitat where an endangered native orchid is located. The project was tightly focused on improving skills and perhaps its main contribution was in raising capacity of government in the environmental sector to use GIS and Remote Sensing tools, and successful in locating and adding an indigenous orchid to the IUCN red list. The project also supported the BVI government in developing Remote Sensing and GIS tools that would support post-hurricane environmental recovery and enhance future resilience to natural disasters.

For direct impacts on biodiversity conservation as a result of capacity building, the successful work of RGB, Kew under one project[418] supported the development of the threatened species conservation strategy, which also provided vital training in GIS. This provided species distribution and population size data for the BVI National GIS which is a key strategic priority of BVI Government, enabling planning applications to be compared with threatened species locations and management or mitigation recommendations to be made. This supports the conservation of native plants alongside mainstreaming conservation work into government decision-making. It also had some indirect effects in these areas by providing botanical information that is useful for ecotourism development and CITES regulations.

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[413] DPLUS073: Improving small island resilience and self-sufficiency in habitat monitoring and management.
[414] DPLUS085: Post-disaster Restoration of Mangroves (PROM)
[415] DPLUS081: Mapping for evidence based policy, recovery and environmental resilience.
[416] DPLUS026: British Virgin Islands MPA and hydrographic survey capacity building.
[417] DPLUS081: Mapping for evidence based policy, recovery and environmental resilience.
[418] DPLUS030: Build systems and capacity to monitor and conserve BVI's flora.

On climate adaptation, and to some extent sustainable livelihoods, as a result of capacity building work; one project[419] worked at the community level to assess and recover resilience of island habitats such as mangroves, seagrass beds, coral reefs and beach-dune systems on Jost Van Dyke (JVD) island, all of which have a role in protecting the island from hurricanes and their after-effects. Habitat restoration activities were undertaken, including to restoring and rejuvenating mangrove and coastal vegetation, as well as debris clearance from five key wetlands. The project was directly involved with mitigating impacts of major storms which are thought to be increasing due to climate change. Without project assistance recovery would have been slow due to (a) limited numbers of red mangrove propagules, (b) low persistence of mangrove seeds and (c) presence of the invasive seaside mahoe. The project also contributed to local livelihoods, with local JVD community participating in biological surveys, habitat restoration activities and nursery establishment.

Country factors affecting impact

One of the most influential factors helping to create successful projects in BVI was the close collaboration of projects with government, supported by the small size of the island and long-term nature of collaboration. Although, a level of constraint to capacity of BVI government is also noted as a potentially hindering factor.

The first Darwin project started working with NPT in 1999 and since then a close partnership has been established with RBG, Kew and the RSPB. Two key figures in particular have had a strong positive impact on the outcome of Darwin projects: Joseph Smith Abbot, former manager of the National Parks Trust of Virgin Islands who is currently Permanent Secretary of the Ministry of Natural Resources, Labour and Immigration and Nancy Woodfield Pascoe, Deputy Director of Science, Research and Environment, National Parks Trust. All four projects received good support from NPT. In the case of one project,[420] the project also received support from the Governor's office and from all layers of government. When the project asked for help to do something locally, it was often well supported because of its good connections with government.

Another project noted that the close relationship between government departments themselves also benefited achievement, as it was the government trainees who drove the focus of training offered by the project so that it matched the work they were undertaking in government. By giving its partners ownership, the project achieved a considerable amount in terms of successful training in RS and GIS, and in terms of environmental mapping.

For one project,[421] it noted that because BVI is a small place, they always knew who was doing what, and this they felt was a big advantage. However, it also reported that there is a level of constraint to capacity of BVI government. The government agencies on BVI have bureaucracies which can make them inflexible. For example, NPT is a statutory body, but it is understaffed and often lacks necessary resources. This does explain, however, why it is generally useful for small NGOs to work with OT government agencies, and demonstrates how Darwin Plus funding is ideal for facilitating this collaboration.

This same project above also reported public interaction being a key enabler, given it was operating at the community-level. It is reported that people on BVI have developed a real enthusiasm for their plants now that their true international value in terms of biodiversity is known to them.

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419 DPLUS073: Improving small island resilience and self-sufficiency in habitat monitoring and management.
420 DPLUS026: British Virgin Islands MPA and hydrographic survey capacity building.
421 DPLUS073: Improving small island resilience and self-sufficiency in habitat monitoring and management.

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