

# WWF-UK Biome Health Research Project - Phase 1

## Terms of Reference

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<b>Project Name(s)</b>	<b>Biome Health Research Project</b>
<b>Names of Project Executants</b>	<b>WWF UK: Mike Barrett, Lucy Young, Philip Leonard</b>
<b>Project Duration</b>	<b>2017-2024 (Phase 1: 2017-20)</b>
<b>Project Budget:</b>	<b>Phase 1 - In region of £700,000 – 900,000 including contribution by tenderer</b>

### 1. Introduction

[WWF](#) is the world's leading conservation organisation with offices in over 100 countries and a global network of staff of over 5000. WWF's vision is for a planet where people and nature thrive.

The [Living Planet Report](#) (LPR) is WWF's flagship biennial publication which uses the best available science to monitor the state of the global environment, using wildlife populations (the [Living Planet Index](#)) as a barometer, and the impact that human pressures are having on it. The report is designed to underpin and inform the strategic direction for WWF's work and to evidence the way we explain our mission and communicate and advocate for change.

Netflix, Silverback Films and WWF are in a joint venture to produce "[Our Planet](#)", a landmark TV series that will be broadcast worldwide in 2019. The Our Planet project has the objective to reach and engage 1bn people with the aim of making biodiversity loss socially and politically unacceptable.

As with most prime, original content productions by Netflix, it is expected that this series will be available for streaming for a minimum of 5 years after release i.e. till around 2024. Accompanying and supporting the series will be an additional "Halo" of open-access, online content that will enable the audience to explore and engage with the stories behind the scenes and to learn more about threats to key habitats, including what WWF and others are doing and what the audience can do to help. The scientific underpinning will be provided by the Living Planet Report series.

The Biome Health Research Project (BHRP) will deliver on two principal fronts. Firstly it shall provide vital new scientific evidence to support the 2018-2024 Living Planet Reports and future WWF strategy. And secondly, over that same period, provide the Our Planet production team with engaging, scientific and behind the scenes "science in action" communications content for the online Halo.

### 2. Background to Biome Health Research Project

Previous LPRs have estimated trends in vertebrate wildlife populations across a variety of biomes using the Living Planet Index hosted by the Zoological Society of London (ZSL), and relate these to human pressures. However, the LPR series does not currently describe changes in biological function

at the habitat level caused resulting from those pressures. Such an analysis will help explain why populations of species respond in the way they do.

The purpose of this project and subject of this tender is to develop, test and undertake measurements of biome health response to human pressure and conservation interventions in the field. Known as “Biome Health” it refers to the need for robust evidence for how habitats change in response to a human pressure or intervention and the consequent effects on wildlife populations.

WWF UK is currently supporting a number of science programmes to inform the LPR series including further development of the Living Planet Index, global mapping of threats and pressures, analysis of global commodity supply chains and a desktop analysis of biome health indicators. It is expected that the Biomes Health Research Project will interact with and compliment the other LPR research projects funded by WWF UK.

### **3. Project Objective**

The objective of this study is to identify and monitor indicators of habitat health (as distinct from simply areas of habitat<sup>1</sup>) in specific biomes at locations where there are known human pressures or pressure gradients and/or conservation interventions. The Our Planet project provides a platform to run this project to 2024, providing a significant opportunity to measure changes over time. In the first instance we will contract for a first phase of work from 2017-20.

### **4. Output and Deliverables**

#### **4.1 General and Over-Arching Outputs**

- Robust, peer-reviewed research results that evidence the change in quality of a habitat in response to pressures and conservation measures.
- Robust testing of different indicators of habitat health that can be applied to the same habitat in different geographic locations.
- Measurement of any changes in biome condition over time and across pressure gradients.
- Detailed scientific evidence of the key ecological conditions needed to maintain biome health, including tolerance thresholds that once exceeded will result in irreversible changes to the biome. These thresholds will inform and improve WWF’s conservation strategies.
- Engaging communications content (visual and audio) for the Our Planet Halo. The biome health project team will work closely with the WWF Our Planet production team, who will be responsible for converting content collected in the field into inspiring media experiences for the public.

#### **4.2 Specific Scientific Outputs**

- By March 2018, publish a paper in a tier 1 peer reviewed journal on initial insights into the use of indicators of biome health and changes from human pressure impacts, to inform LPR18.

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<sup>1</sup> Recognising that areas of remaining or protected habitat do not necessarily equate to good condition of habitat.

- By September 2018 produce sufficient datasets for use in Our Planet Halo audio and visual communications (and ongoing data thereafter).
- By March 2020 publish in a tier 1 peer reviewed journal, a detailed analysis of biome health response to pressures and/or interventions in selected locations, to inform LPR20.
- By March 2020 an assessment of applicability of biome health indicators tested and full recommendations for phase 2 of the study.

Please note that the bulleted list above represents a subset of the expected scientific outputs from this research. Tenderers should propose additional outputs as part of their tender.

## 5. Scope and Approach

### 5.1 Methodology

The research methodologies used in the Living Planet Report must be able to withstand intense scientific scrutiny, i.e. peer review. Therefore as you respond to this request for tenders please articulate the proposed methodologies, including analyses, in some detail and provide supporting information that clearly indicates their rigour. Because we are also keen to engage the public in this research and pioneer novel approaches, proposed methodologies and analyses that employ innovative technologies and techniques (such as camera traps, remote sensing, chemical analysis, time-lapse footage) capable of generating content that appeals to the public will be favoured.

Monitoring points should be located in arrays that will capture change over time across known pressure gradients and in areas subject to conservation activities. The successful bid will demonstrate how this will be achieved.

Methodologies (including site selection, see below) will ideally allow some limited extrapolation of results to similar sites across time and space and be sufficiently transferable such that similar approaches, with some minor adjustments, can be adopted elsewhere in similar habitats.

### 5.2 Site selection

We are particularly interested in monitoring habitat response to human pressure in the following biomes: tropical forests, grasslands, temperate forests, shallow seas, freshwater, deep oceans, deserts and grasslands and polar regions.

WWF has a selection of priority ecoregions where we focus the bulk of our work. Below is a subset of the WWF priority ecoregions which we are particularly interested in as part of this biome health research project. Proposals should aim to document response in  $\geq 4$  biomes from the list below. For each biome selected please specify the pressures/pressure gradients and conservation activities that would be monitored. Locations in red italics are places where WWF UK already directly supports work and these should constitute  $\geq 50\%$  of the proposed biomes. Proposals should specify which local research partners in each location will help undertake the monitoring project.

<b>Ecoregion</b>	<b>Biome/priority place</b>
African Rift Lakes Region	<i>Mara Serengeti</i>
Amur - Heilong, Russian Far East	<i>Taiga forest</i>
Arctic Seas	<i>"Last Ice Area"</i>
Borneo	Tropical Forest
Cerrado - Pantanal, Brazil	<i>Grasslands, Freshwater</i>
Chihuahuan Deserts	Desert
Congo Basin	Tropical forest
Coral Triangle	Shallow Seas
Eastern Himalayas	<i>Temperate forests or grasslands of Terai</i>
Galapagos	Shallow Seas
Greater Black Sea Basin, E Europe	Freshwater (Danube) and Temperate forests (Carpathians)
Madagascar	Dry Forests
Mekong Complex	<i>Freshwater</i>
Miombo Woodlands, Southern Africa	<i>Forests</i>
Namib-Karoo-Kaokoveld	Desert, grasslands
Northern Great Plains	Grasslands
Orinoco River, Amazon	<i>Freshwater or Flooded Forests in Brazil, Colombia (not Peru or Ecuador)</i>
Southern Ocean	Deep oceans
Sumatra	Tropical Forests
Bay of California	Shallow Seas

Additional considerations when selecting research sites should include:-

1. Availability of historic/contextual information i.e. baseline data;
2. Presence of willing local partners or research institutions that are already conducting research in the chosen biome;
3. Linkages to wildlife populations included in the Living Planet Index;
4. Researcher safety and political stability.

### 5.3 Consortia

We will consider bids from a consortium of academic institutions as well as from individual institutions. Within a consortium, the lead tenderer shall be responsible for the full management of the project.

### 5.4 Sustainability

As part of the tender, please identify proposed partnerships with other site based research institutions along with a strategy for building the capacity of their staff to undertake the proposed research methodology and monitoring at the research sites. If this monitoring proves to be valuable

post 2024, it is anticipated that the local research institution should have the internal capacity to continue the work and contribute to future LPRs.

WWF UK shall help build a collaborative relationship with the selected tenderer and the WWF offices in the monitoring site countries so that the evidence from the research can be used to better inform those WWF offices' conservation strategies in the long term.

Winning tenderers should also plan to extend capacity building opportunities to relevant WWF-UK personnel as determined by the Programme Manager. This includes opportunities to participate in situ, contribute to analyses, and co-author publications.

## **6. Budget and funding**

We anticipate that this project over 7 years will cost in the region of £1.5 - £2m, though likely to be in the region of £700,000 - 900,000 for the first 3 year phase we are currently contracting for. WWF has already secured significant funding for this project. However as part of the assessment of tenders we will look to see the plans and commitments that tenderers can make to contribute to the biome health research project's funding. Clearly higher levels of financial support will enable more detailed monitoring and a greater variety of techniques to be deployed.

We are mindful this is a novel piece of research and as such comes with the usual risks of doing something for the first time. As such we do not anticipate raising funds for the full project period at the outset. We will however seek to raise funds in 3-year blocks of time. The contracts for the project will reflect this and we will build in an appropriate exit strategy to allow for an orderly termination at the end of any 3 year period should it be required.

All things being well, we are also mindful that after 6 years of field monitoring and research the final 7<sup>th</sup> year would need to be contracted to ensure the project findings are synthesised and peer reviewed.

We attach as an Appendix to the Invitation to Tender a pricing schedule for preparing your budget for this tender.

We require that any equipment purchased by WWF as part of this project that is deployed into the field would be passed to the local WWF office at the end of the project.

## **7. Communications output**

When assessing the proposed biome health projects we will also assess their potential to tell an engaging story across their 7 year development. As such, tenderers should explicitly address how their proposed research could be used for general public communications through the Our Planet Halo. For example is the technology being deployed novel and story worthy? Can the data from the research be "visualised" in a revealing and powerful way? Could we film the researchers "behind the scenes"? Will we observe a change over time which can be tracked and followed (both positive and negative changes)? This will be particularly powerful if we have historic evidence.

It will not be for the tenderer to develop or create this content – that will be the responsibility of the Our Planet Halo production team. However the tenderer must consider the opportunities that the projects could provide to generate engaging communications content and deliver the data upon which communications packages can be built.

## 8. Monitoring

The day-to-day management of the project will be undertaken by the research institution awarded the contract. WWF would expect quarterly progress reports regarding the outcomes of the research to ensure that the results are on track and will be able to be peer-reviewed and incorporated into forthcoming LPRs. There would also need to be biannual LPR research group meetings i.e. of all the research institutions involved in new LPR research along with key WWF stakeholders, to ensure that research across those organisations is being shared and integrated.

WWF-UK will ensure that there are staged reviews, a final evaluation and an ex-post evaluation (three years after funding for the Biome Health Project has ended) in order to test the assumptions, assess progress towards the objectives and the goal and to support adaptive management decisions.

## 9. Key 2017 Milestones

<b>Milestone</b>	<b>Date</b>
Tenders received by WWF	1 March 2017
Tenderer selected	End March 2017
Contract finalised	End April 2017
Inception report – inc draft project plan	Early June 2017
Inception meeting with WWF	Late June 2017
Finalised 3 year project plan	Mid July 2017
Graduate student(s) recruited	Early September 2017
In situ activities commence	Late September 2017
Progress reports	3 monthly
LPR Research Group meeting	6 monthly
Annual report	Annually