Global Butterfly Indicator project & Butterfly Monitoring sub-group

Photo: Md Hasnat Shahriar Shanto

Butterfly Conservation
Saving butterflies, moths and our environment

**Why do we need a
Global Butterfly Indicator?**

Photo: William Warby

Butterfly
Conservation
Saving butterflies, moths and our environment

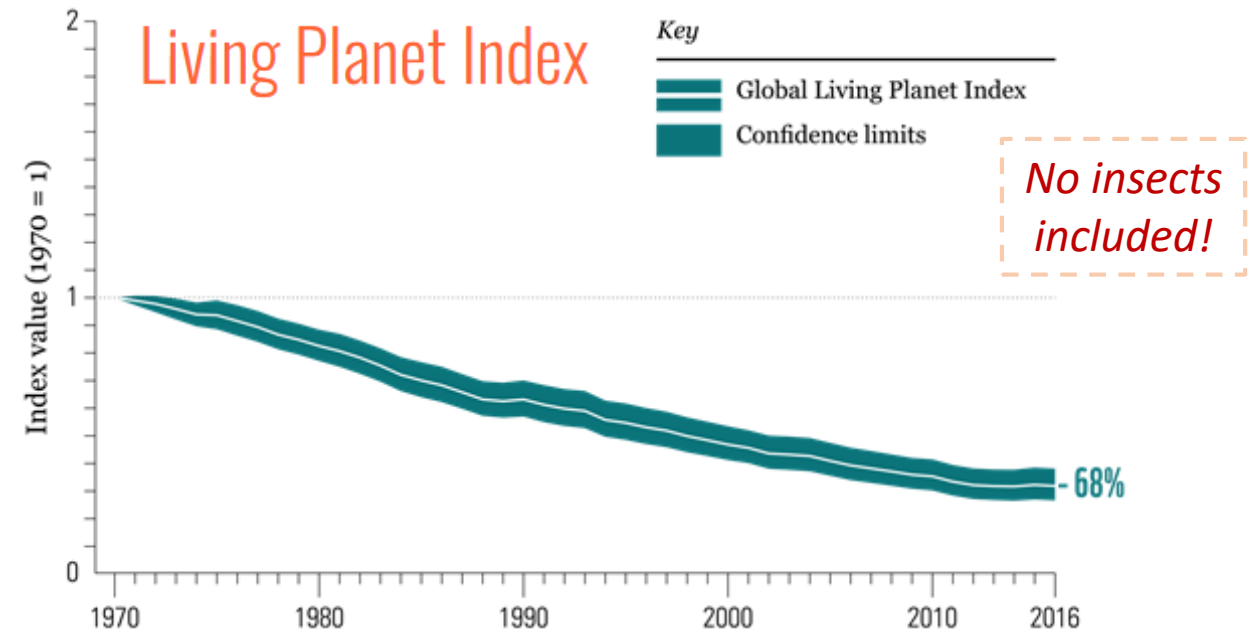# Measuring progress towards global agreements

Convention on Biological Diversity

Strategic Plan for Biodiversity 2011-2020

MISSION

To "**take effective and urgent action to halt the loss of biodiversity** in order to ensure that by 2020 ecosystems are resilient and continue to provide essential services, thereby securing the planet's variety of life, and contributing to human well-being, and poverty eradication."

- *Progress measured by indicators such as the LPI*

Living Planet Index

Key
- Global Living Planet Index
- Confidence limits

No insects included!

Global LPI: Shows that 20,811 populations of 4,392 vertebrate species have **declined by an average 68% in abundance** between 1970 and 2016.

Butterfly Conservation
Saving butterflies, moths and our environment

Global insect declines

Flying insect biomass was estimated to have declined by over 75% in a 27-year period in German nature reserves
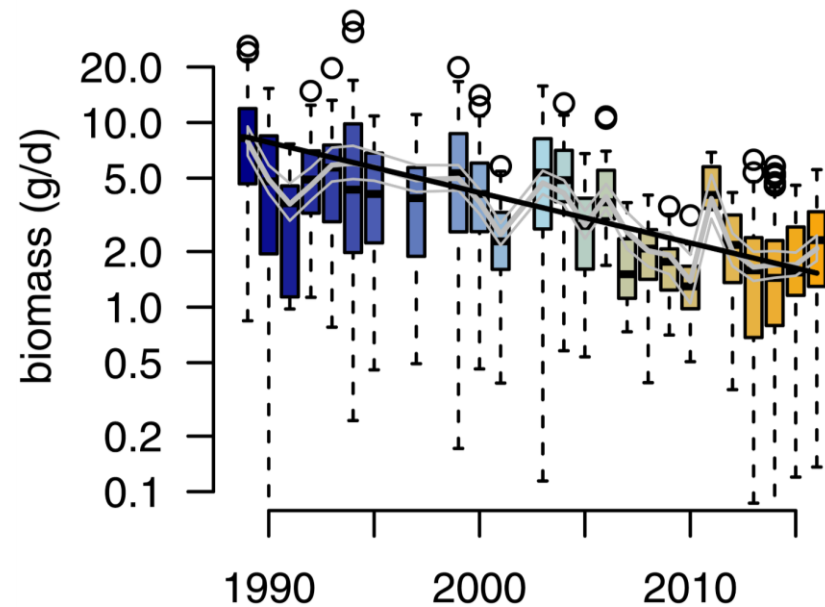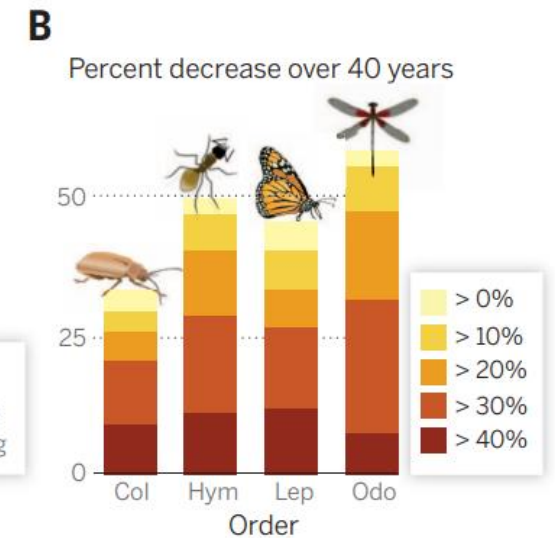

Hallmann *et al.* (2017) More than 75 percent decline over 27 years in total flying insect biomass in protected areas

~30% of butterfly species assessed by the IUCN are declining

~35% of species in the UK were found to have declining ranges.
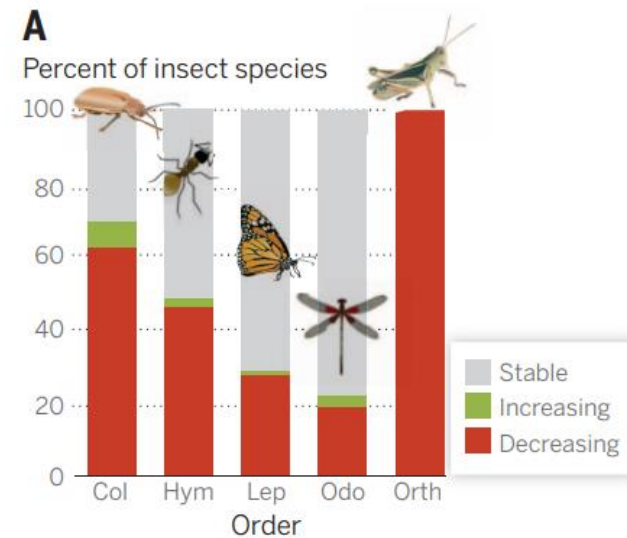
Dirzo *et al.* (2014) Defaunation in the Anthropocene
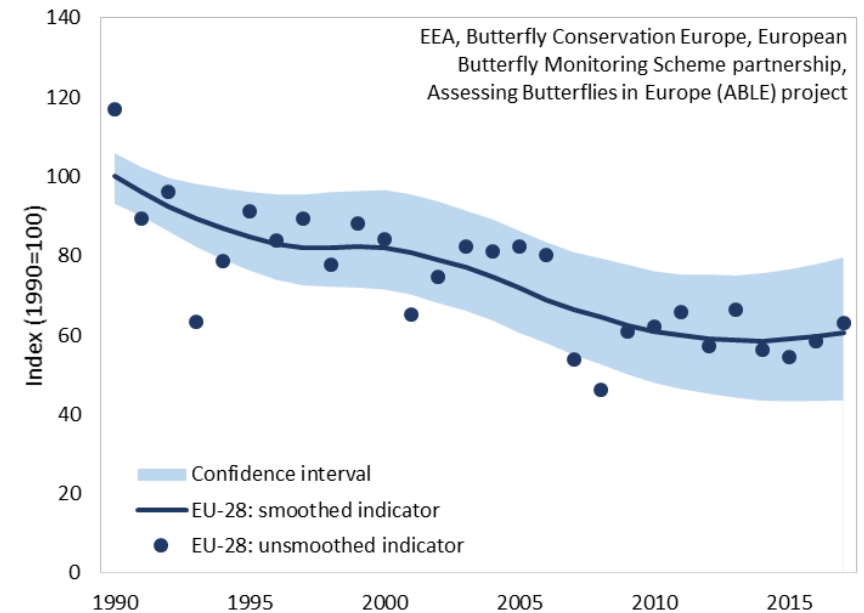
Butterfly Conservation
Saving butterflies, moths and our environment

Global insect declines

76% of the UK's butterflies declined in abundance, occurrence or both over the last 40 years

Significant decline of 39% in grassland butterfly populations across the EU from 1990 to 2017
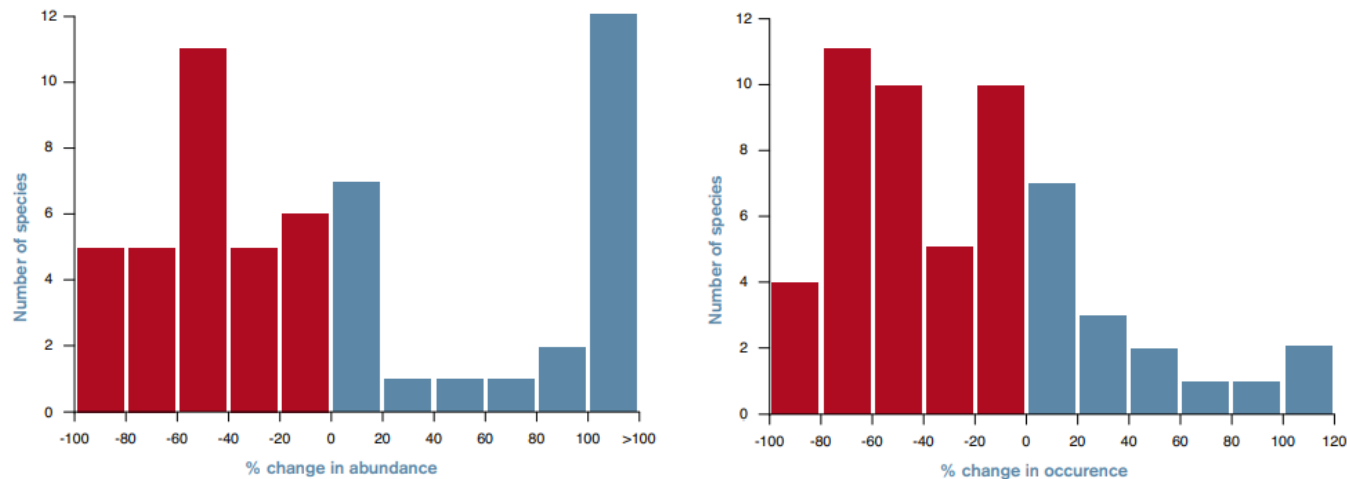
Fox *et al.* (2015) The State of the UK's Butterflies 2015

Van Swaay *et al.* (2019) The EU Butterfly Indicator for Grassland species: 1990-2017

Butterfly Conservation
Saving butterflies, moths and our environment

Global insect declines: data gaps
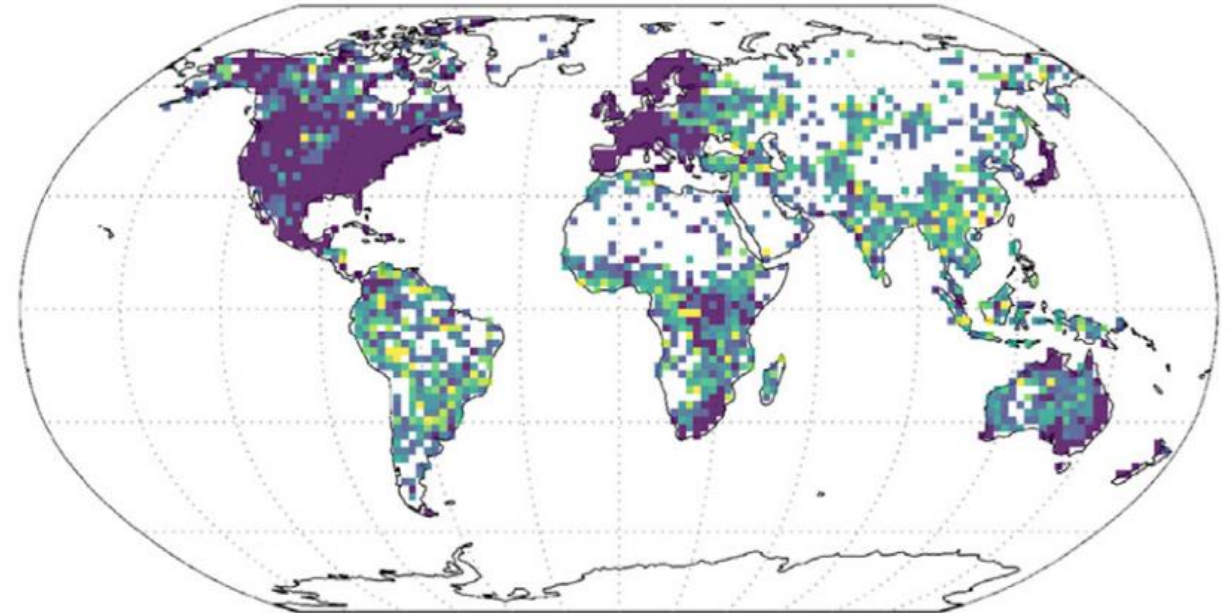
Most available data are from temperate regions, particularly Europe and North America

110 km   220 km

Incompleteness

0 - 0.1   0.1 - 0.2   0.2 - 0.3   0.3 - 0.4   0.4 - 0.5   0.5 - 0.6   0.6 - 0.7   0.7 - 0.8   0.8 - 0.9   0.9 - 1
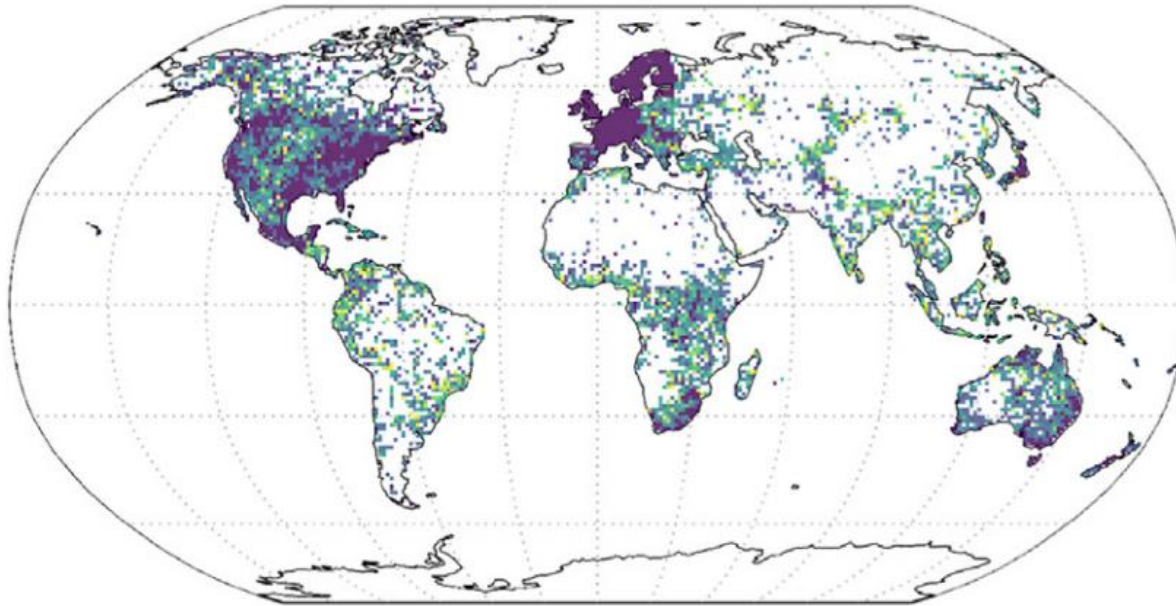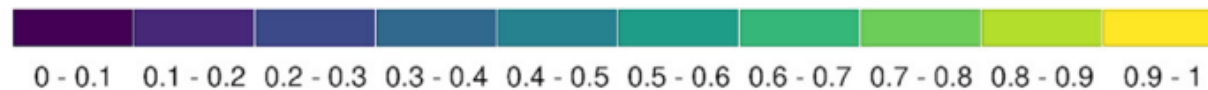
Girardello *et al.* 2019 Gaps in butterfly inventory data: A global analysis

Butterfly Conservation
Saving butterflies, moths and our environment

Why butterflies?

- Popular, and the best-monitored invertebrate group

- Relatively easy to identify: suited to citizen science

- Good indicators for other insects and environment

- Important pollinators

Butterfly Conservation
Saving butterflies, moths and our environment

Photo: Yuichi Kageyama

Aims of Global Butterfly Indicator Project

Primary aim:

Facilitate the collation, storage and analysis of existing butterfly monitoring datasets from countries around the world, and produce a Global Butterfly Index (which will also contribute to the LPI). This will:

- Create a global indicator to detect population changes which is less biased towards Europe and North America.
- Provide a mechanism to understand drivers of change across all biogeographic regions.
- Establish an invertebrate group firmly in the global biodiversity indicator and policy space.

Secondary aim:

Establish new butterfly monitoring schemes in countries currently without them.
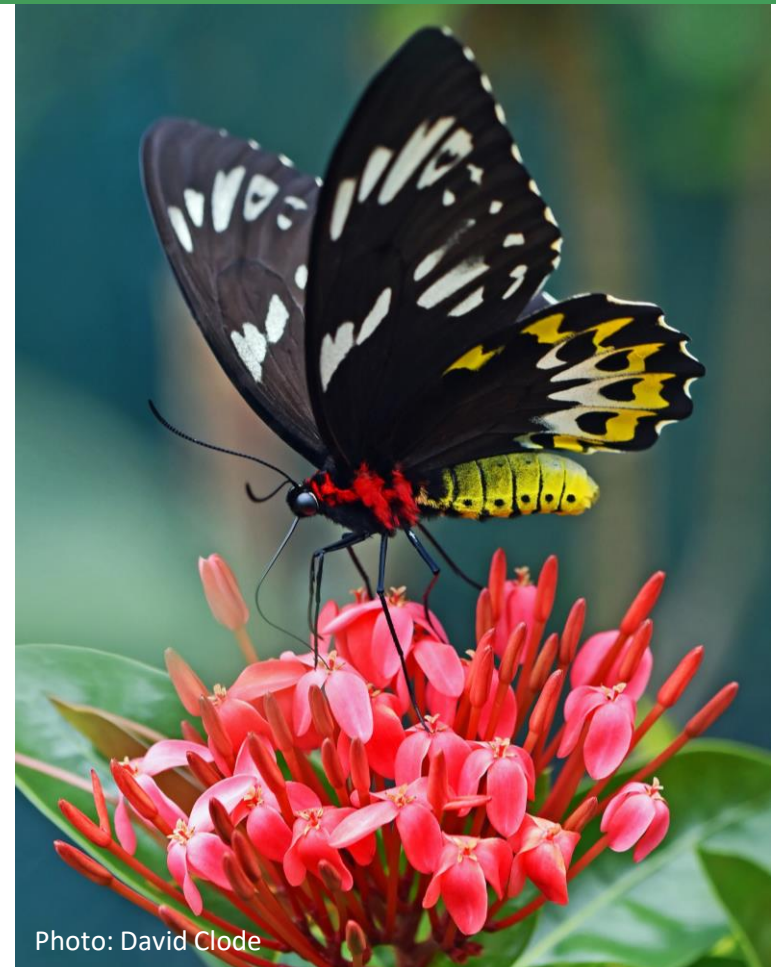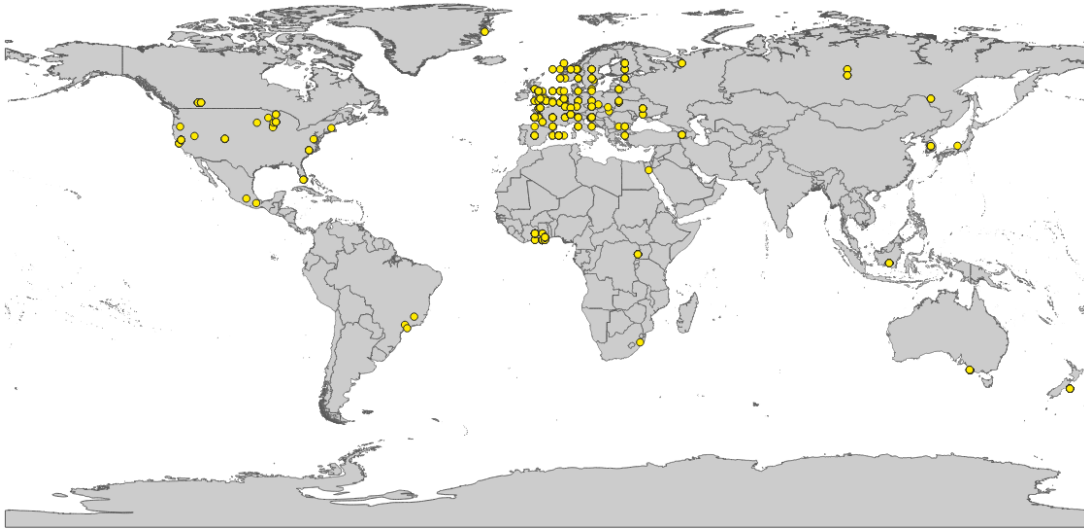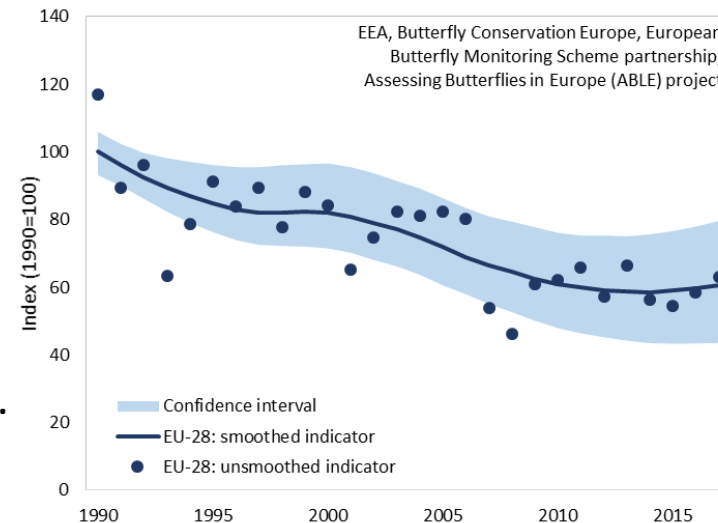
Photo: David Clode

Butterfly Conservation

Saving butterflies, moths and our environment

Start of the project & progress

- ZSL Masters project gathered 1,154 population time-series datasets for 385 butterfly species, but did not have sufficient data to make a GBI

Locations of butterfly monitoring sites in the LPI database.

EEA, Butterfly Conservation Europe, European Butterfly Monitoring Scheme partnership, Assessing Butterflies in Europe (ABLE) project

Index (1990=100)

Confidence interval
EU-28: smoothed indicator
EU-28: unsmoothed indicator

- The European BMS could be adapted to collate raw monitoring datasets for a GBI.
- Similar methodology to producing the EU Grassland Butterfly Indicator.

Van Swaay *et al.* (2019) The EU Butterfly Indicator for Grassland species: 1990-2017

UK Centre for Ecology & Hydrology

IUCN/SSC BUTTERFLY Specialist Group

Butterfly CONSERVATION EUROPE

De Vlinderstichting

eBMS

ZSL | LET'S WORK FOR WILDLIFE

Butterfly Conservation
Saving butterflies, moths and our environment

Butterfly Conservation
Saving butterflies, moths and our environment

Global Butterfly Indicator Project Actions

Ryan Yelencsics

1. Compiling a database list of all known relevant NGOs and individuals running butterfly monitoring schemes around the world.

2. Organising a global monitoring conference to promote and build momentum for the GBI concept, sharing ideas and refining how the project can best be implemented.

3. Building working relationships with those NGOs and individuals supporting the project to facilitate data sharing with the project partnership.

4. Providing a mechanism for annual data sharing by scheme partners, including a formal partnership agreement to protect intellectual property rights.

5. Providing a data system for and promoting the establishment of butterfly monitoring schemes in countries or regions currently lacking them.

6. Analysing data to produce global, continental and biogeographic regional butterfly indicators as well as export data to the Living Planet Index database.

7. Promoting the project outputs to advocate for more effective global conservation of butterflies.

Butterfly Conservation
Saving butterflies, moths and our environment

Thank you for listening

hmynott@butterfly-conservation.org

Photo: Parag Patel

Butterfly Conservation

Saving butterflies, moths and our environment