



PRO-NATURA
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Innovation towards Sustainable Development
Member of IUCN, the International Union for Conservation of Nature

NEWSLETTER PRO-NATURA JUNE 2014

THE PLANET REVISITED

Knowing better the Planet to protect it

How many different forms of life exist on the beautiful planet we call Earth?

The search for this elusive number is one of the main reasons for *Our Planet Reviewed*, the series of expeditions that Pro-Natura International, in conjunction with Paris' National Museum of Natural History, has been organizing since 2006 to explore our globe's biodiversity hotspots.

After Santo, in the Pacific Ocean's Vanuatu archipelago, Madagascar and Mozambique, the last one took place in 2012-2013 in Papua New Guinea. Located in the Coral Triangle, the planet's richest source of marine biodiversity, Papua still has the third largest area of intact rainforest, after those of the Amazon and the Congo basins. It is estimated that the country is home to around 5% of the world's biodiversity, despite the fact that it represents only 0.5% of the world's landmass. The country is like a *mini-continent* — over 70% of its plants do not grow anywhere else in the world.

"It was tough, very tough" sighs Olivier Pascal, director of biodiversity research at Pro-Natura International, as he puffs on his electronic cigarette, "the toughest of our eight expeditions." Olivier is sitting in his cluttered office in Pro-Natura's Paris headquarters, recalling the expedition he led to Papua New Guinea. His face is gaunt – he lost over 12 kilos during the months he spent leading teams of scientists up the rainforest growing on the slopes of Mount Wilhelm, Papua's highest peak.

Over 150 entomologists, botanists and other natural scientists from 21 countries, assisted by native guides, researchers technicians and students, spent three months involved in a large scale collection of biological samples from 1500 meters below the surface of the Sea of Bismarck to over 3800 meters on the Madang side of Mount Wilhelm.



Photo Xavier Desmier

Espiritu Island Santo (Vanuatu Archipelago) 2006



Photo Xavier Desmier

Mozambique 2008-2009 (Cabo Delgado)

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Association de solidarité internationale (Loi de 1901 J.O. 23.09.92 N° 39)

“We talk much about the *Sixth Great Extinction* of life forms on this planet, a term coined twelve years ago at the World Summit on Sustainable Development in Johannesburg, and indeed this may be going on. The unfortunate reality is that we still don’t have enough information to be able to quantify what is happening to biodiversity on this planet” continues Olivier. “Take our estimates of number of species — they have previously varied between 3 and 100 million — today we have narrowed that estimate down to between 5 and 8 million species.

Actually, what we know is that we don’t know much.

While most conservation efforts focus on charismatic mega-fauna and birds, which are already reasonably well known, other much bigger components of biodiversity such as invertebrates and fungi are largely neglected. Few initiatives care to conserve ugly-looking tiny insects or fungi although these organisms cover more than 90 % of all biodiversity. This is where Pro-Natura has found its niche. Not only can we count ourselves among the very few today that undertake scientific expeditions at all, but we also target those organisms, so essential to the biosphere’s functioning that no one else care to study.

Our biggest innovation, though, is our operational model that we organise with the French National Natural History Museum, and it’s all about size.

While most expeditions are carried out by small groups of scientists over long periods of time, we are organising much more daring missions — we involve hundreds of scientists from all countries to accomplish unprecedented inventories of entire eco-regions, including both terrestrial and marine ecosystems.

The scale and size of our expeditions have the following advantages:

- They enable scientists’ various methods of inventory to be mixed, compared and cross-referenced creating a synergetic effect on the inventory’s efficiency;
- Big expeditions are also better able to mobilize further resources as they attract a well-connected scientific community and involve, beyond the operation itself a wide network of animals and plants experts;
- Up to 50 % of costs are externalized and further analysis of the inventory is ensured even after the expeditions have ended.



Photo Xavier Desmier

Mont Wilhelm Papua New Guinea 2012-13



Photo Xavier Desmier

Madang Papua New Guinea 2012-13



Another key to our success lies within the attractive destinations chosen for our expeditions. For scientists all over the world, the prospect of being part of the world's greatest biodiversity expeditions with other leading specialists in the field in a beautiful setting is obviously very attractive.

The 2006 pilot expedition in South Pacific's Vanuatu archipelago set out to establish a complete ecosystem inventory for the island of Santo, bringing together 153 scientists and a total of 203 participants from 25 countries. Five months of this, with access to state of the art scientific resources and techniques resulted in an inventory of more than 10,000 species of plants, animals and fungi, hundreds of which are new to science.

Today, *Our Planet Reviewed* expeditions have collected between 30,000 and 50,000 species, many of them new to science.

These results show that integrative research is more efficient than the sum of individualities, proving the benefits of a collective approach over segregated research activities carried out without a master plan.

To help Nature conservationists to protect biodiversity

Carrying out inventories with structured methodologies over wide regions as we go is leading to in depth environmental assessments, including maps and lists of species that are the base for conservation strategies.

"Our work shows" adds Olivier Pascal "that we are before a generational challenge — the possibility of making a complete inventory of the planets biodiversity."

The next steps of this exploration programme are already drawn

An expedition to French Guiana is about to begin with a marine phase in August and September 2014 and a terrestrial one in March 2015, in the Tumuc Humacs Mountains in the southernmost part of Guyana.

An exploration project in Oman is also in the works, which may seem unlikely, as this region is generally associated with desert systems. Oman, however, has the potential for exceptional discoveries, especially in the cold waters off the coast, in its coastal caves, which are among the world's largest, and the monsoon forests of Dhofar." ■

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Photo National Museum of Natural History (Paris)



Photo Xavier Desmier

The neglected biodiversity (terrestrial and marine invertebrates) representing 90% of species on the Planet



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