



Stamp collecting:
Voluntourism, volunteering, citizen science
and wildlife conservation & research -

CAN **LAYPEOPLE REALLY BE** TO SERIOUS RESEARCH & CONSERVATION PROJECTS

Our executive director
Dr. Matthias Hammer makes a case
for volunteers in conservation

Given the criticisms levied at volunteering recently, covered in the lead article on page 10, the question of whether laypeople can be of any use in nature conservation is justified. The answer, however, is simple: yes, absolutely - if the project is set up properly! For much of biological data collection consists of simple tasks and with a little training anyone can become a citizen scientist and help to collect much-needed information. Hard data form the core of all scientific arguments, but someone has to collect the information and this is often labour-intensive and, within a well-designed research project, can therefore be perfect for laypeople / citizen scientist involvement.

Stamp collecting foot soldiers

I call this my stamp collecting argument. What I mean by this is that very often effective conservation is based on a large amount of data points, but that collecting those data points is often both laborious as well as simple. Yet no technology exists to perform the required tasks. We simply cannot ask satellites to scan the Himalayas for snow leopards (although drones may be able to do this in the near future) and there is no technical solution for changing batteries and SD cards in the camera traps now involved in a vast number of surveys. So foot soldiers are needed for this. Foot soldiers who can be trained easily within a day or two (see examples in the info box) and then go out and collect useful data or, for example, cover the often large distances between camera traps in places that are likely to be remote and inaccessible. There is often no alternative to these boots on the ground. Of course these two examples are drawn from Biosphere Expeditions' own projects, but there is more, independent evidence too: Going back as far as the 1960s, a great deal of literature has been produced highlighting the value of data collected by laypeople and the ideas, enthusiasm and hard work that they bring to the conservation world.

"No technology exists to perform the required tasks, so we need boots on the ground."

A study by Dr. Judy Foster-Smith and Dr. Stewart Evans of the University of Newcastle investigated the use of laypeople to collect marine data in Cumbrae, Scotland. In this study the authors say that "much of this type of research is labour-intensive but technically straight-forward and volunteers could make significant contributions to it in the future". And further, and remarkably, that "(data) generated from them (i.e. volunteers) were almost identical to those produced..... by an experienced scientist!"

A similar study in Oxfordshire's Wytham woods by Dr. Chris Newman and Dr. Christina Buesching from Oxford University's Wildlife Conservation Research Unit yielded much the same conclusions: "...the study has found that people from all walks of life, with all levels of previous involvement with field ecology, from novice to expert, have something to offer to conservation... The results collected by the amateur naturalist teams proved very reliable when compared to more complex monitoring techniques used by professional researchers at Wytham."

OF HELP?

The Cumbrae study went on to highlight the additional benefits of laypeople participation: "It should be noted that there are also educational benefits from the involvement of volunteers in scientific projects... it is a means of both raising people's feelings of responsibility towards the environment and increasing their knowledge of environmental issues. An additional benefit is that volunteers may bring 'new' skills, experience, insights and enthusiasm to projects, and have the potential, therefore, of contributing significantly more to scientific investigations than simply providing a workforce to collect data."

So if citizen science volunteers in conservation are undoubtedly useful, what then are the challenges?

Taking away jobs

Local people should do the jobs as salaried positions, rather than rich western volunteers who can afford to be unpaid. This is an argument that is sometimes made against volunteering in general and less often against conservation volunteering in particular. There may be some merit in this, but again preparation and working with local communities is key. Projects that are foisted on local communities without consultation are much more likely to fall foul of this point. Those projects that react to community demand are likely not only to not be taking jobs away, but actually generate jobs. For example by creating the need for labour and supplies to run a project's logistics as is often the case on

our more remote projects, for instance in the Tien Shan mountains of Kyrgyzstan or in the jungles of Sumatra, where without the help of local people and services, we could not run an expedition or its logistics. Moreover, and on conservation stamp collecting projects in particular, there is by and large no demand or funding for the kind of very particular and focused stamp-collecting labour outside narrow project dates, nor are there local people with the relevant training or background knowledge. Of

SEXY SPECIES!

course eventually and ideally, you would like the local community to acquire the relevant skills and take over. This is the reason why Biosphere Expeditions runs a placement programme, offering local people places on its expedition, as well as training and support.

The kind of community-based monitoring that has emerged in the Maldives from this (see info box on page 22) is exactly what we want to achieve through the placement programme: Local jobs and local caretaking of nature emerging out of projects that are created in consultation with community needs in the first place.

Sexy species

This, I believe, is the most valid criticism and the one I personally, as a trained biologist, struggle with most. It has been widely argued that the world has developed a very inefficient way of choosing which animals facing extinction to save, often favouring popular wildlife such as rhinos, koalas and big cats over the less well-known species, including Australia's blobfish, giant Gippsland worm, or the Pacific lamprey. A recent study has shown that around



Examples of citizen scientists collecting 'their stamps' with Biosphere Expeditions

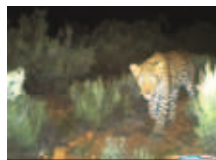
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Camera traps are ubiquitous tools in wildlife research these days. But for them to be effective you have to know where to put them, for example a wildlife trail, marking spot, water hole, etc. So first

of all these kinds of places need to be found, which is one area where the multiple eyes and ears of citizen scientists, rather than a lone researcher scouring the landscape are useful. Once camera traps are set, they need to be checked regularly, batteries need to be changed, as do SD cards and there may be maintenance jobs too. All these skills can be learnt within a training session of a few hours. And once the camera traps have done their job, pictures need to be sifted through and sorted into categories, data entered, etc.



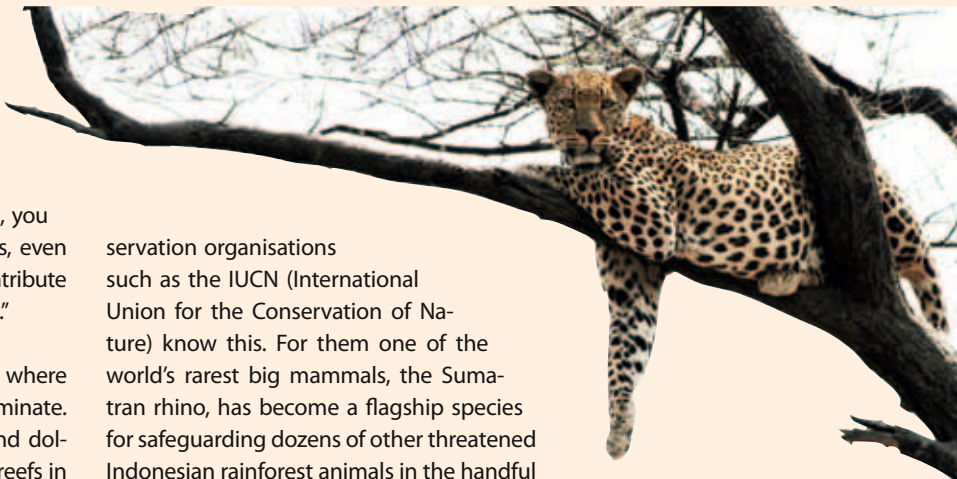
Tools of the trade on the Sumatra tiger expedition, a leopard on the South Africa expedition and setting a camera trap on the Arabia desert species expedition.



80 mammal species including lions, tigers and pandas are used by international NGOs to raise funds for conservation, but almost no invertebrates are used in this way. The result, in the words of the authors, is that "if you are an obscure animal or plant in a remote place, you have less hope of getting conservation resources, even if you may be more genetically distinct – and contribute more to an ecosystem – than a charismatic species."

This is reflected in our expedition portfolio too, where big, impressive, fluffy, furry and 'cute' species dominate. There are the usual suspects: Big cats, whales and dolphins, quokkas ('cute' small kangaroos) and coral reefs in warm, beautiful and exotic locations. Sexy sells. We tried the more mundane lammergeyer in the Pyrenees, but this did not attract enough people after an initial first-year flurry of loyal Biosphereans. So these days I, with a heavy heart, have to turn down interesting proposals for lack of species sex appeal, because I know that coconut crabs in Tanzania or scorpions in Burundi will simply not stand a chance against snow leopards of the Tien Shan mountains or Sumatran tigers.

And who can blame our committed citizen scientists for wanting to invest their time and money in something exciting and inspiring? Nobody. And this is the crux of the matter and in fact how much of conservation works – by inspiring and motivating people through flagship species. Con-



servation organisations such as the IUCN (International Union for the Conservation of Nature) know this. For them one of the world's rarest big mammals, the Sumatran rhino, has become a flagship species for safeguarding dozens of other threatened Indonesian rainforest animals in the handful of national parks that serve as the planet's final strongholds for these rhinos. When looking at a IUCN's Red List of Threatened Species, dozens of other terrestrial vertebrates benefit from efforts in Sumatra. Two of these, the Sumatran elephant and Sumatran tiger, are certainly flagship species in their own right, but the list also includes a host of other significant amphibians, reptiles, birds and mammals. Five Vulnerable species, the king cobra - the world's largest venomous snake – the crestless fireback pheasant, Asian small-clawed and smooth-coated otters and the binturong, inhabit all three national parks in which rangers patrol first and foremost to protect the rhino. Several threatened birds also benefit from the rhino protection programmes in two southern Sumatran national parks: The black partridge, blue-banded kingfisher, short-toed coucal, Storm's stork, Sunda blue flycatcher, Sunda nightjar, Wallace's hawk-eagle, and white-winged wood duck. It's the long list of threatened mammals, however, that truly bolsters the status of the rhinos as flagship species.



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Patrolling a turtle beach in Western Australia and collecting turtle eggs on the Costa Rica expedition.



Poaching of sea turtles and their eggs is a very big problem. There are some areas, such as in Costa Rica, where poaching was at 100% before direct conservation action. That means all turtles entering a beach were killed for their meat and/or shells and all eggs they laid were taken for human consumption. All-night beach patrols protecting the turtles and relocating their eggs to safe hatcheries, as well as round-the-clock guarding of those hatcheries have been critical in reducing poaching in many parts of the world and bringing sea turtle species back from the brink of extinction. But a large workforce is needed for the various shifts and tasks, which can all be learnt within a day of training. Volunteers, often working hand in hand with local people, have been vital in this.

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Among the more prominent taxa, with ranges that overlap those of forest-dwelling rhinos, are fruit bats, spiny and tree rats, flying squirrels, rabbits, civets, pangolins, mouse deer, sambar deer, tapir, Javan banteng, dholes (wild dogs), clouded leopards, Javan leopards, and a host of threatened primates – at least ten species of tarsier, loris, leaf monkey, macaque, gibbon and siamang.

So flagship species fly the flag of conservation, serving as a conservation tool, for the less sexy species as they flutter in the wind, inspiring people and attracting funding, catalysing positive action and protecting whole habitats full of more ‘boring’ species in their wake. This is how I can justify our focus on charismatic animals to myself and the organisation.

And finally, money, of course

And there is a final point, mentioned in the last paragraph (and also dealt with in some detail in our 2015 Magazine): funding. With government and other public funding for conservation being slashed across the board, private initiatives are becoming increasingly important, if not vital, in conservation. The funding and

labour that citizen scientists provide every year to many projects across the globe enables them to keep chipping away at the block, year after year. This sets volunteer-based funding apart from many other funding sources, where very often support



is limited to a few years at best. Yet generally government decision-making takes many years, not just a few, so efforts ebb away, breaking themselves on the big rocks of slow-moving bureaucracies that often have the economy and growth, but not conservation, on their agendas. This is certainly where volunteers for us have made all the difference. A number of our projects are now close to or over a decade in the running and it is often only through this persistence that they are able to achieve significant outcomes. Long may it continue. ■



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First ever all-Maldivian Reef Check survey



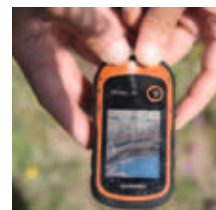
After years of investment by Biosphere Expeditions in training Maldivian divers in Reef Check methods, the first ever Maldives survey undertaken by nationals alone took place in November 2014 at Velassaru reef, just to the south of the capital, Male’.

The surveys were organised by Mr Rafil Mohamed of the Divers Association of Maldives and Ms Shaha Hashim from local NGO Gemana. Both of them qualified as a Reef Check Ecodiver Trainers in September 2014 whilst aboard the MV Carpe Diem for the Biosphere Expeditions surveys of North Male’ reefs.

They and the Maldivian organisations they represent are committed to preserving the reefs of the Maldives in the face of population growth, increased demand on reef fish from the tourist and grouper fishery sectors, and climate change threats. The hope is that civil society bottom-up efforts such as these are eventually mirrored by active

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A bear track is unmistakable - even with no training you would probably know when you see one! A lone local scientist can only cover a small area each day, but a whole expedition team can survey a very large area and thereby provide the scientist with a much better picture of bear movements and numbers. And if for some reason (for example an unclear print on a hard substrate or a small juvenile print) volunteers are not sure whether they are looking at a bear track, they simply take a picture with a digital camera or a phone and ask the scientist at the end of the day. If it was a bear track, it will be entered into the datasheet; if it was not, the scientist will tell the citizen scientist (and the rest of the team) what they have found, helping everyone to build up their tracking knowledge.



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A bear track in the Carpathian mountains of Slovakia, a snow leopard track and recording positional data in the Tien Shan mountains of Kyrgyzstan.

government management of the Maldives' spectacular reefs, including comprehensive controls on fish sizes when exported and caught, reductions in overfishing of local reefs and marine reserve stipulations properly enforced at or near to every tourist island.

Individuals undertaking the survey were all trained by the expedition scientist Dr Solandt, some at the Marine Research Centre in Male', and others during the course of Biosphere Expeditions research work around the archipelago since 2011.

Dr Solandt said he was "delighted that this survey has taken place. The stark truth of the data collected around the Maldives so far is that reefs have very low numbers and sizes of grouper – a very important predatory fish. This is of concern, because local islanders depend on fish and many predator fish species are important to keep in check some of the

animals that damage the reef (such as Crown-of-Thorns starfish and Drupella snails – both of which eat corals)."

Rafil Mohamed adds "I would like to thank Dr Solandt and Biosphere Expeditions again for certifying us as Reef Check Ecodivers and trainers. Dr Solandt's training efforts and the Biosphere Expeditions placement programme for locals have kick-started us into doing this first of what we hope will be many community-based surveys to come. In the absence of the Maldives government doing any meaningful conservation work on the reefs that form the very bedrock of our country and livelihoods, it falls to us as ordinary Maldivians to preserve the reefs, not least because of their beauty, but also because of their importance for our lives and culture. Because without our reefs, there would be no Maldives."



From left to right: Shaha Hashim, Rafil Mohamed, Dr. Jean-Luc Solandt, Ibrahim Shameel.



Underwater survey work.

Biosphere Expeditions' achievements and how citizen scientist volunteers have brought them about

Protected area creation

Southern Africa: Data collected by our citizen scientist volunteers in Namibia have helped our local and international partners make arguments that have led to the declaration of the Kavango Zambezi Transfrontier Conservation Area, or KAZA TFCA. The KAZA TFCA is the world's largest conservation area, spanning five southern African countries; Angola, Botswana, Namibia, Zambia and Zimbabwe, centered around the Caprivi-Chobe-Victoria Falls area. Also in Namibia, fewer lions, leopards and cheetahs have been killed in farmer-predator conflict due to our data collection, awareness-building and educational work.

Oman: Data collected by our citizen scientist volunteers as well as our intensive work to influence decision-makers have led to the protection of two marine areas in the Musandam Peninsula of Oman, where all fishing except local handline fishing has been banned by a new ministerial decree.

Ukraine: Data collected by our citizen scientist volunteers in the Ukraine have helped our local partners make arguments that have led to the declaration of a national park. This park now protects a unique steppe area jutting into the Black Sea, a stop-off point for many migratory birds, as well as a haven for fauna (e.g. birds & wolves) and flora (it boasts amongst other things Europe's biggest orchid field).

Altai Republic: Data collected by our citizen scientist volunteers in the Altai have helped our local and international partners make arguments that have led to the declaration of a protected area in the Altai Republic, Central Asia. This area now provides a protected habitat for a number of endangered species, including the snow leopard.

Australia: When Australia created the world's largest network of marine reserves in 2012, the Roebuck Commonwealth Marine Reserve, site of our flatback turtle study, was part of the network. Along with our local partners, we were working towards getting flatback turtles listed within the 'major conservation values' of the reserve and this is what happened, with the citation being 'Foraging area adjacent to important nesting sites for flatback turtles.'

Wildlife and wilderness management & protection

Peru Amazon: Our guidelines for boat behaviour at clay licks in the Tambopata Reserve have been incorporated in local management plans. Guidelines are needed because unsustainable forms of farming, logging and tourism are threatening the natural habitat in the Peruvian Amazon.

Brazilian Atlantic rainforest: Our recommendations for the management and protection of jaguars have been incorporated into national and state-wide jaguar action plans in Brazil's Atlantic rainforest.

Caribbean marine protected area, Honduras: Our recommendations for the management and protection of the coral reefs of the Cayos Cochinos marine protected area in Honduras have been incorporated into the managing authorities' action plan.

Dubai Desert Conservation Reserve, United Arab Emirates: Our recommendations for the management of Arabian oryx and Gordon's wildcat have been incorporated into the action plan of the Dubai Desert Conservation Reserve. Based on the data collected by our citizen scientist volunteers, an Arabian wolf reintroduction programme is now underway.

Spanish Pyrenees: Together with our partners in Spain, we helped to reverse EU high altitude carcass removal regulation, which was designed to combat the spread of BSE, but was starving high mountain vultures and bears.

Prevention of wildlife and wilderness destruction

Poland: We played an active role in saving 50 wolves from being declared legitimate hunting targets in the Bieszczady mountains in Poland. This was achieved by providing accurate information on the predator numbers and by influencing the local authorities who reversed their decision to cull wolves.

Peru Amazon: Together with our partners in Peru, we were able to halt a dam construction project, which was threatening a biodiversity hotspot in our Madre de Dios study site region in the Peru Amazon region.