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## **The Special Fund for the GTI - Case for Support Phase 2**

***White paper with annotated vision text on scope and use of  
the Special Fund for the GTI***

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**Belgian National Focal Point to the  
Global Taxonomy Initiative**

## Table of contents

Abstract .....	3
01. Introduction.....	4
02. Case for Support: Phase 2 .....	4
03. Gap analysis of funding bodies.....	4
03.1. Recognition awards (= medals and prizes) .....	5
03.2. Mobility Awards and Grants .....	8
03.3. Participation to meetings and conferences.....	15
03.4 Research grants .....	18
03.5. Training.....	24
03.6. Equipment, supplies, literature, etc. ....	28
04. Case studies .....	30
04.1. Case study 1 – Building human capacity while inventorying and monitoring .....	30
the Herpetological Species Richness and Community Structure of the Kaieteur .....	30
National Park, Guyana (2004-2007) .....	30
04.2. Case study 2 – Building institutional capacity by installing a functional.....	33
entomological center of expertise in Vietnam (2007-).....	33
04.3. Case study 3 - Needs captured by the Belgian GTI National Focal Point through its annual call .....	34
for capacity building taxonomic projects .....	34
05. Conclusions and overall recommendations .....	38
05.1. Funding criteria.....	38
05.2. The SFGTI in practice .....	38

## Abstract

The objective of the Global Taxonomy Initiative (GTI) is to halt the taxonomic impediment that hinders the implementation of the Convention on Biological Diversity (CBD), especially in, but not limited to, developing countries.

At its 8<sup>th</sup> and 9<sup>th</sup> meetings, the Conference of the Parties to the CBD decided that a dedicated Special Fund for the GTI (SFGTI) should be made operational. At COP 10, held in Nagoya in October 2010, the SFGTI should be formally announced. The present Case for Support highlights activities which could be supported by the SFGTI and provides recommendations to achieve the best practices.

This white paper builds on an earlier made green paper and stands as a Case for Support for the SFGTI. It holds an analysis of an amalgam of existing resources and good practices in taxonomy so as to allow priority setting on what types of taxonomic capacity building and taxonomic research are potentially to be supported by the SFGTI.

Our analysis revealed that numerous funding bodies provide money for taxonomy-related activities but that fragmentation in the action field of funders is large and that this obstructs optimal allocation of funding to taxonomy-related activities.

Based on our analysis, we recommend that:

- ⇒ only individuals and institutions located in LDC's be eligible for this support;
- ⇒ funding would be on a competitive basis so that only the on-the-ground champions of taxonomy and collection management would be supported;
- ⇒ funding would be limited in time, although renewal procedures must be put in place;
- ⇒ funding would be awarded only to taxonomic capacity building, to taxonomic research and to collection management;
- ⇒ funding would have to act as a catalyst to lever additional funding, *i.a.*, for long-term careers in taxonomy and collection management;
- ⇒ funding would have to lead to regionally balanced centers of taxonomic excellence;
- ⇒ projects that aim to deliver at least one of the outcome-oriented deliverables of the PoW of the GTI as identified in annex of COP Decision IX/22 would receive priority.

The present case for support shows that an endowment of some 4 million € would be needed to run this programme on a limited, but sustainable, basis.

## 01. Introduction

At COP 10 in Nagoya, Japan (October 2010), the Special Fund for the Global Taxonomy Initiative (SFGTI from here onwards), as asked for in COP Decisions VIII/3 and IX/22, is to be formally announced as a functional entity. The lead actor, BioNET INTERNATIONAL, has commissioned the Belgian GTI National Focal Point to work out a case for support for the SFGTI.

This case for support is two-phased: (i) a green paper that put forward a vision on the scope and use of the SFGTI, and (ii) a white paper that builds on the green paper with an analysis of the most important existing resources and good practices in taxonomy so as to allow priority setting on what types of taxonomic capacity building and taxonomic research are most urgently needed, especially by developing countries.

## 02. Case for Support: Phase 2

The Green paper emphasized four elements for support: capacity building, taxonomic research, collection management and the promotion of long-term careers in taxonomy and collection management.

A first 'dirty' analysis of three national entities that fund taxonomic capacity building and research (the NSF in the USA; DEFRA in the UK; the DST, NRF and DEA in S. Africa) revealed that comprehensive programmes are in place, but that in the end the paucity of permanent positions in taxonomy and collection management hinders progress.

## 03. Gap analysis of funding bodies

The Green paper (point 3) identified activities that are legitimate for financial support. However, to what extent and how these activities were to be funded via the SFGTI was argued to be dependent on the outcome of a gap analysis of existing funding bodies. Given the limited timeframe of the study, we carried out a comprehensive but non exhaustive gap analysis, with the following modus.

- ⇒ Known funders of biodiversity research and capacity building (cf. annexes 1 & 2 of green paper) were scrutinized and those that explicitly fund taxonomic research and taxonomic capacity building were selected for further analysis.
- ⇒ Through an internet analysis, additional funding bodies were searched. Funding from governments, public & private trusts and foundations was considered. The url of each relevant funder was captured and tagged on the 'Delicious' site of the Belgian GTI NFP (<http://www.delicious.com/GlobalTaxonomyInitiative>).
- ⇒ Characteristics of the funding bodies were captured in an open-source web-based database of the Belgian GTI NFP (cf. <http://creator.zoho.com/ysamyn/special-fund-for-the-gti/#>).
- ⇒ Analysis of the desired outputs of the funding bodies was categorized in terms of the legitimate taxonomic activities listed in the green paper.
- ⇒ Strengths and weaknesses of representative funders were analyzed and extrapolated to general recommendations regarding different items of possible support via the SFGTI.
- ⇒ When possible, a typical amount of funding for a particular taxonomic activity was scored.

This gap analysis allowed us to formulate a preliminary response to the question posed by Rassmann & Smith (2010)<sup>1</sup> "what scale of funding is needed to support what type of activities?".

A first observation stemming from this analysis is that there is a large amount of funding bodies that do provide at least some funding to taxonomy-related activities. Therefore, it was difficult to perform an exhaustive gap analysis. We chose to limit ourselves to the analysis of: (i) 10 different recognition awards (medals and prizes); (ii) 17 mobility awards (5 for museum visits, 7 for expeditions, and 5 for

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<sup>1</sup> Rassmann, K. & Smith R. 2010. The Global Taxonomy Partnership Fund – Status of the project & results to April 2010. BioNET INTERNATIONAL report, 5 pp.

participation to conferences); (iii) 16 different research grants (11 with and 5 without fellow-or assistantships); (iv) the training offer starting from a previous analysis carried out by WP8 of the EDIT network; (v) a couple of noteworthy initiatives.

### 03.1. Recognition awards (= medals and prizes)

Medals and prizes for taxonomic research are typically issued by natural history museums or organizations and societies that carry out research on a particular taxon. In many cases these recognition awards are named after a famous worker of the issuing museum.

Although recognition awards often not directly fund taxonomic activities, they can significantly leverage funding because they augment the scientific standing of the award-winner.

We have analyzed ten different recognition awards; some with and others without prize money.

- **[The Thomas Say Award](#) – USA / not-for-profit professional society**

This Entomological Foundation award is issued by the Entomological Society of America (ESA). It acknowledges significant and outstanding work in the fields of insect systematics, morphology, or evolution. It consists of a certificate and a cash award based on the interest earned from the endowment. The recipient is presented with the award at the ESA Annual Meeting.

The recipient's work must have been published and be either by a North American or focus on New World insects and allies.

Strengths	Weaknesses
⇒ Prestigious award, so good leverage potential	⇒ Preferentially awarded to a North American
⇒ Certificate + cash award	⇒ Amount of prize money not specified
⇒ No age or gender discrimination	
⇒ Selection procedure clear	
<b>Funded taxonomic activities:</b> not applicable	

- **[E.K. Janaki Ammal National Award on Plant Taxonomy and E.K. Janaki Ammal National Award on Animal Taxonomy](#) – India / Governmental**

In order to promote excellent work in taxonomy and encourage young students and scholars to work in the field of taxonomy, the E.K. Janaki Ammal Award was instituted in the year 1999. Today, two awards, for outstanding work in Botanical and Zoological Taxonomy including work done in Micro-organisms are issued.

Strengths	Weaknesses
⇒ Medal + cash award	⇒ Little known outside India, so leverage potential weak
⇒ No age or gender discrimination	
⇒ Selection procedure transparent	
⇒ Rewards revisionary and monographic taxonomic work	
<b>Funded taxonomic activities:</b> not applicable	

- **[The Bolus medal](#) – South Africa / not-for-profit professional society**

The Botanical Society of South Africa has established a set of awards by which it honours the achievements and contributions of mainly (but not only) the members of the Society to the mission of the organization, which broadly encompasses the promotion and appreciation of the South African wild flower heritage. These awards are presented for important achievements and are evaluated according to strict criteria.

We have selected one of these awards: the Bolus Medal, which is awarded to an amateur botanist

who has made a significant contribution to the knowledge of the flora through publications in the recognized scientific literature.

Strengths	Weaknesses
⇒ Rewards the work of a parataxonomist	⇒ For S. Africans only
⇒ No age or gender discrimination	⇒ By nomination by members of the Botanical Society in good standing only
⇒ Application procedure simple	⇒ Little known outside S. Africa, so leverage potential weak
<b>Funded taxonomic activities:</b> not applicable	

▪ **[R.J.H. Hintelmann Scientific Award for Zoological Systematics](#) – Germany / not-for-profit professional organization**

The Friends of the Bavarian State Collection of Zoology issue the R.J.H. Hintelmann Scientific Award. This annual prize has a value of 5,000 € and its target group is young post-graduate scientists. The price is awarded for outstanding achievements in zoological systematics, phylogenetics, faunistics or zoogeography and also gives the winner the opportunity to continue his/her research work in coordination with the Zoologische Staatssammlung München (ZSM). This may be carried out either by visiting the ZSM or by being provided with ZSM materials for work elsewhere.

Strengths	Weaknesses
⇒ Couples rewarding of past merit to research in/with natural history collection	⇒ Only English and German applications are considered
⇒ Important prize money (5,000 €)	⇒ Alpha taxonomy excluded
⇒ Prestigious award, so good leverage potential	
⇒ By nomination or self-nomination	
<b>Funded taxonomic activities:</b> discovery of taxa (museum visit)	

▪ **[Henri Schouteden Prize](#) – Belgium / Flemish Royal Academy for Sciences and Arts**

This prize awards an important zoological work on faunistics (preferentially African), systematics, ecology, ethology or anatomy of animals. It is issued biannually and is worth 1,250 €.

Strengths	Weaknesses
⇒ Important prize money (1,250 €)	⇒ Only applications in Dutch and English are considered
⇒ Application procedure simple	⇒ Only Belgian citizens eligible
⇒ Prestigious award (in Belgium)	
<b>Funded taxonomic activities:</b> not applicable	

▪ **[The Tyge Christensen Prize](#) – USA / Not-for-profit public benefit corporation**

This prize honours the late Professor Tyge Christensen of the University of Copenhagen. The Tyge Christensen Prize is awarded annually for the best paper published in the journal *Phycologia*; currently the prize is worth \$500 per author or up to a total of \$2,000 per paper. It are the associate editors of the journal that nominate the best paper that they handled during this period. The final decision is made by the Council of the International Phycological Society.

Strengths	Weaknesses
<ul style="list-style-type: none"> <li>⇒ Original concept</li> <li>⇒ Couples publication to prize</li> <li>⇒ Nomination by experts (associate editors)</li> <li>⇒ Good leverage potential</li> </ul>	<ul style="list-style-type: none"> <li>⇒ Only authors publishing in the journal <i>Phycologia</i> (non-open access; expensive subscription) eligible. There is no page charge, although color photographs attract a fee of 750-1,000 \$ per plate.</li> </ul>
<b>Funded taxonomic activities:</b> publication	

▪ **[J.O. Westwood Medal for Excellence in Insect Taxonomy](#) - UK / Not-for-profit organization**

The Royal Entomological Society of the UK issues several prestigious medals. Of particular interest is the biennial Westwood Medal awarded for the best comprehensive taxonomic work on a group of insects, or, related arthropods (including terrestrial and freshwater Hexapods, Myriapods, Arachnids and their relatives). Typically, this will be a taxonomic revision or monograph.

Strengths	Weaknesses
<ul style="list-style-type: none"> <li>⇒ Very prestigious medal, so excellent leverage potential</li> <li>⇒ Rewards taxonomic revisions or monographs</li> </ul>	<ul style="list-style-type: none"> <li>⇒ No prize money</li> </ul>
<b>Funded taxonomic activities:</b> not applicable	

▪ **[Medals issued by the Linnean Society](#) - UK / Not-for-profit organization**

The Linnean Society seeks to encourage excellence in the natural sciences by awarding a series of medals and prizes to scientists and artists for outstanding work in their field. Of interest to the taxonomist are:

- ***the Bicentenary Medal***; awarded annually in recognition of work done by a biologist under the age of 40 years. Any biologist who is not at the time a member of Council is eligible;
- ***the Darwin-Wallace Medal***; awarded annually in recognition of the continuing importance of research on evolutionary biology;
- ***the H.H. Bloomer Award***; an award to an amateur naturalist who has made an important contribution to biological knowledge;
- ***the Iren Manton Prize***; awarded for the best thesis in botany examined for a doctorate of philosophy during a single academic year (September to August).

Strengths	Weaknesses
<ul style="list-style-type: none"> <li>⇒ Very prestigious medals and awards issued by very prestigious organization, so excellent leverage potential</li> </ul>	<ul style="list-style-type: none"> <li>⇒ No prize money</li> <li>⇒ Emphasis not put on taxonomy per se</li> </ul>
<b>Funded taxonomic activities:</b> not applicable	

**Conclusions on medals and prizes**

Medals and prizes are good ways to recognize the scientific quality of a taxonomist. If issued by a prestigious institution (and if also named after a famous taxonomist or evolutionist) they become very recognizable and have an important leverage effect.

It is however debatable that all the different – often very small – awards should be kept as this not only significantly reduces available financial resources, but also diminishes the intrinsic value of the prize (consider for instance the many awards issued by the [American Society of Ichthyology and Herpetology](#) or by the [Botanical Society of America](#)).

## **Recommendations on recognition awards**

If the SFGTI were to consider issuing a recognition award, then we could suggest that:

- ⇒ the award is coupled to a cash prize and a medal or alike (for instance a statuette);
- ⇒ the award is issued on a biennial basis, allowing the cash prize to remain significant (1,250 € at least<sup>2</sup>);
- ⇒ the award rotates geographically: *e.g.* for an African taxonomist in year x, for an Asian taxonomist in year y, etc.;
- ⇒ the name of the award is coupled to the name of famous taxonomist from/working in a developing country (*e.g.* Juan Cristóbal Gundlach for Central America; Carl Friedrich Philipp von Martius for South America, etc.). In case of a medal, it could hold the image of the taxonomist, in case of a statuette, the figure of the taxonomist (a much more attractive idea; especially if duplicates of the statues are permanently deposited in the [Convention on Biological Diversity's Museum of Nature and Culture](#));
- ⇒ the award only goes to a taxon that does not have a medal already (*e.g.* the SFGTI should not issue herpetological awards);
- ⇒ the award is given during a ceremony at the COP to the CBD.

## **03.2. Mobility Awards and Grants**

### **03.2.1. Museum visits**

Natural history collections are not just storage places. On the contrary, they are dynamic education, information and research tools that are used for expanding our knowledge of the world. Without these collections taxonomy cannot be performed. Indeed, think alone of a taxonomist who wishes to review his species identifications by comparative study of voucher specimens, or a taxonomist who carries out a monographic revision.<sup>3</sup>

Some mobility awards allow students and established researchers to travel to natural history collections. We have analyzed four of these.

#### ▪ **Synthesys – EU / Multilateral**

The EU-funded programme SYNTHESYS aims to produce an accessible, integrated European resource for research users in the natural sciences. SYNTHESYS creates a shared, high quality approach to the management, preservation, and access to leading European natural history collections.

The core element in SYNTHESYS of interest here is to provide funded researcher visits (Access) to the 337,204,000 specimens housed by SYNTHESYS institutions and in particular, to the 4,058,500 type specimens.

SYNTHESYS funding is available to provide high caliber scientists (Users) based in European Member and Associated States (see their website for eligible countries) to undertake short visits to utilize the infrastructure (namely the collections, staff expertise and analytical facilities) at one of the 19 partner institutions for the purposes of their research.

SYNTHESYS is able to meet the Users' costs for: (i) research costs (bench fees and consumables, including molecular biology at some taxonomic facilities), (ii) international travel (iii) lodging and (iv) per diems.

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<sup>2</sup> 25,000 € invested with a bearing interest at 3 % yields ± 1,500 € after two years.

<sup>3</sup> [Thompson](#) gives a nice and concise account on the value and validation of natural history collections on the website of ActionBioscience.org, a non-commercial, educational site installed to promote bioscience literacy.

Strengths	Weaknesses
⇒ Access to the major natural history collections in Europe	⇒ Only for EU members and Associated States
⇒ Access to expertise and equipment	⇒ Is project dependent and time-bound (once the EU-funded project ends, the service disappears)
⇒ Funding sufficient to cover all relevant costs, including supplies	
⇒ Application procedure simple	
<b>Funded taxonomic activities:</b> discovery of taxa (museum visit)	

▪ **EDIT Integration Research Grants – EU / multilateral**

The European Distributed Institute of Taxonomy (EDIT) encourages increased collaboration between taxonomic researchers. In particular, EDIT wants to develop collaborative descriptive/revisionary taxonomy. In the framework of its work-package 2 (Integrating and reshaping the expert and expertise basis) EDIT therefore offers support to collaborative taxonomic research and this by issuing mobility awards that encourage mobility of researchers between EDIT and other institutions.

Strengths	Weaknesses
⇒ Access to the major natural history collections in Europe and beyond	⇒ Funding for assistant salaries very low (only 2,000 €)
⇒ Access to scientific and technical expertise and equipment	⇒ Is project dependent and time-bound (once the EU-funded project ends, the service disappears)
⇒ Funding sufficient to cover all relevant costs, including equipment, supplies and field costs	
⇒ Encourages descriptive/revisionary taxonomy	
⇒ Application procedure simple	
<b>Funded taxonomic activities:</b> discovery of taxa (museum visit, field visits); description of taxa, monographic revision	

▪ **Ernst Mayr Travel Grants for Animal Systematics – USA / Private Trust Fund**

The Museum of Comparative Zoology (MCZ) at Harvard University periodically awards travel grants for research in animal systematics, known as the Ernst Mayr Grants. The principal objective of these grants is to stimulate taxonomic work on neglected taxa. These include taxa with numerous poorly described species, genera and families known to have many undescribed species in institutional collections, taxa for which it is unknown what proportion of the nominal species are synonyms and difficult genera without keys. It is not the aim of these grants to support largely phylogenetic studies of taxa in which the species are reasonably well known, or to support biogeographic studies.

The study of type specimens and their correct identification is the greatest need in poorly known taxa. This typically requires visits to other museums, which is what the Ernst Mayr Grants programme tries to facilitate. Preference is given to studies that use the MCZ's collections, although applications to work at other museums will be considered.

Typical expenses that may be paid from these grants include travel, lodging, and meals for up to a few weeks while conducting research at the museum(s), reasonable services purchased from the host institution and research supplies. Awards average about \$1,000 each and may not exceed \$1,500.

Strengths	Weaknesses
⇒ Application procedure simple	⇒ Funding too low to allow also international travel
⇒ Focus on neglected taxa	⇒ Supplies or expertise not funded
⇒ Focus on types	
⇒ Collections in MCZ, but also other American museums	
⇒ Application procedure simple	
⇒ MTA installed with Brazil	
<b>Funded taxonomic activities:</b> discovery of taxa (museum visit)	

▪ **[Böhlke Memorial Endowment Fund](#) – USA / Private Trust Fund**

The Böhlke Fund provides support for graduate students and recent postdoctoral researchers to work with the Ichthyology collection and library at the Academy of Natural Sciences, Philadelphia. The fund awards money for travel to Philadelphia and for modest living accommodations available at the Academy. Individual award amounts are generally less than \$500 and will be awarded on the basis of both merit and need.

Strengths	Weaknesses
⇒ Couples rewarding of past merit to collection-based research	⇒ Prize money low (< \$500), excluding international transport
⇒ Taxon focus clear	
⇒ Application procedure simple	
<b>Funded taxonomic activities:</b> discovery of taxa (museum visit)	

▪ **[External Call by the Belgian GTI National Focal Point](#) – Belgium / Governmental**

The Belgian National Focal Point to the Global Taxonomy Initiative housed at the Royal Belgian Institute of Natural Sciences in Brussels grants professional taxonomists from developing countries study visits from 2 weeks to three months to access Belgium-based natural history collections, literature, infrastructure and expertise.

In addition the Belgian programme foresees also the possibility to get parts of collections on loan in Belgium so that the visiting scientist can study the needed reference material in a single institute, the RBINS.

The programme foresees funding for international travel, insurance of students, per diem (35 €/day) and lodging. In addition, the lab of the tutor receives a bench fee<sup>4</sup> (50€/working day) to cover eventual costs.

A visit of one month costs on average 5,000 € (see point 04.3.3 for detail on calculations).

<sup>4</sup> Often the latter amount is invested by the tutor in prolonging the duration of the visit or for the purchase of small equipment for the student.

Strengths	Weaknesses
⇒ Competitive call	⇒ Demands largely exceed available budget
⇒ Needs driven	⇒ Visiting taxonomists fail to finish revisions because some vouchers remain non-accessible ( <i>e.g.</i> Belgian expert does not get them on loan)
⇒ Access to Belgium-based collections, including orphaned ones	⇒ Labor extensive for the guiding curator
⇒ Possibility to get part non-Belgian collections on loan in Belgium, allowing maximum access	⇒ Limited to applicants from countries that are official partners of the Belgian Development Cooperation
⇒ Couples study of vouchers and associated data to liberation of literature and expert guidance	
⇒ Application procedure simple	
⇒ Only open to researchers from developing countries	
<b>Funded taxonomic activities:</b> discovery of taxa (museum visit); revisionary taxonomy, training	

### **Conclusions mobility awards, *partim* museum visits**

Awards that have as specific object to increase the mobility of students and researchers so that they can access and study museum collections and their libraries are not so frequent. It can be expected that the number of awards available is not as high as needed.

The existing grants often give access to collections in developed countries (mainly the US, Europe and Australia), whereas those few developing countries who have established reference collections (in some instances, an heritage of colonial times) remain largely non accessible.

The identified awards are often regrettably very small, thus obstructing visitors from abroad to cover international travel and longer-term study.

It can be viewed positively that the larger mobility programmes such as Synthesys, foresee also funding for consumables (*e.g.* for doing molecular analyses) or paying access to equipment (*e.g.* SEM).

### **Recommendations mobility awards, *partim* museums**

If the SFGTI were to consider issuing mobility awards for museum study visits, then we could recommend that:

- ⇒ the awards are large enough to cover also international travel, allowing students and researchers from developing countries to access collections;
- ⇒ the awards can cover the visit to more than one museum during the same sojourn (*e.g.* a researcher should be able to visit several museums in the same country, region, or even continent, under the same grant);
- ⇒ the awards are given predominantly to promising junior research scientists;
- ⇒ the awards also cover the costs linked to the scientific loan of specimens (including types wherever possible) to reputed museums;
- ⇒ the awards can also be used to provide access to important museums in developing countries (*e.g.* the Bombay Natural History Society holding one of the finest Natural History Collections of Asia), both for scholars from developed as well as from developing countries.

### **03.2.2. Expeditions**

To discover, describe, inventory and monitor biodiversity nature exploration is needed. Such can be done at different scales ranging from the individual researcher who carries out his own inventory programme, an institute which monitors selected natural resources of its country, a consortium of partners that carries out an All Taxa Biodiversity Inventory (ATBI) of a protected area or teams of investigators that conduct worldwide, species-level systematic inventories of major groups of organisms (the so-called Planetary Biodiversity Inventories as funded by the NSF of the USA).

Each of such projects contributes to a better knowledge of life on earth and as such underbuilds

nature conservation projects. Moreover such projects build and fill gaps in natural history collections (specimens and tissue material for DNA work), allowing further taxonomic research leading to predictive classifications based on evolutionary relationships.

We have analyzed five different grants that encourage nature exploration; three small scale ones and two large scale ones.

### 03.2.2.1. Expeditions – small scale

- **[The King Leopold III Fund for Nature Exploration and Conservation](#) - Belgium / Private Trust Fund**

This Fund is active since 1972 and has funded more than 250 different nature exploration expeditions in non-European countries. It funds explorations that study biodiversity and have nature conservation as a finality.

In the early days, the totality of the costs of expeditions was covered, and permanent inventory and monitoring stations in the tropics were co-sponsored. Nowadays the fund has shifted its actions more to the sponsoring of individual researchers or small teams that carry out natural history expeditions. The Fund never funds the full expedition costs, but rather co-finances. Grants generally range from 1,000 to 3,000 €.

Typical expenses covered by the LIII Fund include international transport, fieldwork expenses (*e.g.* the hiring of a car/boat, etc) and lodging. All nationalities can apply for a KLIII grant, but non-Belgians must work in a Belgian research institution or a Belgian university.

Strengths	Weaknesses
⇒ Successfully integrates taxonomy with conservation	⇒ Only part of the taxonomic cycle covered (inventory and monitoring)
⇒ Application procedure simple	⇒ Poorly known outside Belgium, making international leverage difficult
⇒ No age or gender discrimination	⇒ Limited yearly funds available
⇒ Allocation of funds coupled to deliverance of scientific and financial report	
⇒ Exploration and field work is carried out outside Europe	
⇒ References and their pdfs (if available) are published on website of the Fund	
<b>Funded taxonomic activities:</b> inventory and monitoring of biodiversity	

- **[The Van Eeden Foundation](#) – The Netherlands / Private Trust Fund**

The Van Eeden Foundation encourages and supports research projects in the fields of botany, ecology, and ethnobotany or with a conservation viewpoint, that are conducted in the Guianas, Netherlands Antilles, and Aruba. The Foundation grants financial aid for internships, fieldwork, publications, lectures, and other research costs. During its more than 100-year existence, the Van Eeden Foundation has made it possible for hundreds of students and scientists to complete their education and/or research successfully.

Strengths	Weaknesses
⇒ Covers different aspects of the taxonomic cycle	⇒ Relative low amount (1,250 €) of available funding
⇒ Application procedure simple	⇒ Poorly known outside the Netherlands, making international leverage difficult
⇒ Couples publication of results with allocation of last 20% of awarded budget	
⇒ Geographic area clear	
⇒ No nationality, gender or age discrimination	
⇒ Includes training and public awareness	
<b>Funded taxonomic activities:</b> detection, inventory and monitoring of biodiversity; publication; training	

▪ **American Arachnological Society Fund for Arachnological Research (AAS Fund)**  
**– USA / Non-profit organization**

The American Arachnological Society Fund for Arachnological Research (AAS Fund) is funded and administered by the American Arachnological Society. The purpose of the fund is to provide research support for work relating to any aspect of the behavior, ecology, physiology, evolution or systematics of any of the arachnid groups (excluding Acari). Awards may be used for field work, museum research (including travel), expendable supplies, identification of specimens, and/or for preparation of figures and drawings for publication. Monies from the fund are not meant to augment or replace salary.

Strengths	Weaknesses
⇒ Covers and encourages different aspects of the taxonomic cycle, including publication	⇒ Very low amount (250-350 €) of available funding
⇒ Application procedure simple	⇒ Only members of the AAS can apply
⇒ Taxonomic angle clear	⇒ The AAS is unable to provide support for researchers or students who are from U.S. embargoed countries such as Cuba
⇒ No nationality or gender discrimination	
⇒ Students receive priority	
⇒ The AAS offers to match individuals from developing nations who cannot afford membership and members willing to sponsor such individuals.	

**Funded taxonomic activities:** field-and museum work; description of taxa

**03.2.2.2. Expeditions – large scale**

**All Taxa Biotic Inventories + Monitoring (ATBI+M) - EU / 6<sup>th</sup> FP (EDIT project)**

ATBI+ M’s are intensive, large-scale efforts to inventor, document and monitor the entire biodiversity of a selected protected areas. ATBI+M efforts ultimately deliver new, accurately timed and geo-referenced occurrence, distribution and abundance data.

ATBI+Ms are financed by the 6<sup>th</sup> framework programme of the European Commission through the European Distributed Institute of Taxonomy (EDIT) .

Strengths	Weaknesses
⇒ Covers a large part of the taxonomic cycle (detection, identification, understanding)	⇒ Collected material to be deposited preferentially in EDIT institutions; vouchering of specimens in the home nation not encouraged
⇒ Collaborative research	⇒ No funding foreseen for collection management of specimens
⇒ Strengthens local partners	⇒ Time bound: opportunities disappear at the end of the EDIT project (2011)
⇒ Delivers clean, timed, geo-referenced and freely available taxonomic datasets that cover long time intervals	
⇒ Data cleaning administrated by EDIT	
⇒ Couples liberation of taxonomic data with allocation of last 30 % of awarded budget	
⇒ Sites in and outside Europe	

**Funded taxonomic activities:** detection, inventory and monitoring of biodiversity; training

▪ **Rapid Assessment Programme (RAP)** - USA / International non-profit organization

Conservation International’s Rapid Assessment Programme (RAP) was created in 1990 to address the lack of biological information needed to make quick but sound conservation decisions. RAP deploys teams of international and host-country expert scientists to conduct rapid first-cut assessments of the biological value of selected areas. RAP surveys generally last 3 – 4 weeks. Preliminary results are made available immediately to local and international decision makers through reports and on the Internet.

RAP data are then analyzed in tandem with social, economic, and other ecosystem information to develop a comprehensive conservation strategy.

Strengths	Weaknesses
⇒ Collaborative research, including both international and local expert scientists as well as students and local community members	⇒ Inventories not comprehensive
⇒ Rapid field methods, specimen identification and data analysis allows reporting within a year of the survey	⇒ Unclear where collected material is deposited
⇒ Data are delivered as open access	⇒ Vouchering of specimens in the home nation not foreseen?
⇒ Training is an important component (excellent resources on website)	⇒ Funding for collection management of specimens not foreseen?
⇒ Focus on endemic, threatened species	
⇒ Focus on CI hotspots and wilderness areas	
⇒ Scientific prioritization analysis selects the best RAP sites	

**Funded taxonomic activities:** detection, inventory of biodiversity; training

▪ **Planetary Biodiversity Inventory – USA/ Governmental**

To accelerate the discovery and study of the world’s biodiversity, the NSF of the USA has installed the Planetary Biodiversity Inventory programme. PBI projects have teams of investigators conducting a worldwide, species-level systematic inventory of a major group of organisms. Each project must conduct fieldwork necessary to fill gaps in existing collections, produce descriptions, taxonomic revisions, web-searchable databases, and interactive keys (or other automated identification tools) for all new and known species in the targeted group, analyze their phylogenetic relationships, and establish predictive classifications for the group. All living organisms, from terrestrial, fresh-water, or marine habitats, at any feasible level in the taxonomic hierarchy, can be studied, but the scope must be global.

Strengths	Weaknesses
⇒ Comprehensive taxonomic projects	⇒ Deploying large-scale expeditions to sample just one taxon is not optimally cost-effective
⇒ Collaborative projects	
⇒ Research and education integrated	
⇒ Global scope	
⇒ Field work, as well as museum work, as well as research covered	
⇒ Very important amount of funding (up to \$3,000,000 over a 5-year duration)	
⇒ Long-term projects	
⇒ Costs for specimen preparation and storage eligible for support	

**Funded taxonomic activities:** alpha, beta and gamma taxonomy; collection management

▪ **Investigating the Biodiversity of Soil and Canopy Arthropods (IBISCA) – International / Scientific association**

IBISCA (Investigating the Biodiversity of Soil and Canopy Arthropods) is an international research programme which aims at studying the spatial (horizontal, vertical, altitudinal) and temporal distribution of the organisms which constitute a major part of forest biodiversity: arthropods. Interactions with plants and selected other organisms are also studied.

IBISCA’s approach is based on highly integrative research projects and the use of state-of-the art canopy access techniques. Field projects are conducted worldwide in tropical, subtropical and temperate forests.

Supporting institutions are Universities, Museums, networks and other research groups. IBISCA's sponsors are both public and private partners. In parallel to the scientific publications and meetings, the IBISCA team is also engaged in public outreach activities in order to improve public awareness of biodiversity studies.

Strengths	Weaknesses
⇒ Collaborative projects	⇒ Vouchering of specimens in the home nation not foreseen?
⇒ Integrative projects	
⇒ Clear taxonomic and habitat focus	⇒ Funding for collection management of specimens not foreseen?
⇒ Operates in biodiversity rich areas	
⇒ Successful private/public association	
⇒ Covers a large part of the taxonomic cycle	
<b>Funded taxonomic activities:</b> alpha, beta and gamma taxonomy; collection management	

### **Conclusion for expeditions**

Several comprehensive programmes are installed at different scales. Collaborative approaches such as the ATBI+M, PBI or RAPs are laudable, but it must be guarded that researchers from developing countries are not excluded and that not only the generated taxonomic data and metadata are accessible but also the built collections, such applies especially to sub-Saharan African countries.

Both micro- and macro financing have their merit, so it should be guarded that the large does not smother the small.

Estimating the cost of an average expedition is nearly impossible given that: (i) different types of methodologies and gear are needed to sample different taxa; (ii) some taxa live in accessible habitats, while others thrive in habitats that are virtually unreachable (consider for instance the very specific deep-sea worm fauna living on whale carcasses that lie scattered on the ocean floor); (iii) some expeditions inventor just one taxon, others multiple taxa; (iv) some expeditions couple inventory to monitoring, others don't; (v) some expeditions are 'one-man-shows', others deploy international teams of experts; (vi) some expeditions couple scientific work to training and other capacity building, others don't, etc.

### **Recommendations on expeditions**

If the SFGTI were to consider issuing one (or several) mobility award(s) for expeditions, then we could recommend that:

- ⇒ specimens and tissues sampled are vouchered, wherever possible, at institutes in the home nation *and* at institutes in nations where taxonomic and collection management expertise is present;
- ⇒ a budget is foreseen for storing and maintaining vouchers, including tissue vouchers;
- ⇒ projects be as collaborative as possible whereby researchers from the home country must be included;
- ⇒ small-scale expedition grant makers identify themselves to the large-scale ones so that maximum synergy and pooling of resources can be achieved;
- ⇒ the allocation of the complete expedition budget be coupled to the liberation of (at least) an expedition report made by the expedition participant;
- ⇒ separate funding is provided to participants for publishing their findings in peer-reviewed journals; funding could cover publication costs but could also include an encouragement bonus fee (e.g. the last 10 % of the allocated budget)

### **03.3. Participation to meetings and conferences**

Disseminating information and networking with and learning from colleagues are integral parts of the scientific process. To achieve this, organizations such as scientific societies set up symposia and conferences. Virtually all such larger organizations have included student and/or researcher participation awards for their annual meetings. We have analyzed a couple of these.

▪ **The Ernst Mayr Award – USA / non-profit organization exclusively for scientific and educational purposes.**

The Ernst Mayr Award is given to the presenter of the outstanding student paper in the field of systematics at the annual meetings of the Society of Systematic Biologists, as judged by the Ernst Mayr Award Committee. The award consists of \$1,000 and a set of available back issues of the journal *Systematic Biology*.

Members of the Society who are students or have completed their Ph.D. within the last 15 months are eligible.

Strengths	Weaknesses
⇒ Quite a prestigious award, so very good career leverage	⇒ Long and hard procedure (competition)
⇒ Well endowed	⇒ Only SSB members are eligible
⇒ Application procedure simple	
⇒ Award coupled to free issues of an important journal	

**Funded taxonomic activities:** taxonomic capacity building

▪ **The Willi Hennig Society awards – Germany / not for profit association**

The Willy Hennig Society awards up to three student prizes at each of its annual meetings and up to 15 student travel awards. All awards are made in cash at the meeting. The following awards are issued:

- *The Willi Hennig Award* (\$1,000); normally awarded for the best oral presentation by a student
- *The Lars Brundin Award* (\$500); normally awarded for the next best oral presentation by a student
- *The Don Rosen Award* (\$500); normally awarded for the best poster presentation by a student unless judges agree that no poster is as worthy of recognition as any of the oral presentations, in which case the Rosen Award may be awarded for a third-best oral presentation by a student
- *Marie Stopes Travel Awards* Up to 15 awards not to exceed \$500 each will be awarded to students and recent Ph.D. graduates (<1 year post-Ph.D.) presenting either a paper or poster at the annual meeting.

Strengths	Weaknesses
⇒ Prestigious awards, so good career leverage	⇒ No real end-goal apart from participating to the conference
⇒ Well endowed	
⇒ Application procedure simple	
⇒ Several awards available	

**Funded taxonomic activities:** taxonomic capacity building

▪ **The Fitzgerald Travel Grant – USA / Society for the Preservation of Natural History Collections (SPNHC)**

This programme is designed to assist members of the SPNHC with the costs of attending the Society's annual meeting. A total of \$3,000 has been allocated to the programme and grants value a minimum of \$750 each. Applicants must be members of the Society. Preference is given to graduate students or emerging professionals in fields related to the management and conservation of natural history collections.

Strengths	Weaknesses
⇒ Application procedure simple	⇒ No real end-goal apart from participating to the conference
⇒ One of the only high quality symposia on collection management	

**Funded taxonomic activities:** taxonomic capacity building

▪ **Scandinavian-Baltic Society for Parasitology – Norway / Not-for-profit Society**

SBSP will award a maximum of 6 travel grants (350 euros) for students to be used for the participation at the 4th CSBSP. The travel grants need to be applied for prior to the meeting (application period April 1st to May 15th 2011) by sending an email to the SBSP secretary. The email should briefly include information that helps the board to make their decision as well as the applicant's CV including applied and received grants, and publications and the intended abstract for the meeting.

Strengths	Weaknesses
⇒ Application procedure simple	⇒ No real end-goal apart from participating to the conference
⇒ One of the only high quality symposia on collection management	
<b>Funded taxonomic activities:</b> taxonomic capacity building	

▪ **Unitas Malacologica Travel grants – Global / Not-for-profit Society**

Unitas Malacologica, the international umbrella society for malacology, provides travel grants to help students of malacology and young researchers attend the World Congress of Malacology (every three years). The maximum amount for any travel grant is 800 euros. The total budget allocated is in the order of 25,000 euros. A major aim is to encourage wider representation at congresses of students of malacology from areas such as Asia, Africa, South and Central America and Eastern Europe. Awards are made on the basis of merit and need as determined by the Council of UM. To be eligible, applicants must be a member of Unitas Malacologica or of an affiliated organization, and all applicants must indicate that they will present either an oral presentation or a poster. Application procedure is simple and guided by the UM web site.

In addition Unitas Malacologica offers Student Research Awards on a yearly basis. Awards are made only to current members of Unitas Malacologica who are studying for a higher-level degree (usually a PhD or MSc project). They may join as a member at the time of their application (fees: 48 euros for a 3-year membership). Each award is 1,000 euros, the total budget for a three years period being in the order of 8,000 euros.

Strengths	Weaknesses
⇒ Widely announced and well known within the malacological community	⇒ Even the maximum amount of 800 € is not enough for some students from developing countries to attend the congress
⇒ Application procedure simple	
⇒ Travel grant budget supports over 30 participants per congress	
<b>Funded taxonomic activities:</b> taxonomic capacity building	

**Conclusions for grants regarding participation to conferences**

Thousands of different mobility awards that support student and/or researcher participation in conferences exist. Nevertheless, the amount of support given to students/researchers often is quite limited, allowing coverage of only a part of the costs involved in participating to an international colloquium. Such leads to exclusion of those capable, but armed with too few resources. All too often the latter are researchers from developing countries.

**Recommendations regarding participation to conferences**

If the SFGTI were to decide to install a granting system for students and researchers to participate in conferences several criteria would have to be met:

- ⇒ students must be enrolled and in good standing in a degree granting programme (undergraduate or graduate) at a recognized college or university;
- ⇒ researchers must be employees in good standing in a recognized institution that carries out taxonomic research;
- ⇒ students and/or researchers must be able to demonstrate that their poster or oral contribution is

- accepted by the conference organization;
- ⇒ the competing student or researcher must be the first author of the entered work;
- ⇒ invited speakers cannot get funding from the SFGTI.

### 03.4 Research grants

#### 03.4.1. Without fellow-or assistantships

- **Systematics Research Fund (SRF) – UK / not for--profit organization**

Typical activities supported by the SRF include contributions to fieldwork expenditure, the purchase of scientific equipment or expertise (e.g. buying time on analytical equipment), specimen preparation (including the cost of temporary technical assistance), and contributions to publication costs. Projects of a more general or educational nature are also considered, provided that they include a strong systematics component.

Typical activities not supported include attendance at scientific meetings and contributions to student maintenance or tuition fees. The fund does not provide payments for Bench Fees.

Strengths	Weaknesses
⇒ Small scale support for typical taxonomic activities	⇒ Limited amount of funding
⇒ Emphasis not only on the assembly of new data, but also on validation of existing collections	
⇒ Funding of technical assistance is eligible	
⇒ Open to all nationalities	
⇒ No age or gender discrimination	
<b>Funded taxonomic activities:</b> alpha, beta and gamma taxonomy; collection management	

- **ABRS National Taxonomy Research Grant Programme – Australia / Governmental**

The Australian Biological Resources Study (ABRS) National Taxonomy Research Grant Programme provides grants for taxonomic research. Grants are awarded for research projects where the primary aim is to undertake taxonomic research on the Australian biota or to develop products that aid in the dissemination of taxonomic information. The programme also supports projects that build Australian taxonomic capacity.

In April 2008, the ABRS Advisory Committee recommended restructuring the National Taxonomy Research Grant Programme both to increase the pool of funds available to support high priority research and to streamline administration of available funding.

Strengths	Weaknesses
⇒ Funding of technical assistance is eligible	⇒ Equal co-funding is required
⇒ Priority areas (incl taxa and habitats) for support well defined	
⇒ Open to all nationalities	
⇒ No age or gender discrimination	
⇒ Foster training and other capacity building	
⇒ Salaries must be included as co-funding	
⇒ Significant amount of funding	
<b>Funded taxonomic activities:</b> alpha and beta taxonomy, discovery of taxa (field work), capacity building, equipment	

▪ **The Vincent Roth Fund for Systematics Research – USA / not for profit association**

The Vincent Roth Fund for Systematic Research (AAS Fund) is funded and administered by the American Arachnological Society. The purpose of the fund is to provide research support for work dealing with the systematics of any of the arachnid group (excluding Acari). Awards may be used for field work, museum research (including travel), expendable supplies, identification of specimens, and/or for preparation of figures and drawings for publication.

Strengths	Weaknesses
⇒ No age or gender discrimination	⇒ Very limited amount of funding (normally ranges between \$250 and \$350)
⇒ Items that can be supported very variable	⇒ Explicitly excludes Cubans
⇒ Application procedure simple	
<b>Funded taxonomic activities:</b> travel, field and museum work, alpha and beta taxonomy, publication	

▪ **The ASPT Graduate Student Research Grant Funds – USA / not-for-profit association**

The American Society of Plant Taxonomists (ASPT) promotes research and teaching of taxonomy, systematics, and phylogeny of vascular and nonvascular plants. Contributions support students (both master's and doctoral levels) conducting field work, herbarium travel, and/or laboratory research in any area of plant systematics. Every year, 10-15 of these awards are attributed to promising young scientists. Support is available for both masters and doctoral students to conduct fieldwork, herbarium studies, and/or laboratory research in any area of plant systematics. No award will exceed \$1,000, and it is unlikely that proposals from previous recipients will be funded. Proposals will be funded on the basis of merit, regardless of the research area within systematics.

Strengths	Weaknesses
⇒ Open to masters and doctoral students	⇒ Attributed only once per candidate
⇒ No age or gender discrimination	⇒ Limited amount of funding (Maximum \$1,000)
⇒ Open to all nationalities	
⇒ Application procedure simple	
<b>Funded taxonomic activities:</b> travel, field and museum work, alpha and beta taxonomy	

▪ **ATREE Small Grants Programme – India / not-for-profit organization**

Ashoka Trust for Research in Ecology and the Environment (ATREE), Bangalore invites project proposals on conservation from civil society organizations such as NGOs, community based organizations, academic organizations and individual researchers. ATREE's Small Grants Programme recognizes that there is a wealth of information and expertise at small scales that can be drawn upon for more effective conservation.

Each research grant is up to Rs 1 lakh and is available for a duration of 1 year. Grants can be used for fieldwork, research writing, or internships with ATREE faculty.

Strengths	Weaknesses
⇒ Open to masters and doctoral students	⇒ Only Indian citizens eligible?
⇒ No age or gender discrimination	
⇒ Focus on threatened species and their habitats	
⇒ Application procedure simple	
<b>Funded taxonomic activities:</b> travel, field and museum work, alpha and beta taxonomy	

### 03.4.2. With fellow- or assistantships

#### 03.4.2.1. Short term (<1 year)

- [The Smithsonian Institution's 2010 Cuatrecasas Fellowship Award](#) – USA / Not-for-profit trust fund

The Smithsonian Institution's Department of Botany issues the Cuatrecasas Award. This annual competition usually results in 1-2 awards, each one not to exceed \$3,000 (US). The award is to support work in the spirit of the research of the late Dr. José Cuatrecasas, a long time associate of the US National Herbarium. Priority is given to scientists from Latin America or from elsewhere who work on tropical plants. Funds are to be used to study specimens housed in the US National Herbarium.

Strengths	Weaknesses
⇒ No age, gender or nationality discrimination	⇒ Limited amount of funding will allow only short stays in SI, especially for researchers in need of international transportation
⇒ Application procedure simple	
⇒ Clear taxonomic (plants) and geographic (S America) focus	
⇒ Award linked to fellowship	
⇒ Clear aim	
<b>Funded taxonomic activities:</b> discovery of taxa (museum work); alpha taxonomy; collection management	

- [The Census of the Diversity of Abyssal Marine Life \(CeDAMar\) fellowship programme for deep-sea taxonomists](#) – International / Research programme

The deep sea is one of the largest and least explored ecosystems on Earth and is a major reservoir of biodiversity and evolutionary novelty. However, the limited number of taxonomists worldwide specializing on deep-sea groups, combined with the frequent collection of undescribed taxa, are major impediments for understanding and characterization of biodiversity and ecosystem functioning in the abyss. To help overcome this so-called "taxonomic impediment", CeDAMar will support short-term visits of taxonomists to other institutes in order to work with colleagues there and exchange knowledge concerning abyssal material. This instrument will allow taxonomists to cross-reference their samples with material from previous surveys and natural history collections.

Strengths	Weaknesses
⇒ No age, gender or nationality discrimination	⇒ Limited amount of funding will allow only short stays (maximum 2,000 €)
⇒ Application procedure simple	
⇒ Clear focus: studying material from CeDAMar surveys and natural history collections.	⇒ Only material from CeDAMar expeditions can be comparatively studied
⇒ Clear aim	
<b>Funded taxonomic activities:</b> discovery of taxa (museum work); alpha taxonomy	

- [The IUMS-SGM short-term fellowship](#) – UK / UNESCO

The IUMS-SGM short-term fellowship is a cooperative scheme to provide an opportunity to young microbiologists from any developing country to pursue, or to complete, a part of an ongoing research programme at a laboratory in an industrialized or developed country and/or to acquire theoretical or technical knowledge in their particular area of research.

Strengths	Weaknesses
⇒ Limited to applicants who are residents and who are submitting applications from a developing country.	⇒ Limited amount of funding will allow only short stays (maximum US \$4,000) ⇒ Cannot be combined with another fellowship to the same purpose covering travel and housing expenses. ⇒ Fellowships should be preferably served in laboratories in U.K.
<b>Funded taxonomic activities:</b> capacity building, training	

▪ **[Short Term Fellowships of the STRI](#) - USA / Governmental**

The Smithsonian Tropical Research Institute (STRI), is a division of the Smithsonian Institution in Washington DC and maintains research facilities for marine and terrestrial research at various locations on the Isthmus of Panama.

Support is provided to carry out short-term research projects in the tropics in areas of STRI research, under the supervision of STRI Staff Scientists and STRI Research Associates; STRI postdoctoral fellows may also serve as advisors, usually in collaboration with a staff scientist or research associate.

Projects usually are complete in themselves and their maximum duration is 3 months; extensions are awarded only in exceptional circumstances.

Strengths	Weaknesses
⇒ Exploratory projects or pilot studies can be submitted	⇒ Maximum duration of 3 months, with rare extensions
⇒ No age, gender or nationality discrimination	⇒ Proposals without the support of named advisors from STRI will not be funded.
<b>Funded taxonomic activities:</b> discovery of taxa (field), training	

▪ **[The Matsumae International Foundation](#) – Japan / Non-governmental organization**

The Matsumae International Foundation is a non-governmental organization. Its Fund is based on donations from Japanese people who have responded with goodwill to Dr. Shigeyoshi Matsumae's call. While many donations have been kindly offered by enterprises and groups, most of the donors are individuals.

Fields of study such as natural science, engineering and medicine are given first priority.

Strengths	Weaknesses
⇒ Longer stays encouraged (6 months)	⇒ Candidates must be below 40 years old
⇒ No gender discrimination	⇒ Candidates must not currently live or have stayed in Japan in the past
	⇒ Candidates must have firm positions and professions in their home countries
<b>Funded taxonomic activities:</b> training, alpha, beta and gamma taxonomy	

▪ **[Kew Latin American Research Fellowships Programme](#) - UK / Governmental**

The Kew Latin American Research Fellowships Programme supports visiting scientists from Latin America (including the West Indies and the Guianas) wishing to consult collections or conduct botanical research at Kew or the Natural History Museum. Fellowships can also include visits to other European research institutes.

Strengths	Weaknesses
<ul style="list-style-type: none"> <li>⇒ No age or gender discrimination</li> <li>⇒ Clear thematic focus (access to collections)</li> <li>⇒ Clear geographical focus</li> <li>⇒ Successful cooperation between private foundation and a botanic garden</li> <li>⇒ Important mechanism to promote collaboration between UK and Latin America</li> </ul>	<ul style="list-style-type: none"> <li>⇒ Provides mobility to only one collection</li> </ul>
<p><b>Funded taxonomic activities:</b> alpha and beta taxonomy; collection management</p>	

▪ **Temminck and Martin Fellowships – The Netherlands / Governmental**

Naturalis offers fellowships for medium-term visiting researchers. The programme consists of two kinds of stipends: one for senior scholars (Temminck-Fellowship) and one for junior scholars (Martin-Fellowship).

Intended applicants for the Martin-fellowship are young, promising researchers (pre- or postdoctoral) with no permanent academic employment; for example, recent MSc graduates who are preparing for a PhD project or recent PhD's who are intending to elaborate part of their thesis or wish to prepare for a postdoctoral research project.

Intended applicants for the Temminck-fellowship are experienced, internationally known scientists who hold a permanent position elsewhere (or are already retired) but who, for example, wish to carry out a piece of research during their sabbatical or who want to write up publications in collaboration with Naturalis researchers.

Both types of fellowships should result in any or all of the following kinds of output:

1. Publications submitted to scientific journals, books, or book chapters, co-authored by the fellow and one or more staff members of Naturalis.
2. Research proposals submitted to national or international funding agencies, for research projects to be carried out at (or in affiliation with) Naturalis.
3. Seminars or courses held in Naturalis.

Strengths	Weaknesses
<ul style="list-style-type: none"> <li>⇒ Access to collections and expertise</li> <li>⇒ Training by and cooperation with Naturalis staff for early career taxonomists</li> <li>⇒ Collaboration with Naturalis staff for established taxonomists</li> <li>⇒ Successful Martin fellowships can apply for a second term of at most three months.</li> <li>⇒ Couples publication to research</li> <li>⇒ No age, gender or nationality (apart from the Dutch) discrimination</li> <li>⇒ Aims to be complementary with Synthesys</li> </ul>	<ul style="list-style-type: none"> <li>⇒ Applicants must not have the Dutch nationality or otherwise not have worked or studied in the Netherlands for at least five years</li> <li>⇒ Orphaned collections cannot be studied</li> </ul>
<p><b>Funded taxonomic activities:</b> training, alpha and beta taxonomy; collection management</p>	

**03.4.2.2. Long term (>1 year)**

• **Systematics and Taxonomy (Syntax) – UK / Governmental**

This research scheme is designed to provide short-term funding for preliminary research that will form the basis of novel responsive mode proposals with a substantial systematics/taxonomy component. It makes £250,000 available every year for three years to fund small, short-term grants. The size of the grants range from £5,000 to £30,000, but additional funding is available from DEFRA for UK BAP priority species. Projects run up to 2 years.

The scheme is administered by the Linnean Society and the Systematics Association.

Strengths	Weaknesses
⇒ Comprehensive scheme with clear emphasis on taxonomy and systematics	⇒ Project promoters must be UK citizens
⇒ Important amount of funding	⇒ Emphasis on collecting new data; neglecting existing collections
⇒ Funding covers complete taxonomic cycle (from detecting to understanding)	
⇒ Funding allows human as well as institutional capacity building	
⇒ Leverages additional funding from the UK's DEFRA for priority species as identified in the UK BAP	
<b>Funded taxonomic activities:</b> alpha, beta and gamma taxonomy	

▪ [\*\*Earl S. Tupper three-year postdoctoral fellowship – USA /Governmental\*\*](#)

The Smithsonian Tropical Research Institute (STRI) located in the Republic of Panama is a division of the Smithsonian Institution in Washington DC and maintains research facilities in different marine and terrestrial locations on the Isthmus of Panama. STRI issues the Earl S. Tupper three-year postdoctoral fellowship in the areas of ecology, anthropology, paleontology, paleoecology, evolutionary biology, molecular phylogenetics, biogeography, animal behavior, neurobiology, soils sciences, and physiology of tropical plants and animals. Research should be based at one of the STRI facilities; proposals that include comparative research in other tropical countries will be considered.

Strengths	Weaknesses
⇒ State of the art research facility and expertise	⇒ Only 1 fellowship awarded annually
⇒ No age, gender or nationality discrimination	⇒ Covers only part of the taxonomic cycle
⇒ Application procedure simple	
⇒ Funding important (Annual stipend is \$40,000 with yearly)	
⇒ travel and research allotments	
<b>Funded taxonomic activities:</b> beta and gamma taxonomy	

▪ [\*\*Junior Research Fellow at the Zoological Survey of India – India / Governmental\*\*](#)

The Zoological Survey of India (ZSI) was established on 1st July, 1916 to promote survey, exploration and research leading to the advancement in the knowledge of various aspects of exceptionally rich life of the 'British Indian Empire'.

The Survey has established so far 16 Regional and Field Stations, and has developed into a major National Institution. It functions as the guardian of the National Zoological Collections, containing over a million identified specimens from all animal groups ranging from Protozoa to Mammals. Extensive and intensive field explorations are undertaken by the Survey in different parts of the country for the studies of fauna, systematic zoology, animal ecology, wildlife and zoogeography, animal behavior, animal population and also marine fauna and the results of the explorations and research are published in its own journals as well as National and International periodicals of repute regularly.

Recently efforts have been made towards an integrated approach to zoological investigations, so as to have more purpose oriented research comprising biological, cytotaxonomic, and ecological aspects. However, taxonomy continues to occupy a prominent role. There is an increasing interest in matters pertaining to animal life on the part of the public, and a constant stream of enquiries continue to pour in, reflecting public confidence in the Institute. The department has never lacked a constant succession of distinguished Zoologists. Candidates are sought via, *i.a.*, a Junior Research fellowship.

Strengths	Weaknesses
<ul style="list-style-type: none"> <li>⇒ ZSI is a comprehensive project with a renowned history</li> <li>⇒ No gender discrimination</li> <li>⇒ Taxonomy is an important part of the ZSI</li> <li>⇒ Collections established</li> </ul>	<ul style="list-style-type: none"> <li>⇒ Only 1 year (but renewal possible)</li> <li>⇒ Candidates must have Indian nationality</li> </ul>
<p><b>Funded taxonomic activities:</b> alpha &amp; beta taxonomy; collection management; publication</p>	

▪ **[MS Swaminathan Research Fellowships in plant taxonomy 2010](#) – Non-profit research organization**

M S Swaminathan Research Foundation (MSSRF) is a non-profit research organization established in 1988. MSSRF has all along been developing and following a pro-nature, pro-poor, pro-women and pro-sustainable on-farm and non-farm livelihoods through appropriate ecotechnology and knowledge empowerment.

Applications are invited from Indian students for the MSSRF-Dorabji Tata Trust Fellowship in the area of Plant taxonomy for three years (2010-2012). Applicants should be Post Graduate degree holders in Botany with willingness to work in difficult terrains. The candidates will be selected based on their academic brilliance and knowledge on classification, distribution, ecology, conservation status, and utilization prospects of plant wealth of the Western Ghats of India.

Fellowships for three years are available in the discipline Systematic Botany. The Fellows will have to be involved in an integrated conservation mission of saving 80 – RET (Rare, Endemic & Threatened) plant species of Southern Western Ghats region of India.

Strengths	Weaknesses
<ul style="list-style-type: none"> <li>⇒ Focus on plant taxonomy</li> <li>⇒ Focus on hotspot (W Ghats)</li> <li>⇒ Application procedure simple</li> </ul>	<ul style="list-style-type: none"> <li>⇒ Candidates must have Indian nationality</li> </ul>
<p><b>Funded taxonomic activities:</b> alpha &amp; beta taxonomy; collection management; publication</p>	

**Conclusions on research grants:**

Our analysis shows that several research grants are delivered by governmental agencies, not-for-profit organizations or trust funds. Nevertheless, it appears that there's little overruling focus in the action plans of the operational funders. Clearly some main, overacting action plan to achieve meaningful taxonomic research and collection management is needed.

**Recommendations on research grants:**

If the SFGTI were to provide research grants, we recommend that:

- ⇒ both types of research grants (with and without fellowship) be funded since they have distinct aims;
- ⇒ priority is given to research that leads to revisionary and integrative taxonomy, including, but not limited to, molecule-based taxonomy;
- ⇒ financial stimulus is given to project-bound researchers to publish their results;
- ⇒ these are only allocated if principal investigators can clearly demonstrate solicitation (successful or not) with other funders.

**03.5. Training**

**03.5.1. Training offered by the European Distributed Institute of Taxonomy**

In 2006, the European Distributed Institute of Taxonomy (EDIT, [Workpackage 8](#) - Training and Public

Awareness) charted and evaluated the existing training resources for taxonomy in Europe and, although not exhaustively, beyond. A gap analysis revealed the strengths and weaknesses of those resources and highlighted the challenges that they have to face to meet the taxonomic standards and needs in the 21<sup>st</sup> century. The overall aim of that exercise was to use the catalogued training resources and to complement them with new training opportunities to establish an integrated European training programme for taxonomy, which was to be provided via a new school; the so-called Distributed European School of Taxonomy ([DEST](#)). In the mean time the latter school is running and its training programme comprises three components: (i) the Expert-in training programme (on the job training), (ii) the Summer School (best field practices), and (iii) the Modern Taxonomy programme (theoretical courses). The Expert-in-training programme and the Modern Taxonomy programme are developed in a modular manner so that courses are offered at several institutions. In this way the courses gives the best quality that partners can offer from their available staff, experiences and equipment.

DEST identified training resources for the following topics: (i) Molecular approaches to taxonomic research; (ii) traditional (=morphological) approaches to taxonomic research; (iii) scientific describing, illustrating and writing (iv) collection management; (v) systematics and biogeography; (vi) nomenclature codes; (vii) paleontology; (viii) cybertaxonomy; and (ix) courses on specific taxa.

This content corresponds largely to what has been identified as being important training topics by others. For instance the Belgian GTI National Focal Point that runs a capacity building programme in which training is an important factor (learn more [here](#)) has identified the same topics complemented by training on: (i) the meaning, value, measurement, sampling and conservation of biodiversity; (ii) evolution and (iii) scientific writing (papers, presentations, proposals).

Case study 2 (see point 04.2) provides an overview of the (restricted) needs identified by students responding to calls for proposals as annually issued by the Belgian GTI National Focal Point since 2004.

Below an evaluation of the DEST training offer as well as some other related initiatives

- **[EDIT 's Expert-in-training programme](#) - EU / multilateral**

EDIT provides a limited number of short-term traineeships for graduate students and early career researchers working in the field of taxonomy. The main objective is to acquire and to strengthen taxonomic research skills through an on-the-job training. The typical duration of the traineeship will be one week to one month depending on the training subject.

The trainee will join a project team and will be coached by an expert (mentor) who will instruct her/him on 'how to do the job'. The training will also include lectures given by the mentor to the trainee.

EDIT traineeships are open to students and early career researchers who are studying or working at an EDIT institution or a European University / research institute as a Masters student, PhD student or researcher. Traineeships are offered for training in an institution different from their own institution. Applicants preferably hold at least a first cycle degree in an appropriate discipline and be strongly motivated to undertake training in taxonomy.

Any necessary travel visas and medical insurance are the personal responsibility of the participant. EDIT covers the costs of travel, accommodation, and provides a per diem to contribute towards living costs and training-related costs.

In 2008-2009, training nine students for a total period of 20 weeks roughly cost 12,000€. In 2009-2010, training of 17 students over a period of 35 weeks, cost roughly 24,000€ .

Strengths	Weaknesses
⇒ Student linked to expert	⇒ Only for students studying or working at a EU university or research institute
⇒ Various relevant topics covered	⇒ Training offer rich, but fragmented
⇒ Funding sufficient to cover costs for duration of stay	
⇒ Application procedure simple and transparent	
⇒ Hands-on training (lab)	
⇒ Training provider rewarded by bench fee	
⇒ Needed supplies and other working costs financially covered	
<b>Funded taxonomic activities:</b> human capacity building through taxon-specific training	

▪ **EDIT's Summer Schools of Taxonomy – EU / Multilateral**

The purpose of the Summer Schools is to train students in “Best Practice” of field sampling and various aspects of taxonomic research to be applied in biodiversity and conservation biology research. The Summer Schools focus on disseminating practical taxonomic experience with theory lectures to give an in-depth understanding of the current state of taxonomic research and its broad applicability in other scientific disciplines and non-scientific initiatives.

The EDIT Summer Schools are open to Masters students or students who are in an early stage of their PhD research in a relevant biological discipline. The Summer Schools are closely coupled with the EDIT “All Taxa Biodiversity Inventory and Monitoring (ATBI+M)” initiatives. ATBI+M activities are part of a global research effort to document spatio-temporal dynamics in biodiversity of conservation priority areas.

EDIT Summer Schools last two weeks. Summer School 2010 had 20 students and 18 trainers, although many of the latter stay only a fraction of the total course. EDIT funds travel, accommodation and meals for the students, and travel, accommodation meals and daily allowance for the trainer. In addition, EDIT provides financial and logistic support for additional expenses (e.g. local transport, supplies) linked directly to the training. The cost of the above described summer school was 45,000 €.

Strengths	Weaknesses
⇒ Student linked to expert	⇒ Only for students studying or working at a EU university or research institute
⇒ Various taxa covered	
⇒ Various habitats covered	
⇒ Hands-on training (field)	
⇒ Application procedure simple and transparent	
<b>Funded taxonomic activities:</b> human capacity building through taxon-specific training; fieldwork	

▪ **EDIT's Modern taxonomy – EU / multilateral / global**

DEST organizes and coordinates six theoretical courses for students, technicians and early career researchers involved in taxonomy and collection management. These short intensive courses (1 to 2 weeks) are open to students from Europe and outside of Europe.

Primary objective of the programme is to provide future professionals with fundamental expert knowledge on basic taxonomy. The course programme targets topics such as: nomenclature; describing, writing and illustrating biodiversity/species; collection conservation.

Selected students are expected to pay a modest registration fee. However, an important number of grants, ranging from 500 to 850 € depending on the duration of the training, is available to selected course participants. In awarding grants, priority is given to students coming from economically less-favored regions. Training providers can claim refund of their travel cost and course material for students.

In 2010, the cost of organizing these courses amounted to 25,000 €.

Strengths	Weaknesses
<ul style="list-style-type: none"> <li>⇒ Comprehensive training offer, covering various bottlenecks in the taxonomic process</li> <li>⇒ Open to EDIT as well as to non-EDIT partners</li> <li>⇒ Several grants available</li> </ul>	<ul style="list-style-type: none"> <li>⇒ Grants do not cover total cost</li> <li>⇒ Grants too low to allow international travel and thus, possibly, excluding students from developing countries</li> </ul>
<p><b>Funded taxonomic activities:</b> human capacity building through theoretical training</p>	

### 03.5.2. Other training resources

- [Grants-In-Aid of Undergraduate Research](#) – USA / Private Trust Fund

The Museum of Comparative Zoology (MCZ) and the Harvard University Herbaria (HUH) award small grants in support of faculty-supervised research by Harvard undergraduates. Projects in any subject area are eligible for support, although priority may be given to projects that utilize MCZ or HUH research collections, laboratories and other facilities, and to related fieldwork. Funds from the HUH are primarily available to support projects in the field of plant biology. Projects that facilitate senior honors theses or associated preliminary studies are particularly encouraged. Priority is given to first-time applicants.

Awards range from \$500 to \$2,500 and may provide support for the academic year (fall and spring semesters) or summer.

Strengths	Weaknesses
<ul style="list-style-type: none"> <li>⇒ Small scale support for transfer of taxonomic expertise, including fieldwork</li> <li>⇒ Support spread over an academic year</li> </ul>	<ul style="list-style-type: none"> <li>⇒ Limited to Harvard undergraduates</li> <li>⇒ Only SSB members are eligible</li> </ul>
<p><b>Funded taxonomic activities:</b> Human capacity building through taxon-specific training</p>	

- [Mini-PEET Awards to Enhance Transfer of Taxonomic Knowledge](#) – USA / Not for profit Society

Society of Systematic Biologists issues four awards to enhance the transfer of taxonomic expertise. These awards are modeled after the highly successful PEET programme at NSF. The primary purpose is to pass on taxonomic expertise in general, therefore, unlike the NSF PEET programme, awards are not limited to taxonomically understudied taxa. Applicants should NOT be a member of a laboratory group currently supported by an NSF PEET award.

The awards are designed to allow SSB members (students, post-docs, and faculty) to spend a summer or semester apprenticed to an expert in a particular taxonomic group. This includes either a trip to the taxonomists' laboratory, or pays for the taxonomist to visit the applicants' laboratory for a period of time. Requests for support amount up to \$4,000.

Strengths	Weaknesses
<ul style="list-style-type: none"> <li>⇒ Small scale support for transfer of taxonomic expertise</li> <li>⇒ Open to all nationalities</li> <li>⇒ No age or gender discrimination</li> <li>⇒ Mobility of both tutor and student possible</li> <li>⇒ Application procedure simple</li> </ul>	<ul style="list-style-type: none"> <li>⇒ Limited amount of funding for overseas students/tutors</li> <li>⇒ Only SSB members are eligible</li> </ul>
<p><b>Funded taxonomic activities:</b> Human capacity building through taxon-specific training</p>	

- [Scholarships and travel awards for students from developing countries to obtain modern systematic training in the US](#) – USA / Not for profit Organization

The Society of Systematic Biologists issues awards for scholars from developing countries to attend workshops and courses in systematics, or to visit a molecular lab for training. The emphasis of this programme is the transfer of knowledge to the scholar's home country. This means that the student should currently be in their home country, or have definite plans to return in the near future. Courses such as the Molecular Evolution Workshop at Woods Hole and the applied Systematics Course at Bodega Bay are examples of courses that are appropriate for this funding, in addition to other equivalent opportunities. Support for attending a course will be contingent on admission to the course through the normal admissions process.

Strengths	Weaknesses
⇒ Small scale support for transfer of taxonomic expertise	⇒ Limited amount of funding for overseas students/tutors
⇒ Open to all nationalities	
⇒ No age or gender discrimination	
⇒ Application procedure simple	
<b>Funded taxonomic activities:</b> Human capacity building through taxon-specific training	

### **Conclusions on training**

It appears that there are quite a bit of training resources available, but that fragmentation of the courses is high, visibility is low and that quality is very variable. It also appears that technical trainings in collection management and nomenclature are underrepresented. The training components in large scale projects such as PEET and EDIT clearly point in the correct direction.

### **Recommendations regarding training**

If the SFGTI were to support a capacity building training, then we could suggest that:

- ⇒ the recently carried out survey by EDIT is to be (further) expanded beyond Europe (read EDIT's SWOT analysis [here](#))
- ⇒ available training opportunities are to be further centralized and made searchable through an information system
- ⇒ theoretical training must include nomenclature
- ⇒ theoretical training must incorporate traditional as well as novel approaches to taxonomy and must be brought in such a way that it is self-evident that these two approaches complement each other
- ⇒ taxon-specific training must not be limited to well-known taxa but must also treat ill-known taxa, especially if these are endangered or rare
- ⇒ teaching material must be open-access
- ⇒ teaching must embrace new technologies such as e-learning so as to become accessible and cost effective to all.

### **03.6. Equipment, supplies, literature, etc.**

Clearly having the appropriate sampling, sample processing and sample assessing tools is crucial for a taxonomist to work efficiently. This seems trivial, but very often taxonomists encounter equipment and supplies bottlenecks.

Similarly, taxonomists in developing countries often have only limited access to the specialized taxonomic literature.

Here, we give a couple of 'good practice' examples that can successfully resolve such very specific impediments.

▪ **IDEA WILD – USA / Not for profit organization**

IDEA WILD was founded in 1991 to minimize the loss of biodiversity by empowering people who work on the front lines of conservation efforts in developing countries. This USA-based organization initially operated only in Mexico, Central America, Colombia, but has now significantly expanded its geographic radius.

IDEA WILD is unique to the conservation arena and provides basic equipment and supplies for biodiversity research (including taxonomic work) and conservation education projects.

Strengths	Weaknesses
⇒ Small scale, but responds to tangible equipment and supplies needs	⇒ Not all developing countries are eligible
⇒ Easy application procedure	
⇒ No discrimination in gender or age	
<b>Funded taxonomic activities:</b> Human capacity building through taxon-specific training	

▪ **Book Purchase scheme of the Royal Entomological Society – UK / not-for-profit professional society**

The book purchase scheme of the Royal Entomological Society provides assistance in purchasing specialist taxonomic books, that will assist in the identification of insect groups being studied in developing countries and their regions. Applicants are required to demonstrate need and specify particular texts.

Strengths	Weaknesses
⇒ Small scale, but responds to tangible literature need	⇒ Only fellows and members of the Society native to and working in developing countries are eligible
⇒ Easy application, with call continuously open	⇒ Only entomology books
⇒ No discrimination in gender or age	
<b>Funded taxonomic activities:</b> Human capacity building through taxon-specific training	

▪ **Capacity building journal *Abc Taxa* – Belgium / Governmental**

*Abc Taxa* is a series of peer-reviewed manuals dedicated to capacity building in zoological and botanical taxonomy, in collection management and in good practices in taxonomic and curatorial research. It facilitates the liberation of taxonomic and curatorial skills, competences and know-how needed to carry out basic to advanced taxonomic research on a particular living taxon.

Strengths	Weaknesses
⇒ High quality books that make the link between monographs and field guides	⇒ Time constraints for authors (and editors)
⇒ Forum to achieve long-lasting capacity building	⇒ High production costs
⇒ Groups relevant taxonomic information on a particular taxon in one document	
⇒ Open access	
⇒ Hard copies distributed worldwide, at no cost for developing countries, at production and shipping costs for developed countries	
⇒ Supportive website	
<b>Funded taxonomic activities:</b> Human capacity building through taxon-specific training	

▪ **The Swedish Taxonomy Initiative – Sweden / Governmental**

The Swedish Taxonomy Initiative (STI) is an All Taxon Biodiversity Inventory (ATBI) of Sweden

coordinated by the Swedish Species Information Centre (ArtDatabanken) and completed in collaboration with Swedish universities and natural history museums. Started in 2002 and fully funded from 2005, the project aims to completely chart the flora and fauna of Sweden, do taxonomic research (6 million € granted in 2002-2008) on poorly known species, produce a popular Encyclopedia of the Swedish fauna and flora (11 volumes published so far, 100 expected in total) and run a postgraduate school offering courses in taxonomy. The project is designed to run for 20 years.

In 2009, Norway followed the example of Sweden and started the Norwegian Taxonomy Initiative, both initiatives working closely together (for instance in 2010 a Norwegian-Swedish joint research school in biosystematics was set up).

Strengths	Weaknesses
<ul style="list-style-type: none"> <li>⇒ very comprehensive programme covering the complete taxonomic cycle</li> <li>⇒ inventory coupled to research</li> <li>⇒ inventory coupled to collection management and data liberation</li> <li>⇒ training integral part of programme</li> <li>⇒ grants for research installed</li> <li>⇒ outreach via the <i>Encyclopedia of the Swedish Fauna and Flora</i> and via the installment of an independent for species observations</li> </ul>	<ul style="list-style-type: none"> <li>⇒ although regional expansion (Norway) is on the way, apparently no cooperation with developing countries</li> </ul>
<p><b>Funded taxonomic activities:</b> alpha and beta taxonomy, collection management</p>	

## 04. Case studies

### 04.1. Case study 1 – Building human capacity while inventorying and monitoring the Herpetological Species Richness and Community Structure of the Kaieteur National Park, Guyana (2004-2007)

#### 04.1.2. Introduction

This project was funded mostly by the Belgian Development Cooperation through the Belgian GTI. It ran from 2004 to 2007, with funding allocated annually.

This project took place in the Kaieteur National Park, Guyana, and was carried out by herpetologists from the Royal Belgian institute of Natural Sciences, in partnership with several researchers from institutions in the home country (CEIBA Biological Centre, University of Guyana, Iwokrama and the Guyana National Museum).

The main objectives of the project were to inventory the herpetological fauna of the Kaieteur National Park and to provide training in contemporary herpetology to local staff. In a broader perspective, the newly gained knowledge and capacities helped to generate taxonomic data to support the Government of Guyana in their aim to get the Kaieteur National Park listed as a World Heritage Site by UNESCO.

#### 04.1.3 Cost of the project

The funding allocated by the Belgian GTI National Focal Point to this project is ventilated in the table below.

**Table 1** - Detailed costs of the project (in €)

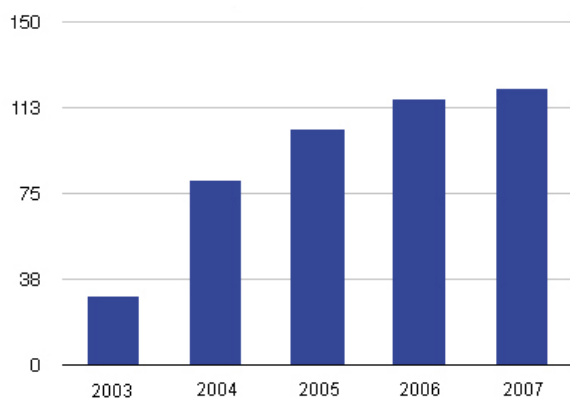
Budget item	2004	2005	2006	2007	2004-2007
International travel	4.400	4.400	4.400	2.600	15.800
Local travel	4.800	4.800	4.800	6.400	20.800
Per diem	5.910	8.085	5.220	5.250	24.465
Supplies	1.500	1.000	100	0	2.600
Other (e.g. permits)	550	1.050	450	2.500	4.550
Total/year	17.160	19.335	14.970	16.750	68.215

From this table it is clear that transport (both international and national) is the main budget gobble. This is related to the remoteness of the explored area (easily accessible only by plane and helicopter). Next to transportation, per diems for local staff (33 people for a total of 398 days on the field) also were an important budgetary item. Collecting and exporting permits and supplies ate only a small part of the budget. Collection equipment and transport costs were levered from other funders, exact amounts are not known to us, but we estimate that this is at most 10 to 15 % of the total budget. Post expedition costs (collection management, publication costs) as well as salaries of principal investigators are not included. These costs are carried mainly by the home institute of the principal investigators (the Royal Belgian Institute of Natural Sciences in Brussels), although the Belgian GTI National Focal Point has co-sponsored publication costs of scientific papers that have Guyanese researchers as co-authors.

#### 04.1.4. Outputs of the project

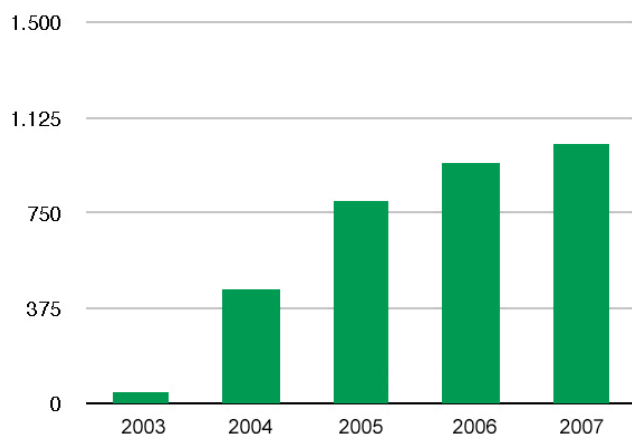
##### 04.1.4.1. Species and genera described / voucher specimens

Prior to the onset of this project (2003), only 29 species, belonging to 21 genera and 14 families were known from Kaieteur National Park. Four years later, 115 species, belonging to 94 genera and 28 families were known (see figure 1). Among these, 8 species and 1 genus proved new to science.



**Figure 1** - Species accumulation curve from 2003 (year prior to project) onwards.

In 2007, more than 1,000 voucher specimens had been collected and deposited both at the Biodiversity Centre at the University of Guyana and at the Royal Belgian Institute of Natural Sciences, Brussels (see figure 2).



**Figure 2** - Specimen accumulation curve from 2003 (year prior to project) onwards

#### **04.1.4.2. Publications and release of other scientific data**

Thanks to the enthusiasm of the leading scientist and his built up network, scientific outreach of this project can be called large. Overall:

- 6 poster were presented at national and international symposia
- 17 scientific papers were published in peer-refereed journals
- 1 book was published (in the series *Abc Taxa*)
- digital video and audio recordings of frog calls were provided.

#### **04.1.4.3. Human capacity building**

The agreed on principle between the P.I. and the Belgian GTI National Focal Point that taxonomic research (here mainly inventory) has to go hand in hand with the build up of human, biodiversity-aware, capital has resulted in the training of nearly 30 people, some of them receptive to taxonomic research.

#### **04.1.4.4. Public awareness**

The project kept raising public awareness high on the agenda. The following activities were carried out:

- setting up of a permanent exhibition on the herpetofauna of the Kaieteur National Park at the Guyana National Museum
- interactions with several Guyanese and Belgian newspapers, leading to more than 10 articles
- several interviews for Belgian TV and radio
- A 52 min-TV documentary entitled "Kaieteur" broadcasted on several European channels.

### **Conclusion on case study 1**

This case study shows conclusively that when a taxonomic impediment is well defined (here paucity of taxonomic data on the herpetofauna of a nature reserve), a dedicated expert team can remedy it in relatively short time. The main caveat in a capacity building programme like this one is to have an exit strategy so that inventory and monitoring can continue after the project. Important tools towards this are: (i) the construction of manuals that detail good practices in taxonomic research and that describe, illustrate and key-out the inventoried biota (Kok & Kalamandeen, 2009<sup>5</sup>), (ii) permanent

<sup>5</sup> Kok, P.J.R. & Kalamandeen, M. 2008. Introduction to the taxonomy of the amphibians of Kaieteur National Park, Guyana. *Abc Taxa* Vol 5: i-ix, 278 pp.

position for trained staff (here, 'key-trainee is now lecturer at the Department of Biology at the University of Guyana); and (iii) installment of a well-curated reference collection in the home country.

### **Recommendations regarding case study 1**

If the SFGTI were to decide to install grants to carry out projects as this case study, we could suggest that:

- ⇒ capacity building is mainstreamed in taxonomic research
- ⇒ needs identified by taxonomists are used to drive a project
- ⇒ key partners (preferentially with permanent position or with prospects to get such) in home country are identified
- ⇒ it is made sure that built collections will neither become orphaned nor neglected
- ⇒ decision makers are informed that the build-up of taxonomy is an essential infrastructure for society
- ⇒ production of 'hard traces' such as scientific papers and books are stimulated.

### **04.2. Case study 2 – Building institutional capacity by installing a functional entomological center of expertise in Vietnam (2007-)**

In the summer of 2007 a MoU was signed between the Institute of Ecology and Biological Resources, Hanoi (IEBR), Vietnamese Academy of Sciences and Technology and the department of Entomology, Royal Belgian Institute of Natural Sciences, Brussels (RBINS). The object of that MoU was to increase the collaboration between both institutes so as to advance entomology in Vietnam.

To make possible the implementation of this MoU, the Belgian GTI National Focal Point: (i) sponsored several Belgium-based taxonomic trainings of a Vietnamese researcher and (ii) financed a prospecting and collection assessment mission of two Belgian entomologists to Vietnam. The assessment of the entomological collections of the IEBR and the definition of the needs to ensure a state-of-the-art, long-term preservation of the collections, forms the object of the present case study.

Preliminary observations made by the Belgian entomologists can be read in their preliminary report as available in annex 1.

### **Conclusion on case study 2**

The current capacity building programme focused mainly on training of researchers and other staff in taxonomic research and collection management. Experts are now able to produce high-quality research, and very interesting entomological material has been collected throughout Vietnam and is now available for further study. In order to ensure long-term sustainability, the project now needs to complement training with greater institutional support: the IEBR needs good facilities to store, manage and study the collections. This is explained in greater detail in annex 1.

The conclusions of case study 2 are similar to those of case study 1. The taxonomic impediment is well identified and could be tackled with relatively limited funds and in a short time-scale. It is however even clearer here that it is crucial to have a well-thought over exit strategy. Having permanent and adequately equipped research and collection management staff has revealed itself as a crucial component therein.

### **Recommendations regarding case study 2**

If the SFGTI were to decide to install institutional support as in this case study, we could suggest that:

- ⇒ a needs assessment is carried out beforehand;
- ⇒ key partners are identified in the home country (with a permanent position);
- ⇒ capacity building is mainstreamed in taxonomic research;
- ⇒ a natural history facility with permanent staff for research and collections management is installed;
- ⇒ it is made sure that built collections will neither become orphaned nor neglected;
- ⇒ production of 'hard traces' such as scientific papers and books are stimulated;

⇒ decision makers are informed that the build-up of taxonomy is an essential infrastructure for society.

### 04.3. Case study 3 - Needs captured by the Belgian GTI National Focal Point through its annual call for capacity building taxonomic projects

#### 04.3.1. Introduction

The Belgian GTI National Focal Point runs a capacity building programme since 2004. In that programme it annually launches a call for proposals whereupon students and institutes from (eligible) developing countries can express their taxonomic needs. Since 2004, 385 such applications have been received from all over the world.

#### 04.3.2. Needs analysis

In the application form, candidates not only have to detail their taxonomic and/or collection management project, but must also specify what type of support they request. The application form queries for training and access needs. In annex 2, the application form of the 2010 call is given. Table 2 provides an overview of the different types of training requests made in the project proposals.

**Table 2 – Different types of requested training**

Location of applicant	Type of requested training				
	Collection management	Theoretical taxonomy	Nomenclature <sup>6</sup>	'Good practices in taxonomy' <sup>7</sup>	Other
All	68.05	70.91	35.06	76.88	16.62
Africa	75.25	77.72	34.65	83.66	16.34
Asia	70.83	80.21	47.92	82.29	12.50
Central & South America	62.16	48.65	24.32	54.05	18.92
Cuba <sup>8</sup>	38	42	20	56	24

Concerning training needs, 77% of the candidates ask for training in 'good practices in taxonomy' (e.g. training on writing skills) followed by 71% asking for training in 'theoretical taxonomy'. Requests for training in 'collection management' are also frequent, with 68% of the total requests. Last come the requests for training in "zoological nomenclature" with only 35% of total applications.

Table 3 provides an overview of the different types of access requests made in the project proposals.

<sup>6</sup> Our programme only offers training in zoological nomenclature; requests for training in botanical nomenclature are included in 'other'

<sup>7</sup> Good practices in taxonomy include: scientific illustration, paper writing, etc.

<sup>8</sup> Cuba is put as a separate entity because of the large number of requests received from that country and because since 2006 the Royal Belgian Institute of Natural Sciences and two Cuban research institutes have entered into a memorandum of understanding.

**Table 3** – Different types of requested access.

Location of applicant	Type of requested access				
	Belgium-based biological collections	Taxonomic literature	Belgium-based infrastructure <sup>9</sup>	Belgium-based expertise <sup>7</sup>	Other <sup>7,10</sup>
All	81.56	79.48	74.71	77.06	10
Africa	84.65	76.73	70.21	86.17	4.26
Asia	80.21	79.17	64	68	4
Central & South America	75.68	75.68	84.62	76.92	7.69
Cuba	76	94	92	52	40

Regarding access-needs, table 3 shows that 81% of the candidates require access to Belgium-based biological collections and 79,5% also to taxonomic literature. Access to Belgium-based infrastructure and expertise is asked for in similar proportion (with respectively 74% and 77% demands), although we must note that the latter figures are based only on our last three calls. We can also note that among the 'other' access, the most required is 'getting specimens on loan from other museums', a service often requested by Cuban candidates (40% of Cuban candidates requested it). Also, up to 45 % of candidates also ask for training in molecular taxonomy. A minority of requests go to trainings in database and computer use, scientific drawing and *in vitro* culture.

#### 04.3.3. Cost of the project

The Belgian GTI project foresees following items on its budget for inviting students and researchers to Belgium for a capacity building visit: national and international travel, insurance, pick-up at airport or railway station, per diem of 35 €/day for invitee, housing in Belgium and a bench fee of 50 €/working day for the guiding tutor. In addition small costs (e.g. for books, Xerox copies, small equipment, ...) up to an amount of 200 €/student are covered.

Nevertheless calculating the cost of a capacity building visit to Belgium by a student or researcher from a developing country is not a straightforward exercise as origin of the candidate and the duration of the sojourn drive the cost. Table 4 nevertheless gives an estimate based on 5 candidates (names omitted) from 3 different continents selected on our 2010 call.

If we average the amounts in table 4, we see that a one month visit for a student fulfilling the 'hypothesis 1' (Student resides in guest house of RBINS and has no additional costs (e.g. airport taxes, visa costs, etc) criteria costs on average 4,072 €. For a student under 'hypothesis 2' (student resides in private guest house in Brussels and has 50€ additional costs) this amounts to 4,962 €. Finally a student under the 'hypothesis 3' regime (student resides in a normal quality Brussels hotel and has 100 € additional costs) needs 5,837 €. By averaging these three sums we get an overall amount of ± 5,000.00 €/student/month.

#### 04.3.4 Output of the project

Outputs of some of the students trained under this program are highlighted on the website of the Belgian GTI Focal Point. Learn more by clicking [here](#).

### Conclusion on case study 3

This case study documents a tangible approach to capacity building by transferring existing taxonomic

<sup>9</sup> Only based on 2008-2010 calls only

<sup>10</sup> Open field to be filled in by candidate

capacity - taking the form of expertise, collections, literature, and access to infrastructure – to students and researchers in developing countries. This modus works extremely well and often leads to long-term collaboration between student and tutor, but has as major drawback the relatively high cost (another drawback: the limited number of people trained per call. This is compensated by the high quality training provided and the very high value).

### **Recommendations regarding case study 3**

If the SFGTI were to install a training program such as the one ran by the Belgian GTI, we could recommend that:

- ⇒ priority for support goes to young researchers from developing countries that have a permanent position
- ⇒ capacity building visits are minimal 1 month long
- ⇒ available resources are coupled to other similar projects (*e.g.* EDIT's expert in training programme, ...)

**Table 4** Mean cost for a GTI student visiting Belgium

	<i>Ex 1: Student &lt; Cuba</i>	<i>Ex 2: Student &lt; Colombia</i>	<i>Ex 3: Student &lt; South Africa</i>	<i>Ex 4: Student &lt; Benin</i>	<i>Ex 5: Student &lt; Vietnam</i>
Plane ticket	1.187,30 €	1.490,50 €	822,50 €	609,50 €	1.291,50 €
Accommodation:					
RBINS Guest House	750,00 €	750,00 €	750,00 €	750,00 €	750,00 €
Private Guest House for students	1.590,00 €	1.590,00 €	1.590,00 €	1.590,00 €	1.590,00 €
Normal quality hotel in Brussels	2.365,50 €	2.365,50 €	2.365,50 €	2.365,50 €	2.365,50 €
Pick-up upon arrival	100,00 €	100,00 €	100,00 €	100,00 €	100,00 €
Insurances	55,00 €	55,00 €	55,00 €	55,00 €	55,00 €
Per diem	1.050,00 €	1.050,00 €	1.050,00 €	1.050,00 €	1.050,00 €
National (public) transport	36,90 €	36,90 €	36,90 €	36,90 €	36,90 €
Bench fee	1.000,00 €	1.000,00 €	1.000,00 €	1.000,00 €	1.000,00 €
Misscelaneous costs:					
Hypothesis 1	0,00 €	0,00 €	0,00 €	0,00 €	0,00 €
Hypothesis 2	50,00 €	50,00 €	50,00 €	50,00 €	50,00 €
Hypothesis 3	150,00 €	150,00 €	150,00 €	150,00 €	150,00 €
TOTAL 1	4.179,20 €	4.482,40 €	3.814,40 €	3.601,40 €	4.283,40 €
TOTAL 2	5.069,20 €	5.372,40 €	4.704,40 €	4.491,40 €	5.173,40 €
TOTAL 3	5.944,70 €	6.247,90 €	5.579,90 €	5.366,90 €	6.048,90 €

**Legend**

Hypothesis 1 (low cost)	Student resides in guest house of RBINS and has no additional costs (e.g. airport taxes, visa costs, etc)
Hypothesis 2 (medium cost)	Student resides in a private guest house in Brussels and has some additional costs (here set at 50 €)
Hypothesis 3 (high cost)	Student resides in a normal quality Brussels hotel and has several additional costs (here set at 100€)

## 05. Conclusions and overall recommendations

In recognition that the taxonomic impediment is ongoing, especially in developing countries, it has been decided by the Conference of the Parties to the Convention on Biological Diversity that a dedicated Special Fund for the Global Taxonomy Initiative must be made operational. The present Case for Support highlights what activities the SFGTI could support and recommends best practices by which this could be achieved.

### 05.1. Funding criteria

Given that it may be anticipated that the SFGTI would in its initial stage have only very limited financial resources, investments will have to be made strategically. We therefore recommend the following decision mechanisms for distribution of the fund:

- ⇒ funding should be awarded only to individuals and institutions based in LDC's;
- ⇒ funding should be on a competitive basis so that only the on-the-ground champions of taxonomy and collection management would be supported;
- ⇒ funding should be limited in time, although renewal procedures should be put in place;
- ⇒ funding should be awarded only to taxonomic capacity building, to taxonomic research and to collection management;
- ⇒ funding should act as a catalyst to lever additional funding, *i.a.*, for long-term careers in taxonomy and collection management;
- ⇒ funding should lead to regionally balanced centers of taxonomic excellence;
- ⇒ Projects that aim to deliver at least one of the outcome-oriented deliverables of the PoW of the GTI as identified in annex of COP Decision IX/22 should receive priority.

### 05.2. The SFGTI in practice

The table below provides an estimate as to how much money the SFGTI should need to have to optimally and sustainably (*i.e.* via the interest – here set at 3% - earned) run the items it wants to support. In the initial phase, only researchers from LDC's would be eligible for support.

**Table 5** – Possible budget for the SFGTI; amounts reflect typical amounts as provided by other funders as revealed by gap analysis.

Item	Allocated amount	Reserves needed in the SFGTI
Biennial recognition award	1 x 1,250 €	25,000 €
3 Mobility awards to study European, N. American or Australian reference collections	3 x 5,000 €	500,000 €
3 Mobility Awards to study a reference collection in researchers own country	3 x 500 €	50,000 €
3 Mobility Awards for expeditions in hotspots in researcher's own country	3 x 1,000 €	100,000 €
10 Research grants	30,000 € (size of individual grant variable, from 1,000 to 5,000 €)	1,000,000 €
10 Short-term fellowships (1 month) in LDCs	10 x 500 €	170,000 €
10 Long-term fellowships (1 year) in LDCs	10 x 5,000 €	1,650,000 €
Other support		
Literature	1,000 €	33,000 €
Supplies and equipment	5,000 €	170,000 €
Publishing support	1,000 €	33,000 €
	<b>112,750 € per annum</b>	<b>3,731,000 € in total</b>

Table 5 reveals that an investment of nearly 4 million € is needed to run a modest capacity building program sustainably. Not included in this figure are the salaries of an eventual SFGTI Secretariat or other such body responsible for management and distribution of the funds. If the investment needed proves too high, it could be envisaged to start the SFGTI on a more limited scale. This would also request to identify priorities, based on the most pressing needs.

**To further build the SFGTI**, we recommend that the extremely fragmented funding landscape is further documented and recorded in a database to allow easy recovery of alternative and/or complementary funds. Once such exists the amount of money to be deposited in the SFGTI can be readjusted.

## **Acknowledgments**

We wish to thank the Belgian Development Cooperation for its generous support to the workings of the Belgian National Focal Point to the GTI. We also wish to thank the many students and researchers supported via the Belgian GTI programme with whom we have worked in the past five years. These contacts allowed us to better understand and remediate the problems faced by developing countries willing to do taxonomic research. We are also grateful to Dr J. Constant of the RBINS for allowing us to attach (cf annex 2) his preliminary report the institutional capacity building project he runs in Vietnam. Further, we thank Dr I. Van de Velde, team leader for WP 8 in the EDIT program, for scrutinizing our input regarding the training initiatives made possible through EDIT.

## **Annexes**

Annex 1 – Preliminary GTI report by Dr J. Constant (Establishing a center of entomological expertise in VietNam)

Annex 2 – Application form of the 2010 call for proposals as issued by the Belgian GTI

## A step further in the Entomodiversity of Vietnam

GTI project 2437FRK2\_T1\_GTI-01\_Grootaert&Constant\_2010

**Preliminary report - pars "Assessment of the entomological collections of IEBR"**

### ***Description of the present situation:***

- Collection room:
  - the collection is presently stored in a small room (around 20 square meters) equipped with air-conditioning and a dehumidifier.
  - the temperature is constant in the room, around 21-22°C.
- Collection drawers and cabinets:
  - the drawers are made of wood and seem of good quality
  - metallic cabinets are used to store the drawers. They are of good quality and closed to prevent damages due to light.
- Management of insect pests:
  - naphthalene balls are used to prevent attacks by collection parasites.
  - a freezer is used to clean the papered specimens from parasites when necessary, but it cannot contain a drawer.
- Maintenance and curation of the collection:
  - only specimens of the groups studied by a researcher of IEBR, are mounted.
  - each researcher has to care him/herself for the mounting, labeling and preservation of his/her study material.
  - only a very small part of the material is identified to species level (less than 10%)
- Conditions of the specimens:
  - only a very small part of the specimens are mounted (probably less than 15%).
  - the biggest part of the collection remains unmounted, papered on cotton layers.
  - collection parasites (Coleoptera Dermestidae, Tenebrionidae, Anobiidae; Hymenoptera Formicidae) have been observed in several insect boxes and on a number of unmounted specimens, damaging or even destroying the specimens.
  - the unmounted material is stored in bad conditions: in cardboard boxes, in plastic boxes or even in plastic bags.
  - most of the specimens (more than 95%) bear handwritten labels in Vietnamese, often with codes and abbreviations.

### ***Identification of the problems:***

- Collection room:
  - the room is already nearly full and is much too small to contain all the preserved specimens if they get mounted and stored in drawers.
  - the temperature in the room should be lower, below 18°C, and ideally around 15°C.
- Collection drawers and cabinets:
  - all the available drawers are used and full, what does not allow a good arrangement of the collection.
  - all the cabinets are full of drawers and papered material. A part of the papered material is stored in cardboard boxes above the cabinets in the collection room, but also in the offices of the researchers.
- Management of insect pests:
  - the use of naphthalene should be avoided as it is not efficient against parasites and carcinogen for the

people.

- the available freezer is much too small, it should be large enough to contain several drawers.

- Maintenance and curation of the collection:
  - as only a small part of the material collected by the researchers is mounted, more and more material remains unmounted and unavailable for study.
  - when a researcher stops to work at IEBR, nobody cares for his/her collection, due to lack of time and human resources.
  - even though it contains a great number of specimens, and specimens of great interest, the IEBR collection cannot be considered a reference collection for the Vietnamese entomofauna, as only a very small part of the specimens are identified.
- Conditions of the specimens:
  - the fact that most specimens remain unmounted does not allow easy sorting and access to the material.
  - the preservation of the specimens on cotton layers, in envelopes, does not allow control for parasites.
  - the labels are difficult/impossible to decipher for non-Vietnamese, or even for non-IEBR researchers.

#### ***Proposed solutions:***

- Collection room:
  - a larger room will be necessary to store the collection in cold conditions. According to the discussions we have had with our partner Mr Pham Hong Thai, with the head of the entomology department and with the director of IEBR, there are possibilities within IEBR.
  - air-conditioning in the new room should maintain temperature around 18°C max.
- Collection drawers and cabinets:
  - new drawers and cabinets should be provided. Each cabinet can contain 20 drawers. Drawers cost about 25 Euros each and cabinets 300-350 Euros.
- Management of insect pests:
  - a new, big-sized freezer should be provided in order to be able to freeze the drawers.
  - freezing should be used as a routine before addition of any specimen in the insect drawers.
- Maintenance and curation of the collection / conditions of the specimens:

It is crucial that at least one, if possible two technician(s) / collection manager(s) be engaged. Their work would be as follows:

- mounting the papered specimens, starting with the groups on which researchers of IEBR work.
- labeling the specimens using international standards (i.e. in English, with geographical coordinates whenever possible).
- arranging the specimens in the collections and databasing them so that they are easily accessible.
- mounting of specimens for which identification capacities exist abroad and send those specimens to the relevant specialists. That material will be sent back correctly identified and included in the reference collection.
- survey of the collection for parasites.

#### ***Background, expected outputs and philosophy.***

This new proposal is the logical continuation of the fruitful collaboration between RBINS and IEBR under the auspices of GTI. It is in the line of the MoU signed between the Department of Entomology of RBINS and IEBR in 2006.

GTI project has financed 3 visits of Mr Pham Hong Thai to RBINS (2007-2009) where he learned the techniques of fine dissection of genitalia, drawing, building up of identification keys and international standards papers, allowing him to become one of the best specialists of the Cicadidae fauna of Vietnam and SE Asia, presently publishing papers in high-level international journals such as Zootaxa.

The present project, financed by GTI, was dedicated to inventorize the entomofauna of several groups in North Vietnam and to teach local researchers some field collecting techniques, and to assess the entomological collections and collection management in IEBR.

It is obvious that the collections of IEBR contain lots of very interesting material (new data and new species have already been found in different groups as Rutelinae, Cerambycidae, Fulgoridae, which will lead to the publication of several scientific papers), but most of it remains unavailable to the scientific community as it is unmounted and unsorted, due to the lack of technicians / collection managers.

Our idea is to fill this gap via the financing of one or two technicians and the necessary material to have a state-of-the-art maintained collection.

The expected outputs are the building up of a reference collection of national, regional and international importance (the present collection already contains type material of several species), available to all taxonomists and other scientists. The unidentified specimens will be sent to the best specialists around the world for identification and will then be included in the IEBR collection. This will be possible with the expertise of the researchers and collection managers of both RBINS and IEBR. An other output will be the description of the new species present in the collections and a much better documented knowledge of the entomofauna of Vietnam.

Collection management can only be seen as a long-term work, so it is absolutely necessary to propose to the technicians / collection managers, long-term contracts (their work being of course regularly evaluated).

In Vietnam, it is clear that year-by-year renewed contracts will lead to those people looking for another, more stable job, resulting in an important loss of expertise, time and money.

This new project would allow the insect collections of IEBR to become, after some years, one of the masterpieces of the knowledge of the entomofauna of Vietnam and SE Asia.

***Material and budget needs (minimal rough estimation):***

- Small entomological equipment: pins, forceps, cardboard labels to glue the smaller specimens, glue.  
ca 1500 Euros/year
- Freezer large enough for the drawers.  
ca 500 Euros
- Cabinets and drawers, as a start: 100 drawers and 5 cabinets.  
ca 4250 Euros
- Computer and printer for databasing and printing the labels.  
ca 1000 Euros
- Stereomicroscope for mounting of the small specimens.  
ca 2500 Euros
- Salary for the technicians.  
ca 400 Euros/month/person
- 2-3 weeks stay of an RBINS collection manager in IEBR to train the IEBR technicians  
ca 2000 Euros

The room with air-conditioning would be provided by IEBR.

Budget for the first year:

ca 16.550 Euros (if one technician) or 21.350 Euros (if two technicians).

Budget for the following years:

10.550 Euros (if one technician) or 15.350 Euros (if two technicians).



The collection room.



Drawers and cabinets, also with unmounted material



Air conditioning.



Checking the huge amount of unmounted material



Unmounted material stored in cardboard boxes



Drawer with mounted and identified specimens, containing naphthalene balls.



Papered specimens on cotton layer.



Specimens of Mantoptera destroyed by collection parasites (Dermestidae beetles)



Mr Pham Hong Thai and the considerable amount of unmounted Cicada specimens

Reference number of GTI application: *CBD/GTI-02/2010*.

Date of reception:

Decision:

*(box reserved for Belgian administration)*

# APPLICATION FORM

## Taxonomic training & access to collections in Belgium

(call opens on 15 January 2010 and concludes at 23.00 hours GMT on 15 March 2010)

### NOTICE

Entries must be submitted in English using the present application form. **Only complete application forms will be considered eligible.** Each application must also be complemented by an up to date *curriculum vitae* in English. Electronic submission on the general e-mail address of the Belgian GTI NFP ([cbd-gti@naturalsciences.be](mailto:cbd-gti@naturalsciences.be)) is strongly encouraged. If electronic submission should however be impossible, paper copies can also be sent by fax or ordinary mail.

Once the Belgian GTI NFP has received the application form and CV, each grant seeker will receive an e-mail confirming the reception of his/her entry and be given a **reference number that should be quoted in all subsequent correspondence with the Belgian GTI NFP.**

Candidates will be notified on eventual acceptance before 23:00 hours GMT on 31 March 2010.

## Contact and further information

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## PART I – CANDIDATE INFORMATION

### Personal data of applicant

Family name (use capitals):			
First name(s):			
Maiden name (use capitals):		<i>(For married women only)</i>	
Nationality:			
Place of birth:		Date of birth:	
Sex:	<input type="checkbox"/> Male	<input type="checkbox"/> Female	
Marital status	<input type="checkbox"/> Single	<input type="checkbox"/> Married	<input type="checkbox"/> Divorced <input type="checkbox"/> Widowed
Level:	<input type="checkbox"/> Parataxonomist	<input type="checkbox"/> Graduate student	
	<input type="checkbox"/> Technician	<input type="checkbox"/> Postgraduate student	
	<input type="checkbox"/> Undergraduate student	<input type="checkbox"/> Professional taxonomist	
Years of relevant professional experience:	<i>(Succinctly state how these were filled in):</i>		
Home address:			
Email (professional):			
Email (private):			
Contact number(s) in home country: <i>(indicate as: + country code / area code / number)</i>	Telephone number(s) (office):	Telephone number(s) (home):	Fax number(s) (office):
Number of international passport:	<i>(Your passport must be valid until at least September 2010)</i>		
Personal url:	<i>(Only to be filled in when applicable)</i>		
<b>Person to be contacted in case of emergency</b>			
Family name (use capitals):			
First name(s):			
Contact address:			
Email (professional):			
Email (private):			
Contact number(s) in home country: <i>(indicate as +country code / area code / number)</i>	Office number(s):	Home number(s):	Fax number(s):

<b>Training history of candidate</b>		
Have you already received taxonomic training from a Belgian institution?	<i>(If yes, please specify date, duration, subject, location and funding body; if no, leave open)</i>	
Have you already received taxonomic training from a non-Belgian institution?	<i>(If relevant, please specify date, duration, subject, location and funding body)</i>	
<b>PART II – INSTITUTION / ORGANISATION INFORMATION</b>		
Name of the organization you are employed by:		
Type of organisation:	<input type="checkbox"/> University <input type="checkbox"/> NGO <input type="checkbox"/> Museum <input type="checkbox"/> Other, specify: <input type="checkbox"/> Governmental	
Address of the organisation you are employed by:		
Name of executive director:		
Address of executive director: <i>(if different from address of organisation)</i>		
Contact number(s): <i>(indicate as +country code / area code / number)</i>	Telephone number(s):	Fax number(s):
Email of chief executive officer:		
Url of your organisation:	<i>(Only to be filled in when applicable)</i>	
Principal purposes and services of your organisation:		

**PART III – PROJECT DESCRIPTION**

Title:	
Abstract: <i>(150 words max)</i>	
Aim of project <i>(150 words max)</i>	<i>Concisely describe what questions your project wants to answer; highlight the taxonomic and/or collection management components.</i>

<p>Concise description of project (200 words max)</p>	<p><i>Give a general account of your project; express clearly where you experience problems in terms of taxonomy and/or collection management.</i></p>
<p>Capacity building components (200 words max)</p>	<p><i>Shortly describe how you think the Belgian National Focal Point to the GTI can remediate your problems in taxonomy and/or collection management.</i></p>

<p>Past and future of your organisation/project (200 words max)</p>	<p><i>Shortly describe how you will transfer the gained taxonomic and/or collection management capacity to others within your project/organisation.</i></p>
<p>Poverty reduction (200 words max)</p>	<p><i>Shortly describe how your project relates to poverty reduction.</i></p>

PART IV – BIODIVERSITY SPECIFIERS	
Taxon / taxa of interest:	<i>Indicate as (Phylum/Class/Order/Family/Genus)</i>
Direct-use value of taxon of interest:	<i>What, if any known, marketable commodities can be attributed to your taxon of interest (e.g. food, medicine, materials,...)?</i>
Indirect-use value of taxon of interest:	<i>What, if any known, non-marketable commodities can be attributed to your taxon of interest (e.g. nutrient cycling, soil formation, pollination,...)?</i>
Your taxon and climate change	<i>Describe briefly how a better knowledge on the taxonomy of your taxon could possibly aid in showing the effects of climate change (for instance: documenting invasive species, expansion of distribution range, ...)</i>

## PART V – CAPACITY BUILDING SPECIFIERS

Type of support requested: <i>(several possibilities are allowed)</i>	<b>TRAINING</b> <input type="checkbox"/> Training in collection management <input type="checkbox"/> Training in theoretical taxonomy <input type="checkbox"/> Training in nomenclature (zoology only) <input type="checkbox"/> Training in good practices in taxonomy (e.g. writing proposals/papers, ...) <input type="checkbox"/> Other, <i>specify briefly</i>	<b>ACCESS</b> <input type="checkbox"/> Access to Belgium-based biological collections <input type="checkbox"/> Access to taxonomic literature <input type="checkbox"/> Access to Belgium-based infrastructure <input type="checkbox"/> Access to Belgium-based expertise <input type="checkbox"/> Other, <i>specify briefly</i>
Timing of the desired study visit	Start:	End:

## PART VI – EXISTING CAPACITY SPECIFIERS

Collections of taxon of your interest	Does your country have representative collections? <input type="checkbox"/> No <input type="checkbox"/> Yes, but collection is largely unsorted <input type="checkbox"/> Yes, but collection is sorted only up to family <input type="checkbox"/> Yes, but collection is sorted only up to genus <input type="checkbox"/> Yes, collection sorted up to species <input type="checkbox"/> Identifications checked by taxonomic authority <input type="checkbox"/> Identifications not checked by taxonomic authority Are there representative collections available in your region? <input type="checkbox"/> No <input type="checkbox"/> Yes, but collection is largely unsorted <input type="checkbox"/> Yes, but collection is sorted only up to family <input type="checkbox"/> Yes, but collection is sorted only up to genus <input type="checkbox"/> Yes, collection sorted up to species <input type="checkbox"/> Identifications checked by taxonomic authority <input type="checkbox"/> Identifications not checked by taxonomic authority Do you think Belgium has collections of interest to your project? <input type="checkbox"/> No <input type="checkbox"/> Yes; specify why (e.g. referred to in publications, referred to by authority, etc.)	
Taxonomic expertise for your taxon of interest:	<input type="checkbox"/> Available in country <input type="checkbox"/> Available in region	<input type="checkbox"/> Not available in country <input type="checkbox"/> Not available in region
Curatorial expertise for your taxon of interest	<input type="checkbox"/> Available in country <input type="checkbox"/> Available in region	<input type="checkbox"/> Not available in country <input type="checkbox"/> Not available in region

**Brussels, 15 January 2010**