



Association International Vahatra

Annual report for 2010

Prepared by

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For us it is rather remarkable to think that we shifted offices from WWF-Madagascar to Vahatra over three years ago. A lot has happened over the course of this period and withstanding the social-economic-political problems that shook the country in 2009 and portions of 2010, Vahatra has been able to make very important advances with the education of young Malagasy scientists and exploring the island's remarkable biological diversity. Vahatra now has a website (www.vahatra.mg) that is discussed in some more detail below that we cordially invite you to explore.

It is with pleasure that we send you this third annual report. If you have any comments or questions, please do not hesitate to be in contact (associatvahatra@moov.mg). On the behalf of Vahatra, best wishes to you for 2011.

A MESSAGE FROM THE PRESIDENT OF VAHATRA, DR. ACHILLE RASELIMANANA

These two last decades marked an important step in the history of the Malagasy biodiversity, the advancement of the natural sciences and increasing interest of young scientists in this domain. This period equally testified the integration and ever increasing implications of scientific knowledge in the conception and the elaboration of the management plans for the conservation of the island's biodiversity and natural environment. Continued insights into the rich natural heritage of Madagascar, unique to our world, augment at a remarkable speed each year, as well as the number of young Malagasy students turning to the natural sciences for their professional careers. The availability of solid scientific data concerning the biota of Madagascar and the development of competent human resources go hand-in-hand for those who work to perpetuate this heritage. The Association Vahatra was founded in part for the development and reinforcement of capacity for young graduate students in the domain of biology, conservation biology, and ecology. It is amongst several different actors that advance the interface of science, education and

conservation. This is a considerable challenge, but also a conviction, and much remains to be accomplished. With the contribution of these different people and organizations, the current obstacles will be overcome, as we firmly believe that proper science is an important means to help safeguard the unique natural heritage of Madagascar.

LONG-TERM GOALS

The long-term goals of the Association Vahatra are to advance Malagasy scientists, specifically graduate students within the national university system, and augment a greater understanding of the island's unique biota. Our intent is to create an organization with a long-term future, both in the sense of a financial base and vision. A critical aspect to mention is that this vision is largely based on the Malagasy scientists and students incorporated into the association, and, hence, profoundly Malagasy in prospective, rather than being based on the politics-vision of an international organization. We consider these aspects fundamental for the long-term vitality of the association, as members will be more engaged and committed by conviction with regard to the proper management and conservation of their natural heritage.

The seed was planted for this project nearly 20 years ago in the context of a project organized by WWF-Madagascar and known as The Ecology Training Program (ETP). Steve Goodman was the coordinator of the project for nearly 15 years, during which several generations of Malagasy students finished their higher degrees in zoology and conservation biology. Amongst these people are included several of the permanent members of Vahatra and who in different manners have been incorporated into the modern scientific community of Malagasy biologists. These individuals are now responsible for the advancement of new generations of Malagasy field biologists in the context of Association Vahatra, as well as numerous other activities.

VAHATRA – PERMANENT STAFF

1. Dr. Achille P. Raselimanana – President of Vahatra and Lecturer, Department of Animal Biology, The University of Antananarivo. Founding member. Achille was one of the first generation of ETP graduates and did his DEA and Ph.D. in the context of this program. He is a herpetologist with considerable experience in molecular systematics and worked as the Biodiversity Program Officer for WWF-Madagascar for almost ten years before Vahatra was created.
2. Madame Malalarisoa Razafimpahanana – General Secretary of Vahatra. Founding member. Malalarisoa formerly worked at WWF and transferred to Vahatra in October 2007. She is responsible for the administration, the accounting aspect, the lay-out of *Malagasy Nature* and the designer and master of the association website.
3. Dr. Marie Jeanne Raherilalao – Editor, *Malagasy Nature* at Vahatra and Lecturer, Department of Animal Biology, The University of Antananarivo. Founding member. Marie Jeanne did her Ph.D. associated with the ETP. Marie Jeanne is an ornithologist.
4. Dr. Voahangy Soarimalala – Scientific Coordinator at Vahatra and Head Curator, Department of Animal Biology, The University of Antananarivo, and Lecturer, The University of Fianarantsoa. Founding member. Voahangy did her DEA and Ph.D. associated with the ETP. Voahangy is a mammalogist.
5. Dr. Steven M. Goodman – Scientific Advisor at Vahatra and Lecturer, Department of Animal Biology, The University of Antananarivo and The University of Mahajanga. Founding member. Steve works with both mammals and birds and holds the post of MacArthur Field Biologist, Field Museum of Natural History, Chicago.
6. Mr. Rachel Razafindravao called “Ledada” – logistic coordinator. Ledada started working with the ETP some 17 years ago and transferred to Vahatra in October 2007. He has helped organize logistics for well over 200 field missions.

7. Madame Françoise Ramalalaitiana – domestic help. Françoise has worked with Vahatra since October 2007.
- 8-10. Mrs. Maravo, Elisa, and Rivo – Guardians. They started working with Vahatra in October 2007, with the exception of the last individual that was more recently hired.

VAHATRA'S BOARD OF DIRECTORS

In order to provide needed guidance and counseling for the current and future programs of Vahatra, a Board of Directors was created, that includes the following individuals:

Malagasy nationals

- Daniel Rakotondravony – Chef de Laboratoire des populations animales terrestres, Département de Biologie Animale, Université d’Antananarivo.
- Nanie Ratsifandrihamanana – Director of Conservation, WWF, Madagascar.
- General Guy Ratriamoarivony – Général de Corps d’Armée, Director of Strategy Seminar, Center for Diplomatic and Strategic Studies.
- Chantal Andrianarivo – Head of Research and Biodiversity, National Association for the Management of Protected areas (ANGAP), now called Madagascar National Parks (MNP).
- Joelisoa Ratsirarson – Professor at the University of Antananarivo.
- Jean Chrysostome Rakotoary – General Director of the National Office for the Environment (ONE).
- Raelina Andriambololona – Professor at the University of Antananarivo, General Director of ISTN (Antananarivo Higher Institute of Technology) and Member of the Malagasy Academy.

Foreign members

- John McCarter – President of the Field Museum.
- Michael Polsky – President, Invenergy.
- Olivier Langrand – Vice president, Conservation International.
- Jörg U. Ganzhorn – Professor at the University of Hamburg.

On 3 December 2010, the annual meeting of the Board of Directors took place at Vahatra. During the course of the morning meeting, many aspects of the 2010 programs of Vahatra were discussed, as well as the near and long-term future of the organization. The attending Board of Directors made very clear and precise points, which Vahatra will be addressing and acting upon in the coming year.



VAHATRA – STUDENTS

We are currently working directly with 20 different Malagasy students, 10 at the level of Ph.D. and 10 conducting DEAs (roughly equivalent to a Master's), which are registered within the national university system (see Table 1). Further, the scientific members of Vahatra are also working with tens of other Malagasy students as secondary advisors and members of thesis and memoir committees. A serious effort has been made to work about undergraduate and graduate students in other provincial universities outside of Antananarivo, including Toliara, Fianarantsoa, and Mahajanga. In addition, Vahatra staff members advise many other Malagasy students about aspects of their research, access to literature, and other forms of advice. For example, since the opening of the Vahatra office in October 2007, over 120 Malagasy students have used the library. Steven M. Goodman also serves on the committee of six students at The University of Kwa-Zulu Natal, where he is Honorary Professor, and one student at the University of Geneva (Switzerland) that presented her thesis in 2010, associated with projects on Malagasy animals.

Table 1. Malagasy university graduate students currently enrolled in the Vahatra program, level of study, and subject of research.

Ph.D.

1. Beza RAMASINDRAZANA – Etude écologique des espèces de *Miniopterus* de petites tailles, anciennement connue sous *M. manavi* – The fieldwork associated with this thesis is completed and the student is currently analyzing data and writing portions of the thesis text. Several different papers have already been published or submitted. Thesis should be presented before late 2011.
2. Barivelo Tony ANDRIANAIVO – Influence des facteurs écologiques sur la faune micromammalienne dans la forêt d'Anjzorobe – The fieldwork associated with this thesis is completed and the student is currently analyzing data and writing papers and portions of the thesis text. Thesis should be presented before late 2011.
3. Ravo Eddy Nirina RAKOTONANDRASANA – Evaluation des impacts du changement climatique sur l'herpétofaune suivant les transects altitudinaux des massifs montagnards malgaches – The fieldwork associated with this thesis is completed and the student is currently analyzing data and writing portions of the text. One paper has been published and another submitted. Thesis should be presented before late 2011.
4. Tojomanana Landryh RAMANANA – Evaluation des impacts du changement climatique sur la faune de petits mammifères suivant les transects altitudinaux des massifs montagnards malgaches – The fieldwork associated with this thesis is completed and the student is currently analyzing data and writing papers and portions of the text. One paper has been published. Thesis should be presented before late 2011.
5. Rahantavololona Vonimanitra Juliana RASOMA – Ecologie de *Geochelone radiata* dans la région de Tsimanampetsotsa, sud-ouest de Madagascar – This thesis is currently before the “committee de lecture”, which is the last step before it can be presented, which is estimated to take place in early 2011. Several papers have been published and submitted.
6. Zafimahery RAKOTOMALALA – Distribution des communautés des micro-mammifères dans l'Ouest de Madagascar: Détermination de l'implication des traits hydrographiques naturels dans les assemblages zoologiques – This thesis was successfully presented in March 2010. Zafimahery has obtained the post of Lecturer in the Department of Animal Biology, The University of Antananarivo.
7. Harimalala Fanja RATRIMOMANARIVO – Inventaire des espèces de chauves-souris synanthropiques malgaches et étude de la variation morphologique, phylogéographique des quatre espèces de Molossidæ dans des îles

occidentales de l'Océan indien et de l'Afrique – This thesis was successfully presented in April 2010. The student is currently engaged in an 18-month post-doc associated with Vahatra and has published a series of papers on her research.

8. Amyot Felix KOFOKY – Régime alimentaire, biologie de reproduction, Ecomorphologie et écologie de population de *Myzopoda schliemanni* (Myzopodidae) dans la région occidentale, Madagascar – The fieldwork associated with this thesis is completed and the student is currently analyzing data and writing papers and portions of the text.
9. Claudette Patricia MAMINIRINA – Etude systématique et phylogénétique de *Miniopterus* Bonaparte 1837 (Microchiroptera : Miniopteridae) de Madagascar – This thesis was successfully presented in April 2010. The student is currently engaged in an 18-month post-doc associated with Vahatra and has published a series of papers associated with her research.
10. Martin RAHERIASENA -- Les petits-mammifères non-volants (Afrosoricida, Soricomorpha et Rodentia) dans le complexe forestier de la région de Loky-Manambato : biodiversité, biogéographie et effets de fragmentation forestière – This thesis was successfully presented in March 2010. The student has published a few papers associated with the thesis topic. He is engaged by the mining project of Ambatovy to conduct a monitoring program of small mammals in their intervention zones.

DEA

1. Rado Mampionona ANDRIANASOLO – Etude de la distribution écologique et spatiale de l'Herpétofaune du corridor forestier Anjozorobe-Angavo. This DEA was successfully presented in October 2008 and the student has continued with Vahatra to prepare a Ph.D. thesis on crocodile ecology.
2. Lofontsirinianana ANDRIANOELINA FITIA – Contribution à l'étude de la variation de poids des oiseaux de sous-bois de la forêt humide de Madagascar – This student has been slow in terminating this DEA, mostly associated with health problems. Raherilalao and Goodman have corrected at least two different drafts of the mémoire.
3. Pierre Angelo RABEARISOA -- Contribution à l'étude du régime alimentaire des *Couas* arboricoles de Madagascar – This student has been slow in terminating this DEA, mostly associated with health problems.
4. Toky Maheriniaina RANDRIAMORIA – Etude comparative des communautés de l'herpétofaune des deux blocs forestiers de Beanka dans la région de Melaky – This DEA mémoire has been completed and the student should present in early 2011.

5. Harimpitia Haridas ZAFINDRANORO – Etude comparative des communautés de la faune micromammalienne des deux blocs forestiers de Beanka dans la région de Melaky – This student is currently completing the final draft of the mémoire that will be submitted to her principal advisor.
6. Sanjarizaha RANDRIAMAHERIJAONA -- Etudes du peuplement d'ectoparasites de petits mammifères dans la forêt de Maromizaha (Andasibe) – Fieldwork has been completed and the student is currently working in the lab to identify ecomparasites and analyzing data. To be completed and presented before November 2011.
7. Malalanirina Zo Léopolla INGADY -- Etude de la préférence écologique de *Uroplatus giganteus* Glaw, Kosuch, Henkel, Sound & Böhme, 2006 dans le Parc National Montagne d'Ambre – Fieldwork has been completed and the student is currently analyzing data. To be completed and presented before November 2011.
8. Lovasoa Manuelle Sylviane RAKOTOZAFY -- Etude et analyse des communautés des amphibiens pandanicoles dans la forêt de Maromizaha (Andasibe), Madagascar – Fieldwork has been completed and the student is currently analyzing data. To be completed and presented before November 2011.
9. Miora Eugenia RAMAMISON -- Etude des Parasites intestinaux de deux carnivores (*Cryptoprocta ferox* et *Mungotictis d. decemlineata*) dans la forêt de Kirindy C.F.P.F. / Morondava pendant la saison sèche – The field aspect of this project has been completed and the student is currently working in the lab to advance on analyses. To be completed and presented before November 2011.
10. Claude Fabienne RAKOTONDRAMANANA -- Inventaire de la faune chiroptérologique nichant dans les baobabs de la forêt sèche de Kirindy CFPF, Madagascar – The student has completed two field excursions and is currently analyzing data. To be completed and presented before November 2011.

MALAGASY NATURE

Our intention with the scientific review *Malagasy Nature* is to publish in Madagascar a journal with peer-reviewed articles of high scientific and technical standards. Manuscripts in French or English are passed through a rigid review and editorial process. We work closely with Malagasy authors, particularly graduate students and young researchers, to help them understand the process of composing, writing and editing scientific articles. In many cases, the first publication of a researcher poses numerous problems and *Malagasy*

Nature provides the means for these individuals to navigate across this hurdle. Further, this journal allows Malagasy scientists to return information to the scientific world, rather than only being on the receiving end. We consider this a very important professional step for the Malagasy scientific community.

Malagasy Nature also guarantees the local availability of results of ecological and biological research conducted on the island, as in many cases articles and associated data published in foreign scientific journals are not repatriated to Madagascar.

The Head Editor of *Malagasy Nature* is Marie Jeanne Raherilalao and with a group of Associated Editors. Our original intent was to publish two numbers per year, each with approximately 100-125 pages. However, based on considerable augmentation of printing costs, we decided that on average only one number will be published per year, with approximately 200 pages. The exception is 2010, when two separate numbers appeared. The editorial board of *Malagasy Nature* is composed of both national and international scientists, from the Anglophone and Francophone worlds, and includes

Head Editor

Marie Jeanne Raherilalao

Associated Editors

Steven M. Goodman

Achille P. Raselimanana

Malalarisoa Razafimpahanana

Voahangy Soarimalala

Editorial Board (A = Anglophone, F = Francophone)

Birds

Frank Hawkins (F & A)

Olivier Langrand (F & A)

Mammals

Jörg Ganzhorn (A & F)

Peter J. Taylor (A)

Manuel Ruedi (F & A)

Daniel Rakotondravony (F & A)

Jean-Marc Duplantier (F & A)

Entomology

Brian Fisher (A & F)

Henri-Pierre Aberlenc (F & A)

Wilson Lourenço (F & A)

Herps

Franco Andreone (A)

Miguel Vences (A & F)

Crustaceans/Fish

Jeanne Rasamy (F)

Melanie Stiassny (A)

Parasitology

Vincent Robert (F & A)

Plants

Christopher Birkinshaw (A & F)

Roger Edmond (F)

Joelisoa Ratsirarson (F & A)

History/Archeology

Henry Wright (A & F)

Chantal Radimilahy (F & A)

Paleontology

John Flynn (A)

David Burney (A)

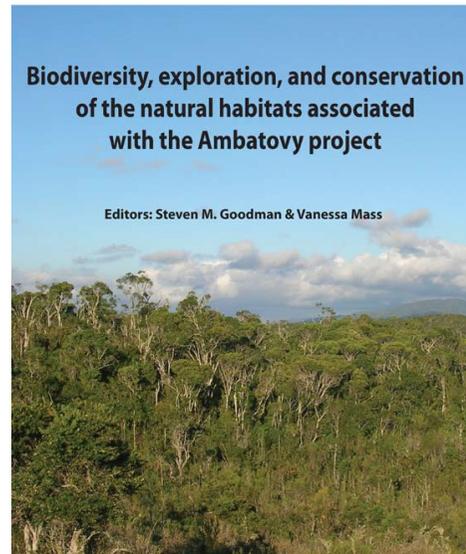
Contents of the two issues of *Malagasy Nature* published in 2010

Volume 3 (2010, 222 pp.) – Special issue entitled, “Biodiversity, exploration, and conservation of the natural habitats associated with the Ambatovy project”.

- ◆ Ambatovy project: Mining in a challenging biodiversity setting in Madagascar. *Malagasy Nature* 3: 2-13 (Steven Dickinson & Pierre O. Berner).
- ◆ Biological research conducted in the general Andasibe region of Madagascar with emphasis on enumerating the local biotic diversity. *Malagasy Nature* 3: 14-34 (Steven M. Goodman).
- ◆ Introduction to the early 2009 biological inventories conducted by the Association Vahatra in the Ambatovy-Analamay region. *Malagasy Nature* 3: 35-43 (Steven M. Goodman & Achille P. Raselimanana).
- ◆ Floristic inventory of the Ambatovy-Analamay mine site and comparison to other sites in Madagascar. *Malagasy Nature* 3: 44-76 (Peter B. Phillipson, Porter P. Lowry II, Lalao Andriamahefarivo, Patrice Antilahimena & Christopher Birkinshaw).
- ◆ Survey of leaf litter ant species and assessment of invasive ants in the mining sites at Ambatovy, Madagascar. *Malagasy Nature* 3: 77-91 (Jean Claude Rakotonirina).

- ◆ Watercourse ecological sensitivity classification as a management framework to ameliorate pipeline construction impacts associated with the Ambatovy project. *Malagasy Nature* 3: 92-98 (Johannes L. Rall, Hasina Andriamanamihaja, Tsilavina Ravelomanana, Pierre O. Berner & Steven Dickinson).
- ◆ The amphibians and reptiles of the Ambatovy-Analamay region. *Malagasy Nature* 3: 99-123 (Achille P. Raselimanana).
- ◆ The birds of the Ambatovy-Analamay region. *Malagasy Nature* 3: 124-152 (Marie Jeanne Raherilalao).
- ◆ The non-volant and non-primate mammals of the Ambatovy-Analamay forest. *Malagasy Nature* 3: 153-177 (Voahangy Soarimalala & Martin Raheriarisena).
- ◆ The lemurs of the Ambatovy-Analamay region. *Malagasy Nature* 3: 178-191 (José M. Ralison).
- ◆ The Ambatovy lemur population spatial monitoring program: Summary of primary objectives and methods. *Malagasy Nature* 3: 192-199 (Vanessa Mass, Gilbert Rakotondratsimba & Steven Dickinson).

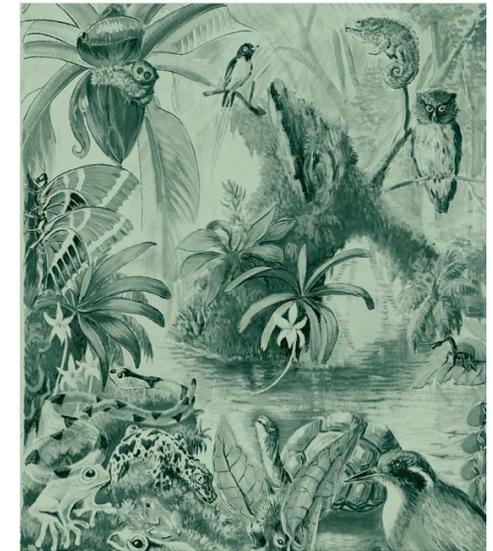
Malagasy Nature



Volume 4 (2010, 83 pp.)

- ◆ Rock matrix surrounding subfossil lemur skull yields diverse collection of mammalian subfossils: Implications for reconstructing Madagascar's paleoenvironments. *Malagasy Nature* 4: 1-16 (Karen E. Samonds, Sara N. Parent, Kathleen M. Muldoon, Brooke E. Crowley & Laurie R. Godfrey).
- ◆ Influences des pièges sur la réitération et la sexualité des utriculaires aquatiques : cas d'*Utricularia gibba* et *U. stellaris* (Lentibulariaceae). *Malagasy Nature* 4: 17-32 (Hery Lisy T. Ranarijaona, Donald A. Nantenaina, Georges S. Andrianasetra, Daniel Barthélémy, Yves Caraglio & Claude Edelin).
- ◆ Estimation de la densité des populations d'une espèce menacée de tortue terrestre (*Astrochelys radiata*) dans le Parc National Tsimanampetsotsa au Sud de Madagascar. *Malagasy Nature* 4: 33-48 (Rahantavololona V. J. Rasoma, Soazara Ranivoarivelo, Matthias Marquard, Olga R. Ramilijaona, Domoina Rakotomalala, Achille P. Raselimanana & Jörg U. Ganzhorn).
- ◆ Liste des noms vernaculaires en langue française des espèces de chauves-souris de Madagascar. *Malagasy Nature* 4: 49-54 (Olivier Langrand & Steven M. Goodman).

Malagasy Nature



- ◆ Distributions et caractéristiques des microhabitats de *Microcebus griseorufus* (Cheirogaleidae) dans le Parc National de Tsimanampetsotsa (Sud ouest de Madagascar). *Malagasy Nature* 4: 55-64 (Jacques Rakotondrany, Yedidya R. Ratovonamana & Jörg U. Ganzhorn).
- ◆ Madagascar Buzzard (*Buteo brachypterus*) nest in association with the colonial nesting Sakalava Weaver (*Ploceus sakalava*). *Malagasy Nature* 4: 65-66 (Lily Arison René de Roland).
- ◆ Petits mammifères (Afrosoricida et Rodentia) nouvellement recensés dans le Parc National d'Andohahela (parcelle 1), Madagascar. *Malagasy Nature* 4: 66-72 (Landryh Tojomanana Ramanana).
- ◆ Espèces d'amphibiens et de reptiles nouvellement recensés dans le Parc National d'Andohahela, Madagascar. *Malagasy Nature* 4: 72-77 (Eddy R. N. Rakotonandrasana).

Measures of advancement associated with *Malagasy Nature*

One of the goals of *Malagasy Nature* is for Malagasy students and researchers to have a forum where they can publish articles at international standards and advance with this critical aspect of their professional development. Below are some summary statistics on the configuration of authorship of the articles published to date.

- ◆ Total number of articles published – 42,
- ◆ Number of articles with Malagasy co-authors – 25 (60%),
- ◆ Number of articles with Malagasy single authors – 13 (31%),
- ◆ Number of articles with multiple authors and first author is Malagasy – 10 (24%),
- ◆ Number of articles with non-Malagasy authors – 9 (21%).

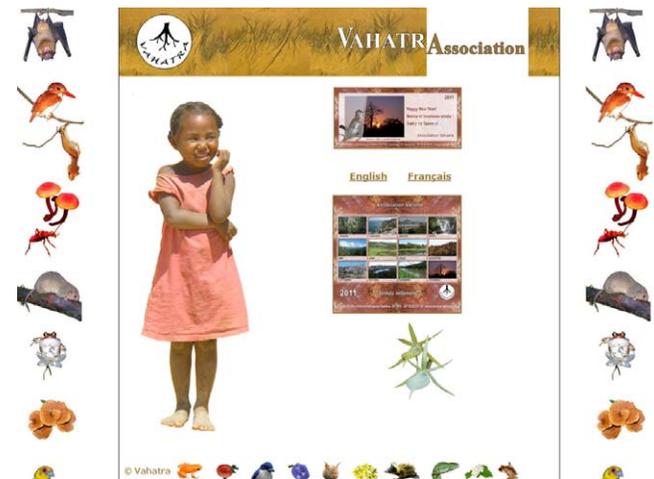
Hence, given the important rates of Malagasy participation in the journal, we are encouraged that this aspect of advancing the professional development of national authors is being met.

As the publication of the first four numbers of *Malagasy Nature* has been completely subsidized by a grant from the MacArthur Foundation, with the mailing of the fourth issue of the journal in late 2010, an insert form was included for individuals and institutions to subscribe. For the next few years, we have some grant funds for the journal, and the process of completely shifting over to 100% subscription support can be slightly deferred.

One of the most important current costs for the journal is printing. As the Vahatra website is now up and running (see below), our intention will be to shift the journal from a printed to an on-line format. We are currently developing this aspect, including a password system for subscribers to have access to the on-line versions of the journal. We anticipate that this will be functioning by the end of 2011 or early 2012.

WEBSITE

Vahatra has created a bilingual website (English and French) for the dissemination of information on its pedagogic and research activities. The site address is: www.vahatra.mg. The General Secretary of Vahatra, Madame Malalarisoa Razafimpahanana, was



responsible for designing the website. As she is the site webmaster, it is simple for Vahatra to add new information and update existing pages. We welcome your comments to improve the site and its contents.

CAPACITY BUILDING PROGRAMS FOR STUDENTS AND MALAGASY RESEARCHERS

Lecture series

A lecture series has been organized at the Vahatra office to allow dissemination of new research, monitoring, and conservation themes concerning Madagascar. Another intent for the series is the exchange of ideas, both in a formal setting in the context of the lectures, and in a more informal setting of a cocktail after each lecture. To meet this goal individuals and organizations from the private, academic, and governmental sectors are invited to participate. A relatively large room at the Vahatra office, which normally serves as the students' working space, is easily converted into a lecture hall, with folding chairs rented from a nearby restaurant. An attempt has been made to hold these lectures every 2-3 months, but with the political problems since the first portion of 2009, this was complicated to arrange. Lectures are attended by 40-80 people and have been enthusiastically received by the Malagasy scientific and conservation communities.



Journal Club

In order to help with the development of young Malagasy scientists and their critical evaluation and understanding of scientific articles, Vahatra has

organized a journal club. The fashion this operates is that a Malagasy student working with Vahatra picks a scientific article they consider of importance and distribute it to the balance of the Vahatra students one week before the journal club meeting. The student then presents at the meeting a broad overview of the article, including methodological considerations, weak and strong points of its formulation, and the ramifications of the conclusions. Thereafter, other students bring up various points associated with the publication in a general forum. As the articles used to date have all been in English, this exercise also helps hone the foreign language capacity of the students. The group also includes students not registered formally with Vahatra.



Field Schools

Each year Vahatra holds at least one field school for aspiring young Malagasy graduate students to help advance their knowledge and interest in field biology. In 2010, three different field schools were organized. The first was held between 6 and 22 March, in the Réserve Spéciale d'Andranomena, north of Morondava, and was attended by students from the University of Antananarivo, as well as employees from Madagascar National Parks. The second was organized by Voahangy Soarimalala and took place in the Isalo National Park and was for students from l'Université de Fianarantsoa, Institut des Sciences et Technique de l'Environnement. The third field school was a joint event between the University of Antananarivo-Vahatra-and South African universities (University of Kwa-Zulu Natal and University of Venda) and took

place in the Lakato forest, not far from Périnet. Researchers from Centre de Recherche et de Veille sur les maladies émergentes dans l’Océan Indien (CRVOI), and technicians from Institut Pasteur de Madagascar also attended the exercise.

During the course of these multidisciplinary field schools, the students have contact with professional biologists working in different disciplines of zoology, providing an excellent means for each student to decide what group of animal or type of study is the most interesting for their graduate studies. These outings are often eye-opening experiences for the young Malagasy participants. At the same time, they provide an excellent means for Vahatra to pick the students they would like to work with their DEA or Ph.D. studies. Several students from South Africa have mentioned that their participation in the field schools was a “life-changing” experience. During 2007-2010 field schools, more than 60



Malagasy and 16 South African students and nine employees from Madagascar National Parks were trained during these field schools.

VAHATRA INFRASTRUCTURE

During the course of this past year a number of actions were taken to enhance or advance aspects of Vahatra’s infrastructure:

- ◆ Changing license plates of the Vahatra vehicles, which were purchased under a collaboration with WWF-Madagascar, from the former diplomatic plates to standard non-diplomatic plates.
- ◆ Purchase of a small city vehicle for displacements in town, rather than using the four-wheel drive vehicles, which are expensive to run and clumsy.
- ◆ Regularization of various administrative details associated with governmental registration and tax aspects. This was done by a lawyer hired by Vahatra.
- ◆ Inscription of the General Secretary in a financial management degree program. This will allow her to sign expense reports and financial statements. This step will open several possibilities of direct financing from foundations and donors to Vahatra.
- ◆ Construction of an annex building next to the main Vahatra office with financing from CEPF. The building was completed and inaugurated in May 2010, and includes a large garage space for the Vahatra vehicles, two offices, room for



the guardians, and a large veranda space for different activities. One of the offices will be rented to a group of collaborating Swiss botanists starting in April 2011.

- ◆ Better overhead lighting in work spaces with the office.

CURRENT GRANTS

- ◆ John D. and Catherine T. MacArthur Foundation – Continued capacity building for Malagasy conservation biologists: support for Vahatra and advancement to higher levels of professionalism, 2007-2010.
- ◆ Centre de Recherche et de Veille sur les Maladies Emergentes dans l’Océan Indien -- Rift Valley Fever in Indian Ocean islands, 2008-2010.
- ◆ John D. and Catherine T. MacArthur Foundation - Assessing the impacts of climatic change on high mountain animals and tests of new biogeographic hypotheses to understand biotic diversity on Madagascar, 2009-2011.
- ◆ Critical Ecosystem Partnership Fund (CEPF) – Infrastructure support for the Malagasy Association International Vahatra: a major element in the advancement of Malagasy conservation biologists and Malagasy science, 2009-2011.
- ◆ John D. and Catherine T. MacArthur Foundation -- The dissemination of scientific information to the Malagasy people, 2010-2013.
- ◆ Vontobel Foundation -- Constitution of a team of Malagasy biologists trained in flora and fauna studies for conservation planning, 2011-2013.

ACTIVE COLLABORATIONS OF VAHATRA

In order for Vahatra to develop new directions for the Malagasy and regional scientific communities, a number of collaborations have been advanced.

Below is a listing of some of these projects:

- The University of Antananarivo, Department of Animal Biology – Vahatra closely collaborates with this department in different manners including training and mentoring of students, seminars and classes, field schools, etc. All of the scientific founding members of Vahatra have professional links with this department.

- Centre de Recherche et de Veille sur les maladies émergentes dans l’Océan Indien (CRVOI), La Réunion, France – Vahatra is a member of a large-scale project to develop a catalog of sorts



- of diseases occurring amongst wild land vertebrates of the western Indian Ocean islands. CRVOI pays the salary and field expenses of a Malagasy technician to join Vahatra on field inventories in the context of preserving material for their laboratory studies, as well as a portion of the field expenses. Researchers and students from Vahatra have taken part in several field trips on Madagascar and nearby islands to obtain samples for this project.
- Institut de Recherche et de Développement (IRD), Montpellier, France – two separate projects are currently running with this organization. The first is to examine if wild small mammals are reservoirs for Rift Valley Fever in a zone of Madagascar where this disease has been a serious problem amongst cattle and humans. The second project concerns a study on the genetic patterns of introduced *Rattus rattus* on Madagascar.
- Institut Pasteur, Antananarivo and Paris – The Institut Pasteur is part of the consortium associated with the CRVOI project mentioned above,

as well as the Rift Valley Fever project. Students and researchers from Vahatra have conducted a number of joint field missions with researchers and technicians from the Institut Pasteur.

- University of Kwa-Zulu Natal, Durban, South Africa – part of a southern hemisphere network-collaboration project. Students and professors from University of Kwa-Zulu Natal, Durban, work in collaboration with Vahatra students and researchers in Madagascar, taking part once per year in field schools held in forest-settings in Madagascar. Over the past few years, at least six South African students have conducted a portion of their graduate students on Malagasy animals, in collaboration with Malagasy counterparts at Vahatra. Further, Malagasy students and professors have attended specially arranged courses in Durban labs concerning molecular genetic research and ecological modeling. Finally, one of the Durban counterparts has recently moved to The University of Venda, in northern South Africa, and two students from that university have attended field schools in Madagascar.
- The University of Stellenbosch, South Africa – Vahatra has a collaboration with a genetics laboratory at this university associated with a project on climatic change impacting animal distributions in the high mountains of Madagascar. The salary of a technician and lab costs are paid for by a grant to the Field Museum/Vahatra from the MacArthur Foundation.
- The University of Melbourne, Australia – we have an ongoing collaboration with a researcher in the Genetics Department at this university on molecular studies associated with a group of Malagasy bats.
- Biodiversity Conservation Madagascar (BCM), Antananarivo and Mauritius – Vahatra has a collaborative project with this organization to inventory two different forest blocks they manage and to help advance research and conservation activities.

- The Madagascar National Park (MNP, ex-ANGAP), a para-governmental organization responsible for the management of protected areas – the Vahatra collaboration involves the assessment of research efforts within selected protected areas in relationship to the discovery of new species. A post-doc based at Vahatra is affiliated with this project. Subsequently, MNP contacted Vahatra and expressed their intention to extend the collaboration in a much broader field including assessment and biodiversity monitoring.
- Jardin botanique de la Ville de Genève, Switzerland – A joint grant has recently been received from a private Swiss bank foundation under the title, “Constitution of a team of Malagasy biologists trained in flora and fauna studies for conservation planning”. The project will include joint field studies to develop programs on ecosystem functioning. The Geneva team will be installing their offices in the new annex building, to create closer ties and working relations with Vahatra.

“COLLECTION SPACE”, UNIVERSITY OF ANTANANARIVO

One of the permanent staff members of Vahatra, Dr. Voahangy Soarimalala, is also the principal curator of the “Collection Space” in the Animal Biology



Department at the University of Antananarivo, which is managed at the standards of an international natural history museum. During the northern summer of 2009, she spent seven weeks at the Field Museum where she worked closely with curators and collection managers in the Department of Zoology

(birds, reptiles and amphibians, mammals, fishes, insects, invertebrates). Special attention was given to the preparation, cataloging, stocking, and shipment of specimens. This was an excellent experience for her and she returned to Madagascar with a much greater understanding of curatorial techniques.

The field of animal systematics has remarkably advanced for numerous Malagasy field biologists, who are playing a very active role in documenting the biota of their island. This includes the collection of specimens associated with a variety of different studies. The “Collection Space” has become the principal museum on Madagascar for the deposition of recently collected animal specimens, including about 43,000 cataloged specimens and the holotypes of recently described new taxa. Other than Vahatra scientists and students playing an active role in the deposition and identification of specimens



within the museum, they also take part in different activities, such as recent work with international and national scientists to identify, label, catalog, and curate the frog collection.

ACTIVITIES OF VAHATRA PERMANENT MEMBERS DURING 2010

January 2010

1. Soarimalala, Goodman, and Barivelo Tony Andrianaivo (Vahatra student) took part in the annual meeting of the RIFT-Indian Ocean project associated with the different members presenting summaries of their aspects of the project during 2009.
2. Soarimalala took an active role in the conception of a field project of Hajaniaina Rasoloarison (Mémoire en Licence Professionnelle, Institut des Sciences et Technique de l'Environnement (ISTE), Université de Fianarantsoa).
3. Raselimanana was a member of the « commission de lecture » for a DEA mémoire on lizard ecology, Animal Biology Department, University of Antananarivo.
4. Raselimanana and Raherilalao took part in course associated with on-line courses for the upcoming shift to the License-Master's-Ph.D. system, University of Antananarivo.
5. Raselimanana was the member of the jury (non-Vahatra student) for a DEA presented at the Animal Biology Department, University of Antananarivo, on radiated tortoises.
6. Starting in January and throughout the year, Raselimanana worked on his HDR mémoire that will be presented in 2011 at l'Université de la Réunion.

February 2010

1. Soarimalala attended a meeting held in Antananarivo organized by CIRAD and FOFIFA on baobab ecology.

2. Goodman gave a seminar in the Department of Animal Biology, The University of Antananarivo, on the use of scientific literature, particularly bibliographic citations, which was attended by most of the graduate students and some professors of the department.
3. Raselimanana and Ledada conducted a reconnaissance visit to the Réserve Spéciale d'Andranomena associated with a forthcoming field school.
4. Raselimanana assisted a workshop on biodiversity databases held in Antananarivo.

March 2010

1. All of the four scientific founding members of Vahatra attended the « Kick-off » meeting in St. Denis, La Réunion, of the CRVOI consortium group, to which Vahatra is collaborating to catalog the diseases circulating amongst wild animals on islands in the western Indian Ocean.

2. Between 6 and 22 March, Soarimalala, Raherilalao, and Raselimanana organized and took part in a field school for graduate students from the Department of Animal Biology, The University of Antananarivo, held in the Réserve Spéciale d'Andranomena, north of Morondava.



Andranomena

3. All of the four scientific founding members of Vahatra attended a workshop organized by WWF-Madagascar on climate change. Goodman made a presentation entitled, « Le rôle de changement climatique pendant le quaternaire sur la micro-endémisme dans les forêts sèches

de Madagascar » and Soarimalala another under the title « Les micromammifères de la forêt sèche ».

4. Raherilalao worked with a student from the Department of Animal Biology, The University of Antananarivo, develop her DEA on radiated tortoises.
5. Goodman and Beza Ramasindrazana (Vahatra student) conducted fieldwork in the Union of the Comoros in collaboration with CRVOI.

6. Martin Raheriarisena and Zafimahery Rakotomalala (Vahatra students) presented their Ph.D. theses in the Department of Animal Biology, University of Antananarivo.



7. Goodman was a jury member for both students. He also served as a jury member for the Ph.D. presentation of Désire Randriamasimanana in the same department.

April 2010

1. Associated with her position at l'Université de Fianarantsoa, Soarimalala took part in the evaluation of two mémoires presented at the Institut des Sciences et Technique de l'Environnement (ISTE).
2. Raherilalao participated with a Malagasy student in the Animal Biology Department, University of Antananarivo, on the development of a project on freshwater birds at Lac Alaotra.
3. Goodman made a presentation on the biology of Madagascar to recently arrived Peace Corps recruits.

4. Fanja Ratriomanarivo and Patricia Maminirina (Vahatra students) presented their Ph.D. theses in the Department of Animal Biology, University of Antananarivo. Goodman was the principal advisor and a jury member for both students.
5. Oliarinony Ranalison (non-Vahatra student) presented her Ph.D. thesis in the Department of Animal Biology, University of Antananarivo. Goodman was a jury member.
6. Raselimanana conducted two different field visits association with his supervision of two different DEA projects, from the Animal Biology Department, University of Antananarivo, associated with chameleon ecology on the Ankaratra Massif.



May 2010

1. All of the five founding members of Vahatra helped to prepare a formal “accord de collaboration” associated with the “Faune Sauvage” project between CRVOI-Vahatra-The University of Antananarivo, Department of Animal Biology.
2. Associated with her position at The University of Fianarantsoa, Soarimalala was a member of the evaluation jury for a memoire presented by Hajaniaina Rasoloarison.
3. Goodman presented a course to 20 graduate students within the Animal Biology Department, University of Antananarivo, on grant writing. All of the participating students were at the stage to commence their DEA memoire research. The “exam” for the course was a grant proposal associated with their DEA projects, with a maximum budget of 3,500

Euros. These were then sent to a review panel and the five students that received the highest evaluations were recipients of grants.

4. Different members of Vahatra (Soarimalala, Raselimanana, Raherilalao, and Razafimpahanana) helped students following Goodman’s grant course to develop different aspects of their proposals and applications for research permits. This continued for several months.
5. Raselimanana was a member of the « commission de lecture » for a DEA memoire on fish ecology, Animal Biology Department, University of Antananarivo.

June 2010

1. Associated with her position at l’Université de Fianarantsoa, Institut des Sciences et Technique de l’Environnement (ISTE), Soarimalala presented courses for 1st and 2nd year students.
2. Lily Rene de Roland, who formerly worked with Goodman on his Ph.D., presented his HDR in the Department of Animal Biology, University of Antananarivo. Goodman was a member of the jury.

July 2010

1. The three scientific Malagasy founding members of Vahatra took part in the elaboration of the License-Master’s-Doctorate being put in place within the Malagasy university system.
2. Raherilalao participated with a Malagasy student, Animal Biology Department, University of Antananarivo, on the development of a study on populations of the endangered *Mantella aurantiaca* frog in the Moramanga region.
3. Raherilalao was a member of the « commission de lecture » for a DEA mémoire, Animal Biology Department, University of Antananarivo, on the Malagasy carnivoran *Galidictis grandidieri* in the Parc National de Tsimanampetsotsa area.

4. Goodman made a presentation to the Africa Council, Field Museum, on the current state of conservation on Madagascar.
5. Raselimanana was a member of the « commission de lecture » for a DEA mémoire, Animal Biology Department, University of Antananarivo, on the ecology of an endemic carnivoran.
6. Raselimanana took an active role in organizing a study visit to the Kianjavato Forest for students at the M2 (Master 2) level in the Animal Biology Department, University of Antananarivo.
7. Raselimanana corrected three different DEA mémoires, Animal Biology Department, University of Antananarivo, during the month of non-Vahatra students: Razanadravonirina : Elevage en captivité de *Mantella viridis*, Edwige Faliarisoa : Phénologie et biologie des deux espèces de grenouille endémique de l'Andringitra et Eliane : Elevage en captivité de *Mantella aurentiaca*).



Mantella aurentiaca

August 2010

1. Raherilalao participated with a Malagasy student, Animal Biology Department, University of Antananarivo, on the development of a study of Tenrecidae mammals in the Kirindy (CFPF) Forest.
2. Raselimanana completed his first corrections on the Ph.D. thesis of Juliana Rasoma (Vahatra student), Animal Biology Department, University of Antananarivo, dealing with the population structure of radiated tortoises.



Astrochelys radiata

September 2010

1. Soarimalala helped several of the DEA grantees (May 2010) to develop research protocols and field identifications of small mammals.
2. Soarimalala prepared her coursework for teaching 3rd year students at l'Université de Fianarantsoa.
3. Raherilalao took part in a field course in the Maromiza Forest for DESS students at The University of Antananarivo.
4. Soarimalala took part in a nearly weeklong field school at Isalo for 2nd year students from l'Université de Fianarantsoa, Institut des Sciences et Technique de l'Environnement (ISTE).
5. Vahatra scientific members attended a workshop organized by the REBIOMA group associated with the advancement of a national database.
6. Raherilalao was a member of the « commission de lecture » for a mémoire on the biology and ecology of an endemic fish species, Animal Biology Department, University of Antananarivo.
7. Goodman accompanied Claude Fabienne Rakotondramanana on a field trip to the Kirindy (CFPF) forest associated with her DEA research, Animal Biology Department, University of Antananarivo.
8. Goodman and Raselimanana attended a grantees meeting in Germany associated with the VW Foundation. They gave a presentation on the project with regards to advancement of science and capacity building in Madagascar.



- Raselimanana corrected the DEA mémoire of Toky Randriamoria (Vahatra student), Animal Biology Department, University of Antananarivo, dealing with herpetological communities in a western dry forest.

October 2010

- Soarimalala, Raselimanana, and Raherilalao attended a nearly week long workshop organized by WWF on “Climate Change”.

- Joint University of Kwa-Zulu Natal-The University of Antananarivo-Vahatra field school took place in the Lakato forest for a week during the last portion of the month. Researchers from CRVOI also attended the exercise.



- Soarimalala took part in the elaboration of the License-Master’s-Ph.D. program at l’Université de Fianarantsoa, Institut des Sciences et Technique de l’Environnement (ISTE).
- Raherilalao and Raselimanana were members of the « commission de lecture » for a mémoire on the insects occurring on baobab trees, Animal Biology Department, University of Antananarivo.
- Goodman conducted fieldwork in Mozambique associated with regional bat research and in collaboration with CRVOI.
- Goodman was a member of the jury of the Ph.D. presentation of Nicole Weyeneth, University of Geneva, Switzerland.

November 2010

- Voahangy Soarimalala attended a technical meeting of the Scientific Consultative Committee of the Ambatovy Project.

- Raherilalao conducted field visits associated with her supervision of two different DEA projects, Animal Biology Department, University of Antananarivo; one on mammals in the forest of Maromiza and the other on frogs in the Torotorofotsy marsh.



- Goodman presented a seminar entitled, « Biodiversité et écologie des chiroptères dans l’Océan indien occidental » associated with an « Ecole thématique » organized by CRVOI and l’Université de la Réunion.



- Raselimanana conducted a field visit associated with his supervision of a DEA project, Animal Biology Department, University of Antananarivo, on gecko ecology on Montagne d’Ambre.
- Raselimanana took an active role in preparing and elaborating the criteria associated with new conservation sites for IUCN categories V and VI, as a member of the « Groupe de spécialistes de la biodiversité malgache ».

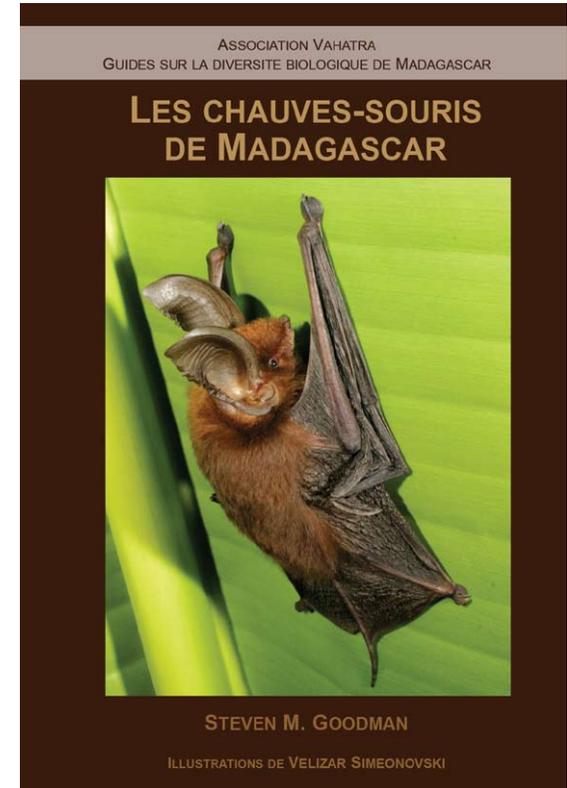
December 2010

1. The third annual board of directors meeting of Vahatra was held. Formal presentations were made by all of the permanent members of the scientific and administrative staff.
2. Goodman made an invited presentation at a CNRS meeting in Paris associated with the year of biodiversity under the title, « La biodiversité, un enjeu planétaire : historique, importance et avenir de la biodiversité à Madagascar ».
3. Soarimalala conducted fieldwork associated with the supervision of two different Licence Professionnelle projects in the Ankazomivady forest in collaboration with the Institut Pasteur and CRVOI.
4. Goodman made a presentation to the GTZ group and the new German Ambassador to Madagascar on the current state of biodiversity and conservation on Madagascar.
5. Raselimanana was a member of the « commission de lecture » for a DEA memoire on tortoise ecology, Animal Biology Department, University of Antananarivo.
6. Raselimanana made corrections to the DEA memoires of two non-Vahatra students, Animal Biology Department, University of Antananarivo.



A NEW SERIES TO THE BIODIVERSITY OF MADAGASCAR

The Association Vahatra, with financing from the Critical Ecosystem Partnership Fund, has recently launched a series of books associated with the biodiversity of Madagascar. The intent of this series is to allow Malagasy that have not had access to information on their island's biodiversity to discover and learn about their natural patrimony. Further, the books are aimed at young scientists and naturalists. The first book in the series, entitled "The bats of Madagascar" is about to go to the printer. The second, on the island's small mammals is well advanced.



Brachyuromys betsileoensis



Echinops telfairi

MAJOR NEW DISCOVERY TO BE ANNOUNCED IN EARLY 2011

During a biological inventory organized by Vahatra in the largely unknown Beanka Forest in central western Madagascar with several collaborating organizations and under the cadre of a conservation and development project of Biodiversity Conservation Madagascar, many extraordinary discoveries were made. One of these was an undescribed forest-dwelling rail. The formal publication of the new species description will be in early 2011 and we look forward to providing additional details in our 2011 annual report.



Mentocrex beankaensis

VAHATRA FEATURED IN FILM

In the first portion of 2011 a film was produced by Humanima and released by French Canadian television under the title “Wildlife Adventurer”. The documentary concerns a Vahatra field mission and discusses in detail the biodiversity of Madagascar, our activities to advance knowledge about the fauna of the island and its conservation. For more information, see <http://www.humanima.com/decouverte/en/article/madagascar>

SCIENTIFIC OUTPUT OF VAHATRA DURING 2010

Names in **bold** are Malagasy graduate students working closely with Vahatra (see Table 1), those in *italics* are South African students collaborating with Vahatra, and those underlined are permanent scientific members of Vahatra.

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Our goals

- Expand knowledge on biodiversity and natural history of Madagascar.
- Train and supervise future scientists in the field of conservation biology.
- Promote the exchange of scientific information and experience among national and international specialists.
- Strengthen collaboration with institutions and national and international NGOs working in the environmental field.
- Provide expertise and know-how in environmental impact studies and in monitoring the progress of ecological landscapes.
- Support scientifically natural resources managers for Madagascar biodiversity conservation.





Uroplatus phantasticus

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