Association Vahatra

Annual Report

for
2017

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

In 2017, the Vahatra Association celebrated its 10th anniversary. It has come a long way over the past decade, passing through a range of different challenges and advancements, and the trajectory crowned by different achievements and at the same time realizing that much remains to be done. Since its creation, the goals of the association remain clear – to advance information on the island's biology, to improve knowledge on the natural history of its organisms, and to advance generations of Malagasy scientists and conservation biologists. These different aspects provide a clear vision to contribute effectively to the management of Madagascar's unique biodiversity. Over the past decade, several hundred students and tens of conservation officers have been trained, many new species to science have been discovered and described, and a range of other discoveries made. Vahatra has deployed a strong effort, at a range of levels, to make information available on Madagascar's vertebrates and aspects of their biology in the form of scientific papers, guides, and books.

We live in a world of stark contrasts. On one hand, the training and supervision of young Malagasy nationals is a long-term task until they reach a certain operational level, and on the other hand, the natural habitats of the island are disappearing at a rapid pace. We as scientists and conservation biologists at Association Vahatra and as university professors must confront this quandary in a clear manner. Hence, the association has broaden its targets by writing and disseminating different types of pedagogic works touching different sectors of Malagasy society and the international scientific community. The ultimate goals are to familiarize Malagasy with their natural heritage and to support protected area managers in their efforts by providing them with reliable data that can be used as decision-making tools. Finally, to place a strong emphasis on synthesizing data and new insights, whether from a historical perspective as presented in *Extinct Madagascar*, a greater understanding of the biological and ecological evolution on Madagascar, such as in the *Atlas of some selected vertebrates of Madagascar*, and a look into the past, present, and future of protected areas of the island in a bilingual book we are currently producing.

While Vahatra has been able to achieve numerous goals and results over the past decade, the ultimate ambitions seem to be just out of reach, as the context changes associated with the evolution of Malagasy society, as well as the world of technology and globalization. Having a clear vision of the future is important in order to act and adapt to the changes that are required, and this capacity is the leitmotif for the evolution of the association. Ten years ago, during the inauguration of the Vahatra office, we emphasized that we were in the process of learning to walk and then fly. We requested the collaboration and the participation of those who might be interested in helping this process. If we are now at a more advanced stage, this is thanks to your encouragement, your support, and your advice. In all humility that I extend to you all my heartfelt thanks.

Achille P. Raselimanana

LONG-TERM GOALS

The long-term goals of Association Vahatra are to advance Malagasy scientists, in particular graduate students within the university system, as well as other members of the national conservation biology community, and make substantial advances in understanding the island's unique biota. Our sincere intent is to put in place an organization with a long-term future. A critical aspect to mention is that we have created this vision largely based on the scientists and students working with the association, and, hence, distinctly Malagasy in prospective. This is in comparison, for example, to large international organizations that might not necessarily have the interests of Madagascar as their principal point of perspective. This aspect is fundamental for the long-term strength of the association, since members are engaged and committed by their own conviction with regard to the study and conservation of their natural heritage.

The seed was planted for Association Vahatra in what is now approaching three decades ago in the context of a project organized by WWF-Madagascar, put in place by Olivier Langrand and Sheila O'Connor, and known as The Ecology Training Program (ETP). Steve Goodman and Achille Raselimanana were the coordinators of the project for many years, during which time several generations of graduate Malagasy students finished their higher degrees within the university system in animal and conservation biology. Many of these people are amongst the major actors in the current Malagasy conservation biologist community. These individuals are now responsible for the advancement of new generations of national field biologists in at least three different manners: 1) lecturers and professors within the national university system, 2) active scientific members of the Vahatra staff, and 3) playing important roles and holding key positions in the non-governmental and governmental sectors. Association Vahatra places strong emphasis on capacity building and continues this tradition and the body of well-trained nationals continues to grow.

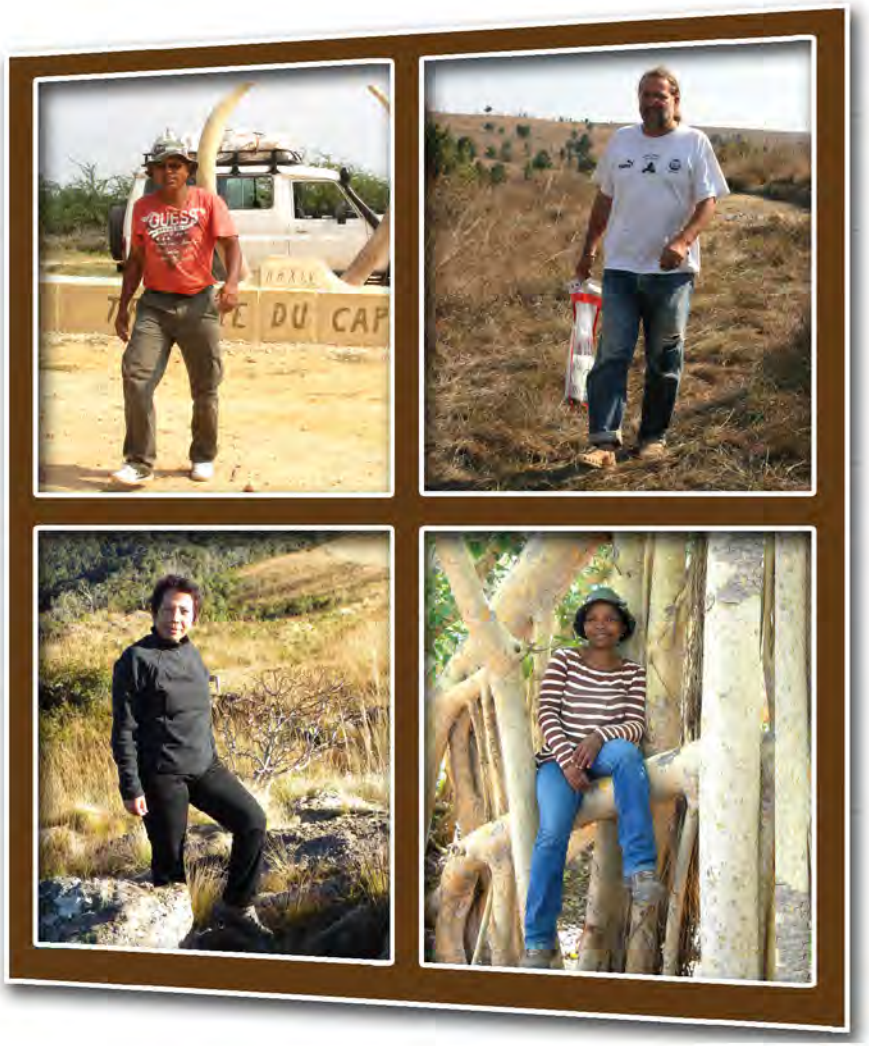
VAHATRA – PERMANENT STAFF

1. Professor Achille P. Raselimanana – President of Vahatra and Professor, Mention Zoologie et Biodiversité Animale, Université d'Antananarivo. Founding member. Achille was in the first generation of ETP graduates (see above) and did his DEA and Ph.D. in the context of this program. In 2011, he presented his "Habilitation à Diriger des Recherches" (HDR) at the Université de La Réunion, which is the highest scientific degree in the French university system. Achille is a herpetologist with considerable experience in aspects ranging from field studies, classical taxonomy to molecular systematics. Before the creation of Association Vahatra, he held for nearly a decade the position of Biodiversity Program Officer for WWF-Madagascar.
2. Dr. Marie Jeanne Raherilalao – Co-editor of the journal *Malagasy Nature* produced by Vahatra and Professor, Mention Zoologie et Biodiversité Animale, Université d'Antananarivo. Founding member. Marie Jeanne did her Ph.D. associated with the ETP (see above). She works on bird ecology, biogeography, and systematics.
3. Dr. Voahangy Soarimalala – Scientific Coordinator at Vahatra; Head Curator, Mention Zoologie et Biodiversité Animale, Université d'Antananarivo; and Professor, Université de Fianarantsoa. Founding member. Voahangy did her DEA and Ph.D. in association with the ETP (see above). Voahangy is a mammalogist with a particular interest in rodents and tenrecs.
4. Professor Steven M. Goodman – Scientific Advisor at Vahatra; co-editor of the journal *Malagasy Nature* produced by Vahatra; and Lecturer, Mention Zoologie et Biodiversité Animale, Université d'Antananarivo. Founding member. Steve works on both mammals and birds. He holds the post of MacArthur Field Biologist, Field Museum of Natural History, Chicago, and is based in Madagascar most of the year. For his considerable efforts, support to the university, and contributions in the advancement of science and capacity building on Madagascar, The University of Antananarivo awarded him in 2013 the grade of "Docteur Honoris Causa".
5. Mrs. Sabrina Raharinirina – Financial & Administration Manager. Sabrina joined the association in October 2015. During the last months of 2015 and early 2016, she worked closely with now retired Madame Malalarisoa Razafimpahanana, who formerly held the post of General Secretary, to provide a smooth transition concerning aspects associated with financing and running the office.
6. Mr. Rachel Razafindravao called "Ledada" – logistic coordinator. Ledada started working with the ETP some 25 years ago and transferred to Vahatra in October 2007. He has helped organize logistics for

something approaching 350 field missions to some of the remotest areas on Madagascar.

7. Mrs. Sandra Ratsirahaingotiana – domestic help. She has worked with Vahatra since May 2016.

8-10. Mr. Elisa Malaimbohitsy, Mr. Mara Avisoa, and Mr. Mbola Marivosoa Alexandre – guardians.



VAHATRA'S BOARD OF DIRECTORS

In order to provide needed guidance and counseling for the current and future programs associated of Vahatra, a Board of Directors has been named, which includes the following individuals:

Malagasy nationals

1. Professor Daniel Rakotondravony – Mention Zoologie et Biodiversité Animale, Université d'Antananarivo.
2. Mrs. Nanie Ratsifandrihamanana – Country Director, WWF, Madagascar.
3. General Guy Ratrimoarivony – Général de Corps d'Armée, Director of Strategy Seminar, Center for Diplomatic and Strategic Studies.
4. Mrs. Chantal Andrianarivo – Former Head of Research and Biodiversity, Madagascar National Parks and now Technical Advisor at Western Indian Ocean Coastal Challenge – Islands Project.
5. Professor Joelisoa Ratsirarison – Département des Eaux et Forêts de l'Ecole Supérieure des Sciences Agronomiques, Université d'Antananarivo and Vice President of the University of Antananarivo in Charge of International Relations.
6. Mr. Jean Chrysostome Rakotoary – General Director of the Office National pour l'Environment (ONE).
7. Professor Raoelina Andriambololona – Institut National des Sciences et Techniques Nucléaires (INSTN), Université d'Antananarivo, General Director of INSTN and Member of the Malagasy Academy.

Foreign members

1. Professor Jörg U. Ganzhorn – Professor, Tierökologie und Naturschutz, University of Hamburg.
2. Mr. Paul Goodman – Principal, Kingfisher Group.
3. Mr. Olivier Langrand – Executive Director, Critical Ecosystem Partnership Fund (CEPF).
4. Mr. John McCarter – Former president of the Field Museum.
5. Mr. Michael Polsky – President, Invenergy.

STUDENTS

We work directly with Malagasy students registered within the national university system and registered at the levels of License, Master II or Ph.D. degrees. In recent years, the Malagasy national university has shifted from a classical French system to that of an Anglophone License-Masters-Doctorate (LMD) system. Further, the scientific members of Vahatra are also in contact with many other Malagasy students as secondary advisors and members of thesis and different types of committees. We make a dedicated effort to work with graduate students in universities outside of the capital city of Antananarivo, including the former provincial capitals of Antsiranana, Toliara, Fianarantsoa, Toamasina, and Mahajanga. In addition, Vahatra staff members advise many other Malagasy students on aspects of their research, access to literature based on the fine library housed at the association, and other forms of mentorship. Furthermore, several PhD candidates working with other institutions or NGOs frequently request Vahatra scientists to be members of their thesis committees.

Since Vahatra open its doors in late 2007, something approaching 2200 different student and research visitors not directly part of the association's mentoring program have visited the office to use the library facilities or consult with the scientific staff. (These figures are based on a sign-in notebook.) In 2017 alone, over 200 different student and researcher visits were made to the library and many hundreds of documents (books, reprints, theses, etc.) consulted.

Malagasy students passing through the Vahatra program have considerable success finding permanent jobs within governmental and non-governmental sectors on the island. In many cases, these posts are in domains related to biology and conservation, for example, university appointments, working within NGOs, associated with the Madagascar National Parks, etc. Some of the former students hold key posts, for example, in different managerial capacities, such as the Madagascar Biodiversity Foundation, mining companies, and The Ministry of Forestry and Environment. Hence, one of the mandates of the association, to advance science and conservation on Madagascar with focused mentorship of graduate students, is indeed meeting the original expectations. A good example of this is that numerous Vahatra graduates have obtained university appointments, providing an even greater means to advance capacity building for Malagasy field and conservation biologists. Below is the list of 2017 graduate students working on Licence, Master's II, PhD, and HDR degrees under the direction of Vahatra scientists. After receiving their higher degrees from the university in collaboration with Association Vahatra, these well-trained young scientists are for the most part dynamic and with long-term visions, capable of designing and implementing research projects, and obtaining associated funding.

Graduate diplomas presented in 2017 or in preparation

As can be seen from the following lists, the scientific members of Vahatra are extensively involved in the advancement of Malagasy graduate students. We consider this one of the hallmarks of the association. Further, we encourage students to publish the results of their scientific work (see below, "Scientific outputs of Vahatra during 2017").

A) Licence, Master's, and Ph.D. diplomas presented by student members of Association Vahatra and under the direction of Vahatra scientific members

1. Jao, N. M. 2017. Etude de la structure des populations murines dans les villages d'Antsahatsaka et de Mahatsara, District Moramanga, Région Alaotra-Mangoro. Mémoire de Licence, Institut des Sciences et Techniques de l'Environnement, Université de Fianarantsoa.
2. Rajemison, F. I. 2017. Etude bio-écologique des mouches ectoparasites, Nycteribiidae et Streblidae (Insecta : Diptera), de *Rousettus madagascariensis* G. Grandidier, 1928 (Chiroptera : Pteropodidae) dans le Parc National d'Ankarana, Madagascar. Thèse de Doctorat, Faculté des Sciences, Université d'Antananarivo.
3. Rafanoharana, J. 2017. Evaluation des prédateurs de populations murines dans le village d'Antsahatsaka, District de Moramanga, Région Alaotra-Mangoro. Mémoire de Licence, Institut des Sciences et Techniques de l'Environnement, Université de Fianarantsoa.
4. Raharinirina, D. 2017. Evaluation des prédateurs de populations murines dans le village de Mahatsara, District de Moramanga, Région Alaotra-Mangoro. Mémoire de Licence, Institut des Sciences et Techniques de l'Environnement, Université de Fianarantsoa.
5. Raharisoa, D. M. 2017. Evaluation des prédateurs naturels de rats, en vue de lutter contre l'invasion de la population Murine : cas du village d'Antsahatsaka, Commune Rurale d'Andasibe. Mémoire de Licence, Institut des Sciences et Techniques de l'Environnement, Université de Fianarantsoa.
6. Rakotoarimalala, D. M. F. 2017. Etude de la biodiversité insulaire et biogéographie des reptiles des îles côtières malgaches. Mémoire de Master II, Mention Zoologie et Biodiversité Animale, Université d'Antananarivo.
7. Rakotovao, V. F. 2017. Evaluation des dégâts causés par les rats dans le village de Mahatsara, District de Moramanga, Région Alaotra-Mangoro. Mémoire de Licence, Institut des Sciences et Techniques de l'Environnement, Université de Fianarantsoa.
8. Rasoma, R. V. J. 2017. Etude bio-écologique d'*Astrochelys radiata* (Shaw, 1802) dans le Parc National de Tsimanampetsotsa. Thèse de Doctorat, Faculté des Sciences, Université d'Antananarivo.

B) Licence, Master's, Ph.D., and HDR diplomas defended with implication of Vahatra scientific members as a supervisor, lecture committee member or jury member

1. Ali Hassani, A. 2017. Rôles écologiques des chiroptères insectivores sur la protection de l'agriculture et sur le contrôle des maladies vectorielles chez l'homme : Cas de la NAP de Maromizaha. Mémoire de Master II, Mention Zoologie et Biodiversité Animale, Université d'Antananarivo.

2. Andrianantenaina, M. F. 2017. Etude écologique de la communauté herpétofaunique de la forêt d'Analalava-Foulpointe, Est de Madagascar. Mémoire de Master II, Mention Zoologie et Biodiversité Animale, Université d'Antananarivo.
3. Andrianjafy, N. P. H. 2017. Etude de l'étho-écologie de *Falco concolor* (Temminck, 1825, Aves, Falconidae) dans sa zone d'hivernage, Madagascar. Mémoire de Master II, Mention Zoologie et Biodiversité Animale, Université d'Antananarivo.
4. Andriatiavina, T. S. 2017. Comportements sociaux et transmission des parasites gastro-intestinaux chez *Eulemur rufifrons* (Bennett, 1833) de la forêt de Kirindy/ CNFEREF, Région Menabe, Madagascar. Mémoire de Master II, Mention Zoologie et Biodiversité Animale, Université d'Antananarivo.
5. Bénédicte, F. Z. 2017. Etude bio-écologique de la population de *Phelsuma klemmeri* (Seipp, 1991) dans l'Aire Protégée de Mandrozo, Ouest de Madagascar. Mémoire de Master II, Mention Zoologie et Biodiversité Animale, Université d'Antananarivo.
6. Botra, J. 2017. Estimation de stock des bois d'œuvre utilisés comme piliers des cases traditionnelles « trano mena » dans la forêt d'Ankarabolava-Agnakatrika : cas de la commune rurale de Tsianofana, District de Vangaindrano. Mémoire de Licence, Institut des Sciences et Techniques de l'Environnement, Université de Fianarantsoa.
7. Faramamiarimila, L. E. 2017. Evaluation des besoins et demandes en gaulettes dans la construction des cases traditionnelles pour les communes adjacentes de la Nouvelle Aire Protégée Ankarabolava-Agnakatrika, District de Vangaindrano. Mémoire de Licence, Institut des Sciences et Techniques de l'Environnement, Université de Fianarantsoa.
8. Lazarus, A. T. 2017. Small mammal responses to Scarp Forest Restoration in the Maputoland-Pondoland-Albany Hotspot, South Africa. Masters of Science in the School of Life Sciences, University of KwaZulu-Natal.
9. Miarinjara, A. 2017. *Xenopsylla cheopis*, puce vectrice de *Yersinia pestis*. Evaluation de la sensibilité aux insecticides et nouvelles perspectives pour la lutte anti-vectorielle à Madagascar. Thèse de Doctorat, Faculté des Sciences, Université d'Antananarivo.
10. Nekenjanahary, V. S. 2017. Evaluation des stocks en bois utilisés en pilier de « Trano Fontsy » dans la forêt d'Ankarabolava-Agnakatrika : Cas de la Commune Rurale de Matanga, District de Vangaindrano. Mémoire de Licence, Institut des Sciences et Techniques de l'Environnement, Université de Fianarantsoa.
11. Raharinirina, M. R. 2017. Développement d'une nouvelle technique de détermination de l'âge des moustiques. Mémoire de Master II, Mention Zoologie et Biodiversité Animale, Université d'Antananarivo.
12. Rahobilalaina, S. S. 2017. Répartition écologique des Ardeidae des lacs satellites et des zones côtières du Complexe Mahavavy-Kinkony, Mahajanga. Mémoire de Master II, Mention Zoologie et Biodiversité Animale, Université d'Antananarivo.
13. Rajaonarivony Sitrakaharijao, T. L. 2017. Biologie et écologie de *Oplurus cuvieri* (Gray, 1831) à Kirindy CNFEREF, Morondava. Mémoire de Master II, Mention Zoologie et Biodiversité Animale, Université d'Antananarivo.
14. Rakotomavo, A. L. 2017. Diversité des oiseaux limicoles pendant la migration postnuptiale dans les mangroves du complexe Mahavavy-Kinkony, Nord-ouest de Madagascar. Mémoire de Master II, Mention Zoologie et Biodiversité Animale, Université d'Antananarivo.
15. Ramtariharisoa, F. A. 2017. Contribution à l'évaluation de stock de gaulettes utiles pour la construction des cases traditionnelles dans la Nouvelle Aire Protégée Ankarabolava-Agnakatrika, District de Vangaindrano. Mémoire de Licence, Institut des Sciences et Techniques de l'Environnement, Université de Fianarantsoa.
16. Ranaivoson, T. N. 2017. Structure et distribution écologiques des reptiles de l'Aire Protégée Oronjia, Extrême Nord de Madagascar. Mémoire de Master II, Mention Zoologie et Biodiversité Animale, Université d'Antananarivo.
17. Randriamanampisoa, H. F. L. 2017. Relation Plante-Animale : Cas des amphibiens pandanicoles dans la NAP de Maromizaha. Mémoire de Master II, Mention Zoologie et Biodiversité Animale, Université d'Antananarivo.
18. Rasamimanana, H. R. 2017. Education relative à l'environnement : outil essentiel pour la conservation des lémuriens. Habilitation à Diriger des Recherches, Ecole Normale Supérieure, Université d'Antananarivo.
19. Ratovoson, T. J. C. 2017. Contribution à l'étude du régime et d'apprentissage alimentaires chez *Eulemur rufifrons* (Bennett, 1833), dans la forêt sèche de Kirindy/ CNFEREF, Morondava, Madagascar. Mémoire de Master II, Mention Zoologie et Biodiversité Animale, Université d'Antananarivo.
20. Ravelojaona, R. N. 2017. Bio-écologie de la communauté chiroptérologique de l'Aire Protégée de Mandrozo, Ouest de Madagascar. Mémoire de Master II, Mention Zoologie et Biodiversité Animale, Université d'Antananarivo.
21. Razafindraibe. J. 2017. Distribution altitudinale de la communauté herpétofaunique du Parc National de Marojejy, NE de Madagascar. Mémoire de Master II, Mention Zoologie et Biodiversité Animale, Université d'Antananarivo.
22. Razanamalala, F. 2017. Bio-écologie et ectoparasites de *Taphozous mauritianus* (Emballonuridae) dans l'Aire Protégée Complexe Tsimembo Manambolomaty, Région Melaky, Madagascar. Mémoire de Master II, Mention Zoologie et Biodiversité Animale, Université d'Antananarivo.

23. Yasmireilda, R. 2017. Génome mitochondrial de *Mantella baroni* (Boulenger, 1888) de Bekalalao-Andasibe, généré en utilisant la transcriptonique (ARN-Seq). Mémoire de Master II, Mention Zoologie et Biodiversité Animale, Université d'Antananarivo.

C) Licence, Master's, and Ph.D. diplomas in preparation in direct collaboration with scientific members of the Associated Vahatra

1. Faliarivola, M. L. En préparation. Analyse du mode de partage des niches écologiques des oiseaux des forêts sèches malgaches. Thèse de Doctorat, Faculté des Sciences, Université d'Antananarivo.
2. Gauthier, N. E. En préparation. Etude de la préférence en habitat de *Passer domesticus* et de *Foudia madagascariensis* dans la ville de Fénérive-Est. Mémoire de Master II, Institut Supérieur de Sciences, Environnement et Développement Durable, Université de Barikadimy, Toamasina.
3. Kofoky, A. En préparation. Ecologie des chauves-souris d'Andranomanintsy, Besalampy. Thèse de Doctorat, Faculté des Sciences, Université de Toliara.
4. Magnina, T. G. En préparation. Contribution à l'étude de la taille du groupe de population de *Propithecus coquereli* pour l'amélioration de l'écotourisme de la forêt d'Anjiamangirana. Mémoire de Licence, Institut des Sciences et Techniques de l'Environnement, Université de Fianarantsoa.
5. Mamialijaona, N. En préparation. Les effets de la reforestation sur la population des lézards dans la région de Kianjavato, Mananjary. Mémoire de Licence, Institut des Sciences et Techniques de l'Environnement, Université de Fianarantsoa.
6. Nahavitatsara, E. R. En préparation. Analyse de la structure de population et de la distribution écologique entre zones de culture et zones d'habitation humaine de *Duttaphrynus melanostictus*. Mémoire de Master II, Institut Supérieur de Sciences, Environnement et Développement Durable, Université de Barikadimy, Toamasina.
7. Narivony, M. D. En préparation. Etude de la relation entre régime alimentaire et fréquentation d'habitat chez *Duttaphrynus melanostictus*. Mémoire de Master II, Institut Supérieur de Sciences, Environnement et Développement Durable, Université de Barikadimy, Toamasina.
8. Noroalintseheno Lalarivoniaina, O. S. En préparation. Dynamique de population de *Rousettus madagascariensis*, G. Grandidier, 1928 (Yinpterochiroptera : Pteropodidae) de la grotte des chauves-souris du Parc National d'Ankarana, Nord de Madagascar. Thèse de Doctorat, Faculté des Sciences, Université d'Antananarivo.
9. Rahariniaina Mirana, J. E. En préparation. Distribution spatiale et évolution temporelle de la population de *Threskiornis bernieri* dans le Complexe Mahavavy-Kinkony, Nord-ouest de Madagascar. Mémoire de Master II, Mention Zoologie et Biodiversité Animale, Université d'Antananarivo.
10. Rajaonarivelo, J. A. En préparation. Implication des facteurs écologiques sur la répartition verticale de ma forêt sèche malgache. Thèse de Doctorat, Faculté des Sciences, Université d'Antananarivo.
11. Rakotonandrasana, A. En préparation. Influence des habitats riverains et des cours d'eau sur la distribution spatiale et la dispersion de *Duttaphrynus melanostictus*. Mémoire de Master II, Institut Supérieur de Sciences, Environnement et Développement Durable, Université de Barikadimy, Toamasina.
12. Ralisata, M. En préparation. Ecologie de la chauve-souris à ventouse de Madagascar (*Myzopoda aurita*, Milne-Edwards et Grandidier, 1878). Thèse de Doctorat, Faculté des Sciences, Université d'Antananarivo.
13. Ramanatsalama, R. V. En préparation. Dynamique de la population et comportement social de *Rousettus madagascariensis* (Chiroptera : Pteropodidae) dans le Parc National d'Ankarana (Nord de Madagascar). Thèse de Doctorat, Faculté des Sciences, Université d'Antananarivo.
14. Randimbiarison, F. T. En préparation. Réactions comportementales d'*Eulemur rufifrons* aux cris de certaines espèces d'oiseaux dans la forêt de Kirindy. Mémoire de Master II, Mention Zoologie et Biodiversité Animale, Université d'Antananarivo.
15. Randrianandrasana, F. En préparation. Contribution à l'étude de comportement du *Mantella aurantiaca* en essai de repeuplement à Ambatovy-Analamay. Mémoire de Licence, Institut des Sciences et Techniques de l'Environnement, Université de Fianarantsoa.
16. Raselimanana, M. En préparation. Contribution à l'étude de la structure des populations de caméléons et de leur utilisation de l'habitat dans la forêt sèche de Kirindy CNFEREF, Sud-ouest de Madagascar. Mémoire de Master II, Mention Zoologie et Biodiversité Animale, Université d'Antananarivo.
17. Rasoanoro, M. En préparation. Etude des parasites sanguins de chauves-souris de la partie orientale de Madagascar. Thèse de Doctorat, Faculté des Sciences, Université d'Antananarivo.
18. Rasolonjatovo, S. M. En préparation. Phylogéographie et génétique des populations de *Mantidactylus bellyi* MOCQUARD, 1895 au niveau de la Montagne d'Ambre, Nord de Madagascar. Thèse de Doctorat, Faculté des Sciences, Université d'Antananarivo.
19. Razaiarisoa, O. En préparation. Les oiseaux aquatiques de la ville d'Antananarivo. Mémoire de Master II, Mention Zoologie et Biodiversité Animale, Université d'Antananarivo.

20. Safidiharizo A. P. En préparation. Contribution à l'étude de l'adaptation écologique de *Mantella aurantiaca* (Mocquard, 1900) réintroduite dans la zone de conservation d'Ambatovy-Analamay. Mémoire de Licence, Institut des Sciences et Techniques de l'Environnement, Université de Fianarantsoa.
21. Sylvestre, M. H. En préparation. Etude de la préférence en habitat de *Passer domesticus* et de *Foudia madagascariensis* dans la ville de Toamasina, Région Atsinanana. Institut Supérieur de Sciences, Environnement et Développement Durable, Université de Barikadimy, Toamasina.
22. Vololona, J. En préparation. Etude des interactions entre *Rousettus madagascariensis* G. Grandidier 1928, (Pteropodidae) et les plantes vasculaires du Parc National d'Ankarana par des analyses polliniques. Thèse de Doctorat, Faculté des Sciences, Université d'Antananarivo.

VAHATRA MEMBERS AS REVIEWERS OF PAPERS SUBMITTED TO SCIENTIFIC JOURNALS

As an indication of the role of Association Vahatra scientific members in the realm of published scientific papers, they served in 2017 as reviewers for more than 30 papers submitted to the following international journals:

- *Acta Chiropterologica*
- *African Bat Conservation Newsletter*
- *International Journal of Primatology*
- *Journal of Mammalogy*
- *Journal of Zoological Systematics and Evolutionary Research*
- *Madagascar Development & Conservation*
- *Malagasy Nature*
- *Mammalia*
- *Mammalian Biology*
- *PLoS One*
- *Quaternary International*
- *Tropical Zoology*
- *Wilson Journal of Ornithology*
- *Zoological Society of the Linnean Society*
- *Zoosystematic & Evolution*

MALAGASY NATURE

Our intention with the scientific journal *Malagasy Nature*, which is published by Association Vahatra, is to advance peer-reviewed papers of high scientific and technical standards. As the review has an ISSN number, it is considered an international scientific journal. Manuscripts in French or English are passed through an editorial team, including a review process of international norms. 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.

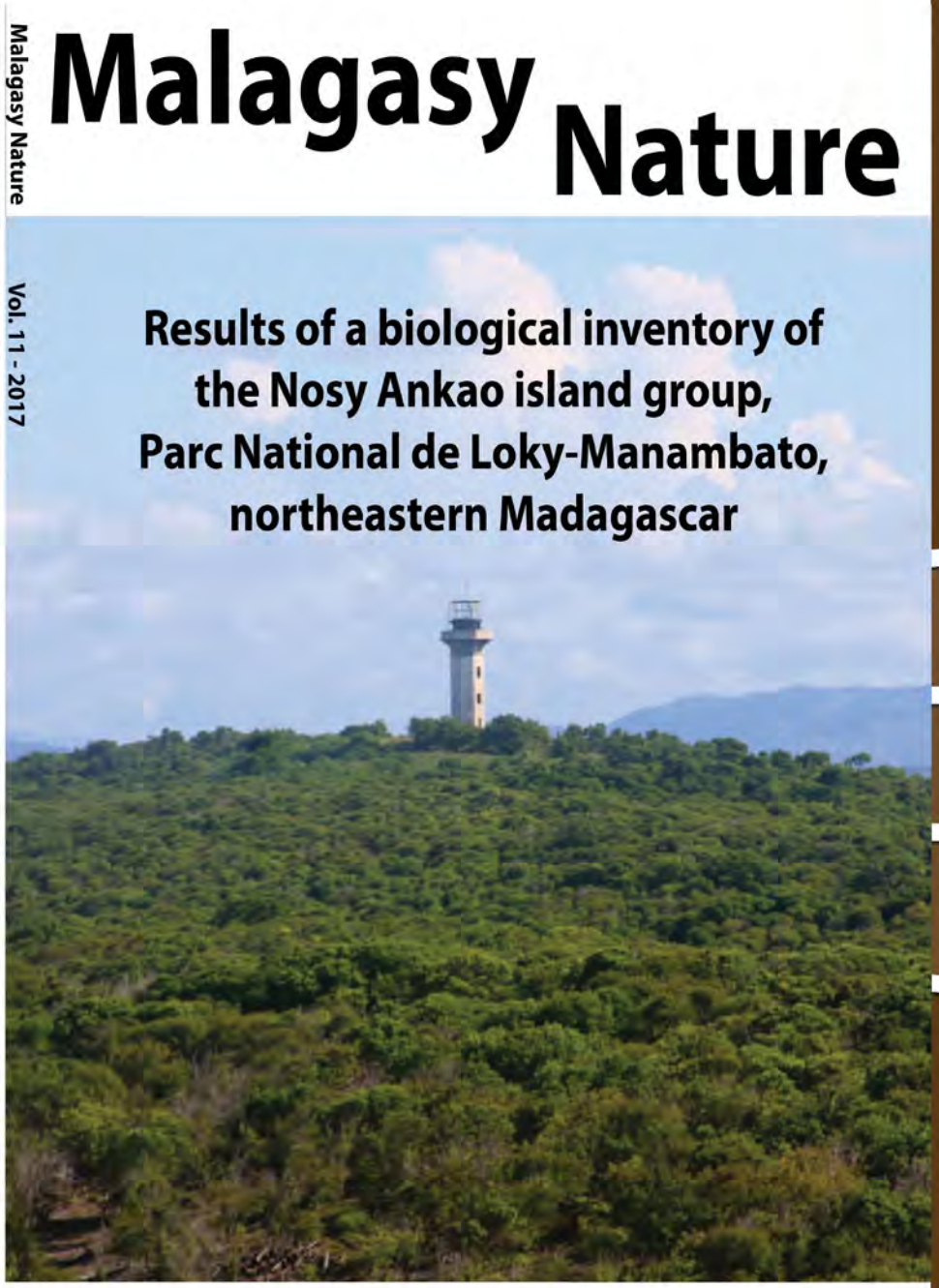
In many cases, the first publication of a researcher poses considerable hurdles and *Malagasy Nature* provides the means for these individuals to negotiate such problems. Based on this approach, this outlet plays an important role in regional capacity building, which in turn separates it from other international journals, for which the editors and associated editorial committee are not readily available to help with initial manuscript submission and revisions. Further, the journal allows Malagasy scientists to return information to the worldwide scientific world. All of these aspects together, provide professional advancement for the Malagasy scientific community, specifically a certain sense of responsibility and for national authors to understand the importance of invested efforts when producing scientific articles. The manner the journal is published also guarantees the local availability of research results in the fields of ecology and biology conducted on Madagascar and neighboring islands, as compared to foreign scientific journals with copies or electronic files not readily downloadable or repatriated to Madagascar. All recent numbers of the journal are available on line and with free access (http://www.vahatra.mg/malagasynaturefr.html).

Marie Jeanne Raherilalao and Steven M. Goodman are the Editors of *Malagasy Nature* and a group of Associated Editors assists in different aspects with submitted manuscripts. At least one volume of the journal is published each year. The editorial board of *Malagasy Nature* is composed of both national and international scientists, from the Anglophone and Francophone worlds, made up of the following individuals:

Two issues of the journal were published in 2017. The first one was a monograph dedicated to the archipelago of Nosy Ankao, which is included in the Loky-Manambato protected area in northeastern Madagascar. The second was a regular issue. These two numbers contain the following articles (http://www.vahatra.mg/volume11.html and http://www.vahatra.mg/volume12.html):

Volume 11 (2017, 59 pp.):

- **Results of a biological inventory of the Nosy Ankao island group, Parc National de Loky-Manambato, Northeastern Madagascar** – Goodman, S. M., Anbdou, Y., Andriamiarantsoa, Y., Fisher, B. L., Griffiths, O., Keitt, B., Rafanomezantsoa J. J., Rajoelison, E. T., Rakotonirina, J. C., Ranaivoarisoa, L., Ranirison, P., Soarimalala, V., Tantely, M. L., Tortosa, P. & Raselimanana, A. P.



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Volume 12 (2017, 113 pp.)

- **Les unités paysagères de la péninsule d'Ampasindava (Nord-ouest de Madagascar), un terroir sous haute pression de déforestation** – Tahinarivony, J. A., Rasoanaivo, N. S., Rasolofo, N., Ranirison, P., Edmond, R. & Gautier, L.
- **Influence des caractéristiques forestières et des perturbations anthropogéniques sur la distribution des lémuriens de la Forêt Classée d'Ankadivory (Tsinjoarivo-Ambatolampy)** – Rakotomalala, J. E., Proctor, S., Rakotondravony, D., Rakotondraparany, F., Raharison, J.-L. & Irwin, M. T.
- **Updated extinction risk assessments of Madagascar's freshwater decapod crustaceans reveal fewer threatened species but more Data Deficient species** – Cumberlidge, N., Rasamy Razanabolana, J., Ranaivoson, C. H., Randrianasolo, H. H., Sayer, C., Máiz-Tomé, L., Van Damme, D. & Darwall, W. R. T.
- ***S*ex-ratio chez les puces (Insecta : Siphonaptera) d'Ambohitantely, Hautes Terres Centrales de Madagascar** – Randrenjarison Andriniaina, H. R., Beaucournu, J.-C., Soarimalala, V., Boyer, S. & Goodman, S. M.
- **Découverte de la construction du nid de l'aigle serpentaire de Madagascar (*Eutriorchis astur*) dans l'Aire Protégée de Bemanevika, Nord-ouest de Madagascar** – Benjara, A., René de Roland, L. A., Rakotondratsima, M., Andrianarimisa, A. & Razafimanjato, G.
- **Les tiques dures (Acari : Ixodidae) ectoparasites de micromammifères non-volants dans la forêt d'Ambohitantely, Madagascar** – Rakotomanga, M. N., Goodman, S. M., Soarimalala, V., Boyer, S. & Apanaskevich, D.
- **Survie et variation temporelle de la taille de la population de *Rousettus madagascariensis* (Chiroptera : Pteropodidae) de la Grotte des Chauves-souris d'Ankarana, Nord de Madagascar** – Lalarivoniaina Noroalintseheno, O. S., Rajemison, F. I. & Goodman, S. M.
- **Diversité et écologie des petits mammifères dans les habitats forestiers et anthropiques du District de Moramanga, Centre-est de Madagascar** – Randriamoria, T. M.
- **The distribution and ecology of invasive alien vertebrate species in the greater Toamasina region, central eastern Madagascar** – Goodman, S. M., Raselimanana, A. P., Andriniaina, H. A., Gauthier, N. E., Ravaojanahary, F. F., Sylvestre, M. H. & Raherilalao, M. J.

NOTES

- **Nest of the Malagasy Pond Heron *Ardeola idae* in northern Madagascar** – Sam, T. S. & Bamford, A.
- **Occurrence of *Taphozous mauritianus* (Emballonuridae) in Maintirano, western Madagascar** – Rakotondramanana, C. F., Rakotomalala, Z. & Ramasindrazana, B.

THE PUBLISHING HOUSE OF ASSOCIATION VAHATRA

The year 2011 marked an important advancement for Association Vahatra with the creation of its own publishing house, focusing on a series entitled "Guides sur la diversité biologique de Madagascar" [Guides to the biological diversity of Madagascar]. For individuals that have grown up over the past 40 years in, for example, North America, portions of Latin America or western Europe, information on regional plants and animals are readily available in field guide format. These types of books, generally presented by taxonomic group (e.g. ferns, reptiles, birds, etc.) and region, revolutionized making information on biodiversity available and penetrable for members of different age and social groups in many various regions of the world. Such guides provide the means for individuals to become familiar with different plants and animals found in areas where they live or travel, and, most critically, integrating this familiarity into how they conceive the importance of the natural world. It is not an exaggeration to state that this type of guides have led to the "greening" of different sectors of society in numerous countries. For Madagascar, which is so rich in biological diversity and being one of the principal conservation priorities in the tropics, the lack of such books is a considerable void, which Association Vahatra strongly believes need to be filled.

Since 2011, six books have been published in the series, which is edited by Marie Jeanne Raherilalao and Steven M. Goodman and designed and typeset by Madame Malalarisoa Razafimpahanana:

1. *Les chauves-souris de Madagascar* [The bats of Madagascar] by Steven M. Goodman, 2011, 129 pp.
2. *Les petits mammifères de Madagascar* [The small mammals of Madagascar] by Voahangy Soarimalala & Steven M. Goodman, 2011, 176 pp.
3. *Histoire naturelle des familles et sous-familles endémiques d'oiseaux de Madagascar* [The natural history of the families and subfamilies of endemic Malagasy birds] by Marie Jeanne Raherilalao & Steven M. Goodman, 2011, 146 pp.
4. *Les Carnivora de Madagascar* [The Carnivora of Madagascar] by Steven M. Goodman, 2012, 158 pp.
5. *Les animaux et écosystemes de l'Holocène disparus de Madagascar* [The extinct Holocene animals and ecosystems of Madagascar] by Steven M. Goodman & William L. Jungers, 2013, 249 pp.
6. *Les amphibiens des zones arides de l'Ouest et du Sud de Madagascar*" [The dry forest amphibians of western and southwestern of Madagascar] by Franco Andreone, Gonçalo M. Rosa & Achille P. Raselimanana, 2014, 180 pp.

The production of the first three books in the series was financed by a grant from the Critical Ecosystem Partnership Fund (CEPF). A generous grant from the Ellis Goodman Family Foundation allowed additional guides in the series to be published, which include the books on Carnivora, extinct animals, and dry forest amphibians. Additional volumes to be published in the series over the next year and graciously subsidized by the Ellis Goodman Family Foundation and Paul Goodman include:

1. *The amphibians of northern Madagascar* – by Franco Andreone, Angelica Crottini, Andolalao Rakotoarison, Achille P. Raselimanana, Gonçalo M. Rosa & Mark D. Scherz. This bilingual French-English book is anticipated in second half of 2018.
2. *The ant genera of Madagascar* – by Brian Fisher & Christian Peeters. This bilingual French-English book is anticipated in the second half of 2018.
3. *The damselflies and dragonflies of Madagascar* - by K. D. Dijkstra & Callen Cohen. This bilingual French-English book is anticipated in 2018.

To date, other than free or at production costs diffusion of Vahatra Press books to Malagasy students and scientists, numerous copies have been sold to people coming to the Vahatra office, at different fairs in Antananarivo, and through overseas booksellers. We are pleased with the interest these books have generated, which includes seeing young Malagasy students and naturalists carrying and consulting the books on field trips to different forested

areas. Further, these books are important resources for national students and researchers, as well as reference works for different university courses. The University of Chicago Press is now responsible for the distribution of books in this series in North America and Europe, as well as the *Atlas of selected vertebrates of Madagascar* published in late 2013 (see http://www.press.uchicago.edu/ucp/books/publisher/pu3431914_3431915.html).

SOME ACTIVITIES OF VAHATRA, INCLUDING NEW PROJECTS

The association is involved in a number of collaborative projects and below are details on some of these.

1. Helmsley Charitable Trust - capacity building, phase II

This project, entitled "Development of scientific capacity for Malagasy conservation biologists", which commenced in January 2017, has four different aspects: 1) two field schools per year for young Malagasy university graduate students to help in their scientific orientation and skill development; the participant groups will also include some individuals working in protected areas management (e.g. Madagascar National Parks) and field practitioners for conservation organizations (most to be selected

from other HCT financed projects); 2) field studies and different forms of mentoring for four PhD students and four Master II students enrolled at The University of Antananarivo; 3) continued advancement of scientific and general publications associated with Vahatra scientists and students, as well as the Malagasy scientific community, and 4) the publication of a large-scale synthesis on the protected areas of Madagascar.

2. Helmsley Charitable Trust - invasive species in collaboration with Island Conservation

In the context of creating connectivity projects between organizations receiving funding from the Helmsley Charitable Trust, Island Conservation in collaboration with Association Vahatra received a grant to advance different research projects and public education associated with problems imposed on Madagascar's ecosystems and the Malagasy people by invasive animal species.

Results to date associated with this project include a monograph published in early 2017 in *Malagasy Nature* (http://www.vahatra.mg/volume11.html) on multidisciplinary biological inventories conducted on islands in the Nosy Ankao archipelago island, northeastern Madagascar. A

follow-up project associated with this work is a plan to remove rats from one of these islands, Nosy Manampao, where a large breeding colony of terns occurs. In association with this project, Toky Randriamoria followed at the Durrell Conservation Trust on Mauritius a Post Graduate Diploma in Endangered Species Conservation Management. Further, numerous other field projects on invasive species, mostly associated with Master's students at the Université de Toamasina, have been completed. These include studies on the ecology and distribution of the introduced Asian toad *Duttaphrynus melanostictus*, as well as density estimates of introduced House Sparrows *Passer domesticus* in the cities of Toamasina and Fénérive-Est.

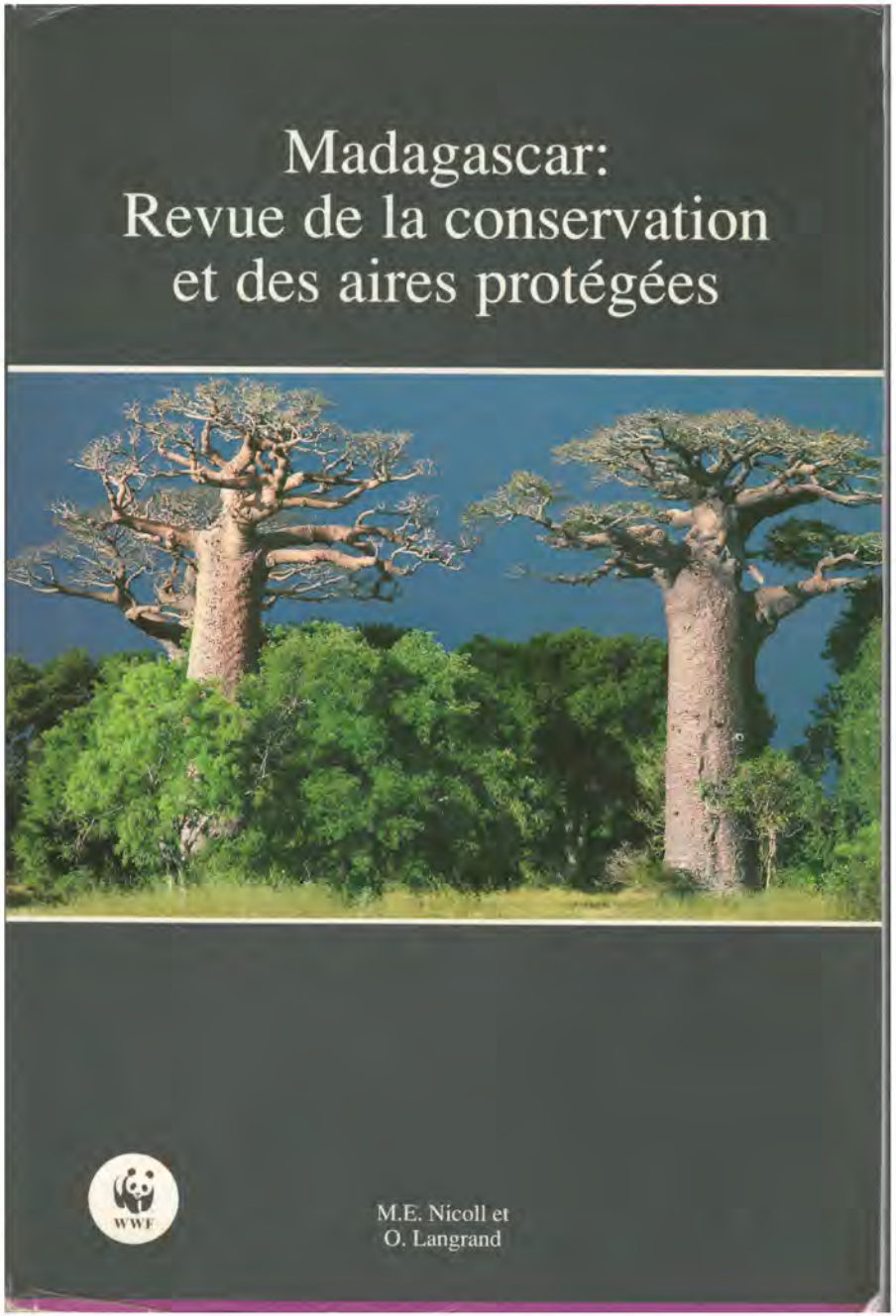
3. Critical Ecosystem Partnership Fund (CEPF)

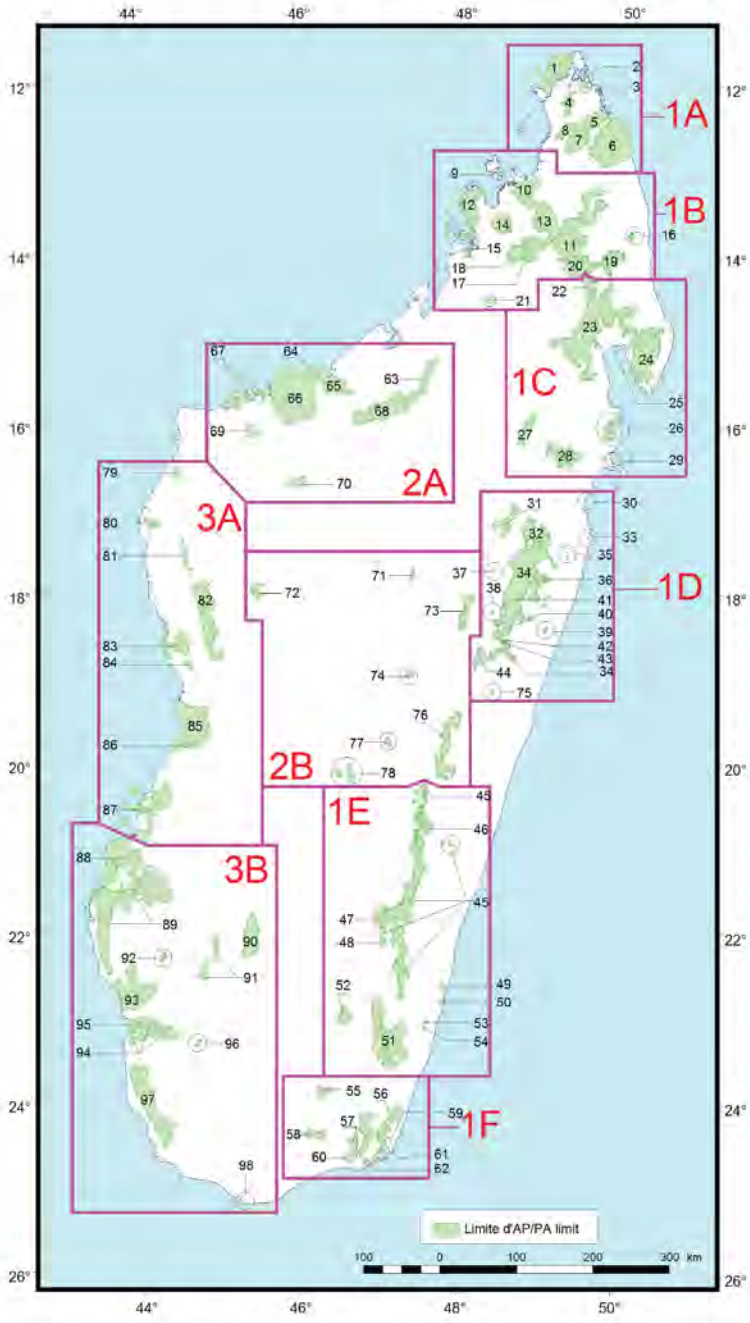
In late 2015, Association Vahatra received a three-year grant from CEPF to conduct a large-scale review of the protected areas system of Madagascar. The project that will terminate with a bilingual book on this subject, which will be published by Association Vahatra. See below for further details on this book project.

A LARGE SCALE REVIEW OF THE PROTECTED AREAS OF MADAGASCAR

In 1989, Martin Nicoll and Olivier Langrand published a book entitled "*Madagascar: Revue de la conservation et des aires protégées*" (WWF, Gland), an important landmark in the early recent development of Madagascar's protected area. In a clear and succinct manner, these authors compiled information, including vertebrate species lists, available at that time for each site, and important sections on the future strategies to conserve the remaining natural habitats of the island. Since then, that is to say over slightly less than three decades, the biological exploration of the remaining forests of the island has advanced considerably, changes have taken place in our knowledge of the fauna and the flora, including the description of several thousand new species to science, and many new protected areas have been established. As is the nature with such syntheses and a sign of advancement, the Nicoll and Langrand book is now out of date and in need of revision.

With grants from Critical Ecosystem Partnership Fund (CEPF), the Helmsley Charitable Trust, and different generous donors and partners, Association Vahatra, Fondation pour les Aires Protégées et la Biodiversité





de Madagascar (FAPBM), Madagascar National Parks, and at least 40 other contributors have undertaken a project to revise and expand the Nicoll & Langrand book. This three-year project involves many different facets, including a tabulation of the recognized terrestrial protected areas as of mid-May 2015; scanning and organizing of thousands of documents concerning the biota occurring at these sites and associated legal documents to be posted for free access on the FAPBM website; a large-scale review and updating of a database of the vertebrates and plants of each site; systematic reviews of the different groups to be covered in the project; biological inventories of poorly known sites; and numerous other activities.

A bilingual (French-English) book under the titles "Les aires protégées terrestres de Madagascar : leur histoire, descriptions et biotes / The terrestrial protected areas of Madagascar: their history, descriptions and biota" is currently being completed and will present numerous details on 98 terrestrial protected areas. The book edited by S. M. Goodman, M. J. Raherilalao & S. Wohlhauser is planned to be released in the latter portion of 2018 and published by Association Vahatra.

RECENT AND CURRENT GRANTS

- Ellis Goodman Family Foundation – Financing for the "Guides sur la diversité biologique de Madagascar" series.
- Critical Ecosystem Partnership Fund – Madagascar's protected areas: A bilingual book and associated database reviewing their history, biodiversity and guiding the future, 2015-2018.
- Helmsley Charitable Trust – Development of scientific capacity for Malagasy conservation biologists, 2017-2019.
- Helmsley Charitable Trust – Connectivity Project – Protecting biodiversity, food security, and livelihoods in Madagascar, 2015-2017.

We wish to acknowledge all of these donors and the kind gifts made by Joyce & Bruce Chelberg, Connie & Dennis Keller, Owen Griffiths, Tanya & Michael Polsky associated with different on-going projects to advance conservation science on Madagascar. We are also grateful to the following individuals for recent gifts to support the advancement of Malagasy graduate students working with Association Vahatra: Gail J. and Robert B. Loveman, Joseph and Jo Ann Paszczyk, Lisa Pinsley and Karim Kawakibi, Bob and Charlene Shaw, Jai Shekhawat, and Adele S. Simmons.

FIELD MUSEUM TRIP TO MADAGASCAR

During November 2017, 10 individuals with different associations with the Field Museum, including board members, joined Steve Goodman and Steve Strohmeier (Institutional Advancement at the Field Museum) for a 10-day adventure across the island. The overland road trip started in Toliara and ended in Antananarivo, with stops at a variety of protected areas, such as Tsimanampetsotsa, Zombitse-Vohibasia, Isalo, and Ranomafana. Many different highlights, ranging from visiting a distillery of local spirits (*toka gasy*), markets, local foods, open air lectures on numerous different topics, etc. The last day in Madagascar included a visit to Association Vahatra to meet with the scientific staff and several generations of former and current graduate students working with the organization. This visit led to numerous kind donations to advance a new generation of students (see the section immediately above).

FULBRIGHT GRANTEE TO WORK WITH ASSOCIATION VAHATRA

Dr. Radhika Dave has received a Fulbright Postdoctoral award and her associated project focuses on identifying factors, including the recognition of local ecosystem benefits, which motivate individual and community support for forest management, and its consequent impact on outcomes for conservation and livelihoods. She will employ biodiversity data collected before a given forest block was placed under community management and making comparisons to the area's subsequent evolution. In short, she will be able to directly respond to the question, "is the system working with regards to biodiversity conservation?" This is timely and important research to expand our understanding of the motivations for continued locally supported community based forest management on Madagascar, and the challenges faced by the 15 years of decentralized natural resource management in delivering the objectives envisioned. Radhika is planning to arrive in Madagascar in February 2018 for a six-month stay and will work closely with and partly based at Association Vahatra and also working with colleagues at the Université d'Antananarivo.

ACTIVITIES OF VAHATRA PERMANENT MEMBERS DURING 2017

Members of the Vahatra scientific staff were involved in a variety of activities, some aspects of which are summarized below on a monthly basis.

January

January is the period of examinations at the Université d'Antananarivo and Achille and Marie Jeanne spent a portion of their time correcting exams. Achille also worked on the species descriptions for a book he is co-authoring

on the frogs of northern Madagascar and for the Vahatra field guide series. He also finished compiling and commenting on the amphibian chapter for the protected areas book Vahatra is actively writing. He also worked on the Master's memoirs of two students from the Université de Toamasina researching invasive toads in eastern Madagascar. Marie Jeanne and Steve worked on different manuscripts for the next issue of *Malagasy Nature*, as well as writing and editing different chapters for the protected area book. Steve gave a presentation at the Institut Français de Madagascar under the title "**Les extraordinaires animaux et écosystèmes de Madagascar récemment disparus».** Voahangy made comments on the memoirs of five "License mémoires" of students from the Université de Fianarantsoa associated with the Stoprats project, which terminated in 2016. As she is the President of the College of professors at the Institut des Sciences et Techniques de l'Environnement, Université de Fianarantsoa, she also organize and led its biannual meeting.

February

Achille was actively involved in the conception and writing of a research proposal for the Mention Zoologie et Biodiversité Animale, Université d'Antananarivo. Together with Marie Jeanne and Voahangy, he worked on another Vahatra proposal for submission to USAID. He was also involved in the thesis commission of a Ph.D. candidate at the Ecole d'Agronomie, Université d'Antananarivo, was a member of the lecture committee of a Master's student, and participated as a jury member for another Master's presentation. Steve and Marie Jeanne continued to write, edit, and review different portions of the protected area book. Voahangy made comments on five "License mémoires" of students from the Université de Fianarantsoa.

March

Achille prepared and compiled different documents for his integration in the corps of "Professeur Titulaire" at the Université d'Antananarivo. This month marked the start of the 2017 academic year at the Université d'Antananarivo and he was rather occupied with teaching. Marie Jeanne was engaged with teaching activities at the Université d'Antananarivo. Steve was notably involved in writing and editing different portions of the text for the protected areas book. Voahangy made comments on five "License mémoires" of students from the Université de Fianarantsoa.

April

Achille and Marie Jeanne spent a good portion of the month teaching at the Université d'Antananarivo. Achille was also a jury member for two Master's presentations. He also worked on the reptile and amphibian species lists for the protected areas book. Marie Jeanne supervised the final stage of two Master's memoirs on aquatic bird communities and together with Steve worked extensively on another Master's memoir concerning Malagasy island biodiversity. Steve was notably involved in writing and editing different portions of the text for the protected areas book. He also returned to Ankarana with several Ph.D. students from the Université d'Antananarivo to conduct research on bats. Voahangy gave a presentation at the Institut Français de Madagascar under the title "**Les petits mammifères de Madagascar".** With Achille and Marie Jeanne, she worked on full proposal for Vahatra, for submission for funding to USAID in the context of PEERS.

May

Achille pursued his teaching at the Université d'Antananarivo, as well as working on different texts concerning reptiles and amphibians for the protected areas book. He sent a week supervising fieldwork of students working of the reintroduction of captive breed frogs, golden *Mantella*. Marie Jeanne carried out fieldwork on aquatic birds in northwestern Madagascar and in collaboration with Asity Madagascar supervised Master's students conducting research on ecological monitoring of bird communities. Steve spent a portion of the month at the Field Museum associated with different specimen related research projects. Voahangy went to Marojejy for collaborative fieldwork with colleagues from Duke University associated with small mammals and zoonotic diseases.

June

Achille was a jury member for two Master's presentations and one Ph.D. thesis, the latter was in collaboration with Steve. With the other scientific members of Association Vahatra, he was involved in the conception and writing of a funding application to Norad. Marie Jeanne and Voahangy were actively involved with the preparation of a field school in the context of Helmsley Charitable Trust project. The 10-day field school took place in the second half of the month and involved three scientific members of Association Vahatra and 25 students from the Université d'Antananarivo at

the Réserve Spéciale d'Ambohitantely. Voahangy continued her fieldwork in Marojejy in the collaboration with Duke University.

July

Achille was involved as a jury member for several Master's memoirs presented at the Université d'Antananarivo. This month marked the period of examinations at the Université d'Antananarivo, and Achille and Marie Jeanne spent part of their time supervising and correcting exams. Marie Jeanne worked closely with two Master's students in the final preparation of their memoirs and oral presentations, and acted as a jury member. Steve spent the month at the Field Museum and the Smithsonian Institution working on research projects and on the protected area book. Voahangy helped the Direction des Aires Protégées Terrestre to review the list on invasive mammals species known from Madagascar.

August

Achille was involved as the external examinator for a Ph.D. student working with Institut Pasteur de Madagascar, as well as a jury member for one Ph.D. student and two Master's students. Steve and Marie Jeanne did the last edits and checks of manuscripts for volume 12 of *Malagasy Nature*, which was released during the month. She also prepared a field trip associated with aquatic bird communities, was involved in the conception and writing of a research proposal for a new Master's student, and served as a jury member for a Master's student. Steve spent the month at the Field Museum working on research projects and in particular the protected areas book. He returned to Madagascar towards the end of the month. Voahangy spent a good portion of the month teaching at the Université de Fianarantsoa.

September

Achille was a member of a thesis commission of a Vahatra Ph.D. student and also supervised and commented the Master's memoir of another student. He gave a course in the Animal Physiology Department on different aspects of reptile and amphibian ecology and biology. Marie Jeanne carried out ecological monitoring of aquatic birds in the Complex Mahavavy-Kinkony protected area and trained students and conservation agents on associated field techniques. Steve returned to Ankarana with several Ph.D. students from the Université d'Antananarivo to conduct research on bats. He also visited the tern colony on Nosy Manampao, Nosy Ankao archipelago, to provide advice to the site manager on monitoring activities. Voahangy continued her teaching at the Université de Fianarantsoa.

October

Achille pursued teaching activities at the Université d'Antananarivo and participated as a jury member for two Master's presentations and one Ph.D. presentation, for the latter Steve served as the co-director. Achille also spent 10 days supervising the fieldwork research of a student working on captive breeding of the golden *Mantella* and different release mechanisms around the breeding pond. Marie Jeanne worked the four students from the Université de Toamasina associated with their memoirs concerning invasive alien faunal species. Marie Jeanne and Steve worked extensively on the first part of the protected area book to put things in order to start the design process and aspects of typesetting. Steve conducted a series of independent meetings with the protected area management organizations associated some aspects of their sites and information on the locally occurring vertebrate fauna. Voahangy continued her teaching at the Université de Fianarantsoa. She prepared a document for policy for managing and disseminating environmental information for ARSIE website.

November

Achille was a member of jury of one Master's student and one Ph.D. thesis. He devoted considerable time commenting on the text for a forthcoming field guide to the amphibians from northern Madagascar.

In the first portion of the month, Steve lead a tour group around Madagascar associated with the Field Museum. Achille, Steve, and Voahangy participated to a field trip to the Réserve Spéciale d'Ambohitantely with colleagues from Processus infectieux en milieu insulaire tropical (PIMIT), Université de La Réunion, to study different small mammal zoonotic diseases, in particular bubonic plague. Voahangy supervised the advancement of research activities of two "License mémoires" of students from the Université de Fianarantsoa.

December

Achille went to Morondava to supervise research activities of two Master's students from the Université d'Antananarivo. Once back to Antananarivo he took up teaching duties at the university and supervised the last version of the

thesis of a Ph.D. student. Marie Jeanne began her teaching activities for the second semester at the Université d'Antananarivo, and together with Steve continued editing different portions of the protected area book. Steve took part in the *Malagasy Primatological* Society *Congress held at the Université de Toamasina and gave the opening plenary talk.* Voahangy conducted a five-day field school for 60 students from the Université de Fianarantsoa at the National Park of Ranomafana.

NEW SPECIES OF ANIMALS DESCRIBED IN 2017 BY VAHATRA SCIENTISTS

One of the direct results of the biological inventories conducted by Vahatra and associated collected specimens, is the discovery of species previously unknown to science. Vahatra scientists described this past year one new species of bat and several species of bird feather mites from Madagascar.

1. Foley, N. M., **S. M. Goodman**, C. V. Whelan, S. J. Puechmaille & E. C. Teeling. 2017. Towards navigating the Minotaur's labyrinth: Cryptic diversity and taxonomic revision within the speciose genus *Hipposideros* (Hipposideridae). *Acta Chiropterologica*, 19: 1-18. – This study, based on morphology and molecular genetics, found that the large Old World family Hipposideridae was paraphyletic. To resolve this problem, two genera were resurrected from synonymy and proposed to be applied to two genera formally considered members of the genus *Hipposideros*.
2. Goodman, S. M., T. Kearney, M. M. Ratsimbazafy & A. Hassanin. 2017. Description of a new species of *Neoromicia* (Chiroptera: Vespertilionidae) from southern Africa: A name for "*N.* cf. *melckorum*". *Zootaxa*, 4236: 351-374. – A new species to science, *Neoromicia stanleyi*, was named from southern Africa and in honor of the late William Stanley.

SCIENTIFIC OUTPUTS OF VAHATRA DURING 2017

Below is a list of publications from 2017, including in press and submitted manuscripts. Names in **bold** are those of scientific members and a research associate of Vahatra and those in *italics* are current or past Malagasy student members working with Association Vahatra.

1. Argue, D., Groves, C. P., Lee, M. S. Y. & **Jungers, W. L.** 2017. The affinities of *Homo floresiensis* based on phylogenetic analyses of cranial, dental and postcranial characters. *Journal of Human Evolution*, 107: 107-133.
2. Boria, R., L. Olson, **S. M. Goodman** & R. Anderson. 2017. A single-algorithm ensemble approach to estimating suitability and uncertainty: Cross-time projections for four Malagasy tenrecs. *Diversity and Distributions*, 23: 196-208.
3. Dammhahn, M., *T. M. Randriamoria* & **S. M. Goodman**. 2017. Niche differentiation using stable isotopes between invasive non-native *Rattus* spp. in anthropogenic and natural habitats of central eastern Madagascar. *BMC Biology*, 17: 16.
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