Kapisen

Plant Conservation Action group

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Newsletter

PLANT CONSERVATION ACTION GROUP

Special Anniversary Issue
PCA's 10th Anniversary

We are ten years old!

In 2002, a small group of people formed the Plant Conservation Action group in order to promote plant conservation in Seychelles. This November 2012 issue of Kapisen therefore focuses on the organisation's ten years of achievements (p3) and also provides an opportunity for its members, collaborators and a volunteer to describe their personal experiences and impressions of PCA (p 6-9, p15).

PCA was set up to be a membership organisation, with an elected executive committee and no paid staff. Everyone volunteered their time. So, right from the start, there was a feeling of friendship and collaboration between members. Over the years, this feeling has remained, even though members have come and gone.

Some of the founding members are no longer with PCA because their work took them overseas or into pressured jobs, or because remaining as an NGO member would create conflict of interest with their government position. We asked some of these people to share their thoughts about PCA (p4-5). Remarkably, some members have stayed with the group for ten years! The local members are James Mougal, Lindsay ChongSeng, Marie-Therese Purvis and Willy Andre, while as overseas members we still have Christoph Kueffer and Eva Schumacher (who are normally also co-editors of Kapisen). Other members have wavered in their interest (perhaps because they prefer field work to indoor meetings!), but most remain connected to PCA in one way or another.

Significant to our organisation has been the partnerships we have been able to establish, initially with the Federal Institute of Technology (ETH), a university in Zurich, Switzerland (p9) from which we have received a sizeable number of master and doctoral students over the past years. These students have contributed substantially to our understanding of plant conservation by carrying out excellent research, with varying amounts of help from PCA and others. The results have often provided practical advice for plant conservation and restoration. An outstanding example is the work of Aline Finger, who on page 12 writes about her study of three rare endemic Seychelles plant species. Future research collaborations may become slightly more complex, as James Mougal discusses on page 5.

Partnerships and collaborations have proved very productive for PCA. Another quite different example is with North Island (p7), a private sector tourist resort which has an excellent island restoration programme and has provided many opportunities for practical experience for PCA members. Our activities remain varied, ranging from field excursions (p18) to engaging the general public in a plant photo competition (p 10), and from plant database management (p14) to improving the management of our organisation itself (p16). And we give you some actions that YOU can do to help conserve plants (p15). And of course we have our regular sections on PCA news (p16) and field observations (p18).

If this is the first time you have heard about PCA, go to page 20 to find out more about us and how to contact us. And if, by any chance, you know of an appropriate plant-oriented person willing to work part-time for PCA for relatively little pay, please let us know.

Enjoy this celebratory issue of Kapisen!

Katy Beaver and Marie-Therese Purvis

Editors of this issue of Kapisen

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The digital pdf version of Kapisen can be downloaded from either of the following:
www.pcaseychelles.org/kapisen.html
www.plantecology.ethz.ch/publications/books/kapisen

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Contents

PCA Ten years of Action

The Plant Conservation Action group has plenty of achievements to celebrate in its ten years of existence. The Table below highlights some of the significant steps taken over the past ten years, which have contributed to our success as an organisation. Although we remain a small organisation, back in 2002 our founding members had big ideas, the main one being to give plant conservation the prominence it deserved in a scene dominated by animal conservation. These aims were summarized in PCA's constitution:

- To serve as a source of advice and technical information for plant conservation;
- To mobilize action for threatened plant species;
- To promote the fundamental importance of plants as the basis of ecosystems;
- To gain support for plant conservation.

Have we achieved what those founding members set out to do? We think so and we want to share these accomplishments with you.

Right from the start, PCA set up collaborations with overseas and local research partners (e.g. see p 9) and with local government departments who could work with us on important plant conservation issues. This encouraged and enabled exchange of plant knowledge, scientific methodologies and greater understanding of the specific questions that needed to be answered. These collaborations have also fostered a more professional outlook amongst local members and increased PCA's capacity to provide reliable advice and information on plant conservation matters. Increasingly, local PCA members are carrying out their own research, vegetation surveys and monitoring programmes, sometimes linked with the organisations they work for. This represents a real plus for Seychelles plant knowledge and conservation.

In recent years PCA has also acted as a consultant for a number of projects associated with the large GEF programme currently running in Seychelles. In this way, various members have contributed to the success of the Biodiversity, Biosecurity, Sustainable Land Management, Invasive Alien Species and Protected Area programmes and increased their skills and knowledge in the process. In 2010, PCA became a member of the steering committee for the Biodiversity and Biosecurity project areas and has thus contributed significantly to advocacy for plant and vegetation-related issues in the country.

The second aim, 'mobilizing action for threatened plants', focussed initially on the preparation of the 'National Strategy for Plant Conservation' and the 'Plant Conservation Research Agenda', and these publications acted as an important stimulus for practical action by various organisations and individuals, as well as winning accolades from the international community! But it was our involvement with the North Island vegetation rehabilitation programme which created an opportunity for practical conservation action (see p7). In recent years further field work has been possible through providing small scale assistance with practical rehabilitation experiments and research.

Promotion of plants and gaining support for plant conservation (our third and fourth aims) have been ongoing throughout our existence. Our newsletter “Kapisen” has an ever growing circulation list, and special printed issues of “Kapisen”, such as for schools (2009) and about the Herbarium Project (2012), have given the newsletter a wider and more general audience and this has helped to 'advertise our presence'. Our participation in various national theme days and events has also helped us to reach out to the Seychelles community, with fun activities available to help engage with people. In 2012 our film on plants, a photo competition and a forthcoming exhibition on the importance of plants in our lives, have given more opportunities than ever before for the general public to learn more about plants and their conservation.

We have achieved much in the past ten years, considering our small size and voluntary nature. Nevertheless, remaining a voluntary organisation, without paid staff, in the current competitive and 'corporate' management environment of today's civil society organisations is proving difficult to maintain. Several times the group has discussed the possibility of employing someone part-time but so far it has proved difficult to find an appropriate plant-oriented person willing to work for relatively little pay. But at the same time, we value the friendship and cooperation that exists in our organisation, and that in itself is a very valuable feature which we want to retain and wish now to celebrate!

A few PCA milestones over the past 10 years

2002 (Nov)	Officially registered as an NGO in Seychelles
2003	First two students from ETH carry out short-term research project on plant conservation in Seychelles (Red data list work phase 1)
2004	- Publication of the first edition of PCA's newsletter “Kapisen”
2005	- Publication of the “Seychelles National Strategy for Plant Conservation 2005-2010” - Link with North Island is formally established through the FFEM project. First two ETH students carry out vegetation survey and monitoring work
2006	- Publication of PCA booklet on the Endemic Palms and Screwpines of Seychelles - A Red Data list for woody endemic plant species of the inner Seychelles is produced - Two PCA members gain their PhD degrees through research carried out in Seychelles
2007	- Production of the “North Island Vegetation Management Plan 2007-2011” - Publication of the “Seychelles Plant Conservation Research Agenda 2008-2015”

Continued on page 4

2008	Increased involvement in education and outreach, including launch of first PCA website - One PCA member acquires an MSc and another a PhD through plant research in Seychelles - Start of various short-term local consultancies associated with GOS-UNDP-GEF Environment Programmes: *Mainstreaming Biodiversity, Sustainable land management and Invasive Alien Species*
2009	FFEM project comes to an end but North Island requests continued link with PCA
2010	Formation of the Global Island Plant Conservation Network
2011	Start of GEF Small Grant Programme project: The Herbarium Project = training + development of digital plant database + upgrading of the National Herbarium
2012	- Launch of new PCA website, logo and email address - Herbarium Project moves into the awareness raising phase = Film about Seychelles plants; Photo Gallery; Photo Competition; Exhibition on plants in our lives

PCA Past, present and future: Reflections from founding members

Some of PCA's founding members contribute thoughts about the past, the present and ideas for the future of our organisation.

***Didier Dogley** is now Special Advisor in the Ministry of Environment and Energy. He was Chairman of PCA until 2007.*

It was a shared passion for Seychelles native flora that pushed a group of local enthusiasts to create a plant centred association here in Seychelles. For a while there had been a lingering sense of urgency to fill a void in the endemic plant status knowledge and also to link up the local champions of plant conservation with those who had just started to develop an interest in conservation. From these thoughts PCA came into being and efforts started to demystify plant conservation in Seychelles.

Over the last 10 years, I have enjoyed witnessing the emergence and steady growth of PCA. Kapisen, PCA's mouth-piece, has been very effective not only in promoting plant conservation but also in highlighting major breakthroughs in plant science. Above all they have always been faithful in telling the important stories of plant conservation in Seychelles.

The strength of PCA, in my opinion, lies in its ability to focus on pragmatic and strategic issues, that when addressed correctly can make a real difference on the ground. From the publication of the Plant Conservation Strategy to the upgrading of the Herbarium at the National History Museum, the members of PCA have worked tirelessly to provide and improve the tools required to take plant conservation to the stage that is required at the national level.

Looking ahead, PCA has to live up to its excellent reputation and to expectations that it has now created. It will need to continue addressing gaps in science and knowledge while strengthening plant conservation at its base. The Plant Conservation Strategy and its action plans will have to be updated and areas of weaknesses tackled over the next decade. Above all PCA will have to court and continue recruiting young members to ensure the continuation of their excellent work into the next decades.

***Denis Matatiken** is now Chief Executive Officer at the Seychelles National Parks Authority. He acted as PCA's secretary for the first two years.*

The formation of PCA was a good initiative, as at the time environmental NGOs were dealing mainly with marine issues and birds. Back in 2002 PCA was the only NGO working on plant conservation in Seychelles. Over the years, PCA has managed to bring in regional partners to support its work and it has taken the lead in local plant research and conservation in the Seychelles. I congratulate PCA on having built a local and international network of collaboration. Affiliates include the Seychelles Natural History Museum, the Technical University (ETH) in Zurich and the Royal Botanic Garden Edinburgh, among others.

There are opportunities for PCA to increase its influence, but increased visibility of the organisation is required. This includes promotion, e.g. through an increase in interactive events like the 'Plant Exhibition' and competitions, and activities such as educational tours, providing PCA with both publicity and funding.

For PCA to grow as a conservation organisation, it needs to increase its interaction with the general public, engage volunteers and increase its research work. For this to happen, PCA really needs to have its own office and administrative officer. This will allow more linkages with the private sector, permanent representation of PCA on issues related to protection and conservation of plants, and increased exposure,

while providing the general public with a one stop spot for plant research, education and awareness.

I wish to congratulate all the dedicated members, or volunteers I must say, that have created and nurtured PCA to become the organization it is today.

Dr Frauke Fleischer-Dogley *is now Chief Executive Officer of Seychelles Islands Foundation, responsible for managing Seychelles' two World Heritage Sites. She was secretary of PCA from 2004-2007 and remained an active member until 2008, when her work load increased.*

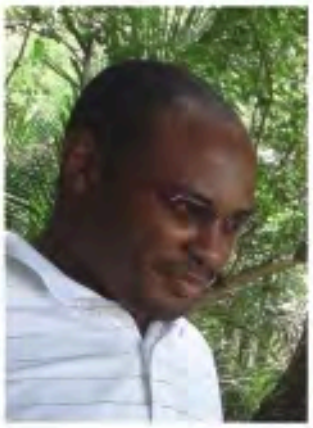
One of the good things at the start of PCA was simply the recognition of the importance of plants in the environment. The other significant factor was that the group was based on personal connections and a common interest in plant conservation, so there was a feeling of friendship as well as strategic thinking and planning for plant conservation. This made possible many positive actions in the early years.

I think PCA has evolved from this close-knit group to become accessible to a broader audience, which is an interesting development. But it still manages to be involved in plant research and a variety of plant conservation actions, while maintaining the feeling of companionship amongst members. This broadening out and opening up is good for the future of PCA and represents an opportunity for the organisation.

PCA has definitely found its place amongst the environmental NGOs in Seychelles and is recognised for the role it plays.

Charles Morel *is now re-employed at the Seychelles National Herbarium. After a number of years as an active PCA member, his workload increased, but he is again involved with PCA activities.*

As a very practical person, I feel that it is important to bring out the 'Action' part of PCA's name. Perhaps we should set targets for plant conservation actions and involve groups of people in various communities around Mahé. If we could create a list of contacts in different districts, even if they are not official PCA members, then perhaps we could work with these persons to encourage communities to, for example, adopt a small area such as a marsh or glacis to care for and rehabilitate. But first maybe we need to invite more people on plant walks, so that they understand better the difference between native and alien species. And I think the plant exhibition at the Natural History Museum will help people to know more about plants too.



James Mougal *is now Research Officer at the Seychelles National Parks Authority (SNPA), has been an active PCA member since the start, and is currently a Committee member.*

Ten years ago, a small team of dedicated plant conservationists came together to create a platform; to connect people all over the world who are interested in conserving and promoting Seychelles native plants. Today, although the organisation remains small, it has become a true source of advice and scientific reference for people conducting plant research and doing habitat restoration work in the Seychelles.

Over the years, PCA has been directly or indirectly involved with many plant research projects initiated by and through ETH, a university in Zurich, Switzerland (p9), although some other universities also sent occasional students. Masters students from these universities have carried out significant research in the field of invasive plant species management, updating the IUCN red list for Seychelles' endemic woody plants, and developing a) appropriate methodologies to monitor endangered plant species and habitats, and b) best practices in native vegetation rehabilitation programme, all with help of staff from the ex-Forestry and National Park section and ex-Botanical Gardens section of the Department of Environment.

But plant research collaboration has changed recently in that it has become more and more difficult for government institutions to provide staff to assist student researchers and/or to take part in the increasing number of requests for research partners. For example, the Department of Environment has reoriented itself towards policies and law enforcement, while SNPA has several ongoing research projects which take up staff time. PCA has therefore stepped in gradually and is working mostly with short-term researchers who are looking for local partners to help with collection of material, especially for genetic research into specific plant species or families.

Although this short-term research is very useful in documenting the plant diversity of Seychelles, it does not help to build local capacity. For this it is necessary for us and our partners to have longer term research of 2-3 years. Perhaps in the future it will be better for research collaborations to be more ecologically inclusive and for other local NGOs to become partners too, so that staff and/or volunteers can benefit from capacity building and we can also learn more about ecological inter-relationships.

What our members think and feel about PCA

From left to right: Andre Dufrenne, Christopher Kaiser-Bunbury, Marie-Therese Purvis, Katy Beaver, Hugh Watts, Barry Nourice, Elke Talma, Ian Charlette, Bruno Senterre, James Mougal, Willy Andre, Jeanne Mortimer, Lindsay ChongSeng

Marie-Therese Purvis is a long-standing member of PCA: Strong interests in conservation and sustainable living led me to PCA from the start of this NGO's life. My work in education had moved to curriculum development for state schools, and in particular the introduction of environmental education in the Seychelles national curriculum. What better way to become more informed about plants and their conservation than to join this erstwhile group of plant enthusiasts and serious botanists! I have discovered a whole new area and ways of learning, met so many wonderful people and discovered parts of Seychelles rich in plant life and otherwise inaccessible. What more can one ask…

Hugh Watts is our current Treasurer: As a PCA member with a non-scientific background, I see my input as indirectly supporting the group's activities. However with my passion for nature (I grew up in Australia on the edge of a national park of almost 1 million hectares), for the enjoyment it gives me and its importance in the preservation of our world, I get very much from my involvement with PCA, be it in meetings or out on our field trips. The members are all very dedicated and good fun to be with.

Heike Vierling is a PCA member resident in Takamaka, in south Mahé: Reflecting on my membership of PCA since 2010, I am grateful that I got to know this small organization of people with whom I can share my love for the unique nature of the Seychelles. There is a saying from Africa that touches me: 'Many small people at many small places who do many small steps can change the face of the world.' For me PCA is a distinguished example in this context. My wish for the future is that more people have confidence and follow with their small steps for a better world!

Mariette Dine is our youngest member: Born in 1991, I grew up close to animals as a child and appreciated plants, but I knew most plants only for their food and medicinal values, having learnt from my grandmother, who was always there to help with any sickness which arose.

I got to know about PCA by word of mouth and at first just tagged along with my friend as I was a bit curious about what the group was doing. Within the first year of my A levels I became one of the youngest members of PCA and started to participate in as many organised activities as I could, e.g. hikes and monitoring expeditions to other islands. I believe that PCA played an important role in my personal development, as not only did it increase my interest in plants but also opened up opportunities and helped me grow as a young adult and broaden my perspective on life.

I recall the rather alarming experience I had on a PCA hike to one of the high mountains of Mahé. I was, of course, in slippers (flip-flops, as at that time I still didn't acknowledge the importance of shoes), and we climbed a steep glacis area; I kept getting an edgy feeling because we were climbing along the extreme edges of granite boulders and cracks! But I swallowed my fear and followed the others (while in my head I was going “ahhh!”) and reaching the top, it was actually worth it! And enjoyable too, as from then on I had my head literally in the clouds. But on that trip I got to know the true meaning of WEARING GOOD SHOES. And now, working as an environment assistant on North Island, I have to thank PCA.

Andre Dufrenne is a PCA member: Being a member of PCA has allowed me to develop my environmental knowledge through new types of activities, for example hikes into different forest habitats. I have worked with several different NGOs and now work on

Sainte Anne Island with the Resort as an Environmental Ranger. Through PCA it is easy to make new friends, especially when you participate in different activities. For example I have helped with PCA's vegetation monitoring on North Island, and restoration of forest vegetation on that island. I have helped with outreach work and participated in the Herbarium Project by providing photos and information for the Database and Photo Gallery.

PCA members can help plant conservation in many ways, but the Herbarium Project is one in which EVERYONE can participate - by taking information about plants to the Natural History Museum and providing photos of plants in their gardens, along roadsides or in the forest. It helps you learn the names and special features of each plant even the difficult-to-pronounce Latin names!

I like it when PCA members share their knowledge, and now, working on Ste Anne, I am sharing my knowledge and ideas with hotel clients and staff on the island. I try to identify plants that are endemic or rare, as well as those that are problem species (see p xx); and I guide visitors on nature trails on the island.

Stephen Blackmore is an Honorary PCA member: He is currently in charge of the Edinburgh Royal Botanic Garden in Scotland but has a long history of links with Seychelles. "Congratulations to everyone involved with Kapisen over the last decade. Kapisen is, quite simply, the most lively and best newsletter of any plant conservation group worldwide there is a level of commitment and engagement with plant conservation in Seychelles that is an inspiration to all of us in other countries who care about plants and the future."

Steve has studied plants in many countries of the world and knows the challenges that are faced in small island states, e.g. very few active plant conservationists. So when he says "No doubt the next ten years will be even more challenging than the last ten, so good luck in all your endeavours!" we know we will require strength and commitment in the future!

Reflections from our North Island members

Linda Vanherck is Environment Officer on North Island and **Greg Wepener** was for some years Landscape Manager. He is now the Back-of-House Manager on the island. They have been PCA's main contacts with respect to the island's vegetation rehabilitation programme, which forms part of this five star resort's overall environmental vision.

PCA: How did the collaboration between PCA and North Island begin?

Linda: "It came about through the French-funded FFEM 'Rehabilitation of Island Ecosystems' project which was coordinated by the Island Conservation Society. In 2005, ICS brought in PCA as a partner for the vegetation rehabilitation, which was a major part of that project on North Island, and without the assistance and expert advice from PCA it would not have been possible."

"The collaboration proved valuable enough to North Island that when the FFEM project came to an end in 2009, the MoU was renewed despite the difficult financial situation following the world economic recession.

PCA: Tell us more about how the collaboration works.

Greg: "Not only does PCA provide advice and carry out scientific monitoring for us, there has also been considerable capacity building for our staff. For example, a PCA member has been able to show us how to use a GPS, and some of our landscape staff have joined PCA field trips to learn more about native plants suitable for planting on North island."

Linda: "Also, working with PCA members and seeing science in action has created awareness in staff as to why it is important to record data. PCA wrote our Vegetation Management Plan and produces regular reports about progress in the vegetation rehabilitation, which helps Management to understand why science is important. Also articles in 'Kapisen', for example, allow the work we are doing to be shared with the conservation world."

Greg: "Another useful PCA contribution has been the new partnerships which North Island was able to develop for example with the Forestry Section, the Biodiversity Centre and with ETH, the university in Switzerland.

Linda: "And the link with PCA enabled the recruitment of a suitable young PCA member as North Island's Assistant Environment Officer, who is proving a valuable asset to the island."

PCA members with Greg (left) discuss vegetation issues on North Island (L Vanherck)

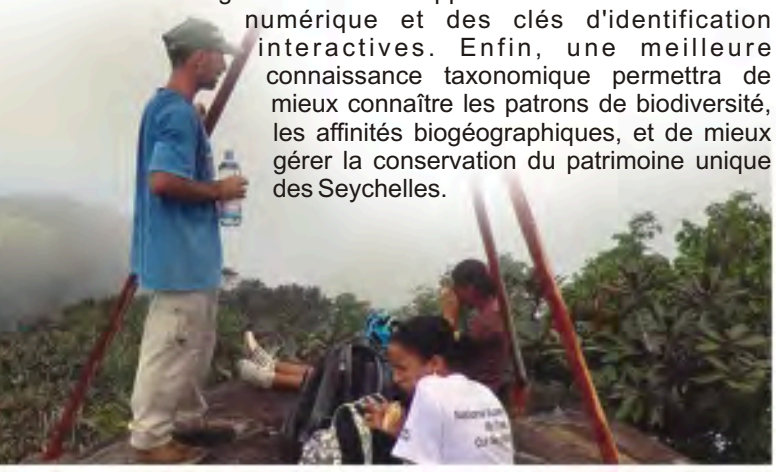
Linda (left) at a PCA-North Island planning meeting, where turtle expert, Dr Jeanne Mortimer, was brought in to ensure an ecosystem approach to the rehabilitation

Les Seychelles: un environnement paradisiaque, un réseau de collaborations grandissant et des perspectives de recherches scientifiques passionnantes

Bruno Senterre, PCA member

En arrivant aux Seychelles, le 5 février 2008, je n'étais supposé rester que deux mois, afin d'étudier les types forestiers de Silhouette. Cependant, après une dizaine d'années passées à étudier les forêts les plus reculées d'Afrique tropicale et d'Amérique centrale, j'ai assez vite compris que j'avais trouvé ici l'endroit que je cherchais (ce qui est un exploit vu mon impressionnante liste de critères de sélection ...). Depuis mes 16 ans, je rêvais de devenir naturaliste sur une petite île tropicale, avec des montagnes aussi hautes que possible et des lagons d'eau chaude, grouillant de bestioles et de plantes, sans grande ville, avec des zones encore inexplorées, et la liste continue ... Bref, un pure idéaliste rêveur, et obstiné. Mon attachement personnel avec PCA est très fort car c'est PCA qui m'a donné la chance de prolonger mon séjour aux Seychelles. Par la suite je suis toujours resté attaché à ce petit groupe qui est de toute évidence le noyau dur de la botanique locale. C'est au sein de PCA, ou parmi les amis de PCA, que vous trouvez l'essentiel des personnes ayant contribué de manière forte à la botanique de ces petites îles.

Après bientôt 5 années passées parmi vous, j'ai pu trouver ma place en occupant une niche scientifique encore sous-exploitée : taxonomie et typologie de la végétation. Le projet de l'herbier nous a permis de rassembler une bonne partie de nos connaissances dans ces domaines et de renforcer les partenariats locaux. Beaucoup reste à faire et il est nécessaire de développer d'autres projets afin de donner à PCA et à ses partenaires l'occasion de travailler plus intensivement sur la flore des Seychelles. L'herbier national est maintenant plus propice à l'étude du matériel qu'il renferme. Il est nécessaire de réviser les familles les unes après les autres, en priorité pour les groupes encore mal connus (monocotylédones, fougères et mousses). Ce sont autant d'opportunités pour former quelques taxonomistes, espérons le bientôt avec la jeunesse Seychelloise de l'Université des Seychelles. Ensuite, ce qui me paraît fondamental, il est nécessaire de faciliter l'accès à ces connaissances, notamment grâce au développement de la taxonomie numérique et des clés d'identification interactives. Enfin, une meilleure connaissance taxonomique permettra de mieux connaître les patrons de biodiversité, les affinités biogéographiques, et de mieux gérer la conservation du patrimoine unique des Seychelles.



Bruno on a training expedition

Plant conservation research in the Seychelles and PCA: a personal view on productive mutualism

Christopher Kaiser-Bunbury, PCA member

When I first came to Seychelles in June 2007 to conduct research on pollination of endangered glacis plant communities I was immediately introduced to PCA. In fact, PCA's good reputation preceded my arrival to the islands through my friend and colleague Christoph Kueffer who, as one of the editors of Kapisen, sent me regular updates on plant conservation in Seychelles. My local research collaborators were active members of PCA so it was a natural link for me to establish, and I was accepted as a member shortly afterwards.

I was new to the islands, so for the first couple of years I absorbed every little bit of plant and cultural information that PCA members happily volunteered. I went on several of the famous PCA field trips to explore the mountains and coasts of Mahé and I was grateful for the flood of advice and information that I received, particularly regarding my research. For example, my research sites were selected with the help of PCA and members have actively supported me and all of my students. I learnt not only scientific and local names of the plants, but also anything I needed to know about flowering and fruiting times, conservation status of the plants, their former distribution and history, and which plants are used as remedies against pains and illness. Many MSc and PhD students have worked on plant species in Seychelles and all of them benefitted greatly from the institutional knowledge and the organisational and personal support of PCA. I continue to learn from PCA members, and after the initial years I could finally start giving something back to members, the organisation and, possibly, to the plants that I have grown so fond of. Working with and for PCA has also given me much fulfilment and joy.

PCA's missions and vision are broad and challenging, considering the membership-based structure of the organisation and the mixed background and interest of its members. I have learnt about the strengths and weaknesses of such a structure, but nevertheless I am impressed about the efficiency with which internal and external projects are handled by PCA. Although very well aware of our limitations, we continue to become engaged in new projects and strive for higher aims. Our work has become ever more important to the native ecosystems as well as to Seychellois, as their well-being and prosperity are so tightly interwoven with the persistence of the island's natural diversity. Congratulations PCA, I look forward to the next 10 years!

Chris in the field with PCA members

The long-term research collaboration of ETH in Seychelles

Christoph Kueffer
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Several ETH personnel were present at the Plant Conservation Research Agenda workshop in 2007

The Swiss Federal Institute of Technology (ETH) Zurich, Switzerland has worked for almost 20 years on conservation issues in Seychelles. The research partnership was initiated by **Dr. Karl Fleischmann**, who was an instructor at the Seychelles Polytechnic in the early 1980s before he completed a PhD on threats of plant invasions to Seychelles' forests and biodiversity under the supervision of Professors Frank Klötzli and Peter Edwards of the Plant Ecology group at ETH (which was at the time the Geobotanical Institute). A visit of Institute members to Seychelles in 1998 further strengthened its involvement, enabling research projects to run continuously. The Institute collaborated initially with the Ministry of Environment and various local NGOs, but after the formation of the Plant Conservation Action group (PCA) in 2002, PCA became a central partner. Since 2007, a second ETH group, Ecosystem Management, led by Professor Jaboury Ghazoul, complemented ETH's research activities in Seychelles with its expertise in plant-pollinator interactions and conservation genetics. Through the Ecosystem Management group, Dr. Christopher Kaiser-Bunbury conducted several plant-related research projects in Seychelles since 2007, during which time he was also the in-country representative of ETH in Seychelles.

The research collaborations of ETH in Seychelles aim at encompassing both applied research in particular related to vegetation mapping, red listing of rare plants, habitat restoration, and invasive species management and basic ecological research on the evolution and ecology of invasive (non-native) plants, island floras and tropical forests. Major research has been completed through four PhD studies, as well as through the involvement of over 30 Bachelor and Master students from ETH. To date some 30 peer-reviewed scientific articles and many further publications have resulted from the collaborative work of ETH in Seychelles. The Institute and PCA were lead organizations in the development of a National Strategy and Research Agenda for Plant Conservation, public awareness building and education, and the publication of Kapisen.

PCA has proven a very reliable support for plant research through assisting with the organization and administration of projects. Even more importantly, PCA ensures a continuous and intensive exchange of ideas between plant conservation experts at ETH and in Seychelles. Articles in Kapisen, PCA meetings in Seychelles, regular emails, and collaborative publications help both sides to keep up with new activities and ideas. PCA's presence in Seychelles ensures that trust and a common understanding of conservation issues are maintained between scientists from abroad and local experts and practitioners in Seychelles, which is essential for effective implementation of research results; and in return, for the quality of scientific research.

Karl Fleischmann is an Honorary PCA member**.** He adds the following comments: "Zurich, Switzerland. I would like wholeheartedly congratulate friends and members of PCA who have made exceptional contributions to nature conservation and habitat protection in the Seychelles."

"Having done research for many years on Mahé, Silhouette and Praslin I was not only much concerned about a concrete link between basic research and applied vegetation science, but tried since the early beginnings of a long-lasting collaboration between the Seychelles and the Zürich Institute of Integrative Biology (ETH) to provide opportunities and evidence that research should be linked to action as often as possible. However, I quickly realized that this is easier said than done and it is one of the many merits of PCA that this concern could be put into action by participating in restoration projects, giving advice to decision makers, fostering social and political awareness, and environmental values in children through environmental education."

"May PCA continue to promote the importance of the natural world, and encourage in children and adults respect for all life and habitat in one of the most beautiful corners of the world."

ETH scientists with Seychellois research partners

Plenty of plant photos and proud winners

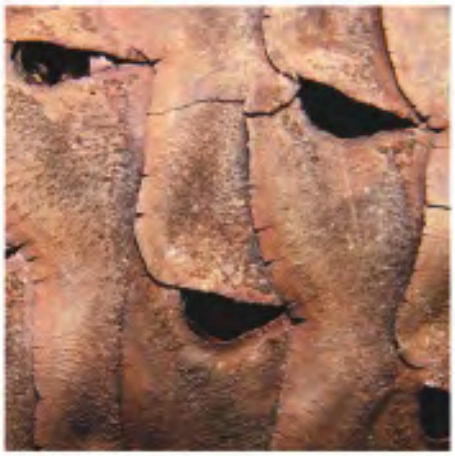
Charles Morel

Natural History Museum, Victoria

PCA and the Natural History Museum organised a very successful photograph competition for the general public, which attracted a wide variety of participants and generated numerous photographs of plants for the Herbarium's digital Plant Gallery. Here are some highlights of the prize giving held at the opening of the display of winning photos.

Minister for Tourism and Culture, Mr. Alain St. Ange

Director for Museums, Ms. Cecille Kalebi, handing out prizes



Can you guess what is the plant in the photo above? (Clue: it is a very famous plant in Seychelles)

Some of the prize winning photographs in the exhibition

Winners in a souvenir photo with the Minister (left) and on of the organizers (right)

Some of the prizes on display

A proud winner displaying her winning prize, a backpack made especially for this competition

What conservationists can learn from geneticists: an example of three threatened Seychelles endemic tree species

By Aline Finger, Chris Kettle, Chris Kaiser-Bunbury, Terence Valentin, Damien Doudee, Denis Matatiken and Jaboury Ghazoul

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On the ancient continental islands of the Seychelles, habitat fragmentation and degradation has occurred since human settlement. Land clearance of formerly forested areas occurred over the whole range of Mahé, leaving only a few patches of virgin forest at higher altitudes in the late 19th century. As a consequence most native species have lost a substantial proportion of their natural habitats. Even though nowadays a high proportion of Mahé is covered with forest, many endemics still only occur in small numbers and are distributed as scattered populations over the island. Such small remaining populations are not only more vulnerable to stochastic events (e.g. diseases, storms) but are also at risk of losing a high proportion of their genetic diversity (the sum of genetic information of all individuals). Moreover, when only few individuals survive, the likeliness of inbreeding (mating between close relatives) is elevated. Both low genetic diversity and increased inbreeding are known to have a negative impact on species reproduction and thus survival in the long term, as both can impede a species' ability to adapt to changing environmental conditions.

To assess how strongly tree species have been affected by former habitat fragmentation on Mahé, a study was conducted between 2008 and 2011 to examine changes in the genetic composition of three endangered endemic tree species, *Vateriopsis seychellarum* ('Bwadfer'), *Medusagyne oppositifolia* ('Bwa mediz') and *Glionnetia sericea* ('Mangliyedgranbwa'). To this end, genetic material (leaves) was collected from adult trees and seedlings. It was hypothesised that adult trees should be old enough to pre-date fragmentation (older than 200 years) and thus represent the genetic state before fragmentation, whereas juveniles clearly post-date fragmentation events and represent the contemporary state. By comparing the genetic compositions of adult trees and juveniles of each species we could thus study direct effects of habitat fragmentation on the three species. Moreover, it is possible that the species used to exchange pollen or seeds over their whole distribution range on Mahé prior to fragmentation. To test whether pollen or seed exchange between populations is currently limited and whether such an exchange between populations has a benefit on fruit and seed production, we conducted pollination experiments where we hand-pollinated flowers of *Medusagyne oppositifolia* and *Glionnetia sericea* in different populations.

The critically endangered tree *Medusagyne oppositifolia*, which is only found on Mahé, comprises 90 trees in four populations, with only the largest population (78 trees) producing seedlings. Genetic diversity is high in three of the populations but low in the fourth (only 2 trees). This finding shows the importance of protecting even small populations as these contribute a lot to the total genetic diversity in *Medusagyne oppositifolia*. In the reproducing population, the genetic diversity of adults and juveniles were comparable which indicates that the population is large enough to maintain its high genetic diversity for now. But it was shown that pollen and seed dispersal were only over short distances (< 100 m) and thus pollen and seed exchange is rather unlikely between the remaining populations which are separated by several kilometers. However, results of hand pollination between two sites resulted in higher amounts of viable seeds per fruit and seedling survival, compared to pollen transfer within the largest population. These results demonstrate the potential benefits from pollen exchange between remaining populations to secure the species' persistence in its small populations.

Historically widespread species with limited pollen and seed exchange may be particularly vulnerable to the negative genetic effects of forest fragmentation and small population size. Another critically endangered species is *Vateriopsis seychellarum* (Dipterocarpaceae), a formerly widespread canopy tree of the Seychelles, but now reduced to 132 adult individuals, distributed in eleven sites on Mahé. A genetic inventory of all adult trees and 317 sampled progeny shows that despite its restricted range, overall genetic diversity in adult trees was relatively high but the juveniles had significantly lower genetic diversity than adults. Overall low historical (< 150m) and contemporary gene flow (seeds disperse < 25 m, pollen disperse < 50 m) was detected. We conclude that the low pollen and seed dispersal has led to elevated inbreeding which has decreased the species' genetic diversity. Despite the extreme reduction in numbers and a loss of genetic diversity, self-compatibility may provide *V. seychellarum* with some resistance to the genetic consequences of habitat fragmentation, at least in the short term.

Glionnetia sericea is only found on Mahé and Silhouette. It is an endangered tree species restricted to habitats between 400m and 900m in mist forests and Inselbergs. Due to highly mobile and specialized pollinators (two hawk moth species) the potential for the species' persistence in a fragmented landscape is high, as pollen can potentially be transported over long distances. For the genetic analysis we sampled 206 adults and 196 juveniles. The results show no decrease in genetic diversity from adults to juveniles. Pollination seems to mainly occur between neighbouring trees, but has also been found to be frequent between populations which are far apart from each other (e.g. ±10km apart). Hand-pollinations between populations did not lead to an enhanced fruit or seed set compared to within-population crosses. Thus, the current and historical gene flow, due to a mobile pollinator, seems to have maintained genetic diversity and population connectivity in a rare and restricted endemic of the Seychelles, despite habitat fragmentation.

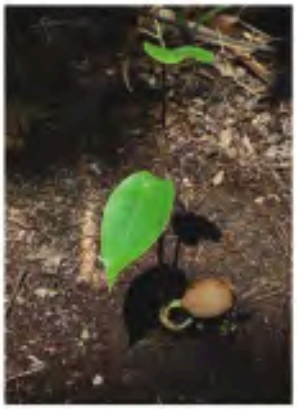
This study demonstrates that species with low pollen flow and seed dispersal, such as *Vateriopsis seychellarum* and *Medusagyne oppositifolia*, are particularly vulnerable to negative genetic effects following habitat fragmentation. Thus conservation efforts should aim at preventing further reductions in numbers but also at increasing population sizes by restoring habitats. Our results for *Glionnetia sericea* highlight the need to maintain plant pollinator interactions to preserve viable populations.

Glionnetia sericea flowers

Glionnetia mature tree

Medusagyne oppositifolia fruits

small mature Medusagyne tree



juvenile Vateriopsis seychellarum

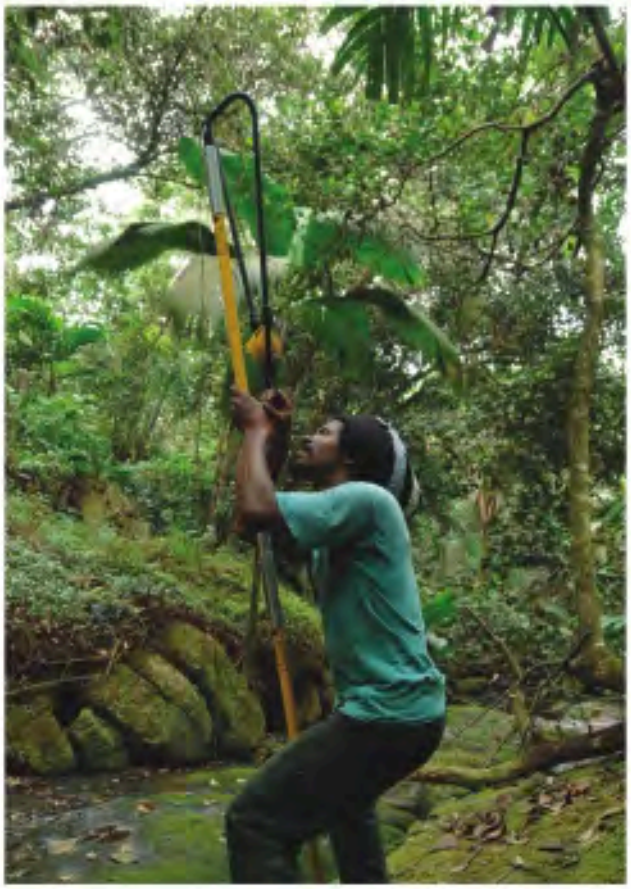
largest known mature Vateriopsis tree

Hand pollination using a brush

Pollination bags to prevent natural pollination by bees

Marked fruits to distinguish between different pollination treatments

Nursery station on Mahé with trays of seedlings resulting from the pollination experiments.



Terence Valentin aiming at Vateriopsis seychellarum seeds and leaves for subsequent genetic analysis.

Updates and perspectives on the study of the flora of Seychelles

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How many species of plants are there in Seychelles? How are they distributed among the inner vs. outer islands? How many of them are endemics, and where are the non endemic species from? These questions have not yet been answered completely. Both Friedmann (1994) and Robertson (1989) give partial statistics, but ferns and mosses were not included.

For its 10th anniversary, PCA has made a significant step towards expanding the knowledge of the flora of Seychelles. For the first time, an exhaustive list of all plant names and species recorded in Seychelles has been digitized in a taxonomic database. In total, 2271 plant names have been listed which correspond to 1684 distinct species and subspecies (Table 1). The flora of the inner islands is about 3 times larger than the flora of the outer islands (2 times if we consider only the native species). The native flora is about 673 species, of which 140 are currently considered endemic to Seychelles: 72 dicots, 37 monocots, 17 pteridophytes (ferns and fern relatives) and 14 mosses and liverworts.

These figures are preliminary results and a paper is in preparation which will develop the statistics per island group, per island and per biological type (e.g. terrestrial herbs, trees, etc.). The taxonomic database allows for management of synonymies and therefore improves the compilation of species distribution data (by converting all names used by different authors into a common format). It is a vital element for the current study of the key biodiversity areas of Seychelles and for the assessment of conservation priorities.

As the knowledge on species improves, the knowledge on habitat-types improves as well. Within the next 1-2 years, this will allow us to understand better the origin and evolution of the flora of Seychelles, by comparing statistics on the origin of native species (South-East Asia, Madagascar, Africa) taking into consideration their ecological affinities for the main habitat-types (montane flora, coastal flora, etc.).

Ferns, mosses, liverworts, monocots.... part of Seychelles native flora

Table 1. Preliminary statistics on the flora of Seychelles for the main island groups, distinguishing endemics (found only in Seychelles), indigenous (non endemic natives) and exotics.

	Endemic	Indigenous	Exotic	No data	Total
Inner Islands	96	246	766	73	1181
Outer Islands	34	143	188	41	406
No data	16	227	93	35	371
Overall	140	533	890	121	1684

Two endemic plants of Seychelles

My glimpse into the Seychelles...

Stephanie Cotton
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Before arriving in the Seychelles I knew very little about the native plants of the islands, so I was given a crash course into some of the main species through an interesting task. I was asked to review and compile the 'UN Year of the Forest' articles which PCA had published in a local newspaper. These articles were extremely interesting to read, not only from a botanical point of view, but also because of the anecdotal details that were included. I'm sure this extra information will help me remember certain species for a very long time!

Some of my most memorable days were the ones spent exploring the nature of Seychelles, because a tropical country was a completely new environment for me! One particular day that I will always recall was the PCA vegetation monitoring on North Island. To begin with, I was very apprehensive to voyage across to North Island. However, the torturous boat journey was well worth it and this day trip was just one example visually highlighting the striking impacts people have had upon the Seychelles. I also saw firsthand how ongoing collaborations are vital for the preservation of some of the natural beauty.

I also really enjoyed adding my input to the Plant/ Herbarium Exhibition, displayed at the Natural History Museum, because developing ideas for the children's area was great fun! The Photographic Competition was also fascinating as a few of the contestants had captured some stunning shots - a great way to encourage public interaction. On a more serious note, the exhibition is an important step in displaying to the public some of the special attributes of the plants around them, qualities which are often taken for granted. I was happy to have been involved in the preparation of this exhibition and would have liked to have seen the grand opening.

Seeing the work of many of the hardworking PCA members really hit home just how much effort people contribute in their own time. I have come to realise that there is more to the islands than sun and sea, and it was people who definitely made the trip special. For that, I would like to thank everyone I was given the opportunity to volunteer with.

What you can do

What you can do for plant conservation

Plants are the basis for almost all life on planet Earth. Our new exhibition at the Natural History Museum in Victoria reveals the many ways we depend on plants in our daily lives. Yet we often forget how important plants are! Perhaps you are proud of the flowers or the vegetables that you grow and always remove the weeds sprouting amongst them. You may notice the invasive creepers smothering trees along the roadside. Are you glad when the beach has some shady trees? Do you admire the forest covered mountains? Maybe you occasionally remember that there are special Seychelles endemic plants, found nowhere else in the world.

But how much do you care about plants? Do you use them sustainably? Can you help conserve our special plants?

Here are some ideas for actions and activities that can help you and help our plants:

- LEARN about our native plants. Find books and/or people who know them.
- WALK along a forest nature trail. Make sure you go slowly so that you observe all the plants.
- VISIT the Botanical Garden (Mont Fleuri), the Biodiversity Centre (Barbarons) and the Natural History Museum (Victoria).
- OBSERVE the plants in your neighbourhood. Look after the useful ones.
- JOIN one of our PCA field trips and discover more about all our plants.
- PLANT A TREE and make sure you care for it afterwards.
- GROW your own fruits, spices and vegetables. They are full of fresh vitamins for your body.
- BUY LOCAL fruits and vegetables if you cannot grow your own.
- COMPOST all waste vegetable matter. Let your garden plants benefit from the nutrients.
- USE every piece of paper more than once, it will save trees.
- SHARE your plant knowledge with others how to identify or grow them, medicinal properties, crafts, other uses.
- PHOTOGRAPH plants and take the photos to the Natural History Museum for the 'Plant Gallery'.
- ENJOY the plants around you, the many different kinds, their lovely colours, shapes and sizes.
- SPEAK OUT if you think people are damaging our environment. Call the Green Line: 2722111.

And here are a few things that we encourage you NOT to do!

- PLEASE do not bring into the country any plant without proper authorisation. Too many new species have been introduced which are becoming invasive and competing with our native species.
- PLEASE do not leave bare soil when clearing an area. Rain can quickly wash it away.
- PLEASE do not take any plant from the forest or a wild area. Buy from a nursery. They are not expensive.
- PLEASE do not damage plants or trample seedlings when you walk in the forest. Maybe they won't recover.

PCA News

2012 has been a year of interesting developments for PCA, maybe reflecting the fact that we are now ten years old. For one thing, we have just launched a brand new logo! And our new website (www.pcaseychelles.org) was set up earlier in the year. We are also using our anniversary as a good reason to review our small organisation - its mission and goals, its successes and challenges - and work towards a more structured strategy and action plan. This process is on-going and led by one of our younger members, Mariette Dine (p.6), who has been attending a series of training modules on good governance of NGOs, arranged by the NGO umbrella organisation LUNGOS through the Seychelles Institute of Management. Her various assignments have induced us to sit down as a group, take stock, and think more strategically about our plans for the future. In 2013 we should be better prepared.

One of the PCA strategy meetings - More fun to work in the open!

Plant photo competition prize winning photos on display in the Natural History Museum

Herbarium Project update: Details of this PCA-Natural History Museum project, funded mainly by the GEF Small Grants Programme, were in the 13th edition of 'Kapisen', so here we present an update. Our plant film ('Antigonn - Zakobe: Eski ou konn bann plant sesel?') was presented on local TV in May, at a special 'koze kiltirel', and through media articles. DVD copies can be borrowed from PCA (please contact us!). The plant database has continued to grow; new fern species have been discovered and several new sites for rare plants have been located during Key Biodiversity Areas (KBA) explorations (see below). The Plant Photo Gallery is expanding slowly, helped considerably through the successful Plant Photo Competition, which supplied the Gallery with photos of many ornamental species. The prize giving and exhibition of winning photos (p10) gave everyone a chance to see the results and we now encourage more people to provide photos for the Gallery! PLEASE BRING YOUR PLANT PHOTOS TO THE NATURAL HISTORY MUSEUM!

Awareness and outreach: As well as efforts to involve the general public in the Herbarium Project, PCA also took part in a couple of theme days, setting up displays and activities. One was African Traditional Medicine day, celebrated on 31 August. For PCA, the emphasis was on sustainable use of medicinal plants, especially endemic species, a few of which are being targeted by local herbalists. This is one activity in which we really appreciated the input from our British undergraduate volunteer, Stephanie Cotton, who was with us for 6 weeks (p15).

Earlier, on Earth Day (22 April), the environmentally active youth of Port Glaud district organised a Youth Environment Festival in which PCA participated. Another activity linking PCA with the district of Port Glaud has been the development of a management plan for the best remaining mangrove habitat on Mahé - the Port Launay Wetland - which forms part of the Ramsar wetland site of that name. Many of the youth and others in the community took an active role in workshops held to discuss the management plan. The writing of the management plan by PCA formed part of another GEF-SGP project, led by NGO Sustainability for Seychelles (S4S) and crucially involving Ephelia Resort, which has a large portion of the mangrove in its land management area. The wetland will be co-managed by the Port Glaud community, Ephelia Resort and the Department of Environment and will be an interesting 'first' for such co-management in Seychelles.

PCA member Andre Dufrenne enlightening visitors - African Traditional Medicine Day (Steph Cotton)

Fun activities for kids at the PCA stall at the Youth Environment Festival

Port Launay Mangrove PCA prepares a management plan (Elke Talma)

Other PCA contributions to the work of the various GEF projects in Seychelles have been through active participation in workshops to discuss important changes to laws and policies, and also to review draft documents. In this way we carry out advocacy for plant and habitat conservation and other issues concerning plants. A further contribution is through our involvement in the GEF Key Biodiversity Areas (KBA) process, in which poorly explored areas of the granitic islands are being assessed for their biodiversity in order to prioritise areas that may require conservation.

Research collaborations: PCA would like to congratulate Aline Finger on achieving a PhD through her research on three threatened Seychelles species (p12) and for providing some very useful conservation proposals for these species. PCA's more recent collaborations have been with short-term overseas researchers requiring assistance with collecting plant specimens. This research has covered groups such as Rubiaceae, mangroves, certain liverworts, and genera such as *Pisonia* and *Clidemia.* Furthermore we retain links with research being carried out by Christopher Kaiser-Bunbury (see p8 and Kapisen 11, p11). Also, through the Herbarium Project (see Kapisen 13) we have made links with various herbaria in Europe. PCA has also assisted Seychelles Islands Foundation with the identification of plant species found on Assumption Island as part of a study on the alien birds of the island.

Notes from the Field

PCA Field Trips: Our bimonthly field trips for members and other interested people continue to take us to a variety of locations. Over the past year we have visited one of the few remaining natural populations of Vateriopsis sechellensis ('Bwadfer') (see also p.12); explored one of the mountain trails now offered to adventurous guests at Ste Anne Island resort (a trail restored by one of our members); and visited a ridge-top above another resort, Four Seasons, in the South of Mahé, before descending to the resort itself where we were taken around the partially landscaped grounds by another of our members. A trip for the more adventurous was to the slopes of Montagne Planneau, a little explored area that is proving to be a significant site for biodiversity (see also p.14). Our most recent trip was quite different again as it took us to an important agricultural area in South Mahé, Val d'Endor, where farmers are to start a project growing and maintaining old varieties of various crop species. At the same time we learnt much about the history of farming in this area from one of the older farmers.

Climbing on Ste Anne Island

PCA members talking to a farmer at Val d'Endor, south Mahé (A Dufrenne)

More discoveries on Ste Anne: On the island of Ste Anne we were surprised to see *Pemphis acidula* ('Bwadamann') growing near a very small patch of mangrove. This is a coastal plant normally found on the outer islands, particularly on the eroded limestone of raised coral atolls such as Aldabra and Cosmoledo. It is rarely found on the granitic islands. A similar plant, *Suriana maritima* ('Bwa matlo') is found on some of the granitic islands in less disturbed coastal areas, e.g. on La Digue, and on Bird and Denis islands. The two species are often confused and, to make it more perplexing, sometimes *Suriana* is called 'Bwadamann'! But if the plants are looked at closely, it is easy to tell the difference: for one thing the flowers of *Suriana* are yellow and those of *Pemphis* are white; the leaves of *Suriana* are alternate and are slightly wider at the top than at their base, whereas the leaves of *Pemphis* are opposite and are more regularly oval (elliptic) and grey-green in colour. The leaves and stems of both species are covered with fine hairs, which help to prevent the loss of water in a very salty atmosphere.

Suriana maritima (Bwa matlo) with yellow flowers

Pemphis acidula (Bwadamann) with white flowers

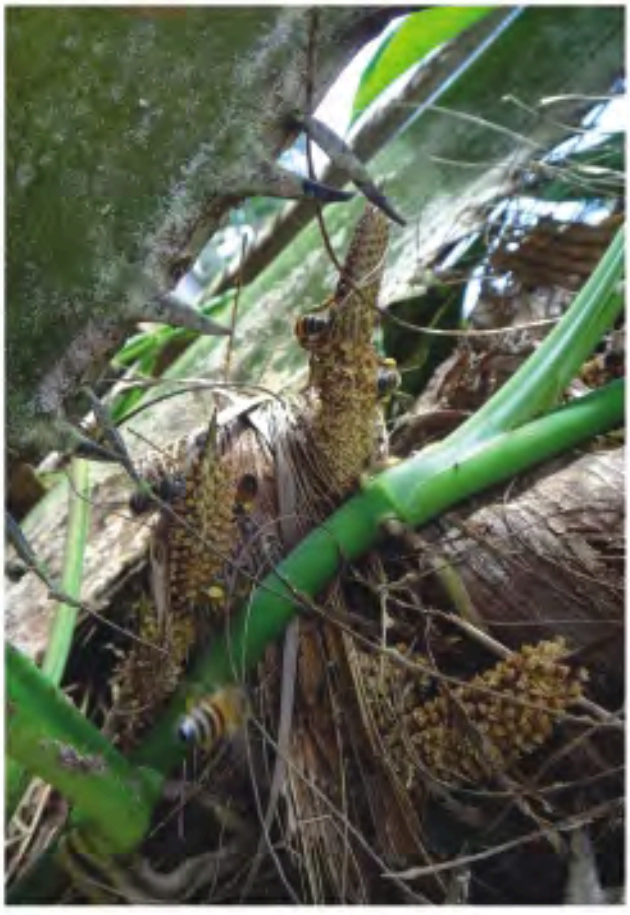
A plant which is currently causing some headaches in certain areas of Ste Anne is the invasive Cat`s Claw creeper *Macfadyena unguis-cati*. It originates from Central America and you can see from the pretty flowers why it was introduced in the past. The name Cat`s Claw comes from hooked tendrils which the plant uses when climbing up tree trunks. Tubers are produced, making it more difficult to get rid of this invasive plant, which is also found in various parts of Mahé and appears to be spreading.

Flowers of the invasive Cat's Claw creeper (A Dufrenne)

The claw-like tendrils (K Beaver)

Practical restoration: Recently, PCA members and friends were actively involved in practical habitat conservation, helping to maintain a recently rehabilitated experimental glacis site near the Tea Factory at Morne Blanc, where all non-native species had been cut/treated or removed. Naturally, such sites require maintenance because, even when there has been careful management and removal of alien woody species, some will re-sprout, particularly if rain fell shortly after the clearing. And of course, seeds of alien species are often very good dispersers, so newly sprouted seedlings require removal until such time as the native species (whether natural or planted) are well established. It was hard work but very satisfying to see the improvements.

PCA members and friends 'weeding' a glacis rehabilitation area



An interesting observation - male flowers of Oil Palm attracted honey bees which filled their pollen sacs with pollen

Plant Conservation Action group who we are and what we do

When we started: November 2002

Who we are: We are a **voluntary** membership organisation **(NGO),** with an executive committee elected annually. We have monthly meetings and regular field trips.

Our main aim is to further plant conservation in Seychelles and to work on projects that promote conservation action and awareness about plants in Seychelles, especially native plants.

What we do:

- Plant species identifications
- Advice on vegetation restoration/rehabilitation
- Vegetation surveys and management plans
- Research and monitoring
- Conservation action for plants
- Capacity building
- Raising awareness about plants
- Field trips for members and plant enthusiasts

Our latest major project:
The Herbarium Project, which you can learn about in “Kapisen” Issue No. 13.

PLANT CONSERVATION ACTION GROUP

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