



Satellite tags attached to two of Aldabra's Green Turtles



Green Turtle © C Mason-Parker

After several months of intensively monitoring the nesting turtles on Settlement Beach, Picard the Aldabra research team attached satellite tags to two female Green Turtles this month. 'Alda' was tagged on 14th May and a second female (to be named as part of the Seychelles Sea Turtle Festival in August) on 20th May.

To identify suitable candidates for the tags, intensive monitoring using the atoll-wide flipper tagging programme was conducted to find turtles that were towards the end of their breeding season. This reduces the chance of the tag being knocked off during mating and ensures that the female would be leaving Aldabra waters soon. Both of the turtles fitted with satellite tags this month had been present on Aldabra since early March. 'Alda' had been observed nesting on at least three occasions prior to the tag being fitted. Encouragingly both of the turtles are seasoned nesters on Aldabra, as 'Alda' nested on Picard in 2007 and the other female in 2005.



The research team affixing the satellite tag to 'Alda' © H



Praslin stewardship scheme launched



Participants working at the plot site © SIF

On the 24th May a new community stewardship scheme on Praslin to promote the protection of native palm forest was launched by SIF at the Vallée de Mai. The launch of the scheme coincided with celebrations for the International Day of Biodiversity, whose theme 'Island Biodiversity' was very fitting for the start of this scheme.

As part of SIF's four-year EU-funded project to tackle invasive alien species, SIF staff on Praslin have been controlling invasive plant species in the Vallée de Mai. Alongside this, to raise awareness of the threat of invasive plant species to the endemic plants of Seychelles and to engage the local community in their control, a stewardship scheme was created. This scheme aims to encourage the local community to become 'stewards' for a plot of land opposite the Vallée de Mai. With SIF's assistance and guidance it is hoped that community members will maintain and protect this area from invasive plant species into the future.

At the event in May around 100 participants from local community groups such as the JJ Spirit Foundation, the Praslin Police Department, the Seychelles National Parks Authority, and other community members and school children worked alongside SIF Vallée de Mai staff to continue to clear invasive plant species from the plot as well as planting over 170 native and endemic plant seedlings. Work on invasive species clearance in the plot began in 2013 but the area needs continual maintenance as it is difficult to remove the invasive plants completely.



Tracking the Trachy: Research on Giant Bronze Gecko movements in the Vallée de Mai



The Giant Bronze Gecko (*Ailuronyx trachygaster*) or 'Trachy' in its usual hangout on a *Coco de Mer* catkin © C. Kaiser-Bunbury

While Giant Tortoises are being tracked on Aldabra, the Vallée de Mai has its own giant reptiles being tracked in a very different environment. Reptile experts Dr Nik Cole (from the Durrell Wildlife Conservation Trust) and Rouben Mootoocurpen (Mauritian Wildlife Foundation) have taken a break from working on endangered reptile programmes in Mauritius and are currently working with SIF in the Vallée de Mai to study movement ecology of the elusive Giant Bronze Gecko (*Ailuronyx trachygaster*).

The Giant Bronze Gecko (or 'Trachy' as the species has become fondly known to SIF research staff) is one of the largest gecko species in the world and is endemic to the native palm forest of Praslin. It is almost exclusively a canopy dweller and is most often seen high in the palm canopy feeding determinedly on male *Coco de Mer* flowers. Indeed, the species only occurs in mature *Coco de Mer* forest where the male *Coco de Mer* flowers form its main food source.

Because of the Giant Geckos' strong dependence on *Coco de Mer* flowers, they are thought to play a role in *Coco de Mer* pollination, another major SIF research area. There has been so little research on the geckos, however, that there is no information on their territory size or movements and it is unknown whether individual geckos move frequently between *Coco de Mer* adult trees – an essential prerequisite for effective pollination! It is also not known how abundant the geckos are or whether the population can be considered 'healthy'.

With the primary aim of determining the Giant Geckos' territory size and movement patterns an intensive 2-

Richards

Once both females had completed covering their nests, they were contained within a box to allow attachment of the satellite tag. Following some initial discomfort as they could not return immediately to the sea they both fell asleep in the box! The research team prepared the top of the shell for the satellite tag by cleaning and sanding it to enable the glue to stick properly. They then applied several layers of special glue and fibreglass to create a strong bond which should ensure the tag stays secure for a long period of time, and finally applying antifouling paint to prevent algal growth. The female turtles were then released, bid good luck and farewell and with lots of crossed fingers the team waited to see if they received messages from the satellite tags. To everyone's joy and excitement we have since received location points from both females. Alda departed Aldabra immediately and the other female has so far remained close to the west coast of the atoll.



Alda' on her way back to the sea © H Richards

Since turtles are highly migratory species, it is vital to understand the linkages between breeding and foraging sites in order to apply an appropriate conservation management strategy for the species. In 2011 SIF started to use satellite telemetry to find out where Aldabra's nesting Green Turtles migrate to once they leave the protection of the atoll. Having a better understanding of the areas used by the Green Turtles is critical in fully understanding the threats facing the Aldabra green turtle population.

The first six satellite tags were deployed in 2011/2012, but disappointingly the tags did not transmit for as long as had been hoped. However, even this short-term data showed that Aldabra's turtles migrate away from the atoll using several different routes, including the Amirantes (Seychelles), northern Madagascar via the Comores, the Somali coastline and the Tanzanian / Kenyan coastline. These initial tagging efforts showed that Aldabra's turtles use the waters of at least six different countries. The two final tags that have just been attached have been deployed using a revised protocol and we look forward to obtaining additional information on the journeys of these turtles. Stay tuned for next month's newsletter when further details of these two turtles journeys will be given!

End of season update for ZARP project



Giant Tortoise with transmitter attached © SIF

Over the past few months researchers from the Zurich-Aldabra Research Platform (ZARP) collaboration have been involved in several different areas of research on Aldabra. After five tortoise enclosures were completed on East Grande Terre researchers focused on investigating

One of the participants planting their seedling © SIF

The plot is naturally split into three sections by a small river. One of the sections is waterlogged for most of the year providing perfect conditions for endemic plants such as Vakwa Parasol which thrives in this environment. The seedlings were planted around 1m apart to give them enough space as they grow. The species planted included Bois de Natte (*Heritiera littoralis*), Lattanyen Lat (*Verschaffeltia splendida*), Lattanyen Fey (*Phoenicophorium borsigianum*), Lattanyen Milpat (*Nephrosperma vanhoutteanum*), Lattanyen Oban (*Roscheria melanochaetes*), Palmis (*Deckenia nobilis*), and Vakwa parasol (*Pandanus homei*). Alongside the planting, some members of the team worked in the site removing invasive species such as Vya Tang and Philodendron, while others controlled larger invasive alien trees such as Lagati with ring-barking.



Piles of invasive plants removed from the plot © SIF

One of the parents at the event, Raoul Souffle, commented: "Invasive species are not only a concern for environmental organisations such as SIF but for all Seychellois. If they are not controlled, the invasive species will destroy everything in our environment. Once they are destroyed we will never be able to get them back. As in the majority of cases it was due to human action that the invasive animals and plants managed to get into our country, we should all give a helping hand in controlling their spread." The day was a great success but the launch is only the start of the scheme; the site will be revisited by many different community groups in the future, with follow up maintenance weeding and planting when necessary. A big thank you to all those who gave up their free time and so much energy to support and participate in this new scheme, and of course to the many partners who have worked with us on the project.

Control continues of introduced trees in the Vallée de Mai



Jackfruit tree in the Vallée de Mai © Jean-Marie Hullot

The Praslin invasive species team has continued to tackle invasive alien trees in the Vallée de Mai this month as part of the management action for the site. After the completed control of Albizia (*Falcataria moluccana*) the focus has now moved towards control of Jackfruit (*Artocarpus heterophyllus*), Santol (*Sandoricum koetjape*) and Bwa Zonn (*Alstonia macrophylla*). These species were introduced to Seychelles from Asia in the 20th century for food and timber. The fruits of Jackfruit and Santol trees are commonly eaten in Seychelles, but the species pose a threat to the endemic flora of the Vallée de Mai. All three plants are considered to be invasive in other locations of the world as they outcompete native and endemic plant species. Santol can create a dense canopy cover, restricting light to native plants below. Both Santol and Jackfruit can potentially create 'toxicity' in the soil, also preventing the natural growth of the native palms. Bwa Zonn has been listed as one of the most problematic invasive trees

week mission was launched in the Vallée de Mai at the end of May. The team of Nik and Rouben, associated SIF researcher Dr Chris Kaiser-Bunbury, and three to eight SIF Vallée de Mai and Head Office research staff, are now catching as many Giant Geckos as possible to be in a position to follow and track individuals.



Released Giant Bronze Gecko number 3 with radio-transmitter backpack © N Bunbury

All geckos caught are measured and implanted with a small PIT tag which can be read by an electronic device when the animal is re-caught and identifies it for life (like a barcode). The geckos are marked with a temporary but highly visible UV-florescent number, lasting only until the animal next sloughs its skin. A few lucky animals are also fitted with a tiny 1.5g radio-transmitter in a custom-designed back-pack which happens to be red and resembles a mini superman-style cape (see photo). The transmitters are ideal because they allow the animal to be tracked directly and not depend on opportunistic re-sightings or recaptures to obtain information on their movements. Finally, all of the geckos are then released where they were caught.



'Trachy' number 2 by night under UV light © C Kaiser-Bunbury

With 18 geckos already tagged and marked, the team is now continuously tracking and re-sighting these animals by day and night, using radio-tracking, sightings and UV torches after dark, to build up a picture of their movements, territory size and abundance. More geckos are being caught whenever there is an opportunity.

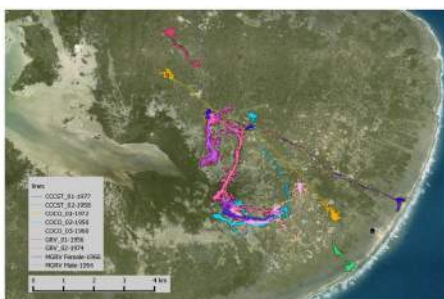


SIF ranger Terence Payet learning how to radio-track from Nik © C Kaiser-Bunbury

We are extremely lucky to have Nik and Rouben here to guide the project and train staff in the necessary techniques, and we would like to thank them, the Durrell Wildlife Conservation Trust and the Mauritian Wildlife Foundation for their efforts and backing in getting this exciting project off the ground. See next month's newsletter for an update!

... studies have researchers focused on investigating refuges that Giant Tortoises use to seek shelter from the midday sun. These included caves in the limestone substrate, tree groves, and old disused buildings. Temperature data loggers were fed to five tortoises to measure the internal temperature of tortoises compared to the outside ambient temperature. The results of this study will help to understand how tortoises monitor their body heat, and also help with captive breeding programmes for Aldabra Giant Tortoises where vets are trying to create optimum environmental conditions.

As part of their long term capacity building ZARP researchers also helped to train SIF rangers in blood sampling and monitoring techniques. SIF staff on Aldabra are integral in ensuring that the tortoises with GPS transmitters are monitored carefully and the movement data from their tags is downloaded regularly. More than two years of GPS data have now been collected, with some tortoises showing surprisingly wide movements on the atoll whilst others remain in the same area.



Map showing movements of tortoises on Cinq Cases, Grande Terre © R Baxter

A trip to the smallest of Aldabra's four main islands, Polymnie, was conducted to confirm the absence of tortoises there, and the only signs found of tortoises were fossilised remains. It was also noted that the vegetation on Polymnie is quite different to that of other islands where tortoises occur and this needs to be investigated further.

The results from the movement research will now be analysed and written up as part of the MSc thesis of ZARP Project Officer Rich Baxter, while SIF staff on Aldabra will continue to work on parts of the project over the coming months.

May also brings to a close the first season of research into the seed dispersal network of Aldabra atoll—and what a season! This collaborative project between the University of Zurich and SIF started in October 2013 as part of the ZARP initiative with PhD student Wilfredo Falcon, and will continue with more field seasons on Aldabra.



Some stills from the camera trap footage © SIF

Equipped with 15 camera traps to record the interactions between fruit-eating animals and plants a minimum sampling effort of 21,504 hours and over 580GB of footage have been obtained by Wilfredo so far! Valuable information about these interactions were also acquired by observing animals in the field, and by performing faecal and stomach content analyses. Preliminary analysis is already providing exciting results. Comoro Blue Pigeons and Madagascar Turtle-doves have been seen to consume a wide variety of fruits. As they often travel between the islands of the atoll, they might help plant populations in the different islands to stay genetically connected. Moreover, one plant that deserves more attention is the endemic Aldabra Lily (*Lomatophyllum aldabrense*). Data collected this season suggest that the Madagascar Bulbul and rats both visit and consume the fruits of this plant. Rats, however, often destroy the seeds by eating them which may limit the lily's reproduction. The most exciting result

has been noted as one of the most problematic invasive trees in Seychelles as it spreads quickly with large amounts of wind-dispersed seeds.

Thankfully the numbers of these trees are low in the Vallée de Mai. The Big Tree Survey carried out in early 2014 identified 84 jackfruit, 61 santol and 33 bwa zonn adult trees in the Vallée de Mai. Such relatively small numbers make their management easier. All individuals of these target species have been ring-barked by the team and trees near the paths are covered with natural material to avoid a visual impact and respect the natural harmony of the landscape within the forest. The ring-barking method used is based on valuable advice from experienced local foresters which ensures that the ring-barking removes part of the circulatory system of the tree, causing a gradual drought and eventually killing the tree. Effective ring-barking also limits potential 'healing' mechanisms such as the regrowth of bark or aerial root systems.



Ring-barked trees with bark regrowth 9 months after ring-barking © SIF

Some target invasive trees will be felled under controlled conditions by professional tree loppers. The canopies of these trees extend over forest paths or roads and if ring-barked the gradual drying of the tree could lead to branches falling on roads and paths.

Once these invasive tree species have been tackled, the team will move on to other species threatening the palm forest. Under a careful programme of control, the palm forest of the Vallée de Mai is being gradually restored, one species at a time, to more closely resemble its state before humans arrived on Praslin.



Training on CyberTracker program

Two members of staff from the Vallée de Mai research team, Wilna Accouche and Mariette Dine, participated in a one-week intensive training course on designing and developing CyberTracker software applications this month. The training was led by SIF associate researcher Dr Christopher Kaiser-Bunbury and organized under the GOS-UNDP Biodiversity Mainstreaming Project.

CyberTracker is a highly efficient method of GPS field data collection. It allows customisation of data collection applications to suit the needs of research programmes. The CyberTracker software can be used on a variety of handheld electronic devices including Windows and Android-operated smartphones.

During the course participants were introduced to the reasoning behind data collection, analysis and hypothesis forming. This theory was then applied by the participants to design and develop their own CyberTracker applications of varying levels of complexity. They based their application on a research question, and applications were uploaded onto Trimble Junos, portable, robust handheld devices for use in the field. They could then be tested by other participants who provided input on how to improve the applications.

This workshop was a follow-up course to one held in February 2014 which was an introduction to a specific CyberTracker application to collect data for Key Biodiversity

Celebrating International Day of Biodiversity



International Day of Biodiversity is a global event celebrated every year on the 22nd May to raise awareness of biodiversity issues and celebrate global biodiversity. To commemorate this important day SIF organised various activities at the Vallée de Mai on the 24th May.



Kids playing games at the visitor centre © SIF

The theme for this year's International Day of Biodiversity was 'Island Biodiversity' and it is was chosen to coincide with the designation by the United Nations General Assembly of 2014 as the year of Small Island Developing States. With this in mind SIF chose to focus their celebrations on the threat that invasive species pose to the unique biodiversity of the islands of Seychelles. Several different activities were organised at the Vallée de Mai, including the launch of the community stewardship scheme (see article in this newsletter). Whilst the adults were working on the stewardship scheme plot, back at the education centre their children were learning about the impacts of invasive species on the environment by participating in different games such as 'Invasive species bingo' and 'Invasive or Native?'.



Beginning of the Biodiversity trail quiz in the forest © SIF

For the tourists there was the opportunity to try their hand at the Biodiversity Day trail quiz whilst in the forest. With some assistance from fact sheets placed throughout the forest the trail quiz tested their knowledge of the wealth of biodiversity found in the Vallée de Mai. The tourists also had the opportunity to play the infamous 'Guess the weight of the Coco de Mer nut' game. With the Coco de Mer one of the Vallée de Mai's better known aspects of biodiversity it was the perfect way to celebrate this important day. Always a firm favourite amongst the tourists there were many close guesses, with many surprised at the heavy weight of the nut! There was also a small prize giving ceremony for the participants of a poster and photography competition that had been held in primary and secondary schools. The theme of the competition was 'Invasive species: a threat to our Island Biodiversity' and the standard of entries was high,

may limit the mys reproduction. The most exciting result though is that the data suggest that Aldabra Giant Tortoises are a major driving force of the seed dispersal network on the atoll. They consume fruits from a wide variety of plants, and many seeds seem to pass undamaged through their guts. Feeding trials performed with Giant Tortoises on Aldabra indicate that it takes a minimum of 8 days for the seeds to pass through their guts, which means that they may disperse seeds over great distances.



Faecal analysis samples from Giant Tortoise (left) and Blue Pigeon (right) © SIF

But why study seed dispersal? Not all animals on the atoll eat fruits from all the plant species, and they don't all disperse seeds in the same manner. These different interactions, in combination with other factors, help shape the ecosystem and make the atoll such a unique place. Gaining an understanding of the structure of animal-mediated seed dispersal will help us to manage and protect Aldabra, and potentially similar ecosystems.

Wilfredo will start his second field season later this year. Meanwhile, more data analysis is underway to understand the structure of Aldabra's seed dispersal network. This will allow researchers to focus on the key animal seed dispersers, such as the Giant Tortoises, to understand how their movement ecology and gut passage affect seed dispersal and plant survival.

Sperm Whales sighted off Aldabra



Sperm Whales

During a crossing from Aldabra to Assumption on the 8th May, SIF staff were lucky enough to encounter a group of magnificent Sperm Whales (*Physeter macrocephalus*).

Jude Brice (senior skipper) was alerted to the presence of the whales when he saw a foamy spout coming out of the water in the distance. After alerting the other staff members on board, he diverted the boat to the location of the sighting and identified it as a Sperm Whale, which is a rare sighting for Aldabra! Only six previous sightings of these whales have been recorded, the first record in 1980 and the most recent sighting in 2003.



Tail fluke of one of the Sperm Whales © R Baxter

Areas. Mariette described her experience in this training, "I'm glad I did this training as it allowed me to think logically about data collection. Through the course, I have designed applications for some of the work that we already do on the Coco de Mer. This should help facilitate the way we collect data in the field and I hope that I can use it in the near future".

Development of Vallée de Mai management plan



The SIF team at the workshop on Curieuse Island © SIF

A two day workshop was held on Curieuse Island this month for members of the Vallée de Mai and Head Office management team to discuss the forthcoming review of the Vallée de Mai management plan.

The management plan, which is due for review in 2015, ensures strategic management actions that preserve the site values of the Vallée de Mai, which are the attributes that qualify the site as a UNESCO World Heritage Site. The previous four-year plan was compiled in 2011 and it is essential that this plan is reviewed before any future plans are written.

15 members of staff from the Vallée de Mai and SIF Head Office came together to work as a team to review the existing management plan, identify constraints and suggest constructive solutions. Staff took the time to evaluate what had and hadn't been achieved and the challenges and constraints in reaching these achievements. This review is a crucial part of the management cycle process and will be invaluable in the compilation of the next management plan. It was a successful workshop with great participation from all different departments and it is hoped that more of these workshops can be held in the future.

SIF on Twitter!



Continuing the development of SIF's communications and social media tools, we have launched our official page on Twitter! We hope that Twitter will allow us to reach and communicate with an even wider audience. As one of the top ten most used social media websites, Twitter offers us a chance to connect and share with a truly international audience.

If you are regular Twitter user then you can find us under @SIF_Seychelles. For those of you new to this social media page why not sign up now? You can find the link to our page here, https://twitter.com/SIF_Seychelles, and can follow all of our latest updates and news.



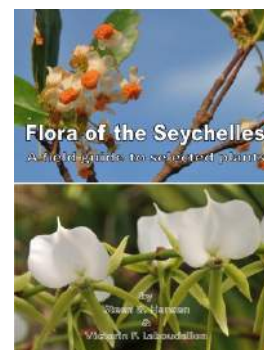
showing a good understanding of the threat of invasive species in Seychelles amongst the schoolchildren.



Entries in the poster competition on invasive species © SIF

SIF also participated in a small fair at Independence House on 22nd May to celebrate International Day of Biodiversity. The threat of invasive species was highlighted on the SIF stand, in particular the threat of the Ring-necked Parakeet to the Seychelles Black Parrot, and the fair was well attended.

Vallée de Mai hosts launch of new book



The cover of the new book, 'Flora of the Seychelles'

A new book for Seychelles, 'Flora of the Seychelles', was launched at the Vallée de Mai visitor centre on 9th May in a small ceremony. The new field guide is authored by Mr. Victorin Laboudallon and Steen Hansen. A well-known local naturalist, Mr Laboudallon is also a member of the Seychelles Islands Foundation Board of Trustees and has a long history working in biodiversity conservation on Praslin. Mr Steen Hansen is a retired lecturer in biology who has been living in Seychelles since 2006.

The book is made from a semi-waterproof paper and includes 321 of the flowering plants found in Seychelles which are organised by the colour of the plants flowers. For each plant there is information on the flowering season, the IUCN status, as well as the occurrence frequency of the plant in Seychelles. The authors consulted with the Creole institute to review and assign new Creole names to some plants which previously had no local names. This book is a welcome addition to the literature available on the plants of Seychelles.



At first the staff thought there was only one individual, but further observation revealed others. At about 500-800 metres from the first sighting they saw more activity at the surface and as they approached they counted four individuals. The boat was kept within a safe distance, with engines switched off to minimize disturbance. The staff on board were mesmerized watching these graceful and majestic creatures surfacing and diving. The team estimated that there were 6-8 individuals covering over a mile in distance. It was difficult to differentiate if they were adult females with calves or if there were also adult males as the group included different sizes of whale.

Sperm whales are deep water divers and have a global distribution, covering the Atlantic, Pacific, and Indian Oceans. Females and juveniles stay together in groups while mature males are solitary animals outside of the mating season. Historically, the main threat to sperm whales was commercial hunting as they were valued for their oil. Since 1986 the Sperm Whale has been protected by a whaling moratorium, and is currently listed as vulnerable by IUCN.

Don't forget to join us on our Facebook page that was launched last year! The page has regular news and updates on research and events at both World Heritage Sites and has been well received. We would invite all friends, supporters, partners, colleagues, and anyone else who has an interest in staying up to date with the management and protection of the UNESCO World Heritage Sites in the Seychelles, or in Seychelles' biodiversity and conservation in general to become a fan of our page. For those who have a Facebook account already please use this link https://www.facebook.com/pages/Seychelles-Islands-Foundation-SIF/1414466072110654?hc_location=stream and 'Like' our page. For those that are not on Facebook then perhaps you can receive updates through a friend or family members account, or maybe now is the time to join Facebook for yourself! We look forward to welcoming you onto this page!

The authors at the launch of their book at the Vallée de Mai © SIF

There could not be a more appropriate location to launch the book than at the Vallée de Mai where so many of Seychelles' unique plants are found. The book can now be purchased on the website www.floraofseychelles.com, several shops on Mahé and Praslin and of course at the Vallée de Mai.

Duke of Edinburgh award students visit the Vallée de Mai



Students find a snake on their night safari in the Vallée de Mai © SIF

Participants of the Seychelles Duke of Edinburgh award scheme recently came to the Vallée de Mai for a night safari. The visit is part of activities conducted under the Duke of Edinburgh award scheme that enables young people to learn practical skills that are valuable to their personal and professional development.

Before the night safari Education and Outreach Officer, Maria Briche, gave the group a presentation on the Vallée de Mai and the species that are found in the forest. This was to be an exciting experience for them! The children were split into three smaller groups, and a member of the Vallée de Mai staff took them each on a guided tour around the forest. Night time is always an exciting time in the forest and the children were lucky to see many different species such as the Seychelles Chameleon, Giant Bronze Geckos, White Slugs and even a snake during their tours. The safari gave the group an excellent opportunity to do something adventurous and learn about the natural environment at the same time, both of which will help them work towards the goals of the award scheme.



The Duke of Edinburgh's International Award is open to all 14-24 year olds. The Award is comprised of three levels (Bronze, Silver and Gold) and four sections, these sections include; Service, Skills, Physical Recreation, Adventurous journey. At Gold level, participants also complete a Residential Project. SIF are proud to be a supporting partner of this scheme and look forward to working further with the participants to help them achieve their awards.

Articles contributed by: Rowana Walton, Nancy Bunbury, Maria Briche, Wilna Accouche, Heather Richards, Carole Burnett, Lucia Latorre Pineiro, Catherina Onezia, Shane Brice, Jude Brice, Richard Baxter, Wilfredo Falcon.