

Kadoorie Farm & Botanic Garden

Annual Report 2017



To harmonise our relationship with the environment

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**Kadoorie Farm and Botanic Garden
Annual Report 2017**

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Cover Photo:

The northern slope of the hill on which the Old Tai Po Police Station is located provides an important habitat for egrets and herons. It is an important breeding site and one of the five local sites where more than 3 species of egrets are found nesting.

About KFBG

Kadoorie Farm and Botanic Garden (KFBG) is situated in Hong Kong, China, in the rural New Territories, on the northern slopes of Tai Mo Shan, which is Hong Kong's highest mountain. Two steep spurs enclose its deep-set valley. Within KFBG are streams, woodlands, orchards, vegetable gardens, walking trails, live animal exhibits, floral exhibits, sustainable agriculture demonstration plots, art exhibits, a wild animal rescue centre, a native tree nursery, and, other conservation and education facilities.

In the post-war years, Hong Kong was flooded with immigrants. Many had traditional knowledge of crop production and livestock farming but no stock, others had land but no experience. They required support to rebuild their lives. In 1951, in response to these pressing human needs Lawrence and Horace Kadoorie established the Kadoorie Agricultural Aid Association (KAAA), which became a key partner of the Hong Kong Government in devising and implementing a plan to help Hong Kong feed itself. The Kadoorie brothers, part of a well-established business family, saw wealth as a sacred trust to benefit mankind. With such aid, thousands of people received agricultural training; thousands of pigs, chickens and ducks were bred and given to farmers or sold to them on credit; thousands received micro-loans; and numerous wells, irrigation channels, roads,

footpaths, bridges, pigsties and farm houses were built. The farm site at Pak Ngau Shek was established in 1956 as a base for livestock breeding and distribution, agricultural research, farmers training, public education and recreation. The barren slopes were terraced and planted with orchards and vegetable gardens. The development of the botanic garden began in 1963 and the plant conservation programme from 1972.

On 20th January, 1995, the Legislative Council of Hong Kong passed an Ordinance (KFBG Chapter 1156) incorporating KFBG as a non-profit corporation designated as a conservation and education centre with a new mission. It is a unique public-private partnership, for while the KFBG Corporation is a public corporation, it is, kindly, privately funded to a large extent by the Kadoorie Foundation (over HKD 110 million per year); these funds are supplemented by donations from the public and project-related grants from the Hong Kong Government, partner organizations and foundations. These grants enable us to extend our work.

Since 1995, KFBG has been conducting a wide range of nature education, nature conservation and sustainable living programmes both on-site, and, throughout Hong Kong, South China and more recently extending into South-east Asia (Laos and Cambodia).

In a time of severe global crisis – including the inter-related issues of widespread disconnection from nature, each other and self; the ever-increasing exploitation of, and unwise over-reliance on the world's dwindling resources to support unsustainable lifestyles; climate change; shrinking of natural habitats and species loss – KFBG, as an organisation, raises awareness, undertakes rigorous science-based species conservation and ecosystem restoration, and offers new ways of thinking and living to respond to the world's problems. Hence, our work brings hope and improvement by focusing on nature conservation, sustainable living and holistic education that re-connects people with nature. By working together with the public, Governments, academia, NGOs, businesses and volunteers we can protect our common future.

Mission & Vision

MISSION

To harmonise our relationship with the environment.

VISION

A world in which people live sustainably with respect for each other and nature.

Sustainable Living: Appreciating the impact of our actions with regard to current and future generations. Having awareness of our connection with the environment. Valuing simple and responsible lifestyles.

Justice: Being fair and accountable. Valuing socially equitable systems that protect the health of the planet, the people and their way of life. Protecting future generations.

Love: Having self-awareness and understanding of the inter-relationship of all things. Having compassion and respect for all life. Recognising that outer discord is a reflection of inner discord. Striving for inner silence.

Participation: Engaging mentally, physically, emotionally and spiritually; fostering respect for different viewpoints, openness, dialogue and teamwork.

Professionalism: Being a role model of caring, integrity, commitment, professional standards and best practices for partners, organisations, individuals and communities.

Learning: Being adaptive and flexible to changing circumstances. Having a holistic outlook. Being practical, objective, creative and insightful.

Happiness: Appreciating that our happiness lies in creating and sharing happiness with others.

Foreword

“Look deep into nature, and then you will understand everything better”

— *Albert Einstein*

KFBG is an utterly unique organization from multiple perspectives. Rooted in a love for people that took form, in the 1950s, as an extensive agricultural aid programme, it has grown to engage all sectors of society in all essential aspects of life: from how we grow our food to how we relate to the non-human world to how we can be at peace with ourselves. All these things are interrelated; hence it is a holistic perspective that informs all our activities.

Much of our work is ground-breaking. The results of regional biodiversity studies, the global attention received by our forest restoration methodology, the record number of birds admitted to our wildlife rescue centre, the ongoing awards received by the Green Hub for Sustainable Living and the engagement of tribal elders in our transformative workshops are just some of the indicators of the breadth and depth of our programmes and the commitment of our staff.

The extent of our activities remains relatively unknown by the general public, but this is about to change with the upcoming publication of a new documentary film series. Narrated by Cherie Chung Chor-hung (Cantonese), Jacky Cheung Hok-yau (Putonghua), and Sir David Attenborough (English), the series profiles the work of KFBG with the aim of raising awareness of the challenges that we face as a species and engaging more players in the protection of our planet.

At the heart of all our endeavours is love: a love for ourselves and others that seems, sometimes, to have been forgotten by our society; a love that reveals each individual to be a microcosm of the whole; a love that is resurrected by reverent service to all of nature. By looking deep into nature, in the form of both this world and ourselves, as we go about our activities, we unveil that love; we understand who we are and what we are here to do.

Andrew McAulay
Chairperson

Sustainable Living & Agriculture



The Green Hub project was showcased in various events of the World Sustainable Built Environment Conference Hong Kong 2017 as one of the winners of the Green Building Awards, which facilitated promotion of our sustainable practices to wider professional audiences in building sector.



Farmers, volunteers and staff during the celebration of the 10th anniversary of the Central Farmers' Market.

Sustainable Living and Agriculture Department (SLA) has been working closely with the Ecological Advisory Programme (EAP) to review and provide feedback to the Government on the development plan of the Agriculture Park at Tsiu Keng.

A celebration of the 10th anniversary of the Central Farmers' Market, organised by KFBG, was held on 22nd October.

Reskilling for Sustainable Living

Sustainable Farming Courses and Workshops Organised at KFBG in 2017:

Date	Title	Target Audience	No. of Participants
25 th March, 8 th and 29 th April	Three-day <i>Introductory Course on Sustainable Agriculture for City Farmers</i>	General public	25
13 th – 14 th May	Two-day course on <i>Planting Vegetables in Synchrony with the Seasons of the Year</i>	General public	25
20 th – 21 st May	Two-day <i>Aquaponics Workshop</i>	General public	29
10 th – 11 th June	Two-day <i>Beekeeping Training Course</i>	General public	18
24 th June	Introduction to Beekeeping (English)	Organised group	15
23 rd September, 7 th and 21 st October	Three-day <i>Introductory Course on Sustainable Agriculture for City Farmers</i>	General public	20
18 th – 19 th November	Two-day <i>Aquaponics Workshop</i>	General public	23
4 th – 5 th November	Introduction to Beekeeping (display during Harvest Festival)	Visitors	>300



Participants explored compost making and culture of 'indigenous Micro-Organisms' during a Farmers Reskilling workshop.

Community Gardens

To facilitate the development of a rooftop garden at the Princess Margaret Hospital, SLA provided onsite training on 16th October to the staff and volunteers on organic gardening principles and practices. 40 people attended.

SLA delivered a workshop on growing food at home at Caritas Mok Cheung Siu Kun Community Centre on 16th November. 24 people attended.



Sharing during a Farmers' Reskilling Workshop.

Farmer Reskilling

SLA collaborated with the Hong Kong Organic Association (HKOA) to organise a new 'Farmers' Training Course' to provide systematic training and orientation for people who are keen to become farmers. SLA was responsible for providing lectures on sustainable agriculture, while the HKOA arranged practical sessions and internships for participants at commercial farms.

Other Farmers Reskilling Workshops organised for in-service farmers in the reporting period:

Date	Title	Content	No. of Participants
10 th February	<i>Rice and Wheat</i>	Exploring the potential and techniques for rice and wheat growing in Hong Kong. Staff of the Conservancy Association and O-Farm were engaged for experience sharing.	44
13 th April	<i>Fruit and Herb</i>	Planting plans and techniques for growing fruits and herbs at local farms and gardens.	47
1 st June	<i>Compost and Effective Micro-organisms (EM)</i>	An introduction of various types of composting method and culture of indigenous micro- organisms, and their application in farming.	46
4 th August	<i>Agricultural Aid in Hong Kong</i>	Presentations by AFCD and Community Grower Group (CGG) on agricultural aid schemes in Hong Kong.	50
12 th October	<i>Marketing of Local Organic Produce</i>	Sharing by experienced farmers and agricultural groups on marketing strategies such as direct sale, online ordering, farmers' market and other new approaches.	50
4 th December	<i>Beware of Pesticides</i>	Sharing by KFBG and AFCD on local ordinances related to pesticide control and Integrated Pest Management (IPM) practices.	40
Total			277

Fostering Collaboration

KFBG's view is that it is better to grow food in soil, using current sunlight, rather than building concrete buildings on farmland for hydroponic production of vegetables using ancient sunlight (in the form of coal and oil) to produce very expensive vegetables. We also objected to an overabundance of roads planned for the Agriculture Park. The Agriculture Park should also be used for genuine full-time farming rather than hobby farming.

SLA staff joined a meeting with Civil Engineering and Development Department (CEDD), Agriculture, Fisheries and Conservation Department (AFCD) and green group representatives on 6th September to discuss various issues related to the development of the Agriculture Park at Tsiu Keng, near Sheung Shui. A KFBG visit was subsequently organised for officials and consultants of AFCD and CEDD involved in the planning of the Agriculture Park development, particularly looking at our waste water wetland system for possible replication. KFBG's opinions towards the Agriculture Park Development Plan were covered in the media.

Sustainable Living Internships

PEACE (Partnership for Eco-Agriculture and the Conservation of Earth) completed the Nam Chung Agriculture Volunteer Programme funded by SLA for the period of August 2016 to April 2017. In total, seven young people were engaged for five to eight months for in-service agricultural training. The trainees were involved in field work, farming trials and to test-run activities that explored further options for self-financing initiatives. Most of the trainees stayed on as volunteers at Nam Chung after completing the project.

Working Demonstrations of Sustainability

Oyster Mushrooms were seeded onto waste wood, as an experimental substrate, for mushroom cultivation. Further trials were conducted for Shiitake Mushroom and Wood Ear mushrooms.



The Shiitake Mushroom trial project.

SLA has been maintaining production at KFBG's hillside farming terraces as a live-demonstration of sustainable agriculture. The production for 2017 is outlined in the following table:

Type of Produce	Yield
Eggs (pcs)	153,605
Fruit (kg)	6,208.5
Vegetables (kg)	17,981.8
Honey (bottle)	274
Green Tea (kg)	17.6
Chrysanthemum (kg)	11.2
Dried Roselle (kg)	6
Fruit Tree Seedlings (pc)	380
Potted Plants (pc)	2,867
Compost (tonnes)	42.42

Organic Resource Recovery at KFBG

42.42 tonnes of compost were produced this year. It was mainly used for Farm-based fruit and vegetable production, with 1,010 small bags of compost sold at the Farm Shop, Green Hub Co-op Shop and the Central Farmers' Market.

Food waste was recovered from the Sun Garden Café, staff canteens and animal kitchens, which generated compost for horticultural use.

Leaf waste was distributed for animal bedding, plant mulching and composting.

Indigenous Culture Integration

SLA's Idy Wong joined a visit to the eco-school project site in Gansu Province. KFBG sponsored The Chinese University of Hong Kong's Architecture Department to carry out the project in 2004/05. It was a demonstration of an ecologically-friendly school redevelopment, with buildings made of earth. To cope with the changing needs of the rural community, villagers have made adaptive use of the eco-school to house a kindergarten, an elderly centre, a health centre and to demonstrate earth building techniques.

Interpretation signs were set up by local officials to highlight the sustainable building features to visitors.



The eco-school project in Gansu, partially sponsored by KFBG in 2004/05, has been well maintained and used by the villagers for multiple purposes.



The demonstration site of KCC's organic rice Mulch-No-Dig System in Qingsong Township, Hainan attracting a curious crowd.



A bottle of mead (wine made with honey, water, roselle and yeast) was prepared by KCC in KFBG for sustainable farm product development, to support community conservation projects in Hainan.



Eco-beekeeping expert Mr. Li Ziwen sharing his knowledge of keeping the native Hainan honeybee (*Apis cerana hainana*) in an interactive session during the beekeeping Workshop co-organised by KCC and Yinggeling National Nature Reserve in Hainan.



Cardamom seedling recipients from Nanding Village, next to Bangxi Nature Reserve, learning the mixed planting technique, and concepts of "Analog Rubber Agroforestry System".

Sustainable Agriculture Promotion

Kadoorie Conservation China Department (KCC) in collaboration with Prof. Lu Shihua set up Hainan's first rice Mulch-No-Dig system demonstration in Qingsong Township in January. Villagers from Bawangling and Yinggeling were invited to the demonstration site learn about this new farming technique. In April, a training workshop was organised in Qingsong Township for 39 participants from provincial and county-level governments, research institutes, nature reserves and local villages.

In a community agroforestry project in Hainan fifty households from three Nature Reserves participated in the "Rubber Agroforestry System" scheme run by Kadoorie Conservation China Department, in partnership with the nature reserve management. These participants were provided with 34,100 cardamom seedlings and 2,000 *Aquilaria* seedlings, and, given training in agroforestry principles and planting techniques. This system makes them more resilient by providing a variety of different crops. In return they signed a pledge to help the nature reserves by reporting illegal activities.

Another sustainable agriculture initiative by KCC in partnership with National Nature Reserves in Hainan was eco-beekeeping for the local communities. A guide book was produced, beehives were designed and distributed, workshops were run, and production trials of making honey and Mead (wine made with honey) were conducted.

The Green Hub



Presentation Ceremony of the UNESCO Asia-Pacific Cultural Heritage Conservation Award to the Green Hub project.

The Green Hub at the Old Tai Po Police Station

continues to receive good coverage by the media and government agencies. Various professional bodies organised visits to study the Green Hub as an example of an integrated approach to heritage restoration, nature conservation and education for sustainable living.

An award ceremony was organised in January for the presentation of the UNESCO Asia-Pacific Cultural Heritage Conservation Award to the Green Hub (Honourable Mention). The Green Hub project also won a Merit Award for Environmental Design in the 'Design for Asia Awards 2017'.

Sophy Banks and Naresh Giangrande of the Transition Network designed and facilitated a series of low-carbon living talks, training workshops and a meeting of NGOs at the Green Hub in April.



Participants harvesting tea during the 2-day residential camp, 'Experience Tea'.

Programme Development

The Green Hub team developed and test-ran new programmes, including a residential course on 'Experience Tea', and a Bed and Breakfast (B&B) package in association with the 'Summer Night Walk' activity run at KFBG.

During the Zero Carbon Pioneer Training Day-Camp, primary students presented their plan to promote low-carbon living initiatives at school.



Community members enjoying themselves and learning new skills during an upcycling weaving workshop, funded by TPDC at the Green Hub in December.



Collaboration with Baliem Arabica Cooperative, Papua for fair-trading of eco-coffee.



Staff delivered a talk on 'The history and development of sustainable agriculture in rural Hong Kong' to support the 'School of Everyday Life' event in Tai Po.

SLA launched a series of workshops entitled 'Community Supported Plus' (CS+) at the Green Hub. Adopting the concept of Community Supported Agriculture, the CS+ workshops aim to facilitate building bonds between individuals towards sustainable living through food and handicrafts. As part of the scheme, the Green Hub staff linked visitors to the Baliem Arabica Cooperative (BAC), of Papua, to promote fair-trade of eco-friendly coffee.



Food waste and yard waste are fully recovered and composted at the Green Hub.



Students exploring the design of a solar cooker during an Eat Well Workshop.

The General Chinese Charities Fund approved a grant of HK\$224,214 to support SLA's Zero Carbon Pioneer project.

The project was run in collaboration with fourteen schools, under the Shun Tak Fraternal Association to train over 300 teachers and student leaders to promote low carbon living at schools at the Green Hub.

The Tai Po District Council (TPDC) provided a grant of HK\$58,170 to organise twelve community workshops on low carbon living at the Green Hub.

Recognition of Sustainable Practices

The Green Hub project was showcased as a case study in the '2017 Symposium on Adaptive Reuse of Built Heritage' organised by the Commissioner for Heritage's Office, where Idy Wong gave a talk.

The Green Hub staff gave advice to several charitable organisations and professional bodies on various social enterprise and heritage revitalisation initiatives.

The Eat Well Canteen was reassessed as the highest rank under the 'Foodwise Eatery' and 'Foodever' schemes as a sustainable restaurant.

The Green Hub's Eat Well Programme has been pursuing the Hong Kong Awards for Environmental Excellence to seek recognition in order to promote the holistic sustainable catering practices to a wider audience.

Holistic Education



A range of Transformative Programmes and School Programmes were held to connect children and adults to nature, including different levels of the Energy of Nature Workshop by Dr. Claire Elouard, Nature is the Healer Workshop by Jhon Kwano, Art of Tree Rings and In Touch with Nature Summer/Winter Camps. We continued to deliver conservation messages to a wider audience by using various social media platforms such as Facebook and Instagram.

School Programmes

We worked with primary and secondary schools in various ways.

In collaboration with the Education Bureau, English language programmes were conducted to help students in their English communication skills.



One participant of the Art of Tree Rings programme, writing his life story in tree rings that shows the tree's life story.

School talks were conducted at 3 different primary and secondary schools. Topics included "Introduction of KFBG" prior to their visit to KFBG; "Wild Animals in Hong Kong" to complement the Primary One curriculum on animals and living things; "Endangered species in Hong Kong".

"The Secret World of Wild Animals" remained the most popular school programme throughout 2017. A total of 30 workshops were organised for 1,441 participants.

A total of 409 participants joined 12 workshops held for NGOs, schools and universities on *Talk to Plants*.

Ten workshops were held during 2017 with 424 participants from schools and NGOs joining the *Art of Tree Rings* programme.

We designed and ran a two-day programme to support the International Baccalaureate module, 'Environmental Systems and Societies' for secondary students.



Hiking through the forest during the Forest School Programme.

A six-week Forest School Programme was organised in collaboration with Hong Lok Yuen International School. Two groups of 26 Grade-4 students came to KFBG for one day each week, and visited the Green Hub. The themes were conservation and sustainability, including forest restoration, animal conservation, plant appreciation, art in nature, recycled wood and low carbon living.

Children making seed mobiles to be given to KFBG's parrots during an 'In Touch with Nature' summer camp.



Youth campers learnt about the feeding habits of owls by investigating the contents of owl pellets.



Two HKBU undergraduate students (3rd and 4th from left) completed their summer internship in the KFBG Orchid Conservation Section in August.

The 'In Touch with Nature' summer and winter camps for children and the youths were held in July, August and December for 180 primary and secondary-age children. The programme also gave our university student interns leadership opportunities and responsibility as camp counsellors. One of the activities was making and offering enrichment items for our long-term resident animals. Enrichment items made by the children were "fruit-icicles" (food frozen in ice), hessian parcels, seed mobiles and Papier-mâché. The children then placed these in the display enclosures and watched the animals interact with their handicrafts. Animals that benefited from this activity were the wild boar, macaques and parrots.

The Fauna Conservation Department and the Green Hub staff co-organised three Night Walks in April, June and July for a total of 66 public visitors. The visitor feedback indicated that the activity was valuable to their understanding of local ecology.

The Flora Conservation Department (FLO) hosted 4 undergraduate interns from Hong Kong Baptist University (HKBU) from mid-June to mid-August. The environmental conservation students gained valuable hands-on experience in orchid propagation, laboratory techniques, herbarium techniques and field work. During the same period, FLO also trained 2 summer interns from Technological and Higher Education Institute of Hong Kong. They acquired the basic knowledge on plants and the practical horticulture skills.

The Fauna Conservation Department hosted 3 interns from The Hong Kong University of Science and Technology (HKUST) and Baptist University (HKBU). One intern worked on a project entitled Native Food Plants for Birds and Mammals in Hong Kong. The aim was to collate available information on food plants to be used as a reference for habitat enhancement. The study identified more than 200 species of native food plants from 66 families and 140 genera.

The two other interns were assigned to another project investigating pattern recognition software (Interactive Individual Identification System), which has been used to identify individual giraffes, against previous photographs, by recognising colouration patterns. We are testing, for the second year, whether it can be used as an individual identification tool for the Golden Coin Turtle and possibly other turtle species. As turtle shell and plastron markings change with growth we are finding that the recognition tool does not work in all cases.

Transformative Workshops and Events

We ran many 'Zentangle in Nature' workshops, using art as a meditative tool. The workshops are now conducted by KFBG staff who are trained as Certified Zentangle Teachers.

A two-day residential workshop - "A Quantum Journey to Nature's Tao - Experiencing the unseen that moves us" taught by Dr. Shantena Sabbadini, a Theoretical Physicist, was held in February at the Green Hub.

Dr. Claire Elouard again taught different levels of the ever-popular *Energy of Nature* workshop, in which over 60 people connected to the energy of trees in KFBG and the Green Hub. A Level III workshop was held for the first time at KFBG for the participants who have completed Level I & II. Participants received training on assessing the health of trees and learnt about teaching energy of nature.

Shantena with the participants in the Green Hub kitchen garden.



Participants starting to feel the energy of trees in KFBG during an *Energy of Nature* ~ Level I Workshop.

KFBG was delighted to host Jhon Kwano, to run a "Nature is the Healer" residential retreat to explore how to harmonise our relationship with nature in the modern world. He and KFBG staff guided 25 participants on a journey of healing in the beautiful natural surroundings of KFBG and the Green Hub. Jhon is an Elder and Messenger from the Dani tribe in the highlands of Papua, the largest island in Melanesia. Papua is one of the most bio-culturally diverse places on Earth, and Jhon's people still live as their ancestors have for thousands of years, in harmony with nature.



Participants sharing about their artworks inspired by the 'Nature is the Healer' workshop.

Exhibit Changes

In January 2016, a member of the public found Lula, the then only one-year old leopard cat, in a trap intended for stray cats in Hong Kong. The SPCA then sent her to the KFBG Wild Animal Rescue Centre. Our team nursed the malnourished kitten for two months before releasing her to the wild. During the first month back in her natural habitat, we believe she was bitten by a snake, because there were two clear puncture marks on her leg. The unfortunate encounter caused both eyes to develop cataracts, leaving her weak and unable to hunt. After she returned to the Rescue Centre and received eye surgery, she recovered her vision. Her condition requires occasional health checks, so she joined the Native Mammal Display and we now have three leopard cats in the educational exhibit.

A Tawny Owl sent to KFBG by the AFCD was placed in a Live Education Display at the Raptor Sanctuary where she joined the single male Tawny Owl. Both were smuggled into Hong Kong for the illegal pet trade and this is a worrying new trend with regard to the owls.

Lula the Leopard Cat was once blind but can now see, and is an educational ambassador.



The rescued Tawny Owl now provides an education experience at the Raptor Sanctuary.

Visitor Experiences

13,278 participants joined the walk-in activities at the Art House that included Nature Tree Rings Print, Botanical Banquet and Nature's Weavers.

The *Circle of Life* tree carving project commenced in April. Five artists were asked to craft sculptures with a conservation message from the wood of felled trees. These will be put on display in 2018.

27 Animal Encounter activities were held on Sundays in 2017. The educational talks about the python, mules, raptors and native mammals were conducted by animal keepers and Fauna outreach volunteers. A total of 3,074 participants joined.

The Autumn Festival entitled, *In the Woods We Connect* was held at KFBG in November to celebrate and appreciate nature's gifts and showcase living in harmony with our environment. The event included a green market, experiential activities, art and music performances, nature workshops, animal encounters, story-telling sessions and guided tours. This year we invited five local woodwork artists to create wood sculptures at the Plaza, with wood from KFBG's fallen trees. Visitors joined in to help with the creation. A total of 4,522 visitors attended the festival.

In the *Group Tree-Planting* programme 1,219 trees were planted at the KFBG forest restoration site by staff from 21 companies.



African Drum parade performers playing drums near the Plants & Us Greenhouse during the Autumn Festival.

Communications

The six-part television documentary series about KFBG's work, *Garden in the Sky*, underwent editing during the year. Narration was kindly provided by Cherie Chung Chor-hung, Jacky Cheung Hok-yau and Sir David Attenborough. We promoted the series to TV companies world-wide at an event in Cannes, France in October. We hope that it will be broadcast in 2018 or 2019.



The destruction of Tai Po Egretty was reported widely by local press including South China Morning Post.

Staff at the Green Hub and the KFBG Wild Animal Rescue Centre helped in the rescue and treatment of 29 nestling egrets injured by Government tree workers at the Tai Po Egretty in June. The KFBG story, "*Blatant destruction of Tai Po Egretty during tree pruning works*" received widespread public attention through the media, with 78 citations in newspapers and 604,922 people viewing the story on our Facebook newsfeed.

In November, a large Burmese Python (>3m) was spotted basking in the mid-day sun near the shuttle bus stop at Kwun Yum Shan. This was shared on Facebook and the opportunity for an unusual encounter with wildlife attracted significant attention from visitors.

Throughout the year, 7,373 Facebook users joined the KFBG Facebook page, and it reached 36,663 'Likes'. During 2017, we added 685 new Friends of KFBG, bringing the total to 9,847, while 14 electronic circulars were sent to the Friends of KFBG.

In September 2018, we created an official KFBG Instagram account for publicity purposes. Other social media channels will be explored to further promote KFBG's programmes and conservation messages among the younger generation.



A Burmese Python was found sunbathing near the Kwun Yum Shan entrance pillars.

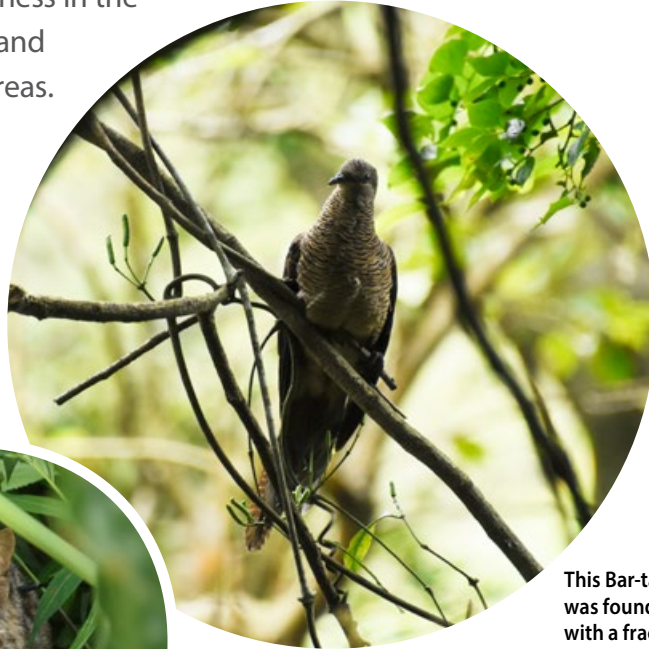
Nature Conservation



The damage to the Tai Po Market Egretty by a Government tree-pruning team resulted in a number of nestling egrets arriving for care at the KFBG Wild Animal Rescue Centre, and much interest from the media.

One thousand birds were received at the Wild Animal Rescue Centre between the beginning of the year and October. By comparison, after opening in 1994 we received the 1,000th bird in 2004. Reasons for the increase may include raised awareness in the community about animal welfare and increased encroachment of wild areas.

Field trips and surveys were carried out continuously by Flora Conservation Department and Kadoorie Conservation China Department to protect the endangered orchids and gibbons in the wild.



This Bar-tailed Cuckoo Dove was found concussed and with a fractured clavicle. It recovered and was released.



This Leopard Cat was sighted after radio tracking, more than 30 days in the wild, post release.

Wildlife Rescue

We are receiving an increased number of public enquiries about local wildlife issues and queries about animals that have been rescued and cared for at the rescue centre. There appears to be an increasing awareness in the community, and in turn a higher expectation for assistance related to wildlife issues.

The number of animals being received is continually increasing year-on-year. The majority are young animals displaced from their parents and in need of intensive care.

The number of birds received in 2017 was an all-time high at 1,123. Our previous record for a single year was 814, a 38% increase.

Two leopard cats were released back into the wild after treatment and rehabilitation. The first was discovered trapped in a housing estate in November 2016 and was released at Ho Pui Reservoir in January 2017. The second was admitted as a kitten in May 2016 and was hand-reared by our rescue centre staff. In order to judge the success of the rehabilitation and release process, the second animal's movements were tracked after release utilizing a GPS radio collar in collaboration with the AFCD. A month after the release at KFBG, it was re-sighted in Lui Kung Tin and appeared to be healthy. The radio collar is designed to fall off after a few months.



One of four Masked Palm Civets released from the hillside “hack” cage.



A Chinese Ferret Badger, rescued from a water catchment, was released back to the wild after full recovery.



A Heuglins Gull received in late January, was later released at Nam Sang Wai.



This young Chinese Pangolin had suffered dog bite injuries and was successfully released after two weeks.

In March, four Masked Palm Civets were released after acclimatization in the ‘hack’ cage in the KFBG woodland (half-way house). The civets arrived in the rescue centre when they were days old during July and September 2016. They were hand-reared and under the care of our staff for more than 6 months.

On 19th May, a young Chinese Pangolin was received with injuries consistent with dog bites. The wounds healed well and it was subsequently released two weeks later at KFBG. Tissue & fecal samples were provided to the AFCD for DNA and dietary analysis. A second pangolin, this time a mature adult, was received in June having been found wandering along a cycle path near Tai Wai, Shatin. The Pangolin was in excellent health and was released the following day in the countryside of Hong Kong. The AFCD are conducting camera trap surveys for pangolins in the area.

In December, a Chinese Ferret Badger was discovered in a water catchment and sent to KFBG. The adult male was in good condition except for a broken toe that required amputation. He was released after full recovery.

In November 2016, a Little Egret was found entangled in fishing line and hanging from a pier in Kennedy Town and was brought to KFBG for assessment. It was found to be healthy with an identification ring on its leg. It was released just two days later near the Egretty in Tai Po. In January we received notification of a re-sighting of the same bird photographed off the very same pier in Kennedy Town. It was particularly interesting that it found its way back to its original territory despite being released far to the north.

In January, the rescue centre received a Heuglins Gull from Shek O. It was thin and had a corneal injury of the right eye. It proved to be a voracious feeder as is typical of the Herring Gull family and recovered well enough for a successful release a month later at Nam Sang Wai.

In February, a White breasted Kingfisher was rescued from a gin trap on a pond at Lut Chau and delivered to KFBG for care. Its leg suffered soft tissue damage and was successfully released a week later. It seems that illegal bird snares and gin traps more frequently appear in and around commercial fish ponds in an attempt to ensnare birds that are feeding on the fish stock, in particular cormorants. However, smaller water birds are also being trapped, sometimes with fatal consequences.

Tai Po Egretty disturbance – On 6th June, it was reported by members of the public to various authorities that illegal tree pruning was being carried out by the Hong Kong Government Leisure and Cultural Services Department (LCSD) tree team at the Tai Po Egretty next to the Green Hub. This was the peak breeding and nesting season for egrets and herons. The tree workers were very well aware of the presence of the young birds as they cut the branches holding nests. Approximately 20 nests were believed to have been destroyed and many more were disturbed, resulting in chicks falling to the ground, some sustained injuries, some dying on the spot. A monitoring and rescue operation was launched with partners in the Hong Kong Birdwatching Society and other NGOs. Over the following days a total of 29 birds (Little Egrets, Great Egret, Black-crowned Night Heron & Chinese Pond Heron) were received at the Wild Animal Rescue Centre. Injuries found by our veterinary team included lacerations and wing fractures.

Many of the chicks were just days old and getting them to thrive on artificial feeding proved difficult. Chicks that were a week or two older and able to consume whole fish had a higher survival rate. The majority died from their injuries. Ultimately only two Little Egret chicks thrived and survived and were successfully released back to the wild, close to the Egretty on 29th June. The event was attended by members of the press.

The LCSD wrote to KFBG and other Green Groups to apologize. Nests and nesting birds are protected under Hong Kong Law. Up to now no one has been prosecuted.

In September, a total of 23 nestling House Swifts were rescued during removal of their nests from an industrial factory building in Tuen Mun that was slated for renovation. Permission from the authorities had been granted for the removal of the nests on the assumption that the breeding season would be over, but this turned out not to be the case. A total of 20 swifts were rehabilitated and released.

In October, an injured Crested Serpent Eagle was discovered in Pat Heung. It had been seen hitting a lamppost after catching a snake on the road. The Eagle recovered and was released at Kwun Yum Shan a few days later. It is highly possible this adult female is a resident of the Lam Tsuen Valley / Kam Tin area and possibly includes the KFBG nature reserve in its hunting range.

Despite long-running efforts to halt the misguided practice, Buddhist mercy releases of non-native and invasive Red Eared Slider Terrapins, Chinese Bullfrogs and Weather Loaches into the stream just outside KFBG frequently occurred this year. These animals are commercially farm bred for the 'release trade' for profit. Many suffer and die soon after release, others kill and out-compete native stream-life. Mercy release is not merciful, it creates suffering to animals.



Egret Chicks received from the 'LCSD Tai Po Egretty Incident'.



Two young Egrets from the 'LCSD Tai Po Egretty Incident' successfully released.



'Stop and Think' mercy release posters were posted at KFBG and on KFBG's Facebook page during Buddha's Birthday public holiday.

In October, two Mindanao Water Monitors were received. One was discovered stray in a Lantau Island catchwater channel. Both are thought to have been smuggled into Hong Kong for the pet trade. This species is endemic to the Philippines and we hope to repatriate these animals.

On 23rd February, two marmosets, a male Common Marmoset and a female Black Tufted Marmoset, were confiscated from illegal possession by AFCD and delivered to KFBG. Both animals appeared in good condition and the female was found to be pregnant with twins. She gave birth on the night of 18th March. Both infants appear to be in good condition and the female is taking good care of them. They will eventually join a breeding programme in Malaysia. Marmosets live in the wild in South America.



A juvenile Mindanao Water Monitor, endemic to the Philippines, one of two received during October.

Seven Central American Tree Frogs illegally imported from Mexico in March 2016 were packed and shipped to Northwest Nazarene University, Idaho, USA in July. The University focuses on the conservation of Central and South American amphibians.



Seven Central American Tree Frogs packed for shipment to Nazarene University USA.

One of the two marmoset infants born at KFBG.

Total number of animals received by the Wild Animal Rescue Centre from 1994 to 31st December, 2017.

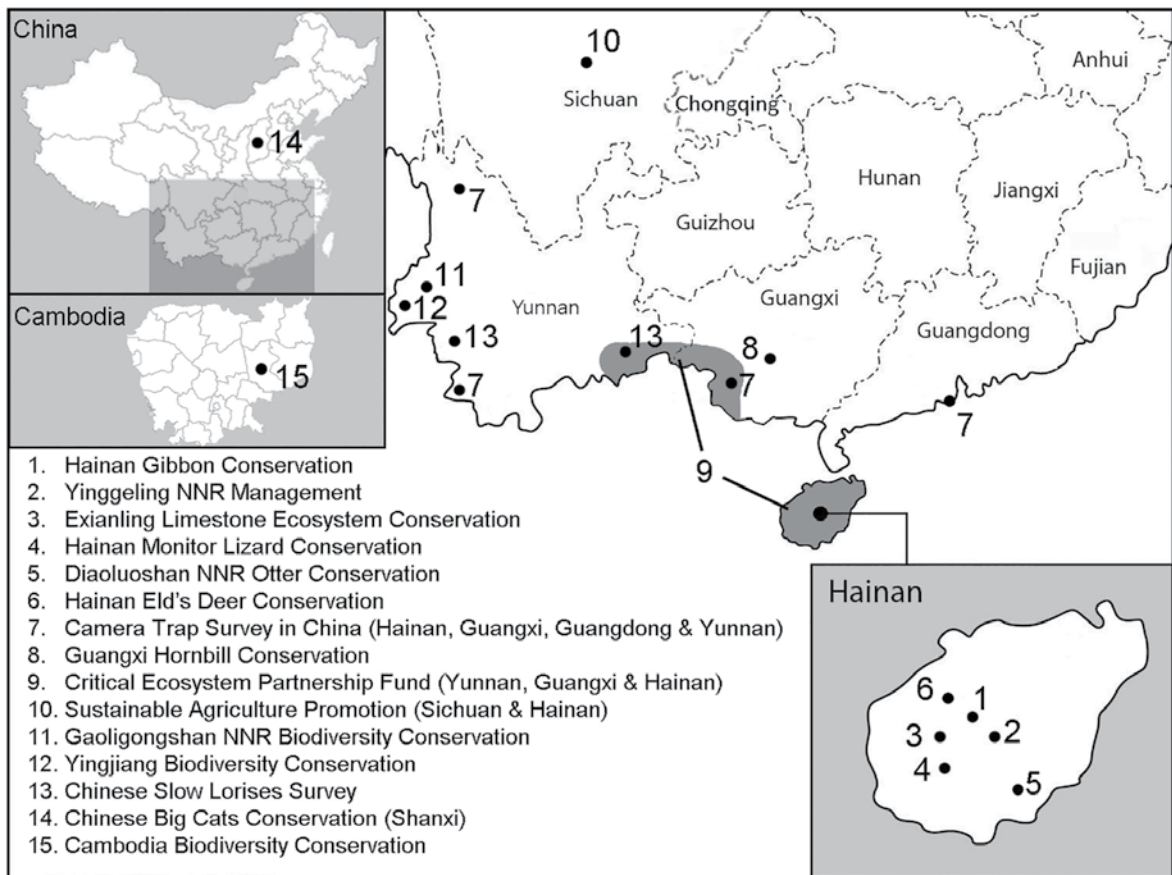
	Received
Birds	5,709
Mammals	981*
Reptiles	26,739
Stray Snakes	10,349
Amphibians	522
Grand Total	44,300

*Not including 2 Marmosets captive-born during the period (the mother was pregnant when she was received). Also not including 30 turtles born in the period.

The Status of Animals in the Collection and Received by the Wild Animal Rescue Centre from 1st January to 31st December, 2017.

	Total in Collection at 1 st January, 2017	Received/ Captive Bred	Released/ relocated	Died/ Euthanised	Total in Collection at 31 st December, 2017
Birds	88	1,123	402	711	98
Mammals	103	129	67	66	99
Reptiles	1,099	535	488	185	961
Stray Snakes	0	1,303	1,192	111	0
Amphibians	9	107	7	109	0
Fish	251	211	0	192	270
Total	1,550	3,408	2,156	1,374	1,428

Major Project Sites of Kadoorie Conservation China (as of December 2017)



A poster prepared by KCC in the popular *China Bird Watch* magazine calling for participation in the Chinese Grassbird (*Graminicola striatus*) survey.

Conserving Species and Ecosystems

The Kadoorie Conservation China Department co-funded and coordinated a Chinese Grassbird (*Graminicola striatus*) survey across south China, involving over 30 volunteers of five Chinese bird watching clubs. The species was found to be far more widely distributed than once thought.

Kadoorie Conservation China Department (KCC) co-organised the 14th annual Hainan Gibbon (*Nomascus hainanus*) population census during October with Bawangling National Nature Reserve, Hainan. A total of fifty-two members from KCC and the Reserve spent five days in the forest, and four groups of twenty-seven gibbons were recorded.

In February, KCC provided training to the KFBG-funded otter monitoring team in Hainan Diaoluoshan National Nature Reserve, which is the first such unit in China. Later, in July KCC team conducted otter surveys on various coastal islands off Zhuhai City, Guangdong Province, for which we brought along a member of the Diaoluoshan Otter Monitoring team for capacity building. Thirty-one spraint samples collected from Zhuhai were sent to the KFBG Conservation Genetics Laboratory for analysis and proved to be the spraints of the Eurasian Otter (*Lutra lutra*), a nationally-endangered species listed as China State Protection Class II. These findings provide crucial baseline information on the current conservation status of otters in coastal Guangdong. The discovery of a remnant population of the Eurasian Otter in Zhuhai provides hopes for the recovery of this species in South China.



A Eurasian Otter photographed by KCC using a camera trap in Zhuhai.

In February, KCC and Yunnan Gaoligongshan National Nature Reserve (GLGS) co-organised a supplementary Gaoligong Gibbon population census in the Reserve. A total of twenty-five members of KCC and GLGS spent 6 days in the forest. The census and subsequent field works confirmed the existence of 6-7 gibbon groups for the first time, which represents the largest population in China. KCC and GLGS organised the first Black Snub-nosed monkey survey in Tengchong, GLGS during November. A total of 35 KCC members and trained wardens spent 5 days in the potential distribution range at elevations between 2,700-3,000m, trying to confirm the occurrence of the species. Although the snub-nosed monkey was not found during the survey, useful information on the possible existence of the species was collected from local villagers.



A majestic Clouded Leopard captured by a camera trap set by KCC in Yingjiang, Yunnan.

KCC staff conducted a biodiversity survey, including camera trapping, in a private wildlife sanctuary in Yingjiang County, Yunnan. At least three new-to-science frog species were discovered in a tiny patch of remnant forest in this site.

In Yingjiang, our rapid survey obtained the first photographs of Asian Small-clawed Otter (*Aonyx cinereus*) and Sun Bear (*Helarctos malayanus*) for China, as well as a rare photograph of the elusive Clouded Leopard (*Neofelis nebulosa*). The former is nationally-endangered while the latter two species are Critically Endangered in China.



A waterhole with waterproof lining, designed by KCC, in Bangxi Nature Reserve, Hainan being constructed to provide freshwater for the Eld's Deer during the dry season.

KCC conducted the second phase of a Local Ecological Knowledge (LEK) survey at Guangxi Xidamingshan Nature Reserve, to gather information on the historical distribution and ecology of Vietnamese Sika Deer (*Cervus nippon pseudaxis*).

KCC entered into agreements with partners from Thailand, Cambodia, Laos and Hainan to conduct a range-wide conservation genomics study on Siamese Eld's Deer. Genetic samples from different countries have been collected from captive collections as well as from the wild.

Stephan Gale and Lisa Li visited Hainan in July and September to commence planting-out of artificially propagated seedlings of *Phalaenopsis pulcherrima* (previously named *Doritis pulcherrima*) within Bawangling National Nature Reserve. The seedlings were raised in Hainan from seeds collected from natural populations in 2015. The event was a major step forward in our commitment to ensure the survival of the species in China, a project on which we have collaborated with the Nature Reserve for over fifteen years. Several wardens were trained in planting-out the seedlings so that the process can be repeated at other new host sites. In December, we found that the seedlings that were planted out in July and September were faring well in the wild.



Flora Conservation staff and nature reserve wardens planted out *Phalaenopsis pulcherrima* seedlings in Bawangling.

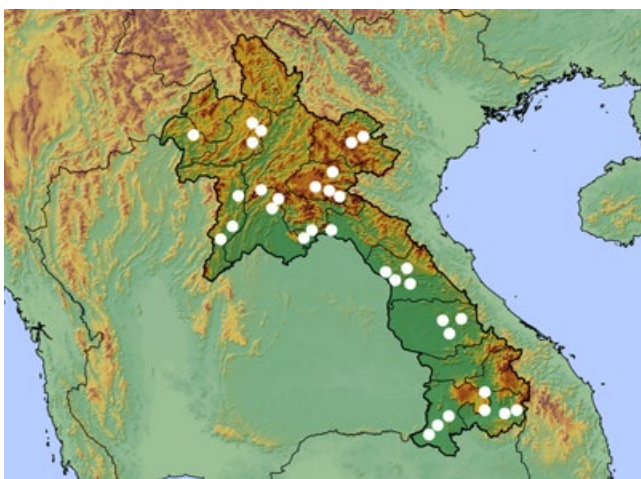
Monitoring of the seedlings of the rare orchid, *Bulbophyllum bicolor*, planted out in a trial reintroduction within KFBG continued. AFCD officers joined KFBG staff to observe the condition of the seedlings, which have now had over one year of growth under wild conditions. Survivorship and growth is variable across the different methods being tested, with

performance on rocks being much better than on trees, and the use of a non-toxic glue as the means of adhesion proving most satisfactory. The findings will form part of a Species Action Plan to be shared with government in 2018.



Camera trap photograph of a male Green Peafowl (*Pavo muticus*) taken by KCC in the Cambodian project site. The species is highly threatened worldwide and listed as Endangered by the IUCN Red List.

KCC was invited by the Hainan Department of Agriculture to conserve a forest site in Cambodia owned by a Chinese agro-industry company as a demonstration project. The aims are to protect high conservation value forest blocks and promote sustainable agriculture techniques. Camera trap and field surveys have already yielded very good results with over 25 national new records of birds and butterflies, and a suite of globally threatened species, such as Green Peafowl, Black-shanked Douc Langur and Banteng. This is the first time a conservation NGO has collaborated with a land concession owner in Cambodia, and presents an exciting opportunity for us to save some of Asia's rarest species which once roamed South-east Asia.



A map of Laos with KFBG's field survey locations marked with dots.

KCC also conducted Participatory Rural Appraisal (PRA) and Local Ecological Knowledge (LEK) surveys to gather information regarding the socio-economic situation of surrounding communities and their knowledge on, and relationships with, the project site and local wildlife in Cambodia.

Under the Memorandum of Agreement (MOA) with Laos PDR's Ministry of Science and Technology, our Flora Conservation Department ecologists made several field trips to the jungles of Laos for capacity building and biodiversity surveys.

Field trips were conducted in previously under-surveyed southern and northern areas. Four Flora Conservation Department staff members travelled to Laos in May to conduct field surveys of native orchid species in the south of the country together with our local counterparts from the Lao Ministry of Science and Technology. Over 220 botanical specimens were collected during the ten-day trip, including seven species of orchids that have not previously been recorded in the country. Living plants were also brought into cultivation at the newly established National Orchid Conservation Nursery, funded by KFBG, in Vientiane for ex-situ propagation.

In November, three KFBG plant ecologists visited Laos again. This time, we focused our attention on the northern provinces of the country, which floristically have a great deal in common with the South China region. Around 250 botanical accessions (orchid samples) were collected, comprising herbarium specimens and living plants for cultivation in the Lao National Orchid Conservation Nursery. Several rare orchids, such as *Paphiopedilum dianthum* and *Odontochilus brevistylis* were collected for ex-situ conservation.

Staff from the Lao Ministry of Science and Technology mounting orchids in the KFBG-sponsored nursery.



The rare *Paphiopedilum dianthum* flowering in the wild in northern Laos.



The unusual orchid *Odontochilus brevistylis* was newly discovered by Orchid Conservation Section staff in Laos in November.

Orchid Conservation Section (OCS) staff conducted field work in Pat Sin Leng, Mt. Violet and Mt. Victoria to collect seed capsules of *Paphiopedilum purpuratum*, a species prioritised for ex situ conservation by micropropagation in our conservation laboratories.

AFCD donated approximately 15kg of Pangolin scales to the KFBG collection in January. These scales are only a small fraction of a much greater quantity confiscated by the Hong Kong authorities between 2013 and 2016 from 14 illegal imports. Morphological features suggest all the scales belong to African species, which matches the various shipment manifests. The majority of these scales were requested on behalf of the National Zoological Gardens of South Africa for research purposes. Dr. David Olson, Cameroon director of Zoological Society of London, contacted us about investigating seized pangolin scales in Cameroon using DNA forensics and sharing our experience in DNA forensic work of seized pangolin scales in Hong Kong.

A press conference was held in October at The University of Hong Kong to present the findings of a breakthrough shark fin DNA forensics study. This study surveyed the shark fin market in Hong Kong using the KFBG Conservation Genetics Laboratory for DNA forensics. It was launched by KFBG, in collaboration with shark experts from Hong Kong and the United States. 76 shark species were identified, one third of them protected under CITES. Over 20 media organisations reported the study findings.



The press conference at Hong Kong University for the shark fin DNA study results.

One item was that the Hong Kong trade for the Scalloped Hammerhead shark (*Sphyrna lewini*) was sourced from throughout its global range, but mostly from the Eastern Pacific coastal waters off Central and South America. This work will be used to inform better shark conservation and law enforcement activities.

As a follow-up to aid law enforcement we provided 29 shark DNA samples to Prof. PC Shaw at The Chinese University of Hong Kong for developing a special on-site genetic identification device to check for imports of endangered sharks at Hong Kong ports.

In September, the Fauna Conservation team contributed to a Law Seminar and enforcement training exercise, '*Informed Sentencing of Wildlife Crime*' for officers of the Hong Kong Customs and Excise Department and AFCD who are involved in handling wildlife crime cases. The project was a culmination of a collaboration with the University of Hong Kong to develop "brief facts" documents to guide prosecution by the authorities in wildlife crime cases. The thirty completed sample documents were subsequently passed to the government.

Awareness Raising for Conservation

KCC was invited by the BBC and Jiangsu Broadcasting Corporation to film a documentary called “Tales from Modern China” in Bawangling National Nature Reserve, Hainan. The episode revolved around the Hainan Gibbon conservation project of KCC. It was broadcasted through Jiangsu Television and BBC World News in July and is also available on the official website of the two broadcasters.

Ecological Forest Restoration

Seeds of rare tree species, *Keteleeria fortunei* and *Dysoxylum hongkongense* were collected by KFBG staff in Hong Kong Country Parks, under license, while *Camellia granthamiana*, *Ormosia pachycarpa*, *Angiopteris fokiensis*, *Machilus wangchiana* and *Rehderodendron kwangtungense* were collected at KFBG for seedling propagation in our Native Tree Nursery. All of these species are rare plants in Hong Kong.

On Earth Day, 104 staff and volunteers planted 340 seedlings of 40 native tree species in the KFBG forest restoration plot. The aim of this project is to use rare native tree species for the reforestation of the montane forest in Hong Kong.



The tree planting site in 2013 (left). The Tai Mo Shan hillside was still rather barren at that time. Remnants of earlier, less successful tree planting efforts could be seen. The same tree planting site in 2017 (right). We can see that the Tai Mo Shan hillside is now becoming covered with a large diversity of native tree species.

Several hundred *Acacia confusa*, which is an exotic and invasive tree species, were severely frost damaged in the cold snap of January 2016. These are in danger of becoming unsafe and a huge, ongoing project is in place to gradually remove them. As replacement planting, over 4,000 seedlings of 74 native tree, shrub and climber species have been planted along Grassland Path and the adjacent firebreak.

Partnerships and Capacity Building for Conservation

Dr. Gunter Fischer and Craig Williams helped to facilitate the Ecological Restoration Alliance Workshop organised by Botanic Gardens Conservation International at Tooro Botanic Gardens, Uganda, for representatives from NGOs, academia and the Government of five African countries. They gave talks and practical sessions on planning forest restoration; nursery management and plant propagation; lessons learned from forest restoration at KFBG; species selection; tree planting methodology; site establishment and care; and monitoring programmes.

In April, a two-day refresher attachment on identification, handling & basic husbandry was provided by WARC staff for two SPCA Inspectors. At the end of their attachment period, both inspectors were given the opportunity to release Black Kites back to the wild to see the full sequence of the rescue work.

We hosted nine City University Advanced Diploma Student Veterinary Nurses on attachment for two months. The nurses were assigned to the Wild Animal Rescue Centre and Live Education Displays Sections where they assisted the animal keepers in their daily animal care routine, i.e., cleaning, feeding, landscaping and ad hoc jobs.

Kadoorie Conservation China Department sponsored and organised a learning trip for six wardens from Bawangling and Exianling Nature Reserves in Hainan to participate in the Black snub-nosed monkey survey in Gaoligongshan National Nature Reserve, Yunnan in November.

KCC has been managing the Critical Ecosystem Partnership Fund (CEPF), an international conservation fund, in China since its inception in 2013. Five new projects were approved for CEPF small grants (<US\$20,000 each) in the fields of community-based conservation. Several more applications are currently under review.



Gunter Fischer sharing KFBG's forest restoration methodology in Uganda.



SPCA Inspectors released Black Kites at the end of their two-day 'Identification, Handling & Husbandry' attachment to KFBG.

Influencing Policy

The Ecological Advisory Programme (EAP) made submissions on 182 planning applications, seven draft Outline Zoning Plans, three Environmental Impact Assessments and one Project Profile in 2017.

Suspected unauthorised ecological destruction cases at many sites were reported to the relevant authorities. We also attended many meetings with various Government departments with regard to some high profile conservation issues and policies. Numerous site visits were conducted across the SAR related to ecological destruction cases, to gather ecological information for submissions and for general or routine checking of sites of ecological concern.



Mud and slurry generated by Home Affairs Department construction works at Shui Wo polluted the stream.

An ecological destruction case at Shui Wo, Lam Tsuen, was reported to the EAP. We are highly concerned about this case as it was carried out by the Home Affairs Department (HAD), which has conducted a lot of 'Minor Rural Project Improvement Works' over several years and most have been found to be highly damaging to our natural environments. This case was highlighted to the senior staff of the HAD and a high-profile liaison meeting with their senior officials was organised, with the aim of minimising environmental impacts of projects under the ambit of the HAD. HAD has now agreed to set up and implement a notification to Green Groups scheme during the planning stage of works.

After decades of working to protect the ecologically important upland valley of Sha Lo Tung, Tai Po, the Government has agreed to carry out a land exchange deal with the developer and develop it into a Nature Park.

EAP was actively engaged in river revitalisation projects by Drainage Services Department, and, the Civil Engineering and Development Department, as well as projects for increasing biodiversity by Water Supplies Department. All these are programmes to be undertaken as mentioned in the Biodiversity Strategy and Action Plan (BSAP) for Hong Kong.

Engaging Communities in Conservation

Fifteen volunteers participated in the Hainan Annual Wintering Waterbird Survey co-organised by KCC in January. Notable findings including two new wintering sites of the globally Endangered Black-faced Spoonbill (*Platalea minor*) and a flock of over 500 Yellow-breasted Bunting (*Emberiza aureola*), a species recently upgraded to Critically Endangered by the IUCN Red List. A newspaper article on this event was published in *Hainan Daily*.



Black-faced Spoonbill recorded in Yinggehai, Hainan, during a KCC co-organised survey.



A Critically Endangered Yellow-breasted Bunting, photographed in Hainan by KCC.

Networking for Conservation

KCC head, Dr. Bosco Chan was invited to be a steering group member of the Australia-based *Protected Areas Learning & Research Collaboration* (PALRC), an education and research initiative dedicated to the protection of natural and cultural heritage, stewardship, conservation management and capacity development in the Asia-Pacific region.

On 1st June, Dr. Bosco Chan was also appointed as the Continental Coordinator for East Asia of the IUCN SSC Otter Specialist Group and became an official partner of the Himalayan Otter Network for the protection of Himalayan otters.

As part of a global review of the wild orchid trade Dr. Stephan Gale and Dr. Pankaj Kumar of the Flora Conservation Department provided information on the trade in wild orchids in Asia to the newly formed IUCN Orchid Specialist Group/Trade Sub-Group.

KFBG are involved in various programmes under the auspices of the Animal Welfare Advisory Group (AWAG) such as the drafting of the code of practice for pet reptile traders, procedures for local snake handlers, managing animal populations and the Animal Ethics Committee of Capture, Contraception, Release/Rehome Programme (CCRP) for Wild Boar.

Dr. Stephan Gale presented a talk on the systematics, ecology and conservation of *Nervilia*, a group of rare and threatened orchids in tropical Asia, at the '17th Flora of Thailand Meeting' in Krabi, Thailand.



Dr. Stephan Gale presenting a talk on orchid systematics and conservation at the '17th Flora of Thailand Meeting.'

Holistic Estate Management & Minimal Eco-Footprint



We continued to remove the frost damaged trees due to last year's unusual vortex conditions around KFBG. The felled wood were converted into several tonnes of biochar by our Char-Making facility for enriching the soil quality in our farmlands and forest restoration project.

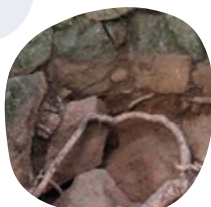
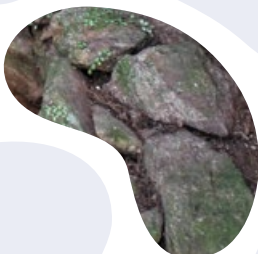
An annual tree risk assessment survey along the carriageways, theme gardens and footpaths was conducted, to ensure the safety of staff and visitors.

Kwun Yum Shan Archaeological Study

We engaged archaeologists Dr. Mick Atha and Kennis Yip to conduct a study, under license from the Antiquities and Monuments Office, of the stone circles at Kwun Yum Shan summit to try to determine their age and possible use. In the course of excavation it was rediscovered that one stone circle had originally been built around what is believed to be a geothermal vent, which is an unusual way to build a stone circle. These cultural artefacts are possibly around 1,000 years old.



The Kwun Yum Shan archaeological study revealed that the altar, perhaps 1,000 years old, had been built on a hot pot / geothermal vent; now opened up.



Tree Management

502 frost-damaged trees were removed from roadsides. These were exotic *Acacia confusa* damaged in the very cold weather of January 2016. The wood from these trees is seen temporarily stock-piled beside the roads waiting to be processed in the bio-char machine and turned into biochar, which is recycled as a soil enhancement material. In addition, 179 hazardous non-frost damaged trees were removed.

To replace felled Acacias, enhance the canopy tree species diversity and provide food for wildlife 400 native trees and shrubs were planted along the Woodland Trail and Never Never Trail.

A contractor removing one of over 500 problematic *Acacia confusa*, using crane lorry.



Wood piles temporarily stored near the T.S. Woo Memorial Pavilion for biochar production.

Themed Gardens

A new feature at the T-junction in front of Orchid Haven was completed in April. This comprises a set of broad sweeping steps and a large planter that has been planted with native and regional plants of high horticultural and ecological value. This has become a peaceful and popular resting spot for visitors.

The Orchid Haven T-junction received a much needed face-lift with the creation of new steps and a planter.



Rejuvenation of Abandoned Orchards



Converting an abandoned orchard into a native tree seed garden.

Major progress was made to convert the first patch of abandoned orchards into a native tree seed garden as outlined in our land management plan. On the hillside terraces below the road between Orchid Haven and Signpost Corner the last 56 remaining Longan trees were removed and replaced by 600 native tree and shrub seedlings. A high diversity of 60 species was planted to guarantee a healthy structure of the future seed garden forest. 10 individuals of each species will help to maintain sufficient genetic diversity as well as to have sufficient redundancy of species in case of unexpected mortality. Before planting the slope was top dressed with activated biochar and mulch to improve soil conditions. To avoid soil erosion, coconut coir logs were set up along the contour lines.

Reducing Waste and Saving Energy



The mule team loading compost onto the female mule Duffi.

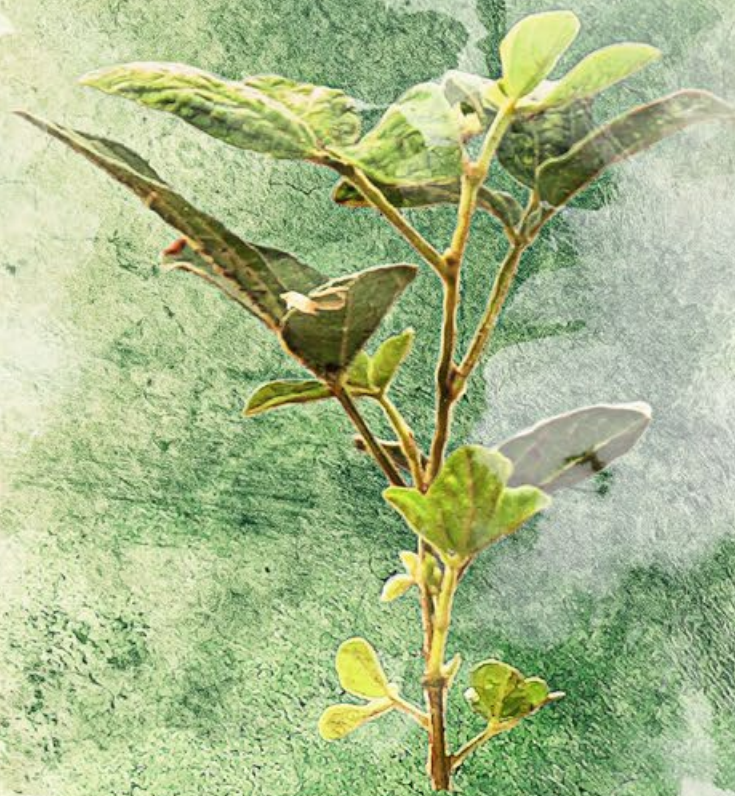
41.7 tonnes of biochar were produced from felled wood, using our biochar machine in 2017. It was mostly used to enrich depleted soil in the forest restoration programme.

The Mule Team moved around 12,000kg of cargo during this year. Our mules are now aging, they love working but with the female Duffi almost 22 years old and the male Dennie almost 18 years old their work capability will be declining from now.

The planning for the re-development of our multifunction building, the Conservation Building has continued throughout 2017. We hope to start building works in 2018.

The facilities safety review programme has continued, with several improvements to paths and railings implemented throughout the estate.

An Evolving Organisation



Staff training events were arranged, and volunteer capacity building work was continued to assist KFBG's outreach programmes.

We invited renowned experts from all over the world to share their valuable thoughts and wisdom with KFBG staff, and enhance our network building internationally.



Top places in the women's group at the 2017 Memorial Race. Prizes were kindly presented by Heather Mocatta.

Law Yu Bor received his second 20-year "Long Service Award" from KFBG Chairman Andrew McAulay.



Prof. Steven Blackmore, Chairman of Botanic Gardens Conservation International (BGCI), The Queen's Botanist, and former Director of Royal Botanic Gardens Edinburgh, and Dr. Paul Smith, Secretary General of BGCI, and previous Director of Kew's Millennium Seedbank gave talks to staff entitled "The Hong Kong Countryside: Lessons for the Planet" and "Keeping every cog and wheel: building a Global System for the conservation and use of all plant diversity", respectively.

Bala Kompalli and Noelia Alvarez, two tropical horticulturists from Royal Botanic Gardens, Kew, U.K., visited KFBG and shared experiences from practice on orchid cultivation with Orchid Conservation Section staff in April. Whilst with us, Bala gave a presentation on orchids of the Western Himalayas.

Two Supervisory and Management Skills Training classes were held for staff members in January. The course was conducted by Professor Colin Beard from the Sheffield Business School, U.K.

We welcomed a new group of volunteers to our Fauna Conservation and Education programmes. After selection, these people received training and are now contributing to our visitor's experience.

The 23rd Kadoorie Brothers Memorial Race was organised on 17th December 2017, to commemorate the Kadoorie brothers, Lord Lawrence and Sir Horace. This time we received over 230 applications and 143 participants attended on that day. The race-route was modified this year, which means all the records are new.

The new race-route is 0.4 km longer than in recent years. It is now 5.7 km in length, after we added an extra loop to provide a good view of the lower area. The route rises steeply uphill weaving through the beautiful gardens and forest of KFBG. The route also dips down before rising again, eventually finishing at the Kadoorie Brothers Memorial Pavilion (602 m).

This year three staff members completed 20 years of service and received the KFBG Long Service Gift from the Chairman at the Annual Dinner. One staff member, Mr. Law Yu Bor, had served the farm for 40 years, and thus received his second Long Service Gift from the Chairman; well done to Uncle Law. We subsequently arranged a commemorative tree planting activity for these four staff.



Prof. Steven Blackmore and colleagues from Thailand, visiting the KFBG tree planting site, guided by Dr. Gunter Fischer.

Governance

This year we put significant effort into preparing our application to register KFBG as an overseas NGO in Mainland China. KFBG's special legal status as a Statutory Corporation under the Kadoorie Farm and Botanic Garden Ordinance (Cap 1156) is highly unusual and required us to produce additional levels of documentation.

We made two visits to Beijing to meet senior officials of the State Forestry Administration, which we hope will be our supervisory unit. Officials also inspected our long term project sites in Hainan.

We signed the new three-year lease on the Green Hub at the Old Tai Po Police Station, with some slight amendments to terms.

Number of Visitors to KFBG over the Past Five Years

	2013	2014	2015	2016	2017
School groups	49,212	44,611	35,749	34,056	39,815
Commercial groups	9,834	10,347	7,616	4,004	7,806
NGO groups	18,809	16,748	8,868	11,474	10,688
Individuals / walk-in	79,752	94,964	107,786	95,509	82,843
Total	157,607	166,670	160,019	145,043	141,152

Usually, the period from January to March is a peak season for visitors who come to view the Taiwan Cherry and Mume. Due to the unusually warm weather from January to March 2017, these trees were affected and bloomed early. This caused a drop of around 6,000 walk-in visitors. We note the increase in school groups, attracted by our range of programmes, and an increase in tour groups – though we do limit these numbers to maintain peace, and harmony within the site.

Number of Visitors to the Green Hub

	2016	2017
Self-guided Visitors	47,159	51,285
Eat Well Workshop Participants	1,545	2,777
Course Participants	1,039	2,156
Heritage Tour Participants	8,007	8,025
Total	57,750	64,243

The financial audits for KFBG standard accounts and the Green Hub accounts were completed.

Financial Figures (excluding depreciation):

Expenditure (HK\$) (see breakdown 4)	*Year ended 31.3.17 (audited)	**Year ended 31.3.18 (unaudited)
Capital	23,791,330	12,007,000
Operating	92,983,059	98,811,000
Total	116,774,389	110,818,000
Income (HK\$)	Year ended 31.3.17 (audited)	Year ended 31.3.18 (unaudited)
The New Kadoorie Foundation	105,500,000	105,500,000
Green Hub income	5,742,761	6,333,000
Shop Sales	1,713,832	1,807,798
Government and other funding (see below)	1,508,288	165,271
Entrance fees	2,221,125	2,484,460
Workshop fees and Guided Tours	1,897,904	1,219,027
Public donations (see breakdown 3)	54,829	74,890

* From Audited Accounts (expenditure includes commitments accrued and not yet settled).

** From Management Accounts (expenditure includes commitments accrued and not yet settled).

*** Expenditure includes the commitments of previous years which are settled during the year.

Breakdown 1. Government Funding

Government Funding	Year ended 31.3.17	Year ended 31.3.18	Utilised by KFBG to provide:
Development Bureau (Green Hub)	1,162,158	Nil	Revitalizing Old Tai Po Police Station
Tai Po District Council	Nil	43,286	Simple Living Workshop Series

Breakdown 2. Other Funding

Other Funding	Year ended 31.3.17	Year ended 31.3.18	Utilised by KFBG to provide:
Critical Ecosystems Partnership Fund	346,130	Nil	For providing in-country administration of small grants for conservation projects.
	Nil	121,985	For providing in-country administration of small grants for conservation projects.

Breakdown 3. Public Donations to our General Conservation Fund and usage

General Conservation Fund	Year ended 31.3.17 (audited)	Year ended 31.3.18 (unaudited)
Opening Balance B/F:	69,489	124,318
Utilised Funds:		
– Utilised in transportation of frogs to Los Angeles	Nil	(5,663)
– Utilised in volunteers supporting programme	Nil	(40,180)
Public Donations	54,829	74,890
Closing Balance C/F:	124,318	153,365

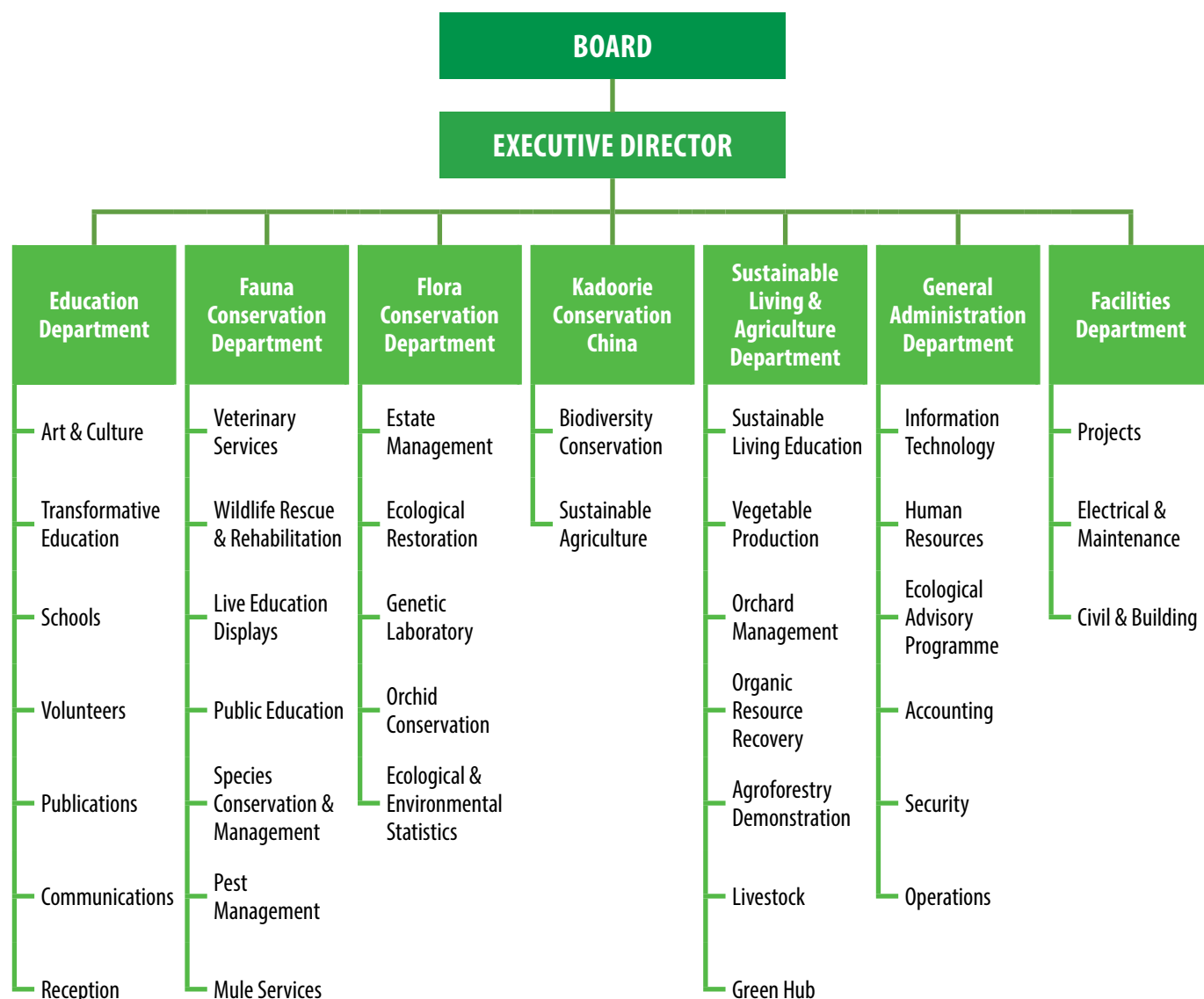
Breakdown 4. Expenditure

Expenditure (HK\$)	Year ended 31.3.17 (audited)	Year ended 31.3.18 (unaudited)
Capital		
Kadoorie Conservation China	31,059	68,000
General Administration	3,109,555	4,717,000
Education	264,655	262,000
Facilities	14,858,841	4,281,000
Fauna Conservation	1,304,065	1,327,000
Flora Conservation	1,658,392	335,000
Sustainability Living & Agriculture	827,304	980,000
Green Hub	1,737,459	37,000
Total	23,791,330	12,007,000
Operating		
Kadoorie Conservation China	7,055,372	7,322,000
General Administration	17,702,570	18,336,000
Education	11,231,609	11,444,000
Facilities	7,546,473	8,422,000
Fauna Conservation	9,371,530	10,699,000
Flora Conservation	21,490,764	21,849,000
Sustainability Living & Agriculture	12,741,892	14,482,000
Green Hub	5,842,849	6,257,000
Total	92,983,059	98,811,000
Grand Total	116,774,389	110,818,000

Note:

The Green Hub's expenditures were covered by income and grants, plus, up to 31.3.17, the HK Government's funding of deficit up to a pre-agreed level.

KFBG Organisation



KFBG Staff (as at 31st December, 2017)

Department	No. of Staff
Executive Director's Office	2
Education	14
Fauna Conservation	31
Flora Conservation	66
Sustainable Living and Agriculture & Green Hub	59
General Administration	31
Facilities	22
Kadoorie Conservation China	10
Total Number of Staff	235

Members of the Board of the Kadoorie Farm and Botanic Garden Corporation

Andrew McAulay
(Chairperson)

Ruy Barretto, S.C.

Daniel R. Bradshaw

Andrew Brandler

Christine Chau

Dr Lawrence Lee

Deborah McAulay

Senior Management of the Kadoorie Farm and Botanic Garden Corporation

Andy Brown
(Executive Director)

Heads of Department

Education Department — **Joshua Chan**

Facilities Department — **Denis Ng**

Fauna Conservation Department — **Dr Gary Ades**

Flora Conservation Department — **Dr Gunter Fischer**

General Administration Department — **Florence Au**

Kadoorie Conservation China Department — **Dr Bosco Chan**

Sustainable Living & Agriculture Department — **Idy Wong**

Appendix 1

The following table lists KFBG activities throughout 2017 aimed at building capacity in community organisations and partnerships for sustainable living.

Partner Organisation	Date	Programme Title	Location
College of International Education (CIE) of the Hong Kong Baptist University	23 rd February and 23 rd March	A two-day training featuring spring cropping	College of International Education (CIE) of the Hong Kong Baptist University
Hong Kong Organic Association	February to April	A new 'Farmers' Training Course' to provide systematic training and orientation for people who are keen to become farmers	KFBG and local organic farms.
Partnership for Eco-Agriculture and the Conservation of Earth (PEACE)	August 2016 to April 2017	Nam Chung Agriculture Volunteer Programme	Nam Chung
School of Everyday Life	24 th to 25 th June	A talk about the history and development of sustainable agriculture in rural Hong Kong at a two-day carnival	School of Everyday Life, Tai Po
Transition Network	2 nd to 12 th April	To design and facilitate a series of transition to low-carbon living talks, training workshops and a meeting	Green Hub
Sustainable Ecological Ethical Development Foundation	4 th November	A lecture on 'Soil and Compost Management'	KFBG
The Chinese University of Hong Kong (CUHK)	11 th November	A lecture on 'Local Agriculture and Crop Diversity for Food Security' for CUHK's General Education lecture series	CUHK
Princess Margaret Hospital	16 th October	To facilitate the development of a rooftop garden, SLA provided onsite training to the staff and volunteers on organic gardening principles and practices	Princess Margaret Hospital
Caritas Mok Cheung Siu Kun Community Centre	16 th November	A workshop on growing food at home	Caritas Mok Cheung Siu Kun Community Centre

Appendix 2

Specialist scientific publications from **KFBG staff** and collaborators / project executants for 2017 are listed as follows.

Technical Publications for Plant Conservation Practitioners

Title	Authors	Journal/ Publication
Disentangling environmental and spatial effects on phylogenetic structure of angiosperm tree communities in China.	Hong Qian, Shengbin Chen & Jinlong Zhang . (2017).	Scientific Reports 7 doi:10.1038/s41598-017-04679-5.
<i>Eulophia obtusa</i> (Orchidaceae: Epidendroideae: Cymbideae) an addition to the flora of Bangladesh, with notes on its ecology and conservation status.	Sourav, M.S.H., Halder, R., Kumar, P. & Schuiteman, A. (2017).	Kew Bulletin 72: 19–24.
<i>Oberonia bopannae</i> (Orchidaceae: Epidendroideae: Malaxideae), a new species from Arunchal Pradesh (India).	Chowlu, K., Malik, S., Kumar, P. & Babbar, S.B. (2017).	Phytotaxa 316: 285–291.
<i>Oberonia meegaskumburae</i> (Orchidaceae: Epidendroideae: Malaxideae), a new species from Sri Lanka.	Priyadarshana, T.S., Wijewardhane, I.H., Atthanagoda, A.G., Arangala, N.S., Jayasooriya, A. & Kumar, P. (2017).	Phytotaxa 302: 259–265.
Phylogeny of <i>Najas</i> (Hydrocharitaceae) revisited: Implications for systematics and evolution.	Ito, Y., Tanaka, N., Gale, S.W. , Yano, O. & Li, J. (2017).	Taxon 66: 309–323.
<i>Pleione arunachalensis</i> (Orchidaceae: Epidendroideae: Arethuseae: Coelogyninae), a new species from North-East India.	Vadakkoot, S.H., Kumar, P. & Sabu, M. (2017).	Phytotaxa 291: 294–298.
Preponderance of clonality triggers loss of sex in <i>Bulbophyllum bicolor</i> , an obligately outcrossing epiphytic orchid.	Hu, A.-Q., Gale, S.W. , Kumar, P. , Saunders, R.M.K., Sun, M. & Fischer, G.A. (2017).	Molecular Ecology 26: 3358–3372.
Principles behind designing herbarium specimen labels and the R package 'herblabel'	Zhang Jinlong, Zhu Huiling, Liu Jingang & Fischer G. A (2016).	Biodiversity Science, 24(12): 1345-1352 (Published online in Jan 2017).
Robust phylogeny of <i>Tetrastigma</i> (Vitaceae) based on ten plastid DNA regions: Implications for infrageneric classification and seed character evolution.	Sadaf Habib, Viet-Cuong Dang, Stefanie M. Ickert-Bond, Jinlong Zhang , Li-Min Lu, Jun Wen & Zhi-Duan Chen. (2017).	Frontiers in Plant Science 8:590. doi:10.3389/fpls.2017.00590.
<i>Spiranthes himalayensis</i> (Orchidaceae, Orchidoideae) a new species from Asia.	Surveswaran, S., P. Kumar & M. Sun (2017).	PhytoKeys 89: 115–128.
Studies in Asian <i>Nervilia</i> (Orchidaceae) VII: <i>Nervilia kasiensis</i> , a new Lao endemic.	Gale, S.W. & Phaxaysombath, T. (2017).	Blumea 62: 1–5.
<i>Thismia nigricoronata</i> , a new species of Burmanniaceae (Thismieae, Dioscoreales) from Vang Vieng, Vientiane Province, Laos, and a key to subgeneric classification.	Kumar, P. , S.W. Gale , J.H. Li, S. Bouamanivong & G.A. Fischer . (2017).	Phytotaxa 319 (3): 225–240.

Technical Publications for Animal Conservation Practitioners

Title	Authors	Journal/ Publication
A tripartite conservation initiative for a threatened wetland - case study of Yingjiang County, Yunnan.	Zheng, X. & Chan, B.P.L. (2017).	ATBC Asia-Pacific Chapter Meeting 2017 Abstract Book: 62.
A preliminary comparison of semi-evergreen forests of Cambodia's Eastern Plains Landscape and tropical China.	Zhang, R.J. & Chan, B.P.L. (2017).	ATBC Asia-Pacific Chapter Meeting 2017 Abstract Book: 84.
Building conservation capacity in Southeast Asia: Outcomes of the ATBC 2015 Asia-Pacific Chapter meeting conservation education symposium	Nicholas J. Souter ORCID Icon, Alice C. Hughes, Tommaso Savini, Madhu Rao, Eben Goodale ORCID Icon, Amy Van Nice, Natalia Huang, Jing-Xin Liu ORCID Icon, Matt P. Hunt, David A. O'Connor, Anny Li Heung-Lam , Gneb Gnuen, Yoeung Sun & Inês Silva. (2017).	Applied Environmental Education & Communication, doi: 10.1080/1533015X.2017.1322012.
Common Chaffinch (<i>Fringilla coelebs</i>) Found in Tengchong, Yunnan.	Zheng, X., Li, S.M., Huang, X.Y. & Li, F. (2017).	Chinese Journal of Zoology 52(3): 496.
Current population and conservation of Gaoligong Hoolock Gibbon (<i>Hoolock tianxing</i>) in Tengchong Section of Gaoligongshan National Nature Reserve, China.	Yang, J.H., Huang, X.Y. & Chan, B.P.L. (2017).	ATBC Asia-Pacific Chapter Meeting 2017 Abstract Book: 104.
Description of a new subspecies of <i>Talicada nyseus</i> (Guérin-Méneville, 1843) from Hainan, China (<i>Lepidoptera: Lycaenidae</i>), with notes on the genus <i>Talicada</i> Moore, 1881.	Lo, Y.F.P., Li, F. & Ding, L. (2017).	Zootaxa 4269 (4): 586–592.
Expect the unexpected: persistence of Eurasian otter in a busy delta of South China.	Li, F. & Chan, B.P.L. (2017).	ATBC Asia-Pacific Chapter Meeting 2017 Abstract Book: 130.
Is fire good for tropical savanna ecosystem? A case study on Hainan Island.	Li, J. & Padilla, H. (2017).	ATBC Asia-Pacific Chapter Meeting 2017 Abstract Book: 133.
Live Animals in Illegal Trade: A review of selected holding and repatriation costs and enforcement outcomes for local confiscations.	Dr. Gary W.J. Ades, Mr. Paul Crow, Mr. Wong Yu Ki. (2017).	Kadoorie Farm & Botanic Garden Publication Series No.12.
Past and present: the status and distribution of otters (Carnivora: Lutrinae) in China.	Li, F. & Chan, B.P.L. (2017).	Oryx, doi:10.1017/S0030605317000400.
Promoting sustainable use of natural resources in Hainan – what are the major obstacles in paradigm shift?	Padilla, H. & Li, J. (2017).	ATBC Asia-Pacific Chapter Meeting 2017 Abstract Book: 127.
Rediscovery of the Sun Bear (<i>Helarctos malayanus</i>) in Yingjiang County, Yunnan Province, China.	Li, F., Zheng, X., Jiang, X.L. & Chan, B.P.L. (2017).	Zoological Research 38(4): 1-2.
Species composition of the international shark fin trade assessed through a retail market survey in Hong Kong.	Fields, Andrew T., Gunter A. Fischer , Stanley K. H. Shea, Huarong Zhang , Debra L. Abercrombie, Kevin A. Feldheim, Elizabeth A. Babcock, and Demian D. Chapman (2018).	Conservation Biology 32: 376-389.
Using Local Ecological Knowledge (LEK) to understand the distribution and ecology of an extirpated population of Vietnamese Sika Deer (<i>Cervus nippon pseudaxis</i>) in Guangxi, China.	Wang, B. (2017).	ATBC Asia-Pacific Chapter Meeting 2017 Abstract Book: 75.

Fauna Distribution Modelling

Title	Authors	Journal/ Publication
Genetic diversity and population history of <i>Tanichthys albonubes</i> (Teleostei: Cyprinidae): Implications for conservation.	J Zhao, K-C Hsu, J-Z Luo, C-H Wang, B.P.L Chan , J Li, P-H Kuo & H-D Lin. (2017).	Aquatic Conservation: Marine and Freshwater Ecosystems. 1–13. DOI: 10.1002/zoo.21388.
Population, Distribution, Vocalization and Conservation of the Gaoligong Hoolock Gibbon (<i>Hoolock tianxing</i>) in the Tengchong Section of the Gaoligongshan National Nature Reserve, China.	Chan, B.P.L., Mak, C.F., Yang, J.H. & Huang, X.Y. (2017).	Primate Conservation, 31: (107-113).
The current status and conservation of otters on the coastal islands of Zhuhai, Guangdong Province, China.	Li, F., Zheng, X., Zhang, H., Yang, J.H. & B.P.L. Chan. (2017).	Biodiversity Science, 25 (8): 840–846.



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