



山水自然保护中心  
Shan Shui Conservation Center



山水自然保护中心  
二零一七年报

SHAN SHUI Conservation Center  
2017 Annual Report

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© The oriental scops owl / photo by Gao Xiangyu

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# Foreword

February 16, 2007, marked the day when Shan Shui Conservation Center was officially founded in Beijing. What kind of organization would it be?

To put it simply, every one of us started off holding something dear in our hearts: love of nature in its purest sense. Originally as aspiring conservationists, we were also concerned with the health of forest and grassland that wild living creatures inhabit. We hoped to observe, understand, and protect Mother Nature with rural and urban communities alike, all for the sake of a beautiful blue planet that we call home.

With this original aspiration we came to work together as a non-profit team exploring uncharted terrain. Over the past ten years we have tried a lot of things. Much experience was gained and many lessons were learnt. To better locate wildlife, we carry out ecological surveys, set up camera traps, and collect samples and photos with the help of volunteers. To better understand what the human impacts are on natural resources and wildlife, and also to reduce threats, we conduct community surveys, find sustainable livelihoods, and relieve pressure on nature. Meanwhile, we also hold that on the basis of *in situ* conservation efforts, public and government participation is needed for greater impact.

“Does it really work?” is a question we plainly brought out on the table in 2017. Maybe it was a moment of reflection — whether more things should be done with greater force and expanded action. This is why we decided to launch China Nature Watch 2016, a compilation of years of environmental data from fresh, front-line public sources, as a sideway prob into the realities of environmentalism in China. Based on the popular “citizen science” approach, we brought nature and environmental issues to people’s fingertips — using their mobile devices. This is where we want to go.

Two thousand and seventeen is also a year when China made remarkable progress in establishing the system of protected areas, including national parks. We also fostered exchange and collaboration with national parks, nature reserves, and government agencies such as forest and animal husbandry bureaus in exploring community-based conservation and monitoring possibilities. We hope to see more policies that engage locals to learn new skills and help with conservation practice in their communities. In July, for instance, we established Namsee Work Station in the Lancang River Zone of Sanjiangyuan National Park together with the Park’s administration and local government. We have colleagues there to facilitate work on various fronts, including community-based conversation, nature experience, and local wildlife conservation.

A ten-year-old organization by definition is not young anymore. But Shan Shui will forever be a team full of vigor and vibrancy. We work to project our presence on the snow-capped Qinghai-Tibet Plateau, in creek-dotted forest, across city parks and green spaces, and among all that cross our path. In the decade that follows, let’s meet up in the field and join efforts to push our aspiration to new heights!

Shi Xiangying, acting executive director of Shan Shui

## »» Shan Shui 2017

### ① Our work in Sanjiangyuan:

#### Namsee Work Station built inside a national park

In 16 villages of Sanjiangyuan we undertook various conservation projects that involved patrol and anti-poaching, waste reduction and sorting, the Human-Wildlife Conflict Fund, bear fencing, and nature experience, among other activities, impacting 100,000 people. Further, we built community-based monitoring networks, trained nearly 200 villager inspectors, set up 300 camera traps, and built a database of over one million photos and nearly 2,000 faeces-based DNA samples. We worked with Peking University, SEE Foundation, and the Zadoi County government to build Namsee Work Station, the first science and research base inside Sanjiangyuan National Park. We collaborated with Sanjiangyuan National Park’s administration and the management committee of Lancang River Source National Park in carrying through the establishment of the national park system in Namsee Town. Our collaboration also included Sanjiangyuan grassland management research and demonstration with Chengduo County, Qinghai, and various conservation initiatives with Dingqing County, Tibet, particularly the conservation of snow leopards along the Salween River valley.

### ② Our work in the Mountains of Southwest China (MSC): The first community-based protected area established in the Qinling

We supported the establishment of six community-based conservation areas in the Mountains of Southwest China with a focus on forest and water resources. Following our preparation of the first village-level forest sustainable business plan in all of Aba Prefecture, the pilot project of the Guanba Watershed Community-based Protected Area passed the provincial reform committee’s assessment and was up-scaled. We also helped establish regulations for the management of community-based protected areas in Sichuan, trained 300 grassroots forest and community workers, and set 30 camera traps, which photographed more than 20 wild animal species. We have published six research papers and have founded the Zuoxi Watershed Conservation Center in Chaoyang Village near the Changqing National Nature Reserve as a way to explore new possibilities for the management of panda habitats outside the nature reserve. The village is the first community-based protected area we’ve built in Shaanxi.

### ③ Yunnan’s Yunlong Heavenly Lake Forest Restoration Project: 266,800 m<sup>2</sup> of close-to-nature forest reborn

In 2017, we cultivated a 266,800 m<sup>2</sup> mix of broad-leaved and needle-leaved forest using the Close-to-Nature paradigm. This was done in burnt areas around Yunnan’s Yunlong Heavenly Lake by a localized, multi-value-based, and human-aided regeneration approach with continuing efforts for stewardship. To quantify the ecological value of the restored forest, we devised a specific strategy for research and monitoring and will officially implement it in 2018.

#### ④ Nature Watch:

##### China Nature Watch 2016 released

On May 22, the International Day for Biological Diversity, we joined several organizations for the release of China Nature Watch 2016, an inside look into the protection of 1,085 endangered species in China as well as forest change between 2000 and 2015 across the country, including field inspections of the greatest forest losses. We have also extended our support to the China Birdwatching Association, Chinese Felid Conservation Alliance (CFCA), Wilderness Xinjiang, and the Chinese Field Herbarium (CFH) in collecting endangered species distribution data from non-government sources. We had one SCI paper published in this regard.

#### ⑤ The Nangqen International Nature Watch Festival: Citizen scientists contributing to baseline data

The Nangqen International Nature Watch Festival 2017 rolled out on July 19 in Nangqen County of Yushu Prefecture and ended four days later on the 22<sup>nd</sup>. Taking the form of a fierce competition, 17 teams of nature lovers from China, the US, the UK and France worked with local guides to promote RAP and supplement the baseline data of local species. Initial assessments showed that 15 animal species, 93 bird species, 222 plant species, and 1 amphibian species were recorded.

##### Baixiongping Land-Trust Conservation Station:

#### ⑥ The nature documentary *Boonie Bears* aired on Chinese Central TV

*Boonie Bears*, a 30-minute documentary film on the lives of our workers at the Baixiongping Station, was aired on the documentary channel of Chinese Central Television in July. The “show”, if showy in any way, gives a true account of the challenges we and our partners have encountered over the years and, thereby, deserves a round applause.

#### ⑦ The Lancang River Conservation Fund:

##### Nearly 4 million yuan granted to support 63 conservation projects

In 2017, the Lancang River Conservation Fund supported 63 projects by granting a total of 3,920,000 yuan. This led to many positive outcomes, including the investigation of *Japalura iadina* distribution and endangerment status, the conservation efforts for endangered species (the lady’s slipper orchid, the Asian elephant, the black snub-nosed monkey, etc.), continued support for community-based conservation areas (Bamei Village, the Meri Snow Mountains, Bamai Village of Nangqen, etc.), assistance in environmental education (the Central Boarding Schools of Sahuteng Town and Sulu Town, the Ralpadolma and Gulche Monasteries, etc., in Zadoi), and further support to help local NGOs grow (Gangri Neichog Research and Conservation Center, Through Their Eyes, Fireplace Culture Society, etc.).

#### ⑧ The Urban Wetlands Restoration Project:

##### An urban wetland renovated in six months

We cultivated a 2,500 m<sup>2</sup> natural wetland in Haidian District, Beijing, in 184 days. In the monsoon season of 2017, it purified approximately 2,880 m<sup>3</sup> manure-contaminated water to quality grade three, providing habitat for 22 types of dragonflies, 2 types of frogs, 1 type of snake, and 5 types of water birds.

#### ⑨ Hoh Xil recognized as a World Natural Heritage Site

In the afternoon of July 7, 2017, Poland Time, Hoh Xil of Qinghai, China, became the 51<sup>st</sup> World Natural Heritage Site in China as it passed the final review by the UNESCO World Heritage Committee in Poland. Back in 2014, the Qinghai government officially started the process of having Hoh Xil recognized as a World Heritage Site. Since then, a unified team consisting of Shan Shui Conservation Center, Peking University (PKU), the China Academy of Urban Planning & Design (CAUPD), and the Chinese Academy of Sciences Northwest Institute of Plateau Biology had taken an active role in the application and planning procedures.

#### ⑪ Ford Environmental Awards

At the Ford Environmental Awards 2017 held in Shanghai on December 5, we and ten other candidates were presented the Annual Pioneering Award for Environmental NGOs. Ten years have passed. As a home-grown environmental NGO, we will uphold our original aspiration and continue to march down the road towards a greener future! We truly feel grateful to have you as our caring and supportive partner and friend.

#### ⑩ The 9/9 Public Service Day brought in nearly 20,000 donations in total

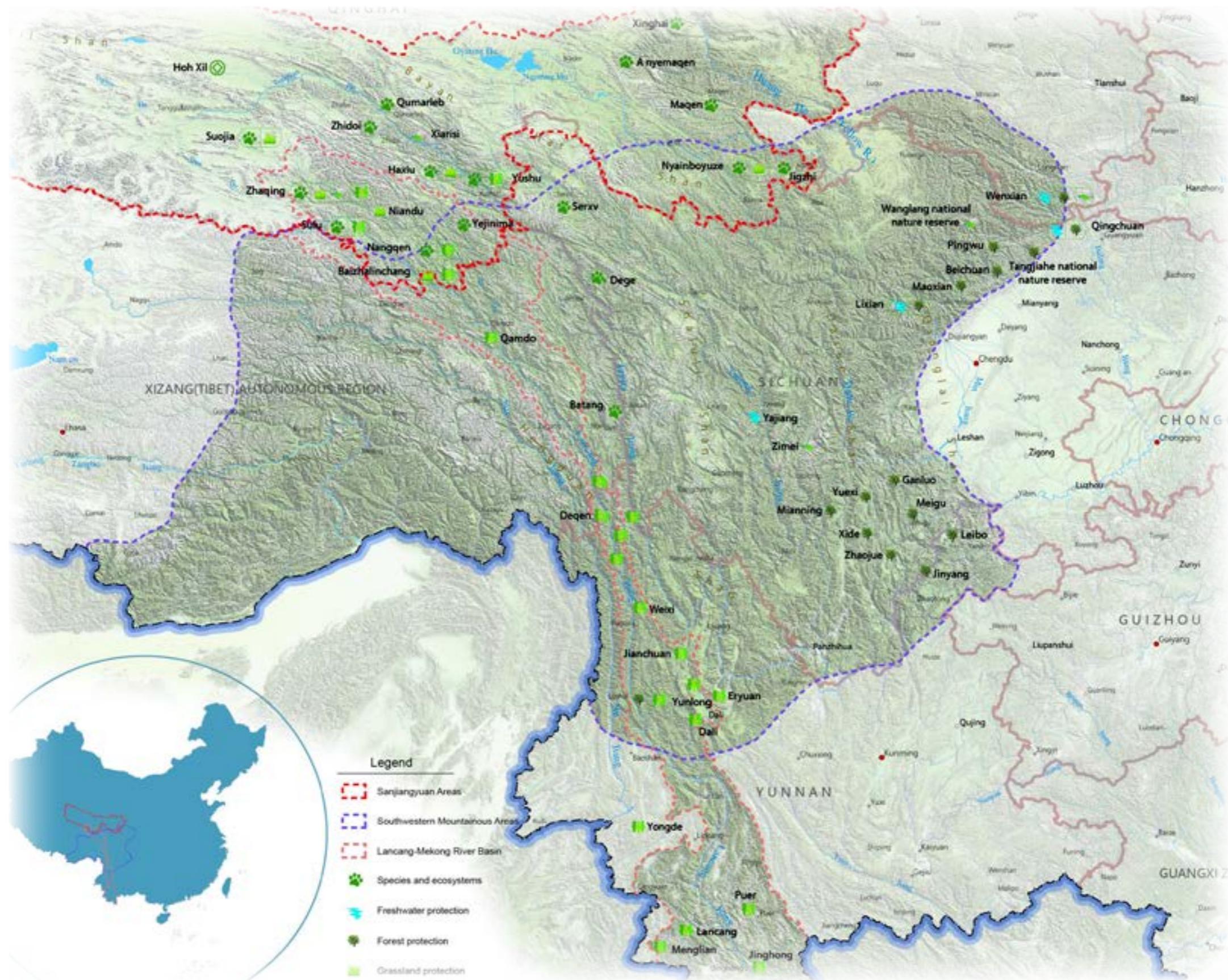
On September 7 to 9, 2017, the window of crowd-funding in celebration of Tencent’s 9/9 Public Service Day, we received a total of 281,942.05 yuan from 2,310 donors to three of our projects: “Give Butterflies a Home in the City,” “Send Energy to Panda Guardians,” and “Treat Snow Leopards to a Meaty Dinner.” We thank SEE Foundation, Ai You Foundation, Ai You Future Foundation, Tencent Foundation, and all corporate contributors, especially you all-time Shan Shui supporters and nature lovers. The support that we have received from you embodies your approval of our front-line work and, more significantly, your trust in our future endeavors.

© Winners at Ford Environmental Awards 2017



© The Tibetan bunting found near the Gar Monastery during the Nature Watch Festival / photo by Zeng Xiangle





# Snow Leopard and Grassland Conservation

Sanjiangyuan is located in the interior of the Qinghai-Tibetan Plateau, sheltering the heads of the Yangtze River, the Yellow River, and the Upper Mekong (Lancang) River, hence its name, meaning "the source of three rivers" in Chinese. It holds the densest biodiversity of the entire plateau. All these attribute to its distinct function as a significant ecological barrier in China.

Our continued, persistent, collaborative effort with governments and communities in this area since 2009 are based on scientific studies and an understanding of traditional culture. We aim to promote both a community-based modality and co-existence between man and nature in various aspects of environmentalism, such as conservation practice and capacity building.



## Scientific Research

**Community-based monitoring** 160 locals trained in monitoring; more than 250 wildlife monitoring cameras installed; 50,000 days of work a year; 5,600 km<sup>2</sup> covered; and a database built of more than 2,000 feces-based DNA samples and 200,000 photos.

**Research Base:** The Sanjiangyuan National Park Namsee Work Station, the first research and conservation base inside the park, was established in collaboration with Peking University, the SEE Foundation, and the Zadoi government to undertake research and volunteering, among other tasks, in the area.

**Publications:** Published 4 doctoral dissertations on such topics as snow leopards, brown bears, pasture management, and climate change; and co-authored 6 SCI papers.

**Outcomes:** Completed a quantitative study of snow leopard interactions with both farm animals and blue sheep and found that this species is the primary food chain regulator in Sanjiangyuan and that blue sheep occupy a marginalized ecological niche and therefore are not quite competitive with farm animals.

Conducting a landscape genetics study in Sanjiangyuan to see if several snow leopard habitats are interconnected and if the populations participate in genetic exchange.

Studying the feeding habit of snow leopards in Sanjiangyuan to identify their major food sources.

Studying traditional Tibetan culture and its relationship with biodiversity conservation in Sanjiangyuan, conducting door-to-door interviews to understand how local herders think of wildlife, the environment, and climate change, to learn about human-wildlife conflict, and to record traditional ecological knowledge.

Conducting ecological studies on stray dogs in Sanjiangyuan and their impact on the snow leopard, including population status, home ranges, activity rhythms, and feeding habits, and completed the mounting of 20 GPS tracking collars.

Studying the sympatry and interspecific relationship between the leopard and the snow leopard: Feces sampling and camera trap surveys have begun considering the sympatric presences of both species caught by camera traps in various areas of Sanjiangyuan.

## These Years with Snow Leopards in Sanjiangyuan: From Research to Conservation

Small as it may seem, Sanjiangyuan is not an area to be ignored even if we put it on a global scale. This is the region where we began working with Peking University on the research and conservation of snow leopards in 2008. Nearly ten years have passed.

### 1

Far in the hinterland of the Qinghai-Tibet Plateau, at the very source of great rivers, through the light shadows of holy mountains and sacred lakes, still live hordes of animals and nomads. In today's world, it almost feels as if they were a special gift, a window for us to learn and understand the relationship between man and nature.

And in such wild existence the most magnificent of all is none other than the snow leopard.

Carnivorous strength, feline agility, and rocky, snowy camouflage make it a lure to human imagination.

Sanjiangyuan is where we started to study and protect this animal in collaboration with Peking University.

The 10<sup>th</sup> International Snow Leopard Conference, which was held in Beijing in 2008, laid a significant land-

mark in the field of China's snow leopard conservation. In 2009, Dr. George Schaller, Prof. Lu Zhi, and Dr. Li Juan began to conduct their first study in Sanjiangyuan. While looking at the distribution of and threats to this species, they identified Sojia Town of Zhidoi County as the first area to study the snow leopard populations. Dr. Liu Yanlin joined in when he'd done with his doctoral research on *Equus kiang*. For the following five years he kept driving the snow leopard project to lay the solid foundation that we have now.

This is a vast, scarcely populated area neighboring Hoh Xil. It is also where our star conservationist, Sonam Dharkey, once worked as the Secretary of the town's CPC committee. It was not until two years ago that Sojia was once again brought under the spotlight thanks to a lot of exposure to this majestic cat in the documentary film, "We are Born in China."

I came to Sojia in 2011. Hard, pale rocks poked into the earth like cold blades, unwavering in sandstorms that reminded me of a primitive age. Streams of water



© A snow leopard caught sticking out its tongue in a camera trap.

spread from the basin like a girl's braided hair and kept flowing toward the horizon, at some point of which they would converge into the Yangtze River. These rivers are called Yachu, Junchu, Mochu, and Dangchu. Sharing those names are four villages of Sojia. Every morning nearby villagers would walk across the dew laden pasture to fetch water from the rivers. A graceful silhouette set itself against the rising sun as one of the women scooped water out with her ladle.

Since then I have maintained in my heart a tight connection between the snow leopard and the great rivers and human lives here. Beyond this single species is a broader vision and commitment: The source of rivers should be protected to promote co-existence between man and wildlife at large.

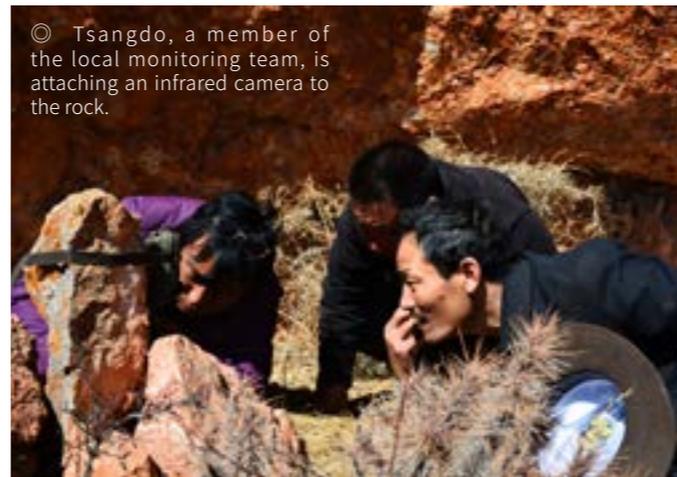
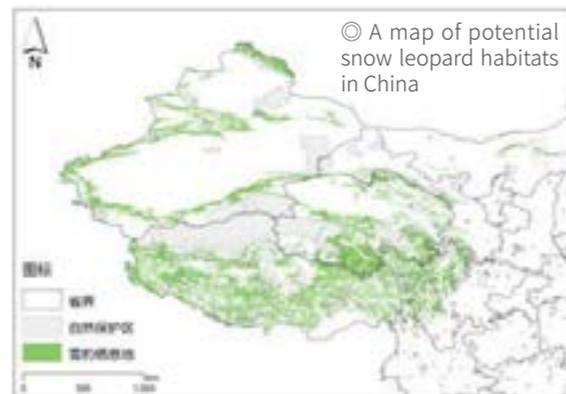
## 2

In Sojia, Dr. Li Juan used camera traps to carry out long-term monitoring of snow leopard populations within a radius of approximately 1,500 km<sup>2</sup> and eventually identified 29 individuals.

By grid sampling the entire region of Sanjiangyuan, Dr. Li took the lead in mapping potential snow leopard habitats in China.

These data provided important references for future snow leopard conservation in the country. Surveying and studying the mapped potential habitats made many areas of work more focused and efficient. In addition, Dr. Li's study of conservation gaps recognized monastery-based communities as major protective forces because their locations substantially overlap the snow leopard habitats.

To respond to retaliatory killing of snow leopards that attack farm yaks, Yin Hang and Gyagong Drala of Shan Shui launched "snow leopard insurance" in Nangqen as a way to compensate for snow-leopard-inflicted farm losses by authorizing local herders to ad-



minister the Village Conservation Fund, supported by the government, monasteries, and the private sector. This mechanism helped maintain co-existence between snow leopards and local people and thus became an important part of what is being done for human-wildlife conflict compensation in Sanjiangyuan.

Upon her graduation, Li Juan was succeeded by Dr. Xiao Lingyun. It was with the latter's support that we began to incorporate community-based monitoring into snow leopard studies.

The lack of baseline data has been the greatest problem in snow leopard conservation and research. Natural habitation in cold, remote, highly elevated areas as that of snow leopards makes long-term monitoring extremely difficult.

The best approach, therefore, is by training local herders to collect basic data and keep monitoring the species over long periods of time.

Drs. Liu Yanlin and Xiao Lingyun began their first attempt in December 2012, when 14 herders whose families have lived in the area for generations, picked up such modern equipment as infrared cameras, GPS trackers, and telescopes. Starting from Yunta, we have established five community-monitoring bases and carried out grid monitoring over 4,000 km<sup>2</sup> of land, with 150 herders in charge of more than 200 infrared cameras. Statistics show that the quality of camera traps set up by the herders is largely consistent with that by scientists in terms of individuals caught. This means that local monitoring resources can be a strong supplement to the academic world.

These cameras worked day and night to feed us with data for nearly five years. Over 150,000 infrared

photos, along with more than 1,000 gene samples, helped us build up a database of snow leopards and their companion species in Sanjiangyuan.

How snow leopards co-exist with humans in the region is the topic Dr. Xiao chose to explore in her doctoral study, and she found that presently in Sanjiangyuan conflict over resources is rather mild due to the fact that the predator and its prey (blue sheep), inhabit rocky areas at higher altitudes while locals are being sedentarized elsewhere (i.e., more locals have settled down on winter pastures at lower altitudes). Co-existence is very hopeful if current livestock density remains constant. Of all the large feline animals in China, the snow leopard is the likeliest to maintain a healthy populations because the niche it has evolved to live in is at the margins of human activity.

Alongside Dr. Xiao's work, Dr. Cheng Chen established and maintained a database of over 1,000 snow leopard DNA samples. Together with other fellow scientists, most notably Dr. Song Ruiling and doctoral students Zhu Ziyun and Liu Mingyu, she carried out a series of long-term studies regarding the genetics of snow leopard populations in Sanjiangyuan, the patterns and causes of grassland degradation, the environmental effects of holy mountains and sacred lakes, and the impact of stray dogs on the ecosystems in Sanjiangyuan. What's more, Dr. Wu Lan led an in-depth discussion of the causes of human-bear conflict in the region. In 2016, for analytical purposes Li Juan simulated change of suitable habitats for snow leopards from 20,000 years ago to 2070 in terms of cold and warm periods while doing her post-doctoral study in the University of California, Berkeley.

These studies are gradually revealing a full picture of Sanjiangyuan's ecosystem, its social and economic development, and a complex relationship between the two.



## 3

Based on what we have learned from research and monitoring, we also practice conservation in an orderly manner.

Significant overlaps with herding areas challenge us to mediate between human livelihood and the health of snow leopard populations.

Fortunately, the locals remain positive towards conservation practices because they still uphold traditional Tibetan culture. When we work in areas like this, we are rarely asked: "Why bother?"

Zadoi is the first county where we carried out conservation in a systematic fashion. It is located at the head of the Upper Mekong River, known as the Lancang River in China. Its unique geology and landform also gave birth to Dangchu, the southern origin of the Yangtze River. Yes, this Dangchu is the one I saw in Sojia. Over a vast prairie without prominent geological markers to be seen, the rivers that have flowed from snow mountains and wetlands for thousands of years connect human inhabitants along the way and incorporate them into a united whole within the watershed, making them one.

According to Li Juan's habitat simulation, Zadoi is situated on the largest contiguous habitat of Sanjiangyuan and therefore may function as the "source of snow leopard populations" throughout the region. Thus, we started to work here in 2014.

Benefiting from community-based monitoring and government support, we have gradually reached 18 communities of Zadoi and carried out various missions, including anti-poaching patrol, stray dog neutering and vaccination, garbage reduction and sorting, the Human-Wildlife Conflict Fund, and nature experience.

Specifically, human-wildlife conflict has always been a top concern in the context of snow leopard conservation.

Herders whose livestock get eaten by the animal may want revenge. To resolve such conflict, we need to raise the levels of precaution first and then compensate for the damage.

In Nyantho Village of Namsee Town, Zadoi, we set the premium per cattle to be three yuan, which is pooled into a village compensation fund with other funds from Shan Shui and the county government under an autonomous administrative framework. Criteria for loss assessment and compensation are also at the discretion of local villagers. Today, this fund has been

up-scaled to three villages of Namsee, and the county itself has been a pilot area for Sanjiangyuan National Park.

Community-based monitoring also provides references for nature experience tourism concerning snow leopard activity. Now in Nyantho Village, 15 herders have been trained to pilot the nature experience project. Since 2017 they have received 12 small nature experience groups from all over the world and earned more than 100,000 yuan. Hopefully, Namsee will become the top destination in the world to experience snow leopards in the wild. Research and monitoring data can also benefit the community financially. A virtuous cycle is emerging between snow leopards and local residents.

In 2015 Zadoi County sponsored the Yushu International Snow Leopard Forum, an event that inspired attendees so much that they later leveraged it to establish a network of environmental practitioners called Snow Leopards China. This coalition includes Peking University, Zadoi County government, Beijing Forestry University, Nyanpo Yutse Environmental Protection Association, CFCA, Wilderness Xinjiang, Green River, Mt. Qomolangma Snow Leopard Conservation Center, Wolong and Gongga Mountains Nature Reserves of Sichuan, and Shan Shui.

Several of them, most notably the Nyanpo Yutse Environmental Protection Association, Green River, and the latecomer Yuan Shang Cao, have made remarkable progress in snow leopard conservation and monitoring in different areas of Sanjiangyuan.

The “bird lama” Tashi Sangekambo is one of the pioneers who brought the idea of founding a local environmental NGO into reality: The Nyanpo Yutse Environmental Protection Association aims to promote biodiversity conservation in the area. A rigorous attitude toward science and a relentless quest for solutions have made them the best citizen scientists in China. The Green River was founded by Yang Xin. Over the past 10 years, he and his team have worked in the source area of the Yangtze River, making it a hot spot and showcase of China’s ecological protection. The Yuan Shang Cao’s founding trio have nearly ten years of experience in Sanjiangyuan conservation. When FFI left, they positioned themselves to pursue snow leopard research and conservation in the least known area of Animaqin, which serves as an important habitat for the species.

With the support of Wilderness Xinjiang and the Administration of the National Forest in Eastern Tianshan Mountains, the Snow Leopards China environmental network had its second forum held in 2016 at the foot of

the Tianshan Mountains. In this event a technical manual was released on snow leopard monitoring in an effort to establish standardized procedures. The third forum is coming up. This homegrown network is growing into an exchange platform for snow leopard research and conservation.

#### 4

Nearly ten years have passed since Shan Shui and PKU began their research and conservation of snow leopards in 2008. What has been outlined here has epitomized our work these years in Sanjiangyuan. I’d also like to avail myself of this opportunity to express heartfelt gratitude to our friends for their care and support.

We thank SEE Foundation for carrying us through our snow leopard project in Sanjiangyuan all these years.

We thank the administration of Sanjiangyuan National Park (Sanjiangyuan office and Sanjiangyuan National Nature Reserve) and local partners in Yushu Prefecture, Zadoi County, Nangqen County, Chengduo County, etc. for making such work possible.

We thank the Nyanpo Yutse Environmental Protection Association, Green River, Yuan Shang Cao, Snow Leopard Watchers and many others who joined us along the way. Together we work hard to bring the snow leopard dominated landscape into sharper focus.

These big cats are attracting broad attention. It is a joy to see this species being set on a different path than other species in terms of research and conservation. An increasing number of organizations set out to fill the gaps in their own ways and then unite in their collaborative effort to expedite snow leopard conservation in China as a whole.

This is an exuberant vision. The species is still threatened by habitat degradation as a result of climate change and human activity, but we have every reason to believe that this “gift” passed down to us from millions of years ago will have a difficult yet promising future.



Author: Zhao Xiang of Shan Shui

Pictures courtesy of the same

10/23/17 on Shan Shui’s WeChat

Scan the QR Code to read the original post



© The Sanjiangyuan team and local patrolmen



© A locals’ meeting to discuss bear fences

## Conservation Practices

**The Human-Wildlife Conflict Fund:** Established the Human-Wildlife Conflict Fund in three villages of Nangqen (Qianduo Village) and Zadoi (Nyantho and Reqing Villages): A government counterpart fund of 200,000 yuan has been obtained and a total of 250,000 yuan worth of claims paid.

**Bear fencing:** Built over 100 bear fences and reinforced doors and windows as part of the bear-proof pilot project in Sojia, Haxiu, and Zaqing; Piloted 58 fences in all of Daqing Village of Zaqing Town, Zadoi County, bear break-ins down 90% over the past year.

**Anti-poaching patrol:** Carried out anti-poaching patrol in 16 communities around the Tongtian River and the head of the Lancang River covering an area of 12,000 km<sup>2</sup>; no new wire traps found in Haxiu, Namsee, and Zaqing since 2016; over 500 wire traps cleared from 4 communities in the area of Yushu’s Dongzhong Forest in 2017.

**Garbage reduction and sorting:** Completed garbage reduction and sorting in Haxiu Town and Zadoi County covering over 50,000 residents of Zadoi and making 60 tons of garbage recyclable to generate an income of 200,000 yuan a year and extend the service life of the county landfill by about two years.

**Grazing management:** Worked with the Swiss Federal Office for Agriculture and *Universität Freiburg* to study grazing management, standardize monitoring and assessment, and to evaluate the social, economic, and ecological outcomes of various grazing management approaches: Monitoring has been set up in four communities of Chengduo Country covering approximately 3,333 acres of land.

**Nature experience:** Set up 15 nature experience pilot households in Namsee that received 12 groups of visitors; 6,000 yuan generated per household.

**Wetlands conservation:** Promoted wetland ecosystem conservation with a focus on the black-necked crane: Activities on the Longbao Lake and Jiatang Wetlands included engaging citizen scientists to evaluate threats, demolishing wire fences, building corridors, suggesting the insulation of the power grid, and training pilot households for nature experience regarding the species.

# Conservation Forces

**Communities:** Worked at the grassroots level in 23 communities and provided over 50,000 locals with *in situ* community training, covering an area of 50,000 km<sup>2</sup>.

**NGOs:** Joined a number of NGOs for work in Sanjiangyuan, including the Nyanpo Yutse Conservation Center, Yushu Plateau Animal Husbandry Development Center, Yushu Prefecture Museum, China Wild, and Gangri Neichog Research and Conservation Center.

**The Fellowship Program:** Brought up nearly 30 Sanjiangyuan-oriented fellows, over 20 of whom still work in the field of conservation and other related areas.

**The Nature Watch Festival:** Organized two Nature Watch Festivals, recruited a total of 32 teams, and built baseline data for the Namsee Grand Canyon and the Baizha Forest.

**Snow Leopards China:** In 2015 we established Snow Leopards China, a network of snow leopard research groups and conservation organizations from all over China aiming to promote inter-group collaboration and the sharing of ideas, know-how, and techniques and to facilitate snow leopard conservation in China.

This idea of networking started when we organized the first Yushu International Snow Leopard Forum, where conservationists from six countries shared their experience in snow leopard research and conservation. Up till now we have organized two Snow Leopards China forums. This network has laid important groundwork for snow leopard research and conservation in the country.

A *Technical Manual on Snow Leopard Monitoring* was produced under this project as support for snow leopard research and monitoring in various areas, including the Tianshan Mountains of Xinjiang and Changdu of Tibet.



© Popular extracurricular activity for Sanjiangyuan's fellows: picking cattle dung.

## Six Days Competing on Top of the World: All for a Glimpse of These Creatures in Nature

On July 23, under a beautiful starry sky, the curtain fell on the **International Nature Watch Festival 2017**, where 17 teams from China, the US, the UK, and France had competed fiercely over the previous four days in Nangqen, Qinghai. Finally, the winners emerged.



In the form of competition, this event was carried out for nature lovers and local guides to work together to promote RAP and supplement the baseline data of local species.

At the initial assessment, the competitors photographed **15 animal species, 93 bird species, 222 plant species, and 1 amphibian species**. After four days of competition, here were the winners:

After four days of competition, here were the winners:

© A Glover's pika / photo by Ban Dingying

General Award
1st place: Oriental Hobby over the Yingjiang River
2nd place: Bunting Hunt
3rd place: Wild China
The Best Mammalia Award: The Shepherd Boy
The Best Avifauna Award: The Mountains of Southwest China
The Best Flora Award: Wilderness Xinjiang
Ten Awards for Best Photography
Ten Finalists for Photography



© An alpine weasel / photo by Wei Ming

© The Nature Watch Festival camp in the Baizha Forest / photo by Kyle Obermann



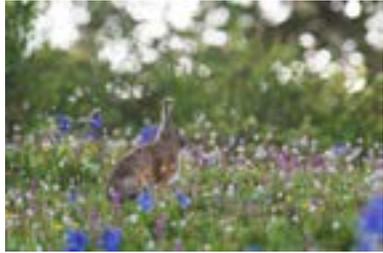
We thank the Nangqen CPC Committee and the Nangqen government for their great support; the Nangqen Volunteers Group, Wilderness Xinjiang, and the Nyanpo Yutse Environmental Protection Association for providing wonderful logistics to make the event a success; Xi Zhinong, Terry Townshend, Tashi Sangekambo, Liu Yang, and Lu Zhi for being impartial judges; all the journalists for following along every step of the way and sharing their insights; and all the contestants for their hard work.

The prizes were provided courtesy of Bosma®, Advanturer®, and Thermos®.

### Background

Nangqen is a crisscross of mountain ranges situated in the east of the Tibetan Plateau and the south of Qinghai. As a unique ecological niche tucked in between, Nangqen provides shelter for rare animals, such as leopards, snow leopards, and jackals. More attractively still, the Tibetan babax and the Tibetan bunting, species native of China, make it one of the world's popular bird watching sites.

We have long been dedicated to promoting community-based biodiversity monitoring projects in Sanjiangyuan. We hope that activities like the Nature Watch Festival can establish a connection between science lovers and locals to observe mammals, birds, and plants in their natural habitats, perform RAPs, and finally to enrich regional biodiversity baseline data, all in the form of fun competition.



© An alpine bunny in the sea of flowers / photo by Wei Ming



© A Himalayan vulture in the Baizha Forest / photo by Ruchu



© Black woodpeckers / photo by Meng Xianwei

### Sponsors

Nangqen CPC Committee | Nangqen County government | Shan Shui Conservation Center | Peking University Center for Nature and Society

### Partners

SEE Foundation | HSBC Bank (China) | Wild China | Nyanpo Yutse Environmental Protection Association | China Birdwatching Association | Sun Yat-sen University Biological Museum | CFCA | Wilderness Xinjiang | Global Environmental Institute (GEI) | Fangzhou Biodiversity Imaging Center | Hinature.org

### Equipment suppliers

Bosma® | Advanturer® | Thermos®

### Media

CCTV Qinghai Station | Xinhua News Agency (Qinghai) | China News Service (Qinghai) | Qinghai TV | China News Week | Sanlian Life Week | Forest & Humankind | China Green Times | The Magazine of Natural History (*Bowu*)



7/24/2017 on Shan Shui's WeChat

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© Shooting stars in the grand canyon / photo by Zhang Chenghao

## Policy Advocacy

### Public mobilization

The unique ecology of Sanjiangyuan makes it necessary to inspire and mobilize locals towards conservation goals. Since 2012 we have been voicing our recommendations on social and community-based conservation to competent authorities at all levels.

In 2011, a new conservation approach “based on local farmers and herders” was first put forward in the Master Plan for the General Experiential Conservation Zone in Sanjiangyuan National Park. Later in 2015 the Master Plan for Sanjiangyuan National Park laid down a general guideline to “expand social participation in an orderly manner.” In establishing Sanjiangyuan National Park, every household involved will earn 1,800 yuan a month for the stewardship services they provide. Long years of effort have led to the successful implementation of a mechanism in which the public and local communities are mobilized with government purchases.

### Fencing and rodent control

Produced with many organizations more than 50 pieces in all forms of writing — policy recommendations, theses, news reports, internal references — on fencing and rodent control in Sanjiangyuan as a way to advocate the impacts of reassessment of fences and rodent extermination on the ecosystem.

### National parks

Participated in stewardship training for Lancang River Source National Park and Yangtze River Source National Park, trained over 2,000 forest stewards, assisted in making stewardship work guidelines, and contributed to landscape planning in the Namsee area of Sanjiangyuan National Park.

### Government collaboration

The memorandum on Lancang River Source National Park Cooperation 2016-2020; The establishment of the Yushu Wildlife Conservation Experiential Zone 2016-2020;

The Chengduo County Agreement on Ecological Conservation 2017-2018; The Nangqen County Agreement on Ecological Conservation 2017-2018.



© Two baby snow leopards / photo by Dou Xiujia

# Panda and Forest Conservation



## Community-based Conservation

The Mountains of Southwest China (MSC) is recognized as one of the world's 34 biodiversity hotspots and there is something more. With a human population of 500 million over 300 km<sup>2</sup> of land, it is a wildlife gene pool sheltering 12,000 plant species, 689 bird species, and more than 300 mammalian species, represented by the giant panda, snub-nosed monkey, takin, and the black bear. Hydrologically, it has five of Asia's largest rivers running through, hence hailed as "the Reservoir of China." It is also a "cultural knowledge base" where 17 ethnic minority groups live in harmony with nature. Back in 2007 we started to support local communities as they carried out conservation projects in this ecosystem with the giant panda identified as a flagship species.

Since that year we have been aiming to restore and protect forest and river ecosystems on the basis of both science and traditional culture as a measure for the conservation of panda habitats. Progress has been made on many fronts, including scientific study, community-based conservation practice, and policy advocacy. We use a community-based strategy to ensure success in both conservation and community development.



© Local patrol of the Guanba Community-based Protected Area / photo by Kyle Obermann

## Our actions:

### 1. Scientific research

Conducted a series of studies, including the functions of the Asiatic honey bee within the ecosystem of panda habitats and the mechanisms of community-based conservation areas and of collectively owned non-commercial forest management.

### 2. Community-based conservation

Established 10 community-based conservation areas in Sichuan, Gansu, and Shaanxi through measures such as the Conservation Stewardship Program (CSP), Panda Honey, and community-based protected areas, covering over 18,260 ha of land; trained 80 patrolmen; set up 40 camera traps; identified 50 fixed monitoring quadrats; worked on anti-poaching patrols, the Human-Wildlife Conflict Fund, and forest and water resources management to fill the conservation gaps.

### 3. Policy advocacy

Refined and streamlined management procedures and optimized the use of the annual 20 million yuan fund where collectively owned non-commercial forest is concerned; sped up the preparation of management and operation guidelines for community-based protected areas in Sichuan, the Guanba Watershed Community-based Protected Area being listed as a key provincial pilot reform project to be scaled up in the province.



© The Guanba Community-based Protected Area Team

## A Place for Wild Giant Pandas

Pingwu County of Sichuan is hailed as the World's First Panda County for a reason. Statistics show that 355 wild individuals live there, which accounts for over one sixth of the global population.

In early winter, the author visited the Guanba Community-based Protected Area of Mupi Town, Pingwu County for an interview, hoping to run into a few national key protected animals, like snub-nosed monkeys, giant pandas, takin, and golden pheasants. © The Green Guanba

In recent years some of these and other rare and precious creatures have made their presence more frequently known thanks to the rise in environmental awareness among local politicians and the public, supported by higher government and environmental NGOs. More surprisingly, the local community plotted a course accounting for both ecology and the economy, and have marched together toward a prosperity known to not only one or two villagers, but to all.



### Lessons learned the painful way

The Guanba Valley serves as an important ecological niche by virtue of its location in the central panda habitat in the middle section of the Minshan Mountains, neighboring Tangjiahe National Nature Reserve in the east, Laohegou Land Trust Protected Area in the southeast, Yujiashan County-level Nature Reserve in the south, and Xiaohegou Provincial Nature Reserve in the west. The 4<sup>th</sup> National Giant Panda Survey shows a panda population density between 0.06 and 0.2 per square kilometer in the valley.

According to Feng Jie, the founder of this protected area and the project director of Shan Shui Conservation Center ( “Shan Shui” ), before conservation three major problems persisted here: poaching, over-grazing, and fish poisoning/electrofishing. What’s more, people in and around this village often came here to cut trees and picked fungi and herbs, causing almost irreversible damage to panda habitats and the environment in general.

Guanba Village has four villager groups comprising 121 households, a population of 389. This is the reason why it hadn’t previously been incorporated into any of the surrounding nature reserves all those years, despite its location in their core zones. The hard fact is that this 40.3 km<sup>2</sup> area is a major habitat and corridor for pandas. Ecological deterioration also threatened the survival and



© Locals learning how to set up camera traps in Guanba

development of local communities.

### Green opportunities ushered in

Upon their arrival in 2009, Feng Jie and his Shan Shui team invited government executives to brainstorm on both the ecologic and economic issues that beset the village.

Efforts have been made to unify the sporadic management of forest resources in the Guanba Watershed, uniformly exercise the rights of management, conservation, and of use for certain business operations, without changing forestland ownership. The Guanba Watershed Conservation Center of Pingwu County was registered with the local public affairs bureau as an executive agency of

the Guanba Community-based Protected Area. The local forestry administration was charged with coordinating the Conservation Center’s activities. The township government provides and authorizes the use of 20,000 yuan annually for forest management in Guanba, whereas a business entity called Pingwu Forestry Development (PFD) provides 30,000 yuan annually as a co-manager. Both have regulatory and supervisory power as Owners.

The power of law enforcement within Guanba is exercisable by the correspondingly authorized township government agencies and officials with the power of jurisdiction. Specific matters concerning this procedure are coordinated and carried through by the township government.

In 2010, the Pingwu Biodiversity and Water Conservation Fund began to support Guanba in exploring new ways to balance ecological and conservation practices with the local economy.

In 2014, Guanba Village was brought under the Upper Yangtze Forest Conservation Project, whereby a community-based conservation development fund was established.

In September 2015, after thorough discussions, the town government, the village committee, and the Pingwu County Department of Forestry Reform and Development (PCDFRD) concluded a cooperation agreement and passed the application along to the relevant higher authorities.

Finally, the community-based protected area pilot project was launched at the provincial level of forestry administration. Since then Guanba Village has turned itself into a pilot area for community-based panda habitat management beyond the boundaries of nature reserves.

In early 2016 the Pingwu Guanba Watershed Community-based Protected Area was officially established.

### A green economy on the rise

Restorative cold-water fishery is not the only thing Shan Shui encourages the locals to practice. The list also includes beekeeping, walnut and Chinese herbal plantation, and eco-tourism.

Specifically, Tibetan Asiatic Bee Honey is a brand of native honey Shan Shui has helped the local beekeeping industry to establish. When asked how he started off with beekeeping, Li Xinrui, now the leader of the apicultural cooperative for this brand, looked impossibly animated for a man of down-to-earth character that he is.

In the end of 2011 Li returned home for his wedding. He had planned to continue working in the city afterwards. By that time Shan Shui workers had come to the village and often stayed at his home. This is how he met Feng Jie and was drawn to his idea of “developing eco-apiculture to protect the environment in Guanba.”

Seeing their efforts in the village to build an apicultur-



© Guanba villagers on patrol / photo by Kyle Obermann



© A giant panda caught in one of the camera traps in the Pingwu Guanba Watershed Community-based Protected Area.

al cooperative, Mr. Li thought that it was something he'd like to do with his life. So he took it over and set to work. He said in a self-deprecating tone that he's been a pain in the neck for the past few years. But he kept at it with a vision to help build an environmentally friendly industry. Fortunately, everything is on the right track. Tibetan Asiatic Bee Honey has gone as far and wide, and has even landed on the tables of a five-star hotel! Now Guanba Village already has 12 bee farms up and buzzing. One thousand or so Asiatic bee colonies generate an average annual income of 3,000 to 4,000 yuan and as much as 45,000 yuan for large beekeeping operations.

Apart from Tibetan Asiatic Bee Honey, walnut plantations are another promising industry that supports the local economy. Successes in livelihood transformation and the development of environmentally friendly industries have sharply cut the domestic animal populations from over 100 cattle and 500 sheep in 2009 down to 10 cattle and 100 sheep today.

Guanba's patrol team has caught 20 or so star species in camera traps, including the giant panda, takin, black bear, and the leopard cat. Not only did Guanba succeed in preserving their green mountains and blue waters, they also managed to sow and reap prosperity on both monetary and cultural terms.

Now the village stands in the limelight providing a reference point whereby to draft management procedures and operation guidelines for other community-based conservation areas throughout the province. It also makes a brilliant case for "taking targeted measures to help people lift themselves out of poverty," its experience shared, learned, and extended among government officials, corporations, research institutions, and private organizations from other provinces.

Once more than 50 conservation practitioners came here to participate in an exchange, including forestry officials from Guangxi, Yunnan, Anhui, Shaanxi, Gansu, and

Sichuan and the staff of two environmental NGOs, the Paradise and the Qiaonyu Foundation. The Guanba community-based protected area has also been covered extensively in the media, including the English version of *China Newsweek*, *Sichuan Daily*, *Man and the Biosphere*, and the State Forestry Administration's website. Widely recognized, this case of conservation has garnered attention and support from HSBC Bank (China) and other corporations. Such exposure can in turn drive local eco-tourism.

Guanba has been successful in reconciling environmentalism with economic development as a result of collaboration between governments, NGOs, and the public, showcasing China's efforts to build an ecological civilization. Once again it proves that there is no real trade-off between conservation and economic growth. Conserving the ecology is conserving and even raising productivity. Building a moderately prosperous society requires a sound, harmonious relationship between man and nature. It is only by building up green economy and achieving a consolidated growth of industries on all the three tiers that we can invigorate agricultural development, carry through the national rural vitalization strategy, and build a beautiful future.



This article was reprinted courtesy of *China Weekly* via its WeChat subscription account.

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Author: Xue Sheng

12/13/2017 on Shan Shui's WeChat

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## Baixiongping Land-Trust Conservation Station

The conserved area of Tangjiahe straddles the border between Sichuan and Gansu along the Minshan Mountain Ranges in northern Sichuan and abounds in wildlife resources. We founded the Baixiongping Conservation Station with the Tangjiahe National Nature Reserve. It is China's first attempt for joint management between an NGO and the national nature reserve administration.

Through this practice we are exploring an open and efficient mechanism for the management of nature reserves so as to raise their capacity for independent research and conservation. The benefits are twofold. On the one hand, all the resources available can be integrated to address conservation issues. On the other, proper training can be provided to refill talent pools in the field. Further, the Station also provides public access to conservation practices through science volunteering activities.

### Our actions:

#### 1. Regional patrol and species monitoring:

Worked with our *in situ* partners to ensure that all patrols and monitoring tasks were completed to a high standard as part of our full-time work at the conservation station.

#### 2. Conservation-based research:

Finalized the Tangjiahe National Nature Reserve Research and Monitoring Plan covering 24 priority areas of research and independently carried out multiple research projects that may be directly applied to conservation practices, including the pioneering studies of the significance and treatment of the ecology of naturally dead animal corpses, the local over-population of large herbivores and possible solutions, risk control and management of domestic dogs around nature reserves, the change of Asiatic black bear habitat selection over a thirty year period and updated conservation strategies, and security assessment and management for beekeeping in nature reserves; produced multiple research reports and academic papers and applied them to the routine work at the conservation station.

#### 3. Public nature education:

Engaged science volunteers in patrol, monitoring, and *in situ* monitoring projects to facilitate public access to the most genuine conservation practices in the most effective ways.



© Volunteers setting up a camera trap.

# Nature Watch and Citizen Science

## Nature Watch

In 2014 Shan Shui launched the Nature Watch program, whereby we partner with multiple organizations to take a good look at realities of endangered species, ecosystems, and protected areas in China, carry nationwide field surveys, establish a species database, and to chart ecological changes across the country based on these and other datasets. Further, a Nature Watch app was provided with the database as a means for nature lovers to access and share ecological data more easily. It aims to promote public awareness of conservation practices in the country as well as public participation in data collection and effective decision-making.

### Our actions:

#### 1. Species surveys

Carried out the Nature Watch species surveying project at the end of 2015, whereby a great number of endangered species have been closely studied, including animals, birds, and plants, in collaboration with PKU Center for Nature and Society, CFCA, China Birdwatching Association, Wilderness Xinjiang, and the Chinese Field Herbarium.

#### 2. The China Nature Watch website and mobile app

Updated in 2016 the Nature Watch website (<http://chinanaturewatch.org>) and mobile app (Nature Watch) that allow visitors to search the locations of species or protected areas. Predictive distribution charts are available as well, with a user-friendly, interactive biodiversity database, covering most of the protected species in mainland China as well as some endemic species and protected areas. The system is designed in a way that enables scientists, citizen scientists, and nature lovers to record, manage, and share their own field observations.

#### 3. Publicization

Extended the impact of the nature-loving citizen scientist network through various activities such as the Nature Lovers Training and the Nature Watch Festival.



Scan this QR code to download the Nature Watch app to your phone.

# Does It Really Work?

As nature lovers venture further with Nature Watch, they are often asked: Is the environment getting better or worse? Are we doing the right thing? Where can I find all this info?

A look at how the natural ecology has changed over the years will give you answers to these questions.

## Not a turn for the better

How many species are endangered in China? There is no exact figure, but we are certain that it has exceeded one tenth of the existing species. China Nature Watch 2016 evaluated the conservation of 1,085 species between 2000 and 2015, including the entirety of the National Key Protected Wild Animals/Plants Lists and all of China's threatened species on the IUCN Red List.

We engaged a large group of volunteers in examining 14,788 pieces of literature and found that the overall situation for these 1,085 endangered species has actually gotten worse because so few of them have improved.

As is widely known, the giant panda (*Ailuropoda melanoleuca*) is the flagship species to which the most effort has been afforded. As a result, it is no longer labeled as EN. It's VU instead. The umbrella effect has ensured better protection of the lesser panda (*Ailurus fulgens*), the golden snub-nosed monkey (*Rhinopithecus roxellana*), takin (*Budorcas taxicolor*) and a few other species that are distributed in the same areas. But apart from the giant panda and its neighbors, as well as the Tibetan antelope (*Pantholops hodgsonii*) living on the Qinghai-Tibet Plateau, it's difficult to find another successful case of conservation. While it is true that 102 of the species seem to show some improvement, most of these were more populous, less-threatened species to begin with, such as the dove tree (*Davidia involucrata*), the cycad (*Cycas revoluta*), and the Tibetan wild ass (*Equus kiang*).

The least protected species are unfortunate in their own ways. The wild horse (*Equus caballus*), Chinese paddlefish (*Psephurus gladius*), and the baiji (*Lipotes vexillifer*) are considered extinct in the wild and are only present in the outdated list of protected animals. For some species, such as *Cycas szechuanensis* and *Pinus squamata*, less than 100 individuals exist in the wild, and very little effective conservation is to be seen, either. The yellow-breasted bunting (*Emberiza aureola*) is the most unfortunate of all, having been hunted and eaten by humans; its status has slipped from LC to EN in a couple of decades.

The major threats to endangered species are habitat change and loss. From Global Forest Watch data and field verifications we found that of 1,780,000 km<sup>2</sup> forest in 2000, 66,000 km<sup>2</sup> had been reduced to "non-forest" by 2014 (maybe to pastures, farms, and houses), indicating a 3-4% drop in China's forest area. The greatest changes occurred in southern China, including Guangxi, Guangdong, Fujian, Jiangxi, and Yunnan.

The fact that China launched the Natural Forest Protection Project and the Reforestation Projects around 2000 is notable, but according to our research, it would appear that, despite being widely-publicized and extended nationwide, these projects have had very limited effect given that the overall forest area hasn't increased.



## Many loopholes found in the system

The system of national nature reserves undoubtedly delivers the most powerful conservatory force, but it has yet to be optimized to function as expected.

The laggard legislation or slowness in updating the lists of protected species is needless to explain any further. The majority of protected areas in China are nature reserves, but they offer only limited coverage of areas known to be endangered species habitats.

China has set aside marine protected areas as well. Specifically, 33 of these areas are at the national level; 66 are Marine Special Reserves; more than 200 are at the provincial and municipal levels. Altogether they account for 4.6% of the total marine area. Ownership problems undermine whatever protection these marine reserves are supposed to be given, rendering them vulnerable to adjacent developments and tourist impacts. To complicate

the matter, marine animals follow borderless migratory paths and therefore need a borderless network of conservation. Zoning may be adverse to conservation.

The natural distribution of endangered species is not even. Particularly dense areas are called "hotspots." Only 3.15% of these hotspots are covered by nature reserves. The rate around the Bohai Sea and the Yellow Sea hovers around 1%. In these densely human-inhabited areas, what little is left of natural habitat is fragmented and is almost used up to accommodate endangered species (mostly are migratory birds). They deserve priority conservation even when land prices and other economic parameters are taken into account.

In our analytical work we also found it very inefficient to collect distribution data from research papers and public databases. For instance, when we simulated the distribution of endangered bird species, only 300 of 13,000 distribution points used for the simulation were extracted from the literature. Specimen databases from research institutions and universities must be thought of as the most informative since they mark decades of monumental efforts nationwide. But the fact is that these data are outdated and difficult to extract in batches. It's not easy to use them.

Another head-spinning discovery points to the great limitation in the application of research to conservation practices. Of the 1,085 species, only 556 species were studied, leaving the rest totally untouched in the academic world. Even the species that have been studied have not been studied equally. Of the 14,788 papers retrieved, 1,058 are all about the star species the giant



© The yellow-breasted bunting, commonly known as grass flower bird / photo by Chen Qingqian

panda (*Ailuropoda melanoleuca*). Most of the other species thoroughly studied have economic value. The second most studied species, for example, is the Chinese softshell turtle (*Pelodiscus sinensis*), and all the research papers about it refer to artificial breeding.

## The rising of private forces

In contrast to the distressful public data, the data collected by the private sector brought a lot of pleasant surprises. Most of the China Nature Watch 2016 data were of distribution points recorded by nature-loving citizens and collected with the help of our partners. The rigorous development of bird watching networks over the past decade has provided us with the best base data and analyses the avifauna category has ever had. Almost all 13,000 distribution points were identified by the nature-loving public.

The China Bird Watching Association is our earliest partner in this regard. Apart from the above-mentioned identifications, they also found a new breeding site of the critically endangered bird species Baer's pochard (*Aythya baeri*).

The Chinese Felid Conservation Alliance (CFCA) filled up the gaps in distribution data for the Felidae family, particularly of the leopard (*Panthera pardus*). Wilderness Xinjiang informed us of snow leopard populations around Urumqi and the Tianshan Mountains and even led us to a sighting of the Asiatic wildcat (*Felis lybica ornata*) through infrared camera lenses, marking China's first record of a living individual in recent years.

A powerful supplement to government conserved areas is the category of protected areas established and

managed by public efforts, including community-based protected areas, land-trust protected areas, and private protected areas. The first community-based protected area was founded in Wuyuan County, Jiangxi, in 1992, and now the number of such areas has exceeded 50,000 all over China.

Community-based conservation areas may be closely connected with local bloodlines, tribes, and other community units. Reverence for “holy mountains and sacred lakes” is common practice among ethnic groups in southwest China. Examples include mountain gods for Tibetans, “sacred forest” for the Dai people, and the “dragon forest” for the Hani people. To varying degrees, all these traditional customs curb human access, production, pollution, hunting, and picking herbs.

We also provide support in Sichuan, Gansu, Qinghai, and Yunnan. One such example is the community-based protected area of Guanba Village, Pingwu County, Sichuan, where conservation efforts have resulted in not only the restoration of the panda habitat and the fresh water ecosystem, but also in the economic development of the

community.

#### Public participation and information disclosure

Jointly with the China Birdwatching Association, CFCA, Wilderness Xinjiang, Chinese Field Herbarium, and Peking University Center for Nature and Society, we released a China Nature Watch information sharing medium (web: chinanaturewatch.org; mobile app: Nature Watch) to promote public awareness of and access to biodiversity information, to facilitate data analysis and interpretation, and to unearth non-governmental potential and power for conservation.

We call for further disclosure by government agencies, research institutions, and NGOs involved to inform conservation practices in an authentic, meaningful manner.



5/22/2017 on Shan Shui's WeChat

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## Ecological Restoration in Cities

At the end of 2016, we launched the Urban Wetland Ecosystem Restoration Project in Beijing, aiming to rebuild aquatic communities and raise ground water self-purification capacity so as to provide habitat for wetland-inhabiting wildlife, preserve urban biodiversity, and to get urban residents closer to aquatic life.

The Little Donkey Urban Farm is one of the project-targeted sites, where in the spring of 2017 we and more than a hundred volunteers set out to dig mud, sow seedlings, scoop water grass, release native species, monitor the environment, etc. Finally, we turned what once was left to be dead, building waste filled lowland into a fresh little pond that embraced two kinds of frogs, five kinds of water birds, one kind of snake, and twenty kinds of dragonflies.



© Let's help restore this urban wetland! / photo by Huang Yue

## Citizen Science: Monitoring Butterflies

The public is known as a major driving force for ecological conservation. Using a participatory approach, the Butterfly Monitoring Project is based on citizen science and mobilizes public power to conduct long-term and systematic monitoring of butterflies, an indicator species for both ecology and climate change. In this way we aim for the general public to better understand conservation efforts in the country, to contribute to ecological data collection, and to help write effective conservation policies.

Under the citizen science framework, this project is designed to gather butterfly baseline data and dynamics information, conserve the terrestrial ecosystem where butterflies inhabit, and inspire more people to observe and protect nature.



© Volunteers in Beijing's butterfly monitoring activity

#### Our actions:

1. Recruiting and training science volunteers

Recruited 100 volunteers through public media and appointed 15 as monitoring team leaders. Carried out indoor training in the background, technology, and the organization of monitoring, along with demonstrations based on field work.

2. Monitoring by line transects

Established three line transects in the areas of the Taihang Mountains and the Yanshan Mountains and conducted more than ten field monitoring sessions.

## Science Volunteers

Since it was founded in 2007, Shan Shui has made countless field trips with its friends. Many city dwellers thus have reconnected themselves to nature and rediscovered its value; some have joined the Nature Guardians team. We strongly believe that connecting cities with nature is our mission.

Thus we launched the “Science Volunteers” project, whereby we hope to make real and valid contributions to nature reserves, communities, and research teams through groundwork out in the field. We are committed to engaging more citizens and protecting nature together.

#### Our actions:

1. Field conservation and research in protected areas

Provided short-term opportunities for corporate workers, middle and high school students, and the general public to volunteer in areas of scientific research, ecological conservation, and community development.

2. Assistance in building nature education bases for local protected areas and communities

Provided training for nature education in protected areas and communities through field practice and capacity building to achieve sustainability.

3. Providing references for actual work and planning with respect to nature education in protected areas

Gathered valuable experience to make a case and reference point for further implementation and planning of nature education in protected areas.

4. Publicization and up-scaling

Called for greater public attention to and action for conservation through interactive activities, such as seminars, volunteers' sharing meet-ups and public speeches.



© Volunteers in a bird survey / photo by Gao Xiangyu

# Forest Conservation and Restoration in Yunnan

## The Yunlong Heavenly Lake Forest Restoration

Forests are important ecosystems on earth. They harbor a wealth of biodiversity, adjust climate, retain and purify water resources, and provide eco-products, among other benefits. As both ecological crises and environmental awareness rise, public participation may not only lower cost but also institutionally act as a watchdog on ecological degradation and conservation outcomes. There is an increasing human need to tap into the forest ecosystem, whereas on the other hand there is a lack of proper facilities for ecological experience as well as a failure to effectively transform ecological resources into quality eco-products and public services.

It is in this context that we rolled out a project in 2016 for forest restoration in the Yunlong Tianchi National Nature Reserve of Yunnan and surrounding communities, where we work to conduct species monitoring and scientific research, restore the integrity of the forest ecosystem, develop community livelihoods, and to benefit both wildlife and the human community.

### Our actions:

#### 1. Forest restoration

Seedlings cultivation, vegetation baseline surveys, restoration planning for burnt areas, reforestation, and stewardship.

#### 2. Research and monitoring

Long-term monitoring of major environmental factors and processes of the Yunnan pine forest ecosystem after fires; recorded the dynamics of Yunnan pine regeneration; assessed the effectiveness of the intervention. Conducted a general evaluation of the pros and cons of forest ecosystem services in different forest restoration experiments, based on identified differences, comparing various environmental factors and biodiversity indicators.

#### 3. Sustainable stewardship using a participatory approach

Engaging the community in forest restoration, developing eco-products, and promoting the sustainable management and use of forest resources.

#### 4. Nature experience (NE) and education

Raising more public awareness about the value of forests by connecting science volunteers and offering nature experience classes.



© Locals engaged in forest restoration



# What It Takes to Restore a Forest

Hi there! In early July I made a (fun, not boring at all) study tour up and down the Lancang River before stepping off in Yunlong of Dali to meet the lovely souls in that county. Towards the end of this rainy season I hit the road again, this time back to Yunlong where my friends and I would plunge right into the whirlwind of a forest-saving mission deep in the woods!

The exact spot where we worked is called Dalongba, one of Yunlong's many forest-embedded communities. It is only one mountain ridge away from the nature reserve. Climb over that ridge and you'll set foot on the land of black snub-nosed monkeys. Indeed, this is the southernmost point of their distribution, and it provides good shelter for the troops because of the natural bounty we discovered here.

Go over the burns and you'll find two little ponds in the north. The locals say they are the eyes of a dragon, and they're perfectly aligned with the Bijiang River being its head and tail to complete a wondrous picture of *tai chi*. Legend has it that whenever a human approaches, it will rain. So it did. As soon as

we drew close to the ponds, it started to drizzle.

The forest area we were to recover had a massive fire in 2014. Despite persistent firefighting efforts, more than 280 hectares of trees were burnt. This year (2017) we planned to restore the most burnt plot of 26.7 hectares (266,666.67 m<sup>2</sup>). Some plants, shrubs, and Yunnan pines (*Pinus yunnanensis*) had regrown after nearly three years of natural regeneration, so the rule of thumb was to take local circumstances into account and mix the broad-leaved and needle-leaved trees while following the natural regeneration processes of the local species. We decided to interplant Nepalese alder (*Alnus nepalensis*) and sawtooth oak (*Quercus acutissima* Carruth.) with naturally regenerating local species and replant Yunnan pines at a higher altitude. Additionally, we planted a certain number of Chinese white pines (*Pinus armandii*) to meet the local need for pine nuts.

To transport 55,000 seedlings up the mountain was quite a challenge. Trucks loaded with these seedlings could reach as far as the foot of the mountain. For the second part of the journey, we needed mini-vans to carry them further up to the slopes. Then we were reduced to manpower and mule-power until we reached the final destination. To compound the misery, it was raining and muddy; our mini-vans got stuck for a while. What a task we took upon ourselves!

As a matter of fact, before we arrived, the ground had already been leveled and ditches dug for the planting. Those industrious villagers pitched worksheds half way up the mountain to make their work more efficient. A total of 70 people worked for 15 days. This time we also invited professionals from the Yunnan Academy of Forestry to guide the planting. It all turned out to be a great success. Of course, it's just the beginning. We will make sure that the seedlings stay alive and well through follow-up work with the nature reserve's administration and local villagers.

It's only been three years since the Yunlong Tianchi Nature Reserve was upgraded to the national level, but it was rated as "outstanding" in the national nature reserves management capacity assessment — the only one of the three nature reserves examined in Yunnan that was so recognized in 2015. We ran into a *Yunnan Daily* journalist group who



© Villagers working in the mountain

came up here for an interview. Together we trekked into the Longma Mountain looking for whatever trace a monkey troop might have left. But luck seemed to turn its back on us; the best we could do was heave a sigh into a void of greenery.

A key service the forest ecosystem provides is water conservation. This is achieved by retaining precipitation and directing runoff through the layers of canopy, litter, and soil. This function can help relieve both drought and flooding.

The layers above the ground slow down water infiltration and reduce surface runoff by trapping rain. The litter layer, in particular, can hold water two or four times more than its weight. The cumulation and composition of this layer also provide organic matter, improve the soil structure, and raise infiltration capacity. The layer of soil can retain 90% of the water conserved in the entire forest ecosystem and slowly release it as runoff. It is the key response to drought.

There is a lot more to forest restoration than planting trees. It means reestablishing the integrity of the forest ecosystem and, eventually on a broad scope of participation (government, research institutions, NGOs, the general public), raising the quality of life for human beings.

From "lucid waters and lush mountains" to "mountains of gold and silver" is but a long and difficult journey. The first requires sound and steady

ecosystems and the latter, a composite system in which humans can tap nature in a sustainable manner.

What we did in Yunlong was a demo, by which we hope that the restored forest will add more to the ecosystem as well as to the lives of local villagers.

Further, our work in this burnt area is of great significance for the studies of close-to-nature regeneration of Yunnan pines, providing invaluable opportunities for scientists to test their brilliant new ideas.

This is why we will carry out a series of biodiversity monitoring and comparative studies to assess the effectiveness of the restoration and provide scientific references for future forest restoration projects. Of course, we also hope to work with more science volunteers. If you're interested, please continue to tune in to our TOYOTA Yunlong Heavenly Lake Forest Restoration Project.

Dear brother and sister, if you crave for a distinctively meaningful and romantic experience with nature, Yunlong of Dali is a fabulous place to go!



Author: Zhao Jiading of Shan Shui;

pictures courtesy of the same

9/19/2017 on Shan Shui's WeChat

Scan the QR Code to read the original post



© Before and after the fire

# The Lancang River Alliance

The Lancang River Conservation Fund is a small-grant program Shan Shui launched in 2014 for ecological conservation in the Lancang watershed areas. Specifically, this program aims to demonstrate the eco-value of the Lancang River, promote sustainable conservation and development, and to address local threats by offering financial support to communities, education or research institutes, nongovernmental organizations/groups, and companies interested in preserving ecological and cultural diversity in said areas. Candidates include well-designed projects that clearly define threats and propose sound implementation. The growth of *in situ* conservation groups and teams will thus be encouraged and a conservation network formed within these areas.

## Our actions:

The first term, 2014-2015, supported a total of 46 projects in Qinghai and Yunnan, 19 of which have been successfully completed, involving the conservation of endangered species, such as the snow leopard, black snub-nosed monkey, *Nyssa sinensis Oliv.*, and *Paphioedilum spicerianum (Rchb.f.) pfitzer*. These projects have also drawn the participation of local ethnic minority communities, such as the Tibetan, Hani, and the Lagu, to support their sustainable development.

Seventeen projects were selected for the term 2015-2016, involving the conservation of the black crested gibbon, cyprinid, wetlands, and other species and ecosystems.

As of 2017, a total of 63 projects from 31 NGOs/companies and 8 academic institutions have been offered grants totaling 3,920,000 yuan. Nineteen communities and five nature reserves have been directly involved. This funding program will continue to work with conservationists in ways that help enhance the impacts of supported project outcomes and transform experience into replicable and expandable know-how.



© Jerdon's tree frog / photo by Wang Kai

# About Us Board Members

Name	Profile
Mr. Zheng Yisheng Acting Chair	Researcher at the Institute of Quantitative & Technical Economics, Chinese Academy of Social Sciences; deputy director of the Environmental Centre. His interests of study include sustainable development.
Ms. Lu Zhi Executive Director	Peking University professor of conservation biology, executive director of Peking University Center for Nature and Society, vice-president of China Women Scientists Association, founder of Shan Shui Conservation Center.
Mr. Xu Jintao Director	Professor and vice dean of Peking University National School of Development; Director of China Center for Energy and Development; Executive Director and Deputy Chair of China Forestry Economics Society (CFES). His interests of study include pollution control policies for industrial companies, forest economics, urban traffic control policies, and the surveying and research of rural household behavior.
Ms. Sun Shan Director	Ms. Sun is one of Shan Shui's founders. She also founded the Green Life Society, the first environmental group at her alma mater Peking University. She received her Master's degree in Environmental Studies and Public Policy from George Mason University in 1999 and spent five years studying bio-medicine and wildlife genetics. In 2002, she launched the CI China Program with Lu Zhi and has since been working to administer 6.5 million US dollars of the Critical Ecosystem Partner Fund in the Mountains of Southwest China. In 2010 she helped create LEAD & Beyond, a fellowship program designed to promote leadership for sustainable development, and served as its executive director.
Ms. Lu Yinghua Director	Stockholder and initiator of Shan Shui Partnership Co.; having sponsored and called for multiple fundraising dinners and activities over the long years of her support to Shan Shui.
Mr. Cong Zhigang Director	Partner of Dingtian Zhuoyue Investment Center; management advisor of Ai You Foundation; member of Ai You Venture Philanthropy Committee; EMBA graduate from China Europe International Business School (CEIBS). Mr. Cong started his career in 1992 and accumulated a wealth of experience in business marketing, project management, and human resource management, in either directorship or senior management positions. In 2011, he moved to the investment sector specializing in target company valuation and post-investment management. He has long been active in providing consultation and guidance for the public service sector, apart from his responsibilities as a lecture for various training requirements, including the Required Course for Secretaries-General.
Ms. Marjorie Yang Honorary Chair	A CPPCC member since 2003, Ms. Yang chairs Esquel Group, a leading Hong Kong-based textile and apparel manufacturer with operations throughout the world, while serving as Deputy Chairman of the Seoul International Business Advisory Council (SIBAC) and Honorary Chair of Shan Shui Conservation Center. Ms. Yang has found her passion to promote higher education and high/new technology and to share her experience with many renowned universities in the United States, mainland China, and Hong Kong SAR, where she chairs the board of directors in the Hong Kong University of Science and Technology. She is an advisory board member in various educational institutions, including MIT's CSAIL and Sloan School of Management, Harvard University, and Tsinghua University School of Economics and Management. In addition to her official responsibilities and public service contributions, Ms. Yang also serves the boards of the HSBC and Swire Pacific as an independent non-executive director. Earlier in her life she obtained her Bachelor's degree from MIT and then an MBA from Harvard Business School.

Name	Profile
Mr. Xu Zhihong Senior Advisor	Professor of Peking University School of Life Sciences; researcher at the Shanghai Institute of Plant Physiology and Ecology, CAS; CAS and TWAS member; plant physiologist; former president of Peking University (Nov. 1999–2008). Currently Mr. Xu chairs the UNESCO's China MAB National Committee and leads the Enforcement of Scientific Ethic Committee for the CAS Academic Division. A great contributor to plant sciences and nature reserves in China, Mr. Xu has a long pursuit of study in plant developmental biology, plant cell culture and genetic manipulation, and botanical bioengineering.
Ms. Chen Haiying Chief Supervisor	Ms. Chen obtained her BA in Economics from the Shanghai University of International Business and Economics before she went on to work in the Personnel Department and the International Business Management Department of the Ministry of International Business and Economic Cooperation (now the Ministry of Commerce). She also served as vice-consul for business at the Chinese consulate-general in Vancouver, Canada, and then as deputy director for public affairs in Bombardier Inc. Beijing Office. She moved to Esquel Group Hong Kong in 2003 and currently works as the Chief Representative of its Beijing Office.
Ms. Zhang Lin Supervisor	Chief Investment Officer (CIO) of Dingtian Zhuoyue Investment Center; CIO of Ai You VC, a venture capital investment program of the Ai You Foundation; A Master of Finance from the Central University of Finance and Economics, Ms. Zhang has a wealth of experience in equity investment as well as a deep understanding of realities and needs concerning growth-oriented Chinese enterprises. Her contributions span across various sectors and industries, including pharmaceuticals, equipment, consumption, education, and agriculture.

## Financial Overview

Our finances of 2017 is outlined as follows.

I. Annual revenue: RMB 12,283,000;

II. Annual expenditure: RMB 12,543,700;

III. The balance sheet 2017:

Currency: RMB

Item	For year 2017	
	Amount	Percentage
i. Revenue		
Grants	10,309,600	84%
Government purchased services	1,973,400	16%
Grand Total	12,283,000	100%
ii. Expenditure		
Activity cost	12,401,500	99%
Management cost	142,200	1%
Grand Total	12,543,700	100%

IV. Revenue composition 2017:

Currency: RMB

Category	Amount	Percentage
Domestic corporate/organizational grants for project spending	8,232,300	67%
Foreign grants corporate/organizational grants for project spending	1,335,300	11%
Government purchased services	1,973,400	16%
Domestic personal grants	742,000	6%
Grand Total	12,283,000	100%

## Staff & awards

As of December 2017, Shan Shui had 23 employees, among whom 11 hold Master's or doctoral degrees, and 21 long-standing, non-resident consultants, among whom 1 specializes in organizational management, 3 are fellows, 9 are research advisors, and 8 are general advisors.

As of December 2017, we provided 20 staff training sessions, 8 of which are internal and 12 external, all completely inclusive to cultivate a creative and open mindset. Topics included work skills, team communication skills, and general knowledge about ecology and anthropology.

It is the fifth year since Shan Shui was accredited as a Chinese Five-A Social Organization (valid from 2013 to 2018) and the fifth year since "tax exemption as an NGO in Haidian District" (2013—2017).

We were also recognized as an "Outstanding Group in the Non-governmental Organization System of Beijing" and won the Ford Annual Pioneering Award for Environmental NGOs 2017.



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Our work discussed herein was accomplished with support from these partners (by alphabetic order)

Agence Française de Développement (L' AFD) en Chine  
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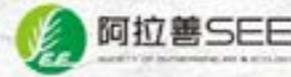
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Peking University Center for Nature and Society  
Peking University Yao Meng Lab  
Qinghai Chengduo County government  
Qinghai Datong County Forestry Administration  
Qinghai Department of Environmental Protection  
Qinghai Forestry Inventory and Planning Institute  
Qinghai government, Legal Affairs Office  
Qinghai Nanqen County government  
Qinghai Normal University  
Qinghai Nyanpo Yutse Environmental Protection Association

Qinghai Provincial Forestry Administration  
Qinghai Provincial Party School  
Qinghai Sanjiangyuan National Park Administration  
Qinghai Snowland Great Rivers Environmental Protection Association  
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Qinghai Yushu Prefecture CPC Committee and government  
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Shanghai Fosun Foundation  
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Sichuan Aba County Marong Tongge Eco-Tourism Cooperative  
Sichuan Academy of Social Sciences  
Sichuan Apiculture Management Station  
Sichuan Baicaopo Provincial Nature Reserve  
Sichuan Baishuihe National Nature Reserve Administration  
Sichuan Dadu River Forestation Bureau  
Sichuan Forestry Inventory and Planning Institute  
Sichuan Forestry Research Institute  
Sichuan Gagong Mountains National Nature Reserve Administration  
Sichuan Gexigou National Nature Reserve Administration

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 Sichuan Guanba Village Apiculture Cooperative  
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 Xu Jintao (Mr.)  
 Ya' an Rural Photography Association  
 Ya' an World Heritage Management Office  
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 Yunnan Gaoligong Mountains Nature Reserve Administration  
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 Yunnan Kawagarbo Cultural Society  
 Yunnan Provincial Forestry Administration  
 Yunnan University  
 Yunnan University Research Center of Border Regions and Minority Nationalities in Southwest China  
 Yunnan Wetlands Office  
 Yunnan Yunlong Tianchi Nature Reserve Administration

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Shan Shui Conservation Center was founded in 2007 by Professor Lu Zhi, a researcher and practitioner in species and ecosystem conservation. We work on a wide range of environmental concerns, from snow leopards, giant pandas, and snub-nosed monkeys far in the mountains of West China to the great outdoors nearby. We employ community-based practice and citizen science to demonstrate paradigms and mechanisms, refine know-how and experience, and to promote ecological equity.

We envision ecological equity and are committed to achieving harmony between man and nature, unity of traditional and modern cultures, and integrity in bottom-up and top-down decisions.

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We are grateful to have friends from all walks of life supporting us along the way.  
We hope that more will join us in our effort to protect Mother Nature.