

China

Promoting Agro-Forestry in the Mountains of Southwest China News from the Field (July 2020–June 2021)

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Conservation International

Building a sustainable land use management mechanism in the mountainous region

Activities in Ganpu Village

From July 2020 to June 2021, the Cooperative at Ganpu project site sold 370 Tibetan pigs for 950,000 yuan and about 1,000 chickens for 150,000 yuan. The year 2021 is a bumper year of fruit trees, with 100 kg of cherries, 750kg of apples and 1,000 kg of plums sold for about 58,000 yuan. In spring, the villagers planted 500 kg of fruit tree seeds in the mountains.



Apples

Small and micro-wetland investigation

The investigation in rural areas of the upper, middle and lower reaches of the Min River Basin proposed the protection, restoration and utilization strategies for different types of small and micro wetlands. The investigation mainly involved an onsite study to examine the names, distribution, current status and ecosystem functions of various types of wetlands to develop proposals for conservation. For example, for upper areas with abundant water resources, water supply and water environment security should be given priority, while those special and unique structured small and micro wetland types, such as wetlands at stream source areas and of Danxia landform¹ region of lower reaches should have more research and studies on its formation. In areas where water resources are relatively scarce, wetland protection and wetland

¹ Various landscapes found in southeast, southwest and northwest China that “consist of a red bed characterized by steep cliffs”. (Wikipedia: https://en.wikipedia.org/wiki/Danxia_landform)

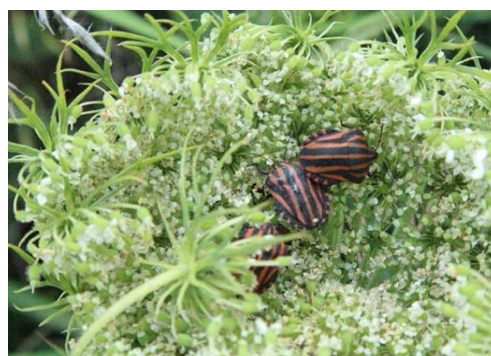
network restoration should be adopted to meet the daily production and living water demand of residents.

In addition, a healthy small and micro wetland network is critical to maintain the connectivity of water system, biological diversity, reduce rural non-point source pollution, and increase rural adaptability to climate change. In mountainous regions, fertilizer used for agriculture and village water are released. Wetlands maintain a cleansing function, so wetlands in the river basin play an important role in improving water quality in the lower reaches of the basin.

Based on the findings of the investigation, we held a discussion with Sichuan Min River Basin Environmental Planning Institute on how to conserve and restore the small and micro wetland in the middle and lower reaches of the Min River to tackle the rural non-point pollution issue and enhance the climate adaptability of rural areas. The results of the investigation are being used to prepare activity proposals toward resolving these issues.

Monitoring

In June 2021, we invited technical partners to conduct monitoring activities at the Ganpu project site. Compared with the monitoring results in 2015 and 2017, it was found that the number of bird and insect species in all transects and sample points increased in both agroforestry lands and surrounding common collective forest lands, suggesting that the agroforestry model and the effective protection of collective forest made an obvious contribution to the improvement of biodiversity. Biodiversity data in agroforestry lands is slightly higher than that of other lands. Experts analyze it may be because of the agroforestry lands are artificial eco-systems made up of different kinds of fruit trees, vegetables, weeds and other vegetation, and plants are changing during the year, providing more diverse food and habitat for insects and birds. This is also proof that, when managing fruit trees and vegetables, the Cooperatives use small amounts of fertilizers, and never or rarely use pesticides, following the agroforestry technical guidance in the use of pesticides and fertilizers.



Insect monitoring (left), *graphosoma rubrolineata* in insect monitoring (right)



Bird monitoring (left), chloris sinica in bird monitoring (right)

Compared with 2015 and 2017, soil carbon stock in agroforestry lands showed a downward trend. Experts and CI analyze that, from 2015 to 2017, in order to improve soil fertility, a large amount of organic fertilizer (e.g., sheep droppings) was added into the soil, legumes were planted for nitrogen fixation, and the legumes were ploughed directly into the soil. All those directly increased carbon stocks. However, from 2017 to now, legumes have not been planted, weeds pulled out of the land were not returned to the soil, vegetables and fruit trees need more soil nutrition year by year. And because of the high costs, the Cooperative did not add sufficient organic fertilizer in the soil in a timely manner, resulting in the decline of soil carbon stock. Therefore, we plan to invite agricultural experts to give specific technical suggestions and guidance to the Cooperative leaders to increase soil carbon stocks.



Collect soil sample

Project review and summary

The year 2021 is the 7th year of the project. CI invited an organization to evaluate the effectiveness and impact of the project in terms of project strategy, technical support, community participation and conservation. The main discoveries and results are as follows:

- 1) The biodiversity at the local microhabitat scale has obviously increased;
- 2) The project has achieved multiple positive outcomes in ecological, social and economic aspects, and has been recognized by both local community and government authorities; and

- 3) The agroforestry project has adeptly combined local collective forest conservation and alternative livelihoods, and utilized the strengths of various stakeholders (companies, governments, NGOs, and experts) to promote development and conservation.



Evaluation interview with workers



Agriculture evaluation expert gave suggestions to the Cooperative Manager at project site

Correspondingly, based on the evaluation results, proposals for the future are as follows:

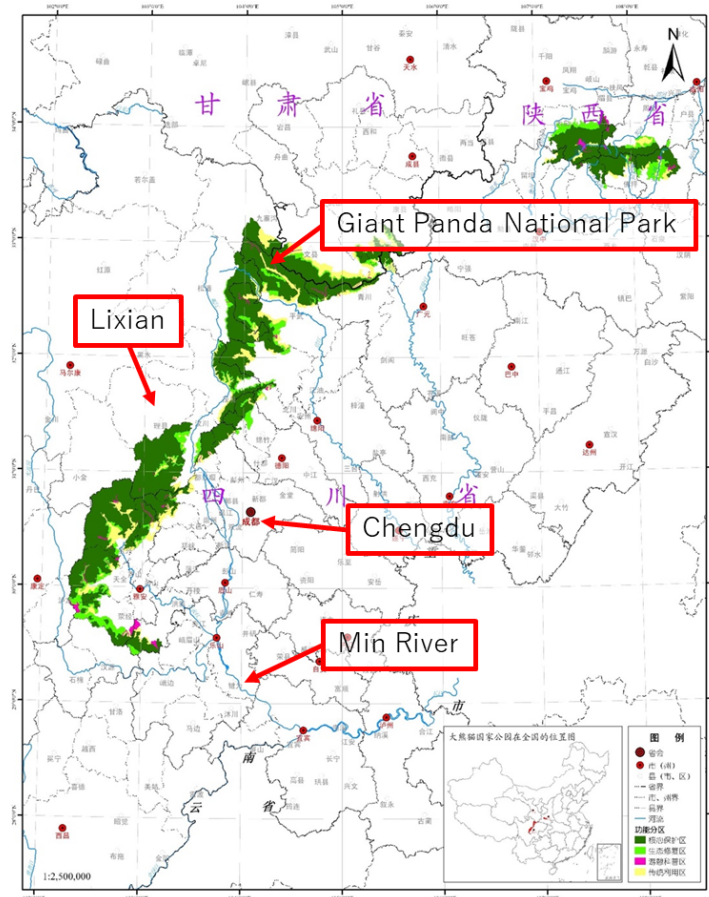
- 1) To reduce the use of plastic root covers (mulch) currently being used, incorporate new ecological technologies such as root covers (mulch) made from vegetation;
- 2) Based on monitoring of soil carbon stocks, provide technical guidance to increase soil carbon stocks; and
- 3) Part of the annual revenue from the contract with the Cooperative could be spent on encouraging innovative ecological technology practices and learning exchanges, so as to extend and expand the function and effectiveness of the agroforestry system ,etc.

The Ganpu model of integrating agroforestry and collective forest management can be used as a meaningful reference for collective forest management and community development in Giant Panda National Park (GPNP). In a recent survey on GPNP, CI found collective forest

management and community development are very difficult and urgent problems faced by GPNP which requires innovative models to tackle.

Work plan for FY2022

- Monitoring at the Ganpu project site.
- To promote Ganpu project model in a broader area, exchange information with main partners and agroforestry cases.
- Follow up the ideas of small and micro wetland conservation project in Min River and Panda forests conservation in GPNP.



Map of relevant areas

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