WWF New Generation Plantations (NGP) study tour to Gansu

Simon Place, Tubex

In May 2017 I was lucky enough to have the opportunity, with assistance from Confor, to join the New Generation Plantations (NGP) study tour to the Gansu province in Northwest China at the eastern end of the Old Silk Road. NGP is a platform set up by World Wildlife Fund (WWF) in 2007 to learn and share information and experiences relating to plantation management for the betterment of local communities, social development and economic well-being. The reason for me being there was to be part of the NGP project, having followed previous ones on twitter and pure personal interest as the opportunity to visit this part of the world with a other like-minded tree folk was too great to miss.

The basis of this tour, co-hosted by China Green Carbon Foundation (CGCF), FuturaGene and WWF-China, was to bring together people from different backgrounds to look at the increasing desertification and water stress in the Silk Road / Green Belt region of northern Gansu and see the ideas and concepts currently employed to combat the rising problems. The people of the area have become very adept at working this harsh, sandy landscape and through the use of an extraordinary native shrub called Yellow Thorn (Xanthus sorbifolium) they seemingly have a commercial lifeline. This remarkable plant can tolerate severe water stress and thrive within very nutrient-deficient soils. It is also able to withstand high and low temperature fluctuations. This in itself is a tremendous feat but the tree also produces oil seed used in food, cosmetics and biofuels as well as stabilising the soils with their deep anchoring rooting. The other very important shrub is the Oil Peony and both their leaves and flowers can also be used in traditional and modern medicine.

As a result, the State Forest proposes the planting of 1.6 billion trees across the semi-desert belt, which equates to 940,000Ha, a number we can only dream of in England. Linked to the One Belt, One Road initiative (OBOR), which aims to see 900 Billion dollars invested to link trade to and from China with Europe the question is can this be done with consideration for integrating landscape, conservation and productive woodland / fruit tree areas for the betterment of the localities and prevent an estimated 400 million people gradually moving away to the big cities.

Yellow Thorn Farm

The group gathered for the beginning of the tour in New Lanzhou, which is north of Lanzhou and consists of new factories, tower blocks and recreational areas in anticipation of future prosperity, but is largely empty at present. Nothing can really prepare you for how different life is in this part of the world with the food,

customs, behaviour and climate unlike anything you can relate to easily coming from the UK. Following introductions and presentations from our hosts together with local and national forestry officials, our first organised visit was to the Jing Mao Agricultural Ltd Co on the edge of the desert. Here they have specialised in growing the Yellow Thorn tree commercially in very harsh and unforgiving conditions. This area of the province has limited opportunities for income but sheep, goats and sometimes potatoes and onions can be farmed in the thin soils but the animals make the conditions much worse as they munch on the limited vegetation that holds together the sand dunes around the slightly more fertile valleys. Irrigation is a massive factor but the Yellow River is up to 65 Km away and expensive piping over and underground needs to be constructed. State funding support for this is on the wane as too much irrigation in the north has an effect on the more prosperous farm land water supply further south. Wind turbines were once used to generate power for water pumps and electricity but now often stand unused as there is no connection to the electricity grid to feed back the energy.

One of the issues for the farmers is the definition of land use. All land is state owned and farm land is classified centrally but fruit trees, in particular the Yellow Thorn, are classed as 'forestry' even though they are producing an agricultural-type crop with no timber and therefore permission to change the land designation requires lengthy and no doubt expensive procedures, making it difficult for farmers to change to the more productive crop. One of the interesting aspects of this type of farming was the use of Poplar spp to act as a wind break to reduce sand movements. Many serious sand storms originate in Gansu and the increasing desertification makes control of the shifting sands a priority. Poplar were often seen lining the irrigation gutters and their drought tolerant capabilities were put to good use, although I felt they need many more to be effective.

FuturaGene

The group were later given a tour of the FuturaGene Yellowhorn seeding production centre nearby. FuturaGene is a subsidiary of Brazilian Suzano Pulp and Paper mainly dealing with Eucalyptus yield improvement. We saw the operations and techniques used by the research unit and how they see Yellow Thorn as the saviour of the area but with modifications to the normal practice, including drip irrigation rather than flood irrigation, pruning, season specific fertilising and containerised planting raise yield from 122/2500 to 2400/3050 kg /ha. Currently 25k Ha of Yellow Thorn have been planted with a further 300k in Gansu and 900k in China by 2020.

Mountain Forestry

Moving to the south of Gansu during the tour we entered a different world. The Dangchuan-Mumatan Plantation near Tianshui in the forested mountains was

breath-taking as we climbed up the narrow roads in the bus. The group took part in a DBH measuring exercise (the convention in China is to measure at 1.4m not 1.3m) in a Japanese Larch plantation. The site was originally planted as a commercial crop with the intention of a sustainable harvesting regime. But in 2016 central government had placed an embargo on tree harvesting in natural areas for five years and at present no timber can be taken from this site or any others, which has led to employment issues, off-shoring of environmental impact as imports increase and local timber shortages. The woods do offer much needed soil stabilisation, protection and conservation though and the ban on harvesting is to be reviewed in 2020.

One interesting aspect of forest measurement is that the Chinese use the old area unit of 'mu', which is converted at 1 ha = 15 mu and often required quick mental calculations during discussions to keep up with the conversations.

We took part in a tree identification competition in a mixed woodland with around 23 different species within 0.01 Ha. It was great to be crawling up and down steep banks and engaging with trees ranging from Toxicodendron vernicifluum to Tilia chinensis. Water run-off from this woodland is reduced and of a higher quality than the larch monoculture and plans going forward are likely to favour the mixed approach in the area for this reason, although surprisingly no plans were confirmed yet.

Mountain Pine Forest

Further down the valley but still in the mountainous area, the group visited a pine plantation near Daijia. This area has two species of native pine growing on each side of the valley in mono culture: Pinus tabulaeformis & Pinus armandii of which one was fast growing to 18 years and good for coffins and the other was fast growing after 18 years and good for timber but I didn't catch which was which. Natural regeneration of pine was very good here and wildlife was in abundance as we noted a very rare Ibisbill and a Large Hawk Cuckoo.

The trip was rounded off by The World Café event at the final hotel, which saw all participants exchange ideas and experiences to find some answers to the basic tour question. The study tour took in many sights, experiences and adventures culminating with an unexpected visit to the Terrocata Army in Xian after the tour finished, which was extraordinary and a fine way to round off the whole week. Thanks to Confor for the assistance, which made the trip possible and the experiences so vivid.

Award was for New Generation Plantation Study Tour to Gansu region of China ("What role for Plantations in Climate Change?") in May 2017. Award was towards the costs of the visit. Article submitted on 10/10/17.

simonplace@berryplastics.com