Evaluating forest management in the Pamirs

By Fred Pilkington, 11th June 2020

It was spring 2017. I was in the middle of my master’s programme and was rapidly running out of time to find the perfect thesis research project. My ideas had ranged from the unrealistic—a canopy camera trapping project in Ecuador, to the extreme—abseiling down Saint Lucia’s Petit Piton mountain to investigate a threatened juniper tree. I was profoundly relieved when I found a suitable project. I was to travel to Tajikistan, a country that I would previously have struggled to place on a map, to study the state of its fertile forested valleys.

What began as a project to analyse the distribution of threatened pear species, to complement a colleague’s work in Kyrgyzstan, evolved into a broader evaluation of community forest management. Monitoring forest management, and the resulting forest health, is important for assessing the impact of conservation actions over time. The site I was to visit had not been previously monitored.

Seeking shade wherever we could during fieldwork, it was hard to imagine that come November the fragmented forest-pastureland landscape would be covered in meters of snow. Photo: Fred Pilkington

To capture ecological and disturbance factors as well as community perceptions of forest
management, I used a mixed methods approach, interpreting data from 40 quarter of a hectare forest plots and 40 interviews with community members. With the strong support of leading researchers and practitioners at Imperial College London, Fauna & Flora International (FFI) and the Royal Botanic Gardens Kew, I felt confident venturing into the field.

Consulting the forest service's Tolkien-esque map of the field site. Photo: Fred Pilkington

After touching-down in Tajikistan’s capital Dushanbe, I met Ubayd Gulamadshoev, FFI’s warm, welcoming country director. We spent a couple of days refining my data collection protocols and arranging the necessary fieldwork permissions before we made our way to the field site, Dashtijum Nature Reserve—a vast mountainous World Heritage Site and Important Bird Area in south-west Tajikistan bordering Afghanistan.
Once we arrived in Dashtijum village, I was introduced to my host, and reserve director, Mahmoud Yorahmadov and Dilovar Sharipov, the English teacher for several schools in the area. Over the next few days, we translated the questionnaire into Tajiki, a dialect of Persian written in Cyrillic script, and visited the Forest Service office to identify areas of forest to survey. I quickly came to realise that Tajikistan’s forests are a veritable cornucopia of diversity, harbouring the wild ancestors of numerous fruit and nut species that we generally take for granted. These forest gardens, overflowing with almonds, apples, pears, plums, pistachios, apricots, cherries and walnuts, have been managed for centuries by the communities that depend on them. However, as a result of a combination of intense Soviet exploitation and a six-fold human population increase, only small forest fragments persist and their future is far from certain.
Our daily schedule began with an early start, aiming to finish fieldwork before the sun climbed too high, followed by lunch and then social surveys in the afternoon. I quickly learnt to have a light lunch because—such is the heart-warming generosity of locals—at every household we were offered tea, freshly baked bread and other delights (dried mulberries with walnuts being a personal favourite) and it would have been discourteous to refuse.
As expected, we found that fruit, nut, firewood and hay extraction was widespread. Timber demand appeared to be satiated through the cultivation of poplar, a species that grows fast and straight. The cutting of green branches for firewood was prohibited through local taboo, illustrated by a phrase taught to children, which our first interviewee shared, “Cut green branches and you cut the head of the tree”. Despite being illegal, grazing livestock in the forests was commonplace and most interviewees admitted to doing this, which indicates a lack of effective enforcement.
interview with the matriarch of the household whilst she tended the bread oven. By chance, we arrived at a 50:50 respondent sex ratio. Photo: Bakhtovar Nurov

Most of the respondents had observed declines over the previous 5 years in the quantity and accessibility of fruits, nuts and firewood. Similar declining trends were reported in the quality and availability of pastureland. This indication of unsustainable use was reinforced by analysis of the quantitative data, highlighting that biodiversity metrics declined with increased proximity to human settlement.

Fred Pilkington with field assistant and translator Bakhtovar Nurov after their final forest fieldwork. Photo: Dilovar Sharipov

Our study suggests that although current use is unsustainable, the forest is still in relatively good condition, with the majority of tree species exhibiting healthy population structures. It is clear that intervention in the landscape is still necessary, however, and FFI, as part of the Global Trees Campaign, has been working in Tajikistan for over a decade. Our research is now guiding FFI’s work on community engagement and informing a reforestation strategy for 400,000 native trees as part of a Darwin Initiative project to enhance biodiversity and increase resilience to climate change.
The article The first rapid forest inventory and resource use assessment of Dashtijum Nature Reserve, Tajikistan: a mixed methods approach is available in Oryx—The International Journal of Conservation.

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