Community-based Restoration of Foxtail Millet (*Setaria italica* (L.) Beauv.) Indigenous Landraces in Central Taiwan

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Abstract

Our previous research revealed the relationship between agronomic traits of foxtail millet (*Setaria italica* (L.) P. Beauv.) landraces and indigenous culture of Bunun, one of the indigenous populations in Taiwan. In this research, we aim to explore diverse community-based restorations by participatory action research.

Foxtail millet was the important crop for most Bunun in livelihood, ritual, institution, and culture. However, with the impacts of the Japanese colonization and neoliberalism, the agricultural landscapes of Bunun communities in central Taiwan had been changed. Most local peasants grow cash crops instead of millet for livelihood recently. Foxtail millet is nearly de-embedded from the communities.

To restore the bio-cultural landscapes of foxtail millets, 28 landraces were reintroduced from the seedbank of College of Bioresources and Agriculture in National Taiwan University to the original habitat (Xinyi Township). A series of university-and-community-collaborative actions took place since August 2020, such as sharing seeds of the landraces with local participants, reconnecting local knowledges, and practicing alternative farming. Ethnographical analysis was employed to record the processes developed by each stakeholder.

Instead of agricultural income, cultural revitalization was the convergent restoration scenario among all stakeholders. Moreover, NPOs (such as schools, elder centers, churches, and youth organizations) play an important role in the process. Beyond these restoration actions, the resurgence of foxtail millets reflects agency of materiality. Our observation provides insightful direction for future restoration of indigenous traditional crops. Moreover, we contribute to the concept toward non-anthropocentric agency in restoration action.

Introduction

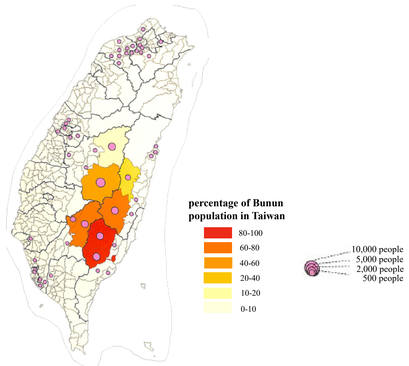

Figure 1 The distribution of the Bunun population in Taiwan. (Chen et al, 2012)

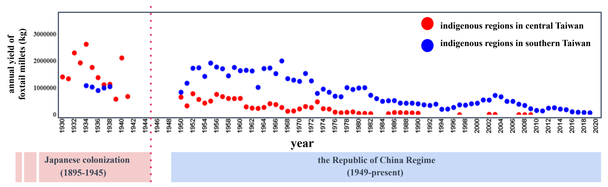

Figure 2 The yield of foxtail millet in indigenous regions of central and southern Taiwan from 1930 to 2020. (source: collected by authors)

Foxtail millet (*Setaria italica* (L.) Beauv.) is an annual cereal crop commonly found among many indigenous populations in Taiwan, especially for the Bunun people. Among the 23 million people in Taiwan, only 0.25% are Bunun people, which mainly distribute in central and southern Taiwan (figure 1). Based on existing agricultural records, the Bunun communities in central Taiwan had the highest yield of foxtail millet in Taiwan before the 1930s.

However, the traditional landscape of foxtail millet cultivation in central Taiwan Bunun communities has nearly disappeared (figure 2). Huang (1990, 2005) described the transition from traditional farming to industrialized agriculture was driven by colonial policies and the commodity economy. Most local farmers primarily cultivate cash crops instead of foxtail millets, which leads to the fractures of traditional farming and related rituals and ceremonies.

With the increasing attention to indigenous sovereignty and food security, it has become more important and urgent to re-embed the disappeared traditional crops in their original habitats. A series of restoration actions were conducted by the National Taiwan University and local organizations. And this research aims to explore the diverse community-based restoration of indigenous bio-cultural landraces, providing information to empower stakeholders for future restoration.

Method

The foxtail millet landraces of Central Taiwan Bunun communities were first collected and saved in the seedbank of the United States Department of Agriculture in 1977 by Dr. Wayne Hazen Fogg, who was an anthropologist focused on indigenous farming in Taiwan. Then these landraces were reintroduced back to Taiwan in 2010 by Dr. Warren Hwa-Jen Kuo and Dr. Qing-Xiong Ba from National Taiwan University.

Our team reproduced the landraces and shared the seeds with different local organizations that participated in restoration actions since August 2020 (figure 3). Approaches of participatory observation and in-depth interviews were used to record “how” and “why” these local organizations restore foxtail millets. All the data were represented in the form of a journey map to provide a brief overview of the restoration experience of all participating organizations.

Figure 3 Diverse plant and panicle morphologies of Bunun foxtail millet landraces in the maturation stage. (Shao *et al.*, unpublished; our previous research)

Results and discussion

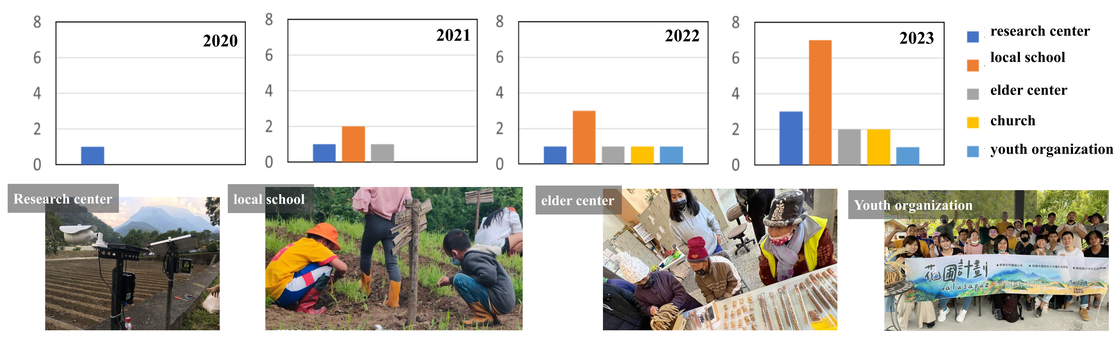

Figure 4 Cumulative graph of different participant involved in restoration action in Bunun community in central Taiwan since 2020.

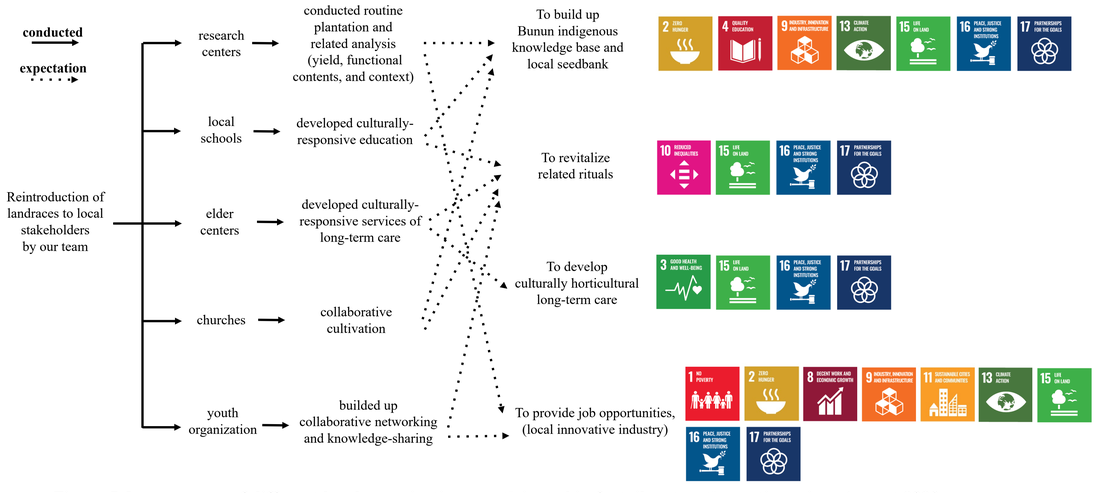

Figure 5 Journey map of different local organizations participated in foxtail restoration actions since August 2020.