

## **Behaviour and Social Dynamics of Asian Elephants: Can Beehive Fencing Deter Asian Elephants from Raiding Crops?**

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### **ABSTRACT**

Human-elephant conflict (HEC), specifically crop-raiding, is a major conservation challenge. Many methods have been trialled to deter elephants from crops with varying success. One unique method demonstrating success in Africa is beehive fencing. A beehive fence is a simple construction of beehives hung from posts and connected to each other with wire, surrounding an area to be protected. Trials show that farms protected by beehive fencing experience less crop raids than nearby farms without. Thus, beehive fencing may play an important role in reducing farmer-elephant conflict.

This project is the first to investigate beehive fencing as an Asian elephant crop-raiding deterrent, while simultaneously investigating characteristics and social patterns of the local elephant population to assess whether crop-raiding individuals share common traits, or if social patterns can provide insight into how elephants acquire crop-raiding behaviour and/or learn to respond to mitigation techniques.

We are working with farmers highly affected by crop-raiding, to establish and monitor beehive fences and to teach beekeeping skills. Data is collected on crop-raiding events, and demographic characteristics, personality, association patterns and genetic relatedness of elephants, using methods including researcher observations, farmer interviews, transect surveys and DNA analysis.

Farmers should benefit from reduced crop-raiding and improved harvests, and also from additional income generated through honey sales. Generating in-depth knowledge of elephant crop-raiding characteristics and the overall potential of beehive fencing as an Asian elephant deterrent will enable identification of other HEC hotspots in Asia that may benefit from this technique, and help to facilitate its expansion to other locations.

**Keywords:** *Asian elephant (Elephas maximus), human-elephant conflict, crop-raiding, beehive fences, behaviour*

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