Leveraging citizen science for enhanced forest fire management in tropical and subtropical forestry

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Introduction

In recent decades, forest fires in tropical and subtropical regions pose a threat to human life and natural ecosystems, resulting in major economic losses. Effective fire management requires up-to-date data on forest fuels and fire events to reduce and help mitigate the risks. Traditional data collection methods often struggle with limitations in workforce availability, real-time data collection, and high costs, particularly in tropical and subtropical regions where accessibility is challenging.

Our Aim is to explore the potential of citizen science approaches to collecting data on forest fires and fuels with the spotFIRE app in Thua Thien Hue province, a fire-prone region in Vietnam.
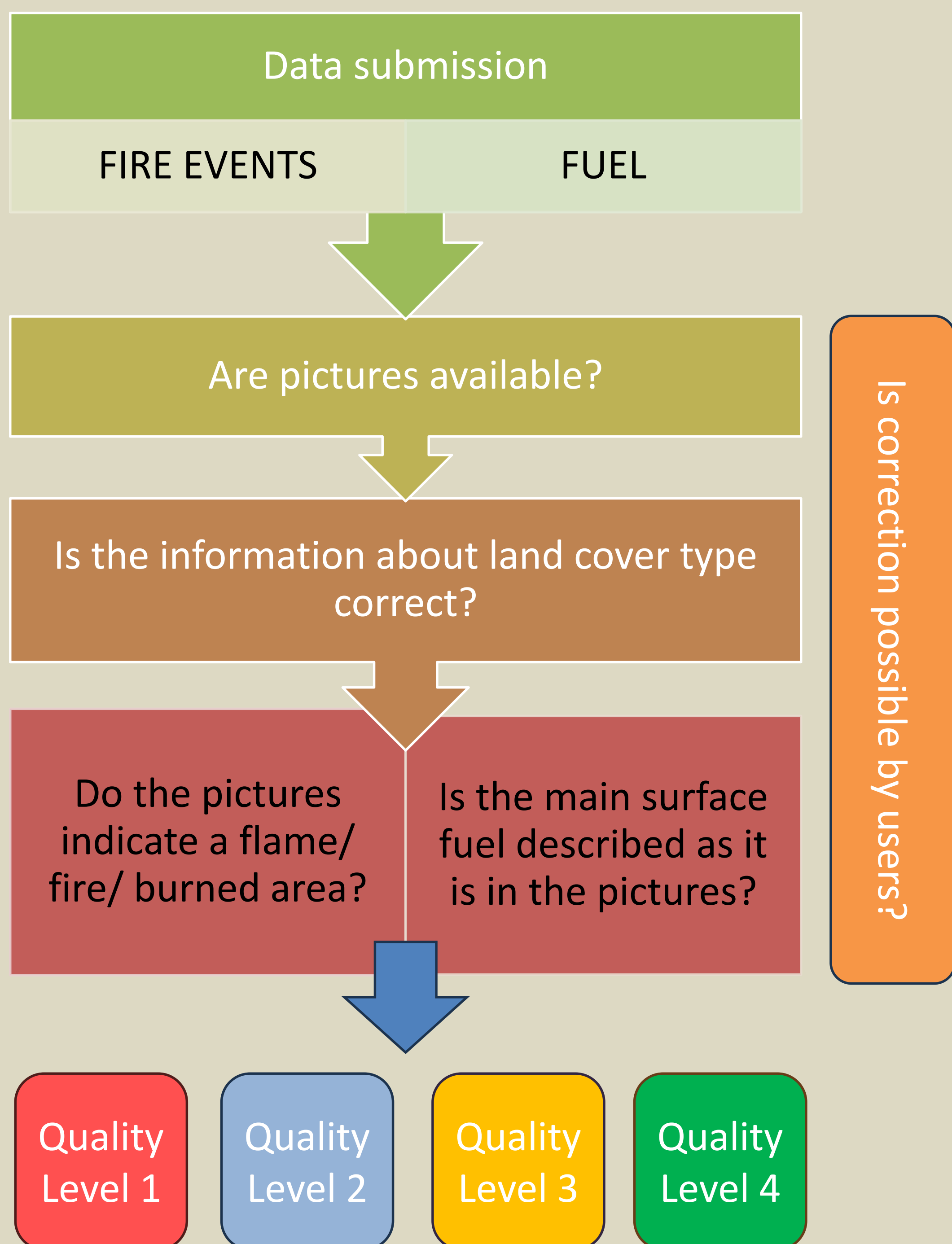
Our Methods

Preliminary findings

Initial results indicate that citizen scientists' data is accurate and reliable. The citizen science approach has successfully engaged public, increasing their awareness and involvement in forest fire risk management.

The data validation process flowchart

Level 1: Data sets with photos, correct and consistent data.
Level 2: Data sets with photos and unclear information, but no possible correction of the exact value based on the users.
Level 3: Data sets with photos and false information, but no possible correction of the exact value based on the users.
Level 4: Data sets without photos.

The distribution of quality levels in June, July and August 2024 for Fire events (a) and Fuel spots (b, with random spots per month, n = 50)
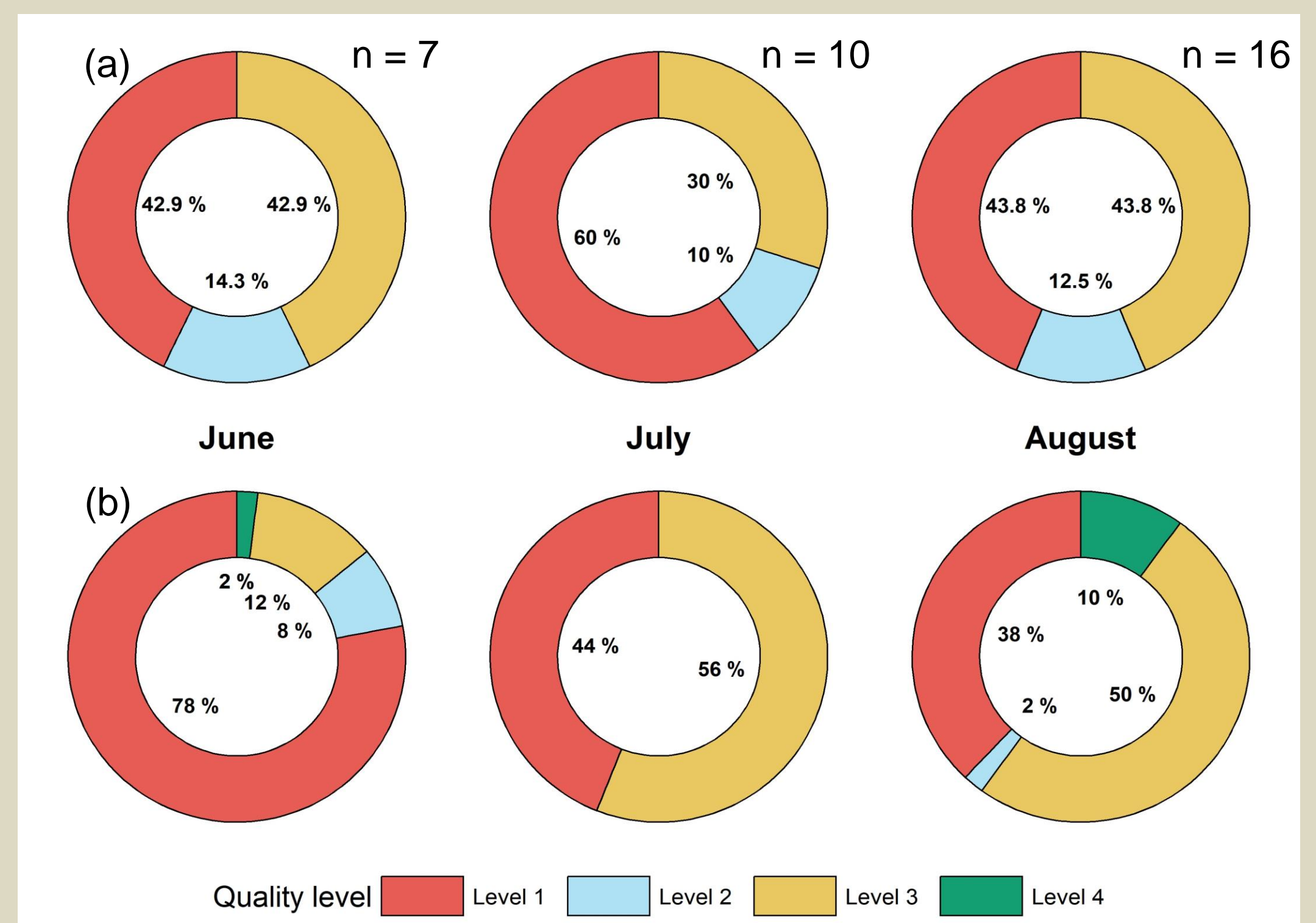
Key message:

➢ Engaging citizen science through mobile app is a viable solution for enhancing forest fire data collection in mountainous regions
➢ Experienced users provide more accurate data through the spotFIRE app, while novices show more variability.
➢ With proper training and feedback, citizens can contribute valuable information on fire events and fuels.

The spotFIRE app, powered by SPOTTERON.

▪ **Report forest fire events**
▪ **Collect forest fuel data**

Download the spotFIRE App and join the Citizen Science community!

More information on
www.spotfireapp.info