Weather bioindicators of the Lacandon Maya:
Learning from TEK and SEK to create an educational field guide for biocultural conservation in Lacanja Chansayab, Mexico

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Background

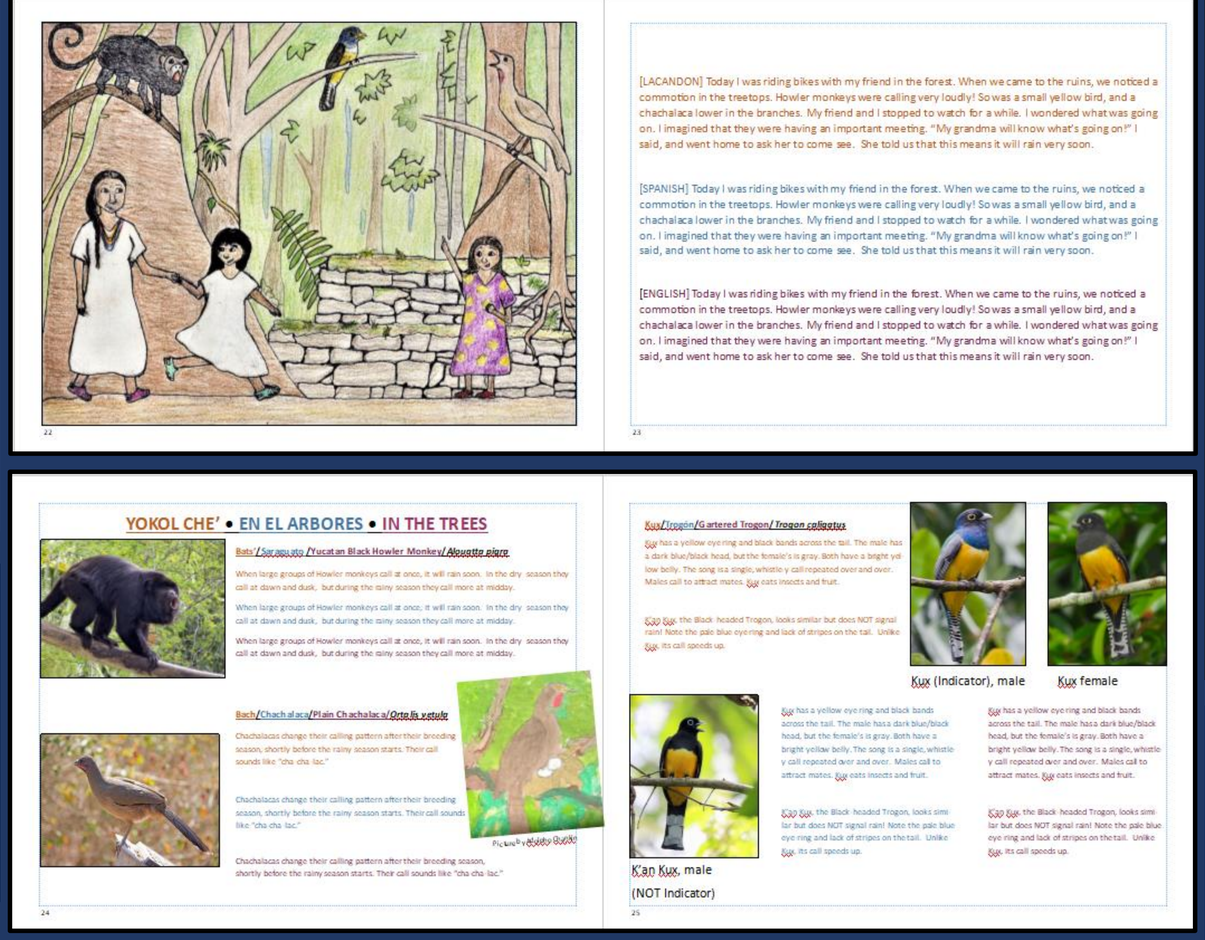
- The Lacandon Maya of Lacanja Chansayab, Chiapas, Mexico use indicators in their environment to predict the weather and make agricultural decisions in their rainforest agroforestry system. The knowledge holders are concerned that this traditional ecological knowledge (TEK) will be lost, jeopardizing knowledge of biodiversity and the younger generations' connection to their culture. For my honors project, I created a field guide/picture book that integrates scientific ecological knowledge (SEK) with the Lacandon TEK.

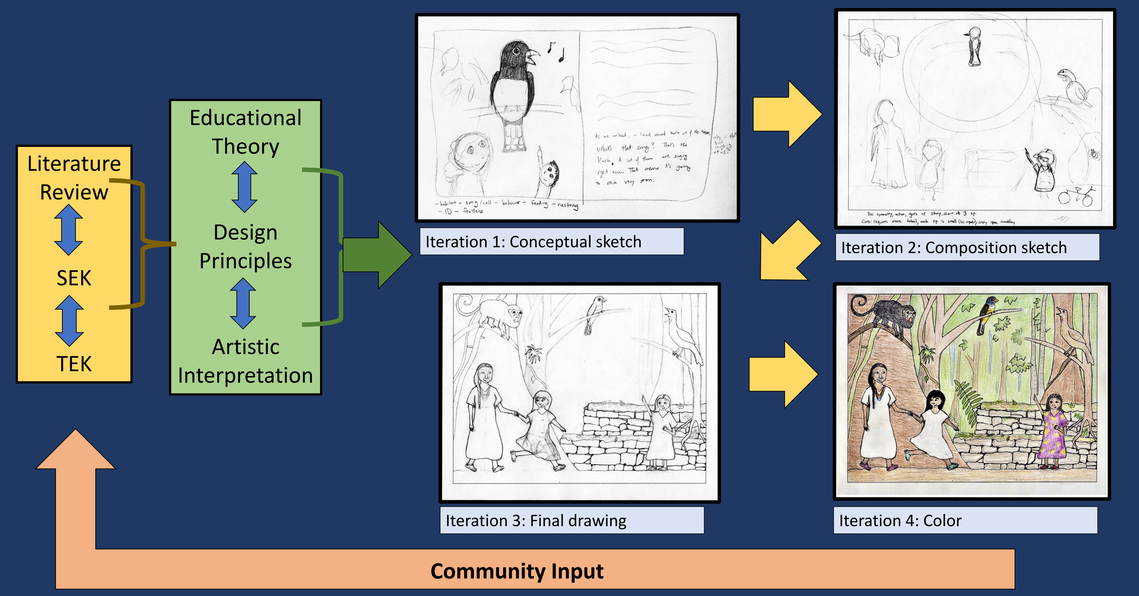
Objectives

- Historically, there has been a lack of reciprocity by western scientists doing research in indigenous communities, exploiting culturally sensitive knowledge and not giving anything in return. This book is a way of putting reciprocity into action by giving back to the Lacandon community where ESF students and scientists have done so much research to develop scientific ecological knowledge (SEK). The goal was to create a product that is accurate and culturally sensitive, while also being fun, engaging and interactive.

Definitions

- **SEK**: Scientific ecological knowledge. Short term, by professionals, quantitative, empirical
- **TEK**: Traditional ecological knowledge. Long term (over generations), by the resource users, specific to place, often codified in culture (songs, stories, language). TEK is important but often under-privileged compared to SEK. SEK and TEK can both learn from each other.
- **Biocultural restoration** means that the conservation of culture and biodiversity depend on each other. The areas of the world with the highest biodiversity also have the highest cultural diversity, and indigenous people often play an important role in conservation management. In this case, Lacanja is on the edge of the Montes Azules Biosphere Reserve, and their agroforestry system supports biodiversity. Knowledge of the indicators may also contribute to climate change adaptation, because they can be used to track changes in local weather patterns.





Process

- This project grew out of graduate student John Zeiger's research about the green lacewing larvae and other bioindicators in Lacanja
- The story follows a young Lacandon boy named K'in, as he explores with his grandmother and learns about the indicators. In between, field guide pages give the scientific information about the species featured on the previous page.
- The final version will be tri-lingual, translated into Lacandon and Spanish in addition to English.
- Based on the average of 7 readability formulas, the English text is at a 4th grade reading level.
- For some species, we only knew the Lacandon name and had no pictures, so they were challenging to ID (e.g., Kux)

Recommendations

- This project doesn't end when I turn in my honors thesis. The book will be brought to Lacanja by grad students this summer, and I will make edits based on the input from the community.
- We will develop a workshop for their school using the book.
- The book may help the younger generation establish a baseline for observing how phenology is affected by climate change.
- Scientists need to continue to support the survival of TEK and indigenous languages, recognize that these are a vital component of biodiversity conservation, and continue improving methods of integrating SEK with TEK and reciprocity.

Literature Cited

Nations, J. & Valenzuela, C. (2017). *Lacandon Maya: The Language and Environment.* United States of America: CreateSpace.
Zeiger, J. (2019). *Traditional indicators of rainfall in the Selva Lacandona, Chiapas, Mexico.* (Unpublished master's thesis). SUNY ESF, Syracuse, New York.

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