

Potential Applications of Traditional Ecological Knowledge (TEK) in Museum IPM

UCLA | INTERDEPARTMENTAL PROGRAM IN
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Elizabeth Salmon

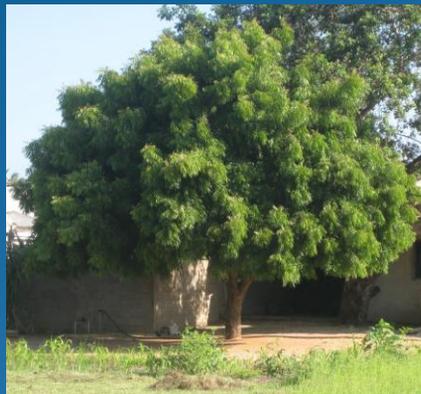
PhD Student, Conservation of Material Culture
esalmon@g.ucla.edu

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Traditional Ecological Knowledge (TEK)

- “a cumulative body of knowledge, practice, and belief” (Berkes 2012)
- “culturally transmitted across generations and explains the relationships between all living things (including humans) and the environment” (Sato 2018)
- pest management is a common theme!



Neem Tree (*Azadirachta indica*), a culturally-significant pest deterrent indigenous to the Indian subcontinent

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- Throughout human history, people have studied their environment and advanced knowledge through the accumulation and refinement of observations.
- TEK, sometimes referred to as *indigenous knowledge*, is strongly tied to specific localities and dependent on local, often indigenous communities for development and perpetuation
- The accumulation and intergenerational sharing of TEK is achieved by encoding its principles in cultural practice, such as oral stories, song, dance, and ritual
- Of course, TEK contains pest management methods because reliable methods to protect both growing and stored food from insects are needed

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Challenges of TEK

- Regionally specific
- Embedded *within* communities and can be difficult to interpret/access
- Context must be correctly understood and replicated

Benefits of TEK

- Locally available
- Affordable
- Preventive
- Accessible to non-specialists
- Accessible for institutions in remote locations
- Environmental and cultural sustainability

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Research Goals

- Document how traditional insect management solutions are currently prepared and deployed in museums/collections
- Test efficacy and refine procedures to increase reliability
- Define how TEK solutions can be utilized as an additional tool in the Museum IPM toolkit

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- It may be surprising how much literature examining TEK is generated within the natural and health sciences, representing the fields of biology, agroecology, entomology, veterinary medicine and others, with much of this work being produced within the last few decades.
- When science examines traditional remedies, the goal is typically to
 - (i) verify through laboratory work the effectiveness of existing applications or
 - (ii) adapt traditional knowledge to suit commercial or industrial needs.
- The first type of study often verifies that the correlation between TEK and replicable science is strong (Bannister, 2006; K. Chinsembu et al., 2015)
- However, such studies rarely discuss the limitations of traditional solutions, even when they are found to have scientific support (Rist et al., 2010).

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Example: Neem (*Azadirachta indica*)



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- The *Rig Veda*, a foundational Hindu text (2000 BCE), contains one of the earliest known references to poisonous plants understood to have bio-pesticide properties and is thought to refer to neem (Andre Lalonde, 1993, p. 58)
- Today neem is broadly known and utilized, particularly by rural populations of the Indian subcontinent,
- as an antimicrobial agent for medicinal use (Rashmi and Singh 2016)
- an insect deterrent in grain storage (Manocha & Monga, 2013)
- a biopesticide in industrial agriculture (Campos et al., 2016)
- and a household insect repellent for cultural items and religious texts

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Thank You

Elizabeth Salmon
esalmon@g.ucla.edu

Contact me with
examples or comments!

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