## Teaching Notes

### By ***Sunshine Brosi***

*sunshine.brosi@usu.edu*

**Author**

Sunshine Liberty Brosi, Utah State University

## **Resource Information**

Resource Name: Linking Intermediate Disturbance Hypothesis to Traditional Ecological Knowledge and Conservation

Topic:

Original Resource Name (if you are adapting): Traditional Ecological Knowledge and Conservation

Link to Original (if adapting): <https://qubeshub.org/publications/1939/1>

**Context for Use**Department/Program: Wildland Resources, Wildlife Ecology & Management/Biology/Environmental Studies/etc.

Audience Level: Undergraduate

Undergraduates: Majors

Instructional Setting: Lecture

Delivery Mode: Online

Number of Students: 40

### **Dates of implementation**

Apr 12, 2022

### **Module Purpose/Background**

## Traditional Ecological Knowledge is based on deep understanding of systems from observations made over hundreds to thousands of years. This resource connects Traditional Ecological Knowledge to modern conservation through media and primary literature interpretation. The adaptation of this research aims to link the material to the ecological concept of the intermediate disturbance hypothesis and to highlight ecologists whose careers have focused on the concept.

## **Module learning objectives:**

* Objective 1: Define traditional ecological knowledge, predict how Indigenous management may impact species richness, and relate your predictions to the intermediate disturbance hypothesis (content)
* Objective 2: Expand your worldview, cultural competency, and self-awareness through acknowledging human applications of science in non-western context through generations (content)
* Objective 3: Create a concept map linking elements of the concepts of Traditional Ecological Knowledge and Intermediate Disturbance Hypothesis (skill)
* Objective 4: Provide examples of the people behind the concepts and relate the concepts to your local area (skill)

## **Prerequisite skills or knowledge**

No prerequisite skills or knowledge required

### **Module sequence**

* Section 1: Online Review of Concepts prior to Application: 70 min. (flipped)
* Section 2: Discussion Board and Google Documents Application of Concepts, 20 min.
* Section 3: Local Examples and Traditional Ecological Knowledge and Concept Map Assessment, 30 min. and Examples of Intermediate Disturbance Hypothesis, 30 min.
* Section 4: Ecologists behind the concepts and their careers, 10 min.

## **Description of Module Activities, Resources and Assessments**

|  |  |  |  |
| --- | --- | --- | --- |
| Objective(s) | Resources/ Activities Description | Assessment Description | 4DEE |
| LO1 | Define traditional ecological knowledge, predict how Indigenous management may impact species richness, and relate your predictions to the intermediate disturbance hypothesis | worksheet with questions | Human-Environment Interactions |
| LO2 | Expand your worldview, cultural competency, and self-awareness through acknowledging human applications of science in non-western context through generations | worksheet with questions | Human-Environment Interactions |
| LO3 | Create a concept map relating Traditional Ecological Knowledge to the Intermediate Disturbance Hypothesis  Relate the concept to your local area | concept map | Ecology Concepts |
| LO4 | Provide examples of the people behind the concept, their careers, and relate the concepts to your local area | concept map | Ecology Practices |

Section 1: Online Review of Concepts prior to Application

This lesson will begin flipped with the material online. We start with an Indigenous Acknowledgement, adapted from <https://native-land.ca/> through the application of principles provided by <https://nativegov.org/news/a-guide-to-indigenous-land-acknowledgment/> . We will discuss the Indigenous Acknowledgments in the syllabus and on the homepage of our Learning Management Platform for the course. In addition to the acknowledgement we will discuss action-oriented items that students can do as acts of repatriation (10-min.)

*Lesson:* The students will then be introduced to the ecologist *(ecological practices*), Dr. Robin Wall-Kimmerer by watching the Traditional Ecological Knowledge lecture: <https://youtu.be/xKmKFJzviz0> (60 min.) This lecture is available with auto-generation subtitles and can be listened to as an alternative to watching (no visuals are included)

*Readings:* Resources provided by Mary Heskel will be reviewed by the students. These include examples from various ecosystems and traditional cultures.

Heskel, M. (2020). Traditional Ecological Knowledge and Conservation. QUBES Educational Resources. doi:10.25334/FG1D-9A58 <https://qubeshub.org/publications/1939/versions/1>

These include reviewing Tending the Wild: <https://www.youtube.com/watch?v=TbxLv9EEzs8>

Next, the students will learn about the concepts of the Intermediate Disturbance Hypotheses through completing Christopher Lepczyk lab experience or similar exercises.

Christopher A. Lepczyk. February 23 2009, posting date. Biodiversity Responses across a Gradient of Human Influence. Teaching Issues and Experiments in Ecology, Vol. 6: Experiment #4 [online]. <http://tiee.ecoed.net/vol/v6/experiment/biodiversity_responses/abstract.html>

Section 2: Discussion Board and Google Documents Application of Concepts

Students will answer discussion board prompts related to ethics and cultural competencies related to Traditional Ecological Knowledge.

In groups of 3-4 students will complete a worksheet related to various elements of Traditional Ecological Knowledge and relate these trends to ecological concepts such as the intermediate disturbance hypothesis.

Section 3: Local and Traditional Ecological Knowledge

These concepts often seem abstract to students. The above resources aim at expanding students’ world-views and providing several different examples from the literature. Now the students will work with more local examples. Students will be provided examples from their specific local culture and have online guest speakers that relate to their local community. Examples include having local, Indigenous scholars virtually record a short lecture or find online materials related to your specific ecosystem. Some examples include:

Cultural Burning <https://www.youtube.com/watch?v=Z-EXQ9be8mE>

Keeping the River <https://www.youtube.com/watch?v=Isd4iZcfSOc&t=45s>

Indigenous Science, Science Moab <https://sciencemoab.org/indigenous-science/>

<https://soundcloud.com/user-495802209/ways_of_knowing?utm_source=clipboard&utm_campaign=wtshare&utm_medium=widget&utm_content=https%253A%252F%252Fsoundcloud.com%252Fuser-495802209%252Fways_of_knowing>

<https://soundcloud.com/user-495802209/the-power-of-indigenous-knowledge?utm_source=clipboard&utm_campaign=wtshare&utm_medium=widget&utm_content=https%253A%252F%252Fsoundcloud.com%252Fuser-495802209%252Fthe-power-of-indigenous-knowledge>

*The instructor is encouraged to find documentaries and resources that are local and culturally-relevant to their students.*

Students will complete a concept map linking the two ecological concepts of Traditional Ecological Knowledge and Intermediate Disturbance Hypothesis related to their local ecological communities.

Section 4: Ecological Careers

Our courses will also learn about the ecologists behind the concepts of Traditional Ecological Knowledge that we will explore further. These include learning more about

Nancy Turner: <https://www.youtube.com/watch?v=LT1vb9vMsXw>

<https://www.youtube.com/watch?v=X1lbFfsE-l0>

<https://www.youtube.com/watch?v=iswPDh8zWZM>

M. Kat Anderson: <https://www.kcet.org/people/m-kat-anderson#:~:text=Kat%20Anderson-,M.,which%20this%20article%20was%20excerpted>.

Nanci Ross: <https://www.youtube.com/watch?v=otIcBeTTh5I>

<https://www.drake.edu/biology/facultystaff/drnanciross/>

*The instructor is encouraged to find ecologists that are local and culturally-relevant to their students. I also encourage the instructor to find ecologists to Zoom or visit the course.*

**Module Teaching Notes**

I incorporated the following Life Discovery theme into this module: integrating inclusive pedagogy. My adaptations focused on 1) making the materials local and relevant and 2) getting to know the ecologists whose concepts were used in the class. Before this adaptation, I often taught Traditional Ecological Knowledge as a separate module in the course. My adaption has focused on relating the concept of Traditional Ecological Knowledge to other ecological concepts, such as Intermediate Disturbance Hypothesis. Connecting Traditional Ecological Knowledge to other ecological principles discussed throughout the course has helped to incorporate and solidify the concept for the learners in specific contexts.