

**Restore Biodiversity with Indigenous Methods** Lessons from the Kumeyaay People

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### **References and Resources**



- o <u>Tending the Wild documentary shorts on PBS/Youtube</u>
- <u>Sunbelt Spotlight: Kumeyaay Cosmology with Michael</u>
  <u>Connolly Miskwish YouTube</u>



NATIONAL BESTSELLER

A hymn of love to the world. —ELIZABETH GILBERT

BRAIDING

SWEETGRASS



Indigenous Wisdom, Scientific Knowledge, and the Teachings of Plants

ROBIN WALL KIMMERER



Michael Wilken-Rebertsen

### **Maay Uuyow**

Kumeyaay Cosmology



Michael Connolly Miskwish

# Findings

- Mainstream ecology is based on non-Indigenous values. We protect and restore resources according to non-Indigenous values, not Indigenous ones.
- Policymakers, biologists, and restoration practitioners today don't know what the land was like before European contact, when it was cared for by Indigenous people.
- By learning more about Indigenous people and their relationship with the land, we can adapt our practices to benefit Indigenous people and the land.



## Goals for our Industry

- Question our ecological values and practices.
- Educate ourselves about Indigenous cultures and their relationships with the lands we manage.
- Consult Indigenous people and advocate for their greater presence in restoration and land management.



## **Unlock New Perspectives**

### **Non-indigenous perspectives**

People and nature are separate



People harm nature



Healthy ecosystems are climax communities with little disturbance



**Indigenous perspectives** 

People and nature are one

Native habitats are incomplete without people, especially Indigenous people

Healthy ecosystems are mosaics of ecological communities at varying states of succession due to regular disturbance

# **Ecological Model: Non-Indigenous Perspective**

#### **Initial Drivers**

- Society lacking ecological knowledge and values
- Economic system
- Industry and development

#### Drivers

- Land conversion
- Impermeable surfaces
- Climate change
- Too many people in natural areas
- Opioid epidemic, insufficient mental health care, discrimination, high cost of living

#### Stressors

- Removal of native vegetation and habitat structure
- Habitat fragmentation
- Altered species interactions
- Invasive species and diseases
- Runoff and pollution
- Longer droughts, warmer average temps, more intense rain events
- Homelessness

#### **Degraded Conditions**

- Few native species
- Diminished populations
- Low biodiversity
- Lack of genetic diversity
- Poor ecosystem services
- Trash
- Perceived safety risk limiting public participation

# **Ecological Model: A More Complete Picture**

#### **Initial Driver**

Removal of Indigenous
 people

#### Drivers

- Colonization, with its values and economic system
- Ignorance of traditional knowledge, methods and values

#### Drivers

- Too few people caring for the land
- Land conversion
- Fire suppression
- Introduction of invasive species and diseases
- Climate change
- Opioid epidemic, insufficient health care, discrimination, high cost of living

#### Stressors

- Loss of native vegetation and habitat structure
- Habitat fragmentation
- Altered species interactions
- increasing runoff and pollution
- Longer droughts, warmer average temps, more intense rain events
- Homelessness

#### **Degraded Conditions**

- Indigenous people and their practices are missing
- Few native species
- Lack of biodiversity
- Lack of genetic diversity
- Poor ecosystem services
- Trash
- Perceived safety risk limiting public participation

## An Authoritative Perspective



1000s of years of trial and error paying attention Intimate knowledge of the land Successful, reciprocal relationship of sustainability

### An Authoritative Perspective





### Caring for the Land with Disturbance-based Methods

- **Pruning**, **coppicing** and **knocking** branches to promote growth (e.g., long, straight stems for baskets) and remove dead branches susceptible to disease.
- Scattering seed during "sloppy" seed collection. Seen as a way of giving back to the land.
- **Tilling** and **distribution of roots**, tubers and rhizomes during collection.
- **Rock drops** in streams to slow flow, widen wetlands, support utilitarian plants such as basket rush and tule, and increase perennial springs.
- Good fire improves the burn area and increases biodiversity overall



### Tending the Land: Good Fire

- Managed, low intensity fire
- Ceremonial process
- Benefits within the burn area:
  - Prevent catastrophic fires
  - Control unwanted plants and pests
  - Accelerate decomposition and nutrient cycling
  - Increase abundance of specific food plants and fungi
  - Encourage specific growth patterns of utilitarian plants, such as deergrass used in basketry
  - Facilitate travel and manage wildlife: increase forage, fire for hunting, manage relationship with bears





## Good Fire: Creating a Biodiverse Fire Mosaic

- Visible mosaic of "time-since-fire" habitat patches
- Each patch has been disturbed by fire at a different time, and is thus at a different stage of plant succession = greater biodiversity at landscape scale
- More edge habitat
- Ability to prevent succession
- Note Indigenous and non-Indigenous views/values of succession



### **Revisit our Values**

- $\rightarrow$  Why are we restoring?
- → What are we restoring to?
- → Who are we restoring for?
- → Who are we restoring with?



## Update our Methods

Design and implement projects based on:

- Traditional uses of the area and its resources
- Reconstructed landscape and species compositions
- Indigenous methods
- Former disturbance regimes





Ask for permission

## Gathering with Respect

Give intention

Make a prayer



# Eyaay ahan! Thank you!





