

Intersections of a Decline in Insects, Policy, and Change in the world

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Primary Question

How many of you:

- When you think of your home state or where you live currently, you could confidently say that you are connected to your location?
- How many of you knew that Washington historically consisted of prairie lands and many of the plants and invertebrates native to Washington State evolved with fire ecology?
- Goal:
 - Reintroduce Taylor checkerspot butterfly population.
 - Look at what other countries proposed to reintroduce their native butterfly populations.



Mima Mounds Natural Area Preserve in Olympia, WA.



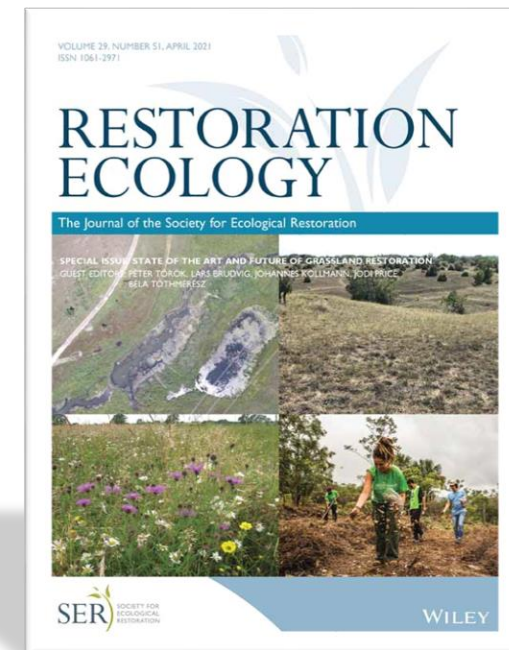
Taylor checkerspot butterfly, *Euphydryas Editha taylori*.

Theoretical Framework

- Hobbs and Norton (1996), which identifies seven steps:
 - (1) identify processes leading to decline.
 - (2) develop methods to reverse declines.
 - (3) determine realistic goals for reestablishment.
 - (4) develop easily observable measures of success.
 - (5) develop practical techniques for implementing restoration goals.
 - (6) document and communicate these techniques.
 - (7) monitor key system variables to assess progress and adjust procedures if necessary (adaptive management).

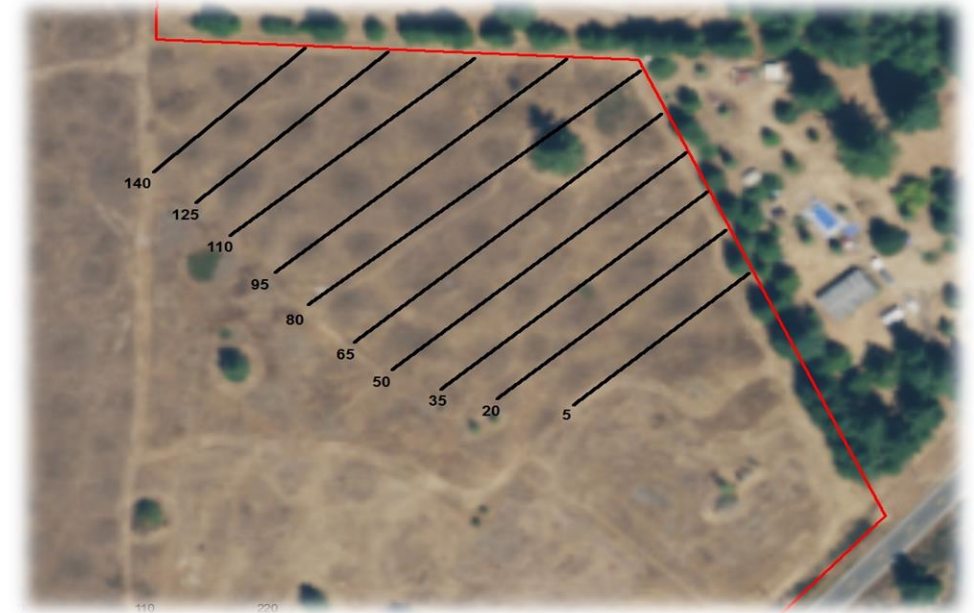
Towards a Conceptual Framework for Restoration Ecology

Richard J. Hobbs and David A. Norton



Methodology

- Along the meter line (pictured on the right), we made a quadrant out of PCB pipes that were two square feet by two square feet, making up one square meter.
- We had to make estimates
 - in vegetation height.
 - in percent of ground cover.
 - to document if the transects were on a slope (IM), intersect/flat (MS), or mountain top (MT), and if determined to be on a mountain slope we further had to take the angle it heads towards the ground.

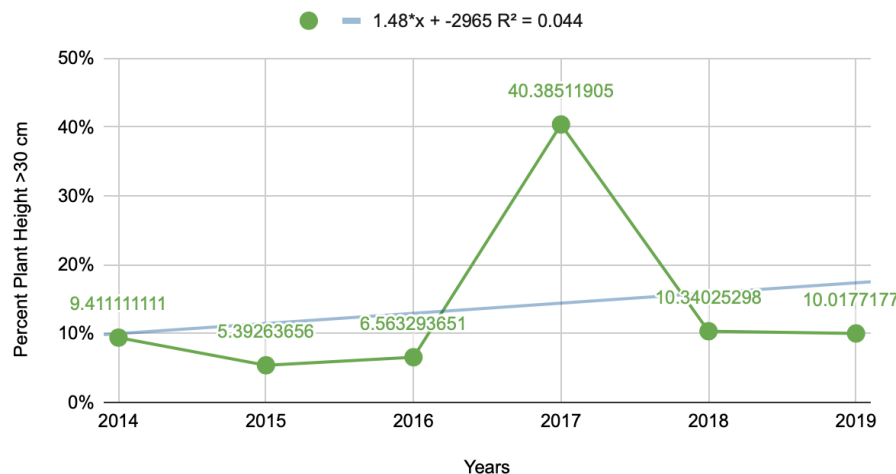


GIS Image of the transects UWT students conducted research on.

Results

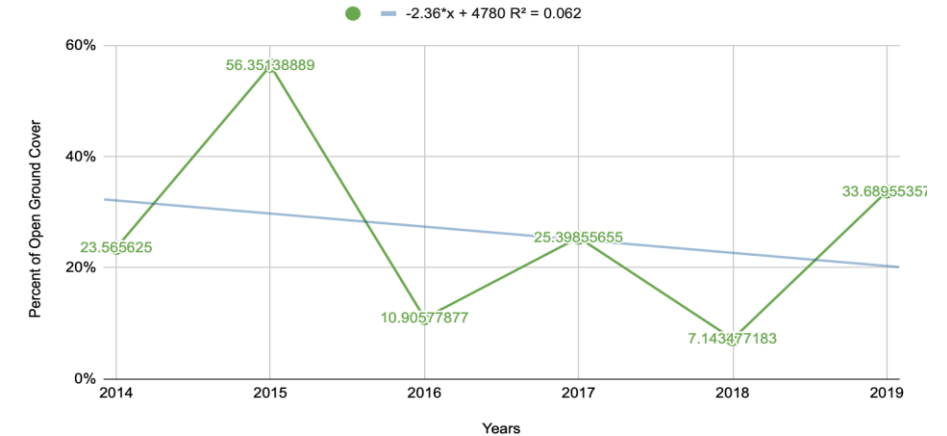
- The amount of vegetation height, plantago, and open ground cover are a good indicator that the butterfly may be ready for reintroduction.

Average Amount of Vegetation Cover on Site



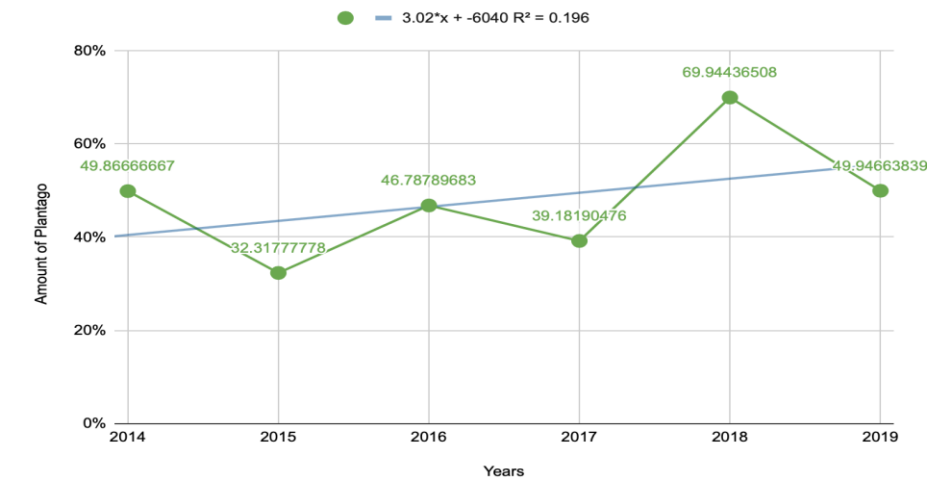
Average amount of vegetation cover on Mima Mounds from data collected from the years 2014-2019.

Average Amount of Open Ground Cover on Site



Average Amount of Open Ground Cover on Mima Mounds Prairie from data collected from years 2014-2019.

Average Amount of Plantago on Site



Average amount of Plantago lanceolata on Mima Mounds prairie from 2014-2019.

Other Countries Solutions

- Europe, Nepal, and Mexico

“Indigenous knowledge is the unique knowledge confined to a particular culture or society. It is also known as local knowledge, folk knowledge, people's knowledge, traditional wisdom or traditional science.”



The most iconic North American butterfly, the Monarch butterfly, *Danaus plexippus*, that travels through Mexico, the United States of America, and Canada.

THANK YOU



Camas growing on the Mima Mounds Natural Area Preserve.