

Status of Minnesota's Butterflies and Moths

Dr. Erik Runquist



MINNESOTA ZOO
Changing how you see the world



Photo: Mike Reese

**Minnesota:
146 Butterfly Species
2000-2500 Moth Species**



Western Prairie Fringed Orchid:

MN Endangered

US Threatened

- Only pollinated by
sphinx moths



MN Federally Listed Species

Karner Blue: Endangered

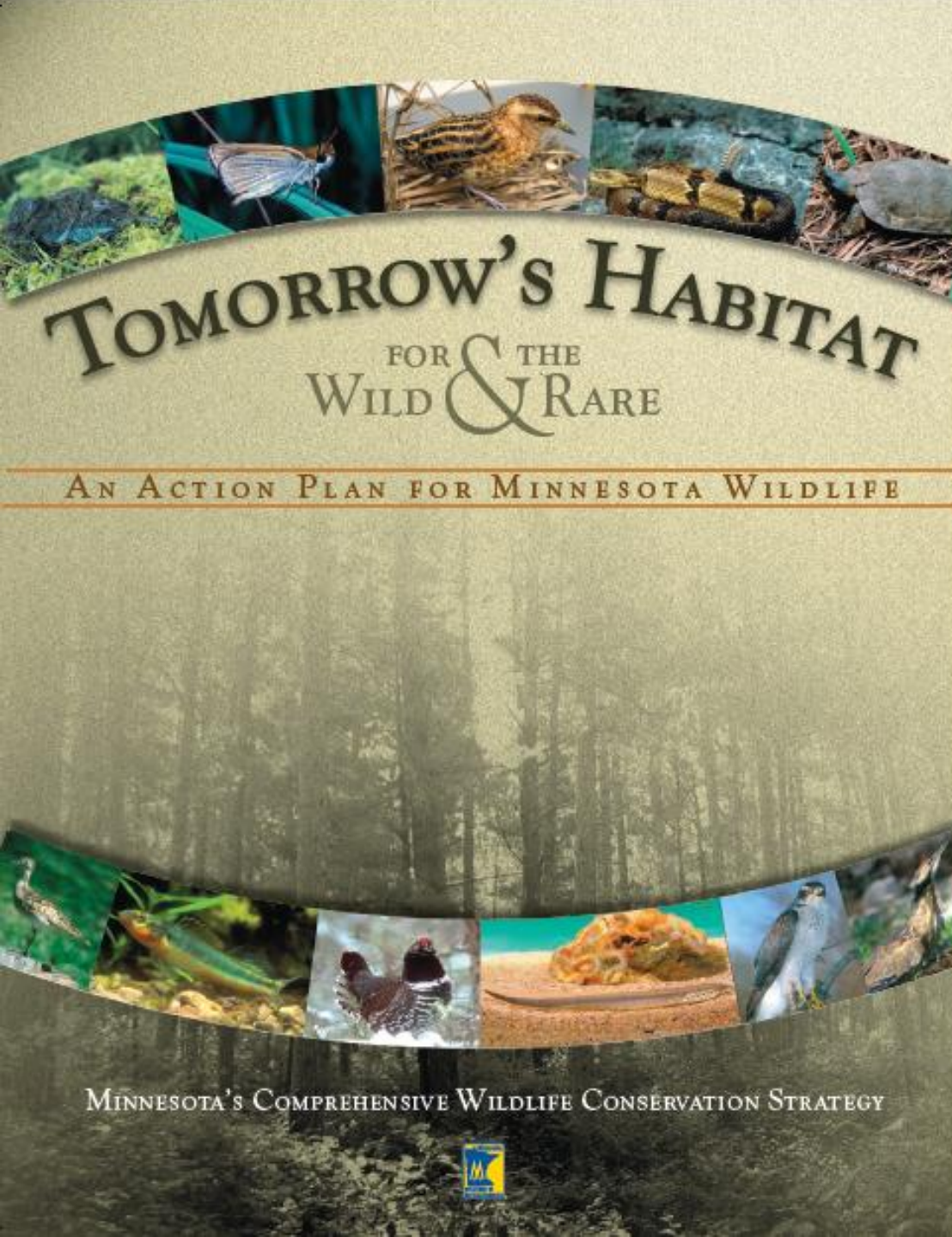


Poweshiek skipperling Endangered (Proposed)



Dakota skipper Threatened (Proposed)





Species of Greatest Conservation Need:


- 31 Butterflies & Moths


- 5 Bees

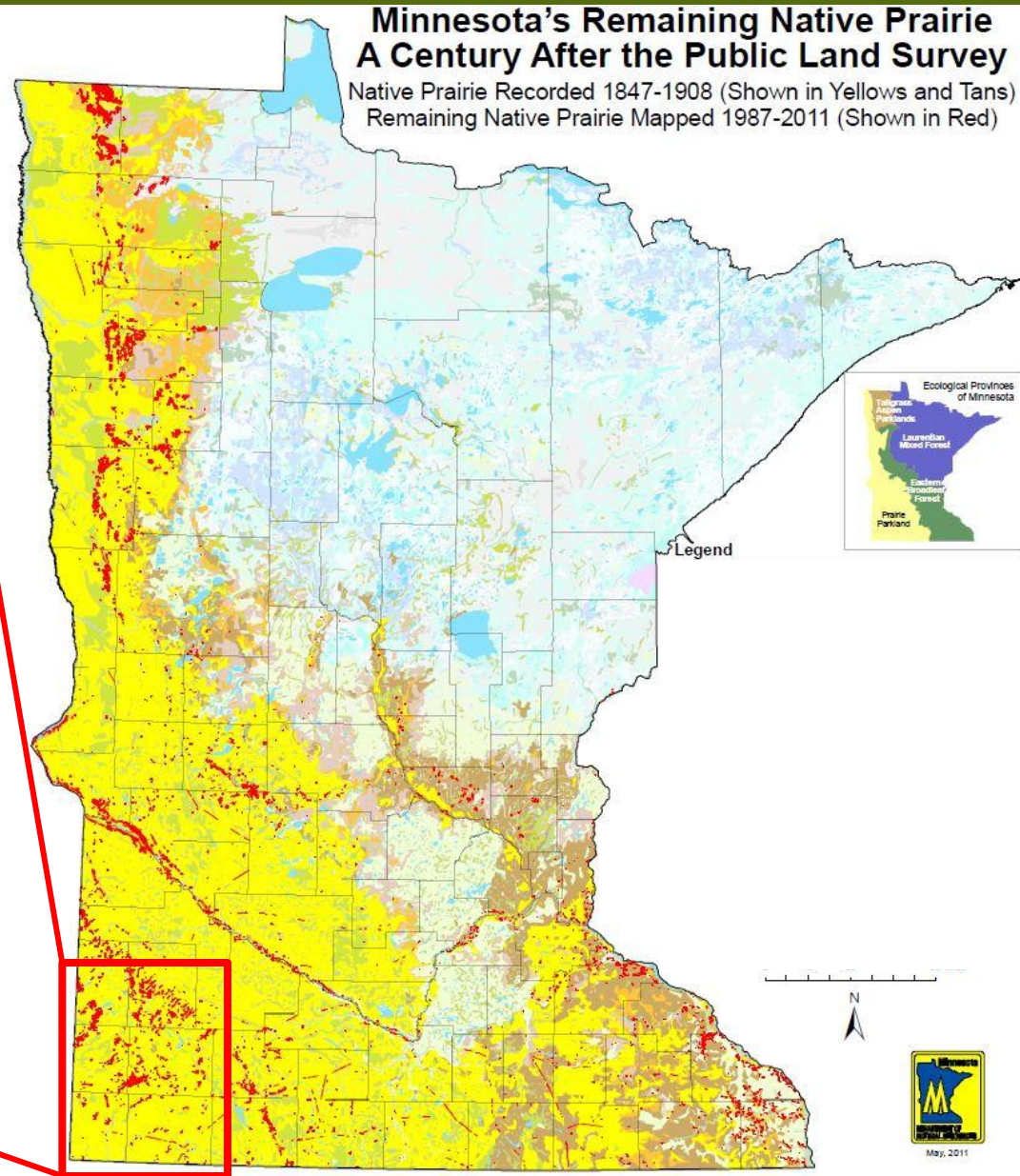
1) Habitat Loss

**2) Lack of Data,
especially moths and
bees**

Minnesota's Lost Prairie

 Historic Tallgrass Prairie

 Remaining Tallgrass Prairie

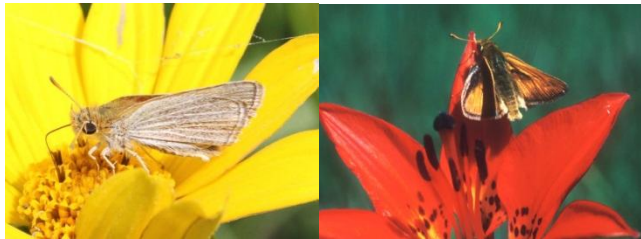


Imperiled Prairie Lepidoptera

U.S. Candidates:

Poweshiek skipperling

Dakota skipper



MN Endangered:

Ottoë skipper

Uncas skipper

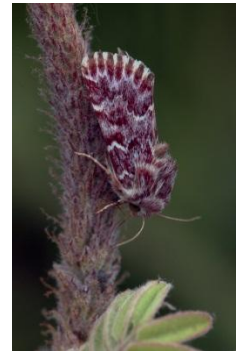
Assiniboia skipper

Uhler's arctic



MN Threatened:

Garita skipperling



MN Special Concern:

Arogos skipper

Leonard's skipper

Regal fritillary

Leadplant flower moth

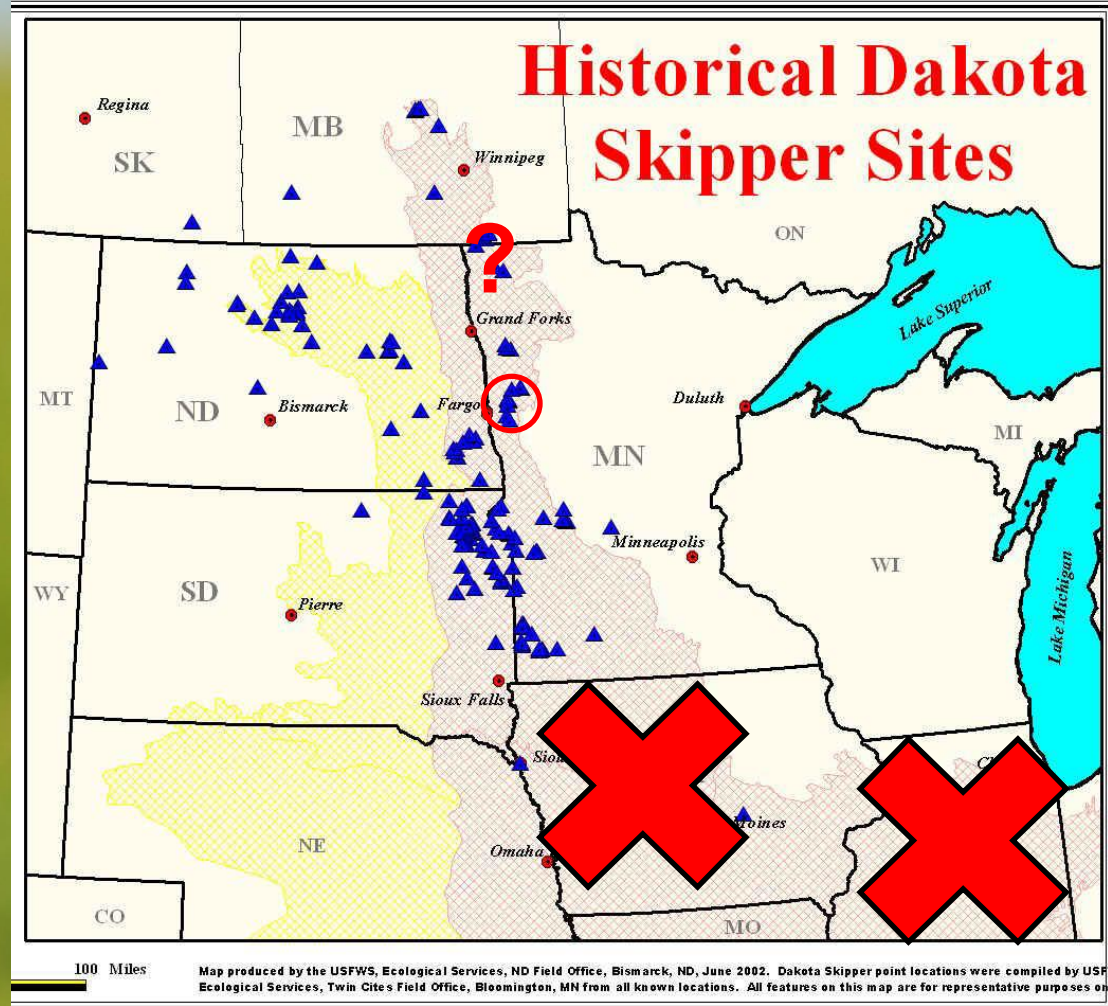
Phlox flower moth

Abbreviated underwing

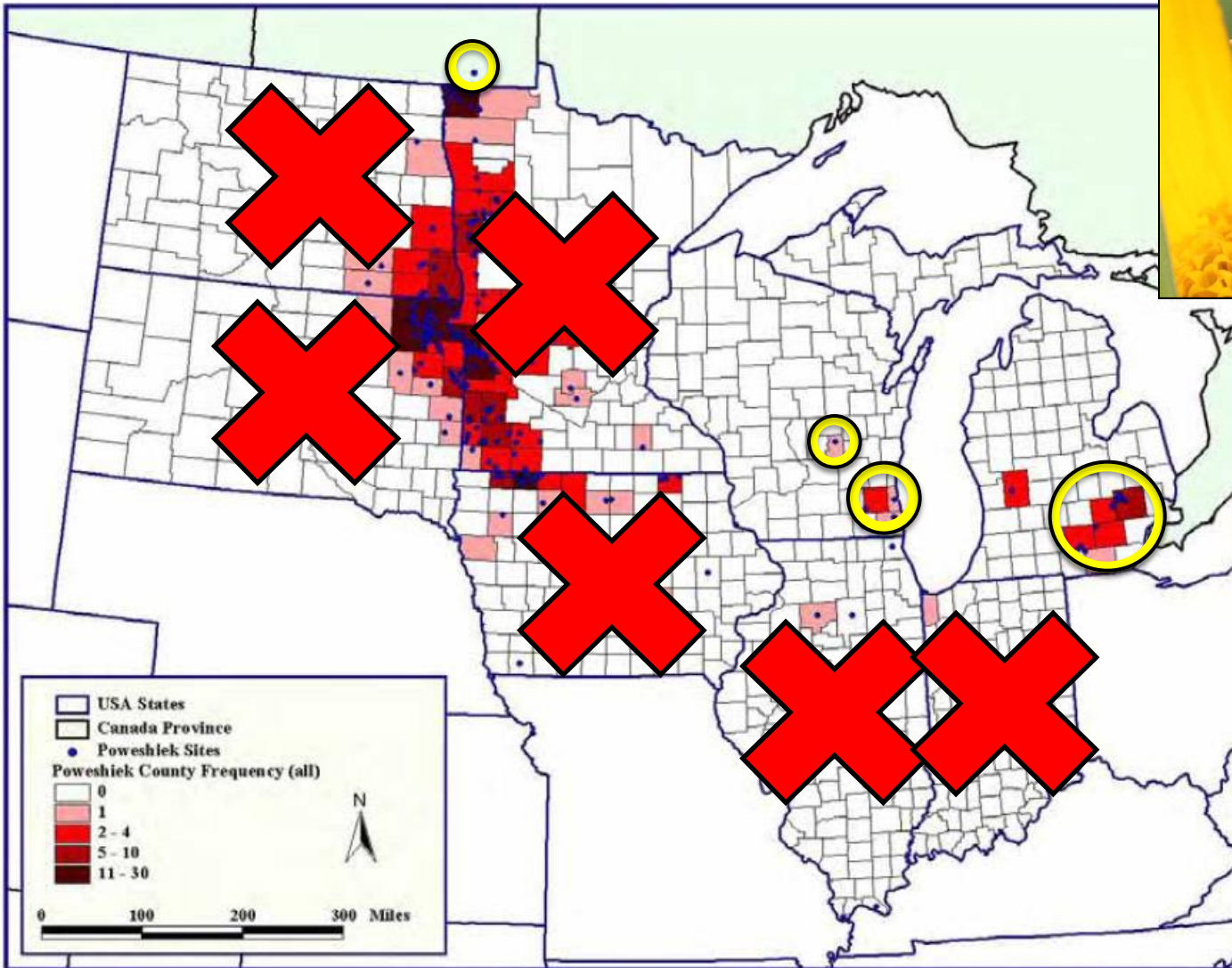
Whitney's underwing



Dakota skipper



Poweshiek skipperling

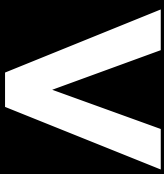


**“Most
Minnesotan”**

**Fewer than
500 left?**



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Prairie Butterfly Conservation Program



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**Prairie
Butterfly
Conservation
Rearing
Facility**



Partnerships and Funding



Program Goals



1. **“Insurance” Populations at the Minnesota Zoo**
2. **Field Surveys**
3. **Population Genetics**
4. **Pesticides Mortality Research**
5. **Outreach**



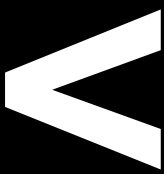
**BIG
BUGS!**

Summer 2014!





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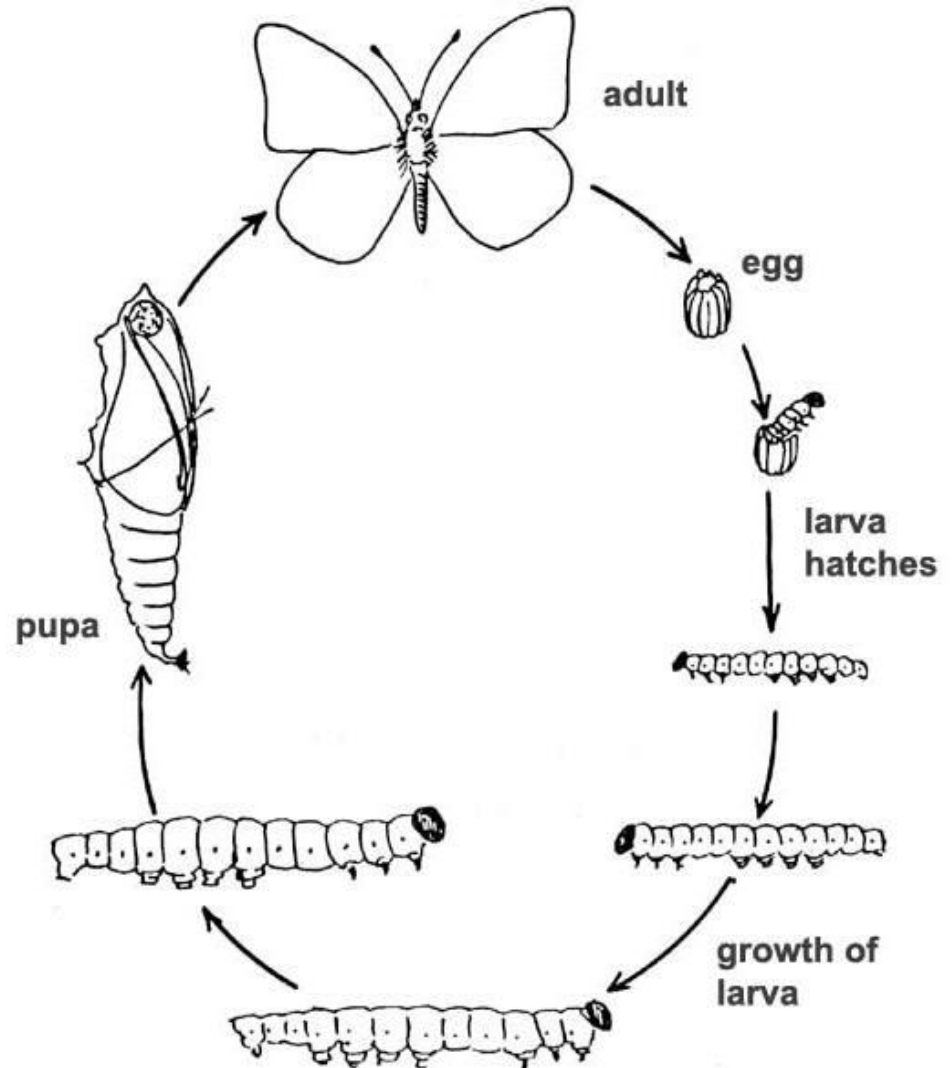


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Butterflies and Moths are Indicators

Complex lifecycles:

- Sensitive to environmental conditions
- Require different resources at different times



Indicators

Science News

... from universities, journals, and other research organizations

Butterflies Reeling from Impacts of Climate and Development

ScienceDaily (Jan. 12, 2010) — California butterflies are reeling from a one-two punch of climate change and land development, says an unprecedented analysis led by UC Davis butterfly expert Arthur Shapiro.



This butterfly, *Clodius Parnassian*, is more common at higher elevations on Castle Peak than in the past. (Credit: Heather Dwyer/UC Davis photo)

Science News

... from universities, journals, and other research organizations

Some Butterfly Species Particularly Vulnerable to Climate Change

ScienceDaily (June 1, 2012) — A recent study of the impact of climate change on butterflies suggests that some species might adapt much better than others, with implications for the pollination and herbivory associated with these and other insect species.

The research, published in *Ecological Entomology*, examined changes in the life cycles of butterflies at different elevations of a mountain range in central Spain. They served as a model for some of the changes expected from global warming on mountain ranges.

The researchers found that some species were able to emerge later in the month with a shorter period to reproduce, but others were worse off compared to a longer time period.



Butterflies Respond to Climate Change by Moving North

Part-time butterfly watchers in Massachusetts have taken more than 19,000 expeditions over the past two decades. The result of their work: northern butterflies are becoming increasingly rare, even as southern species take their place. The likely cause: warming temperatures.

