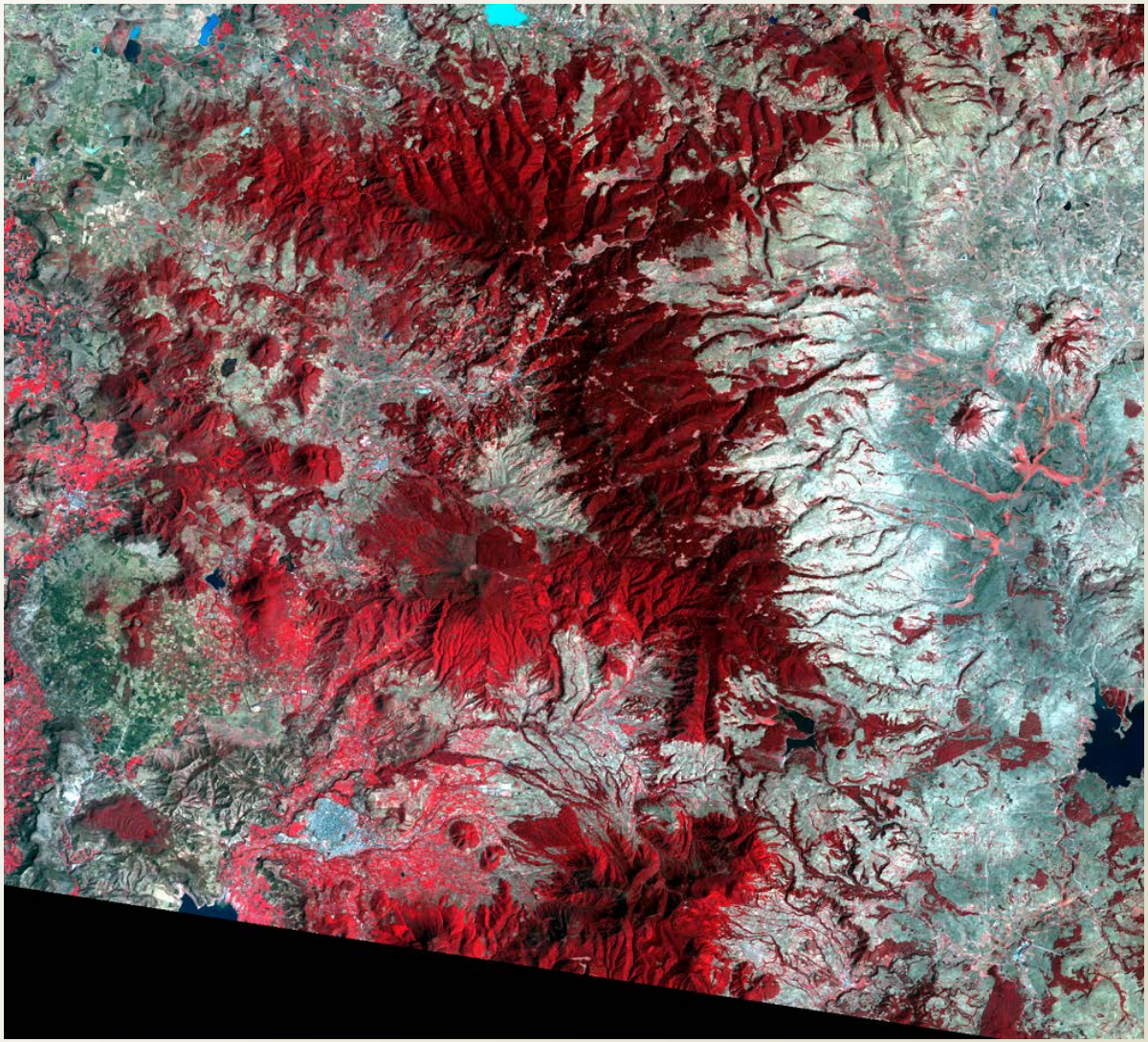
Migrating Monarchs

Cold weather drives the monarchs to head south to hibernate for the winter. They head for the only habitat suitable for their hibernation- the oyamel fir forests of Mexico.

The patches of red in these false-color satellite images are the forests where monarch butterflies spend the winter.



These forests grow in only small areas of mountain tops in central Mexico, about 3,000 m above sea level.

Vegetation of Mexico

Monarchs form their winter colonies in the **Oyamel Forest**

115W 110W 105W 100W 95W 90W 85W

30N 25N 20N 15N

Tropic of Cancer

Pacific Ocean

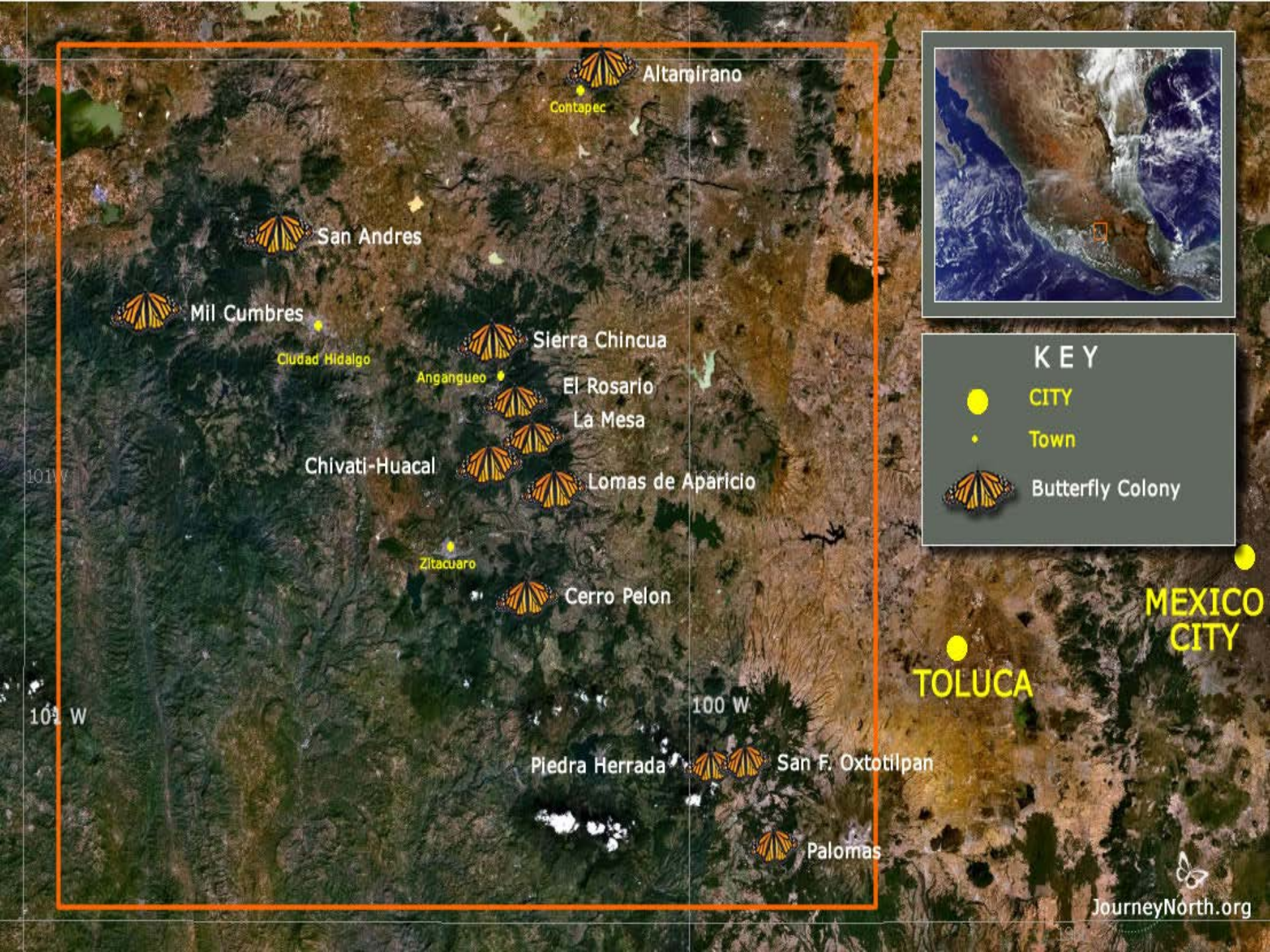
Gulf of Mexico

Key

- Oyamel Forest
- Pine-oak Forest
- Mixed Forest
- Desert Scrub
- Thorny Scrub
- Thorny Scrub with fleshy plants and pasture
- Chaparral
- Low Rainforest, non-evergreen
- Low and Medium Rainforest, and savannah
- High Rainforest

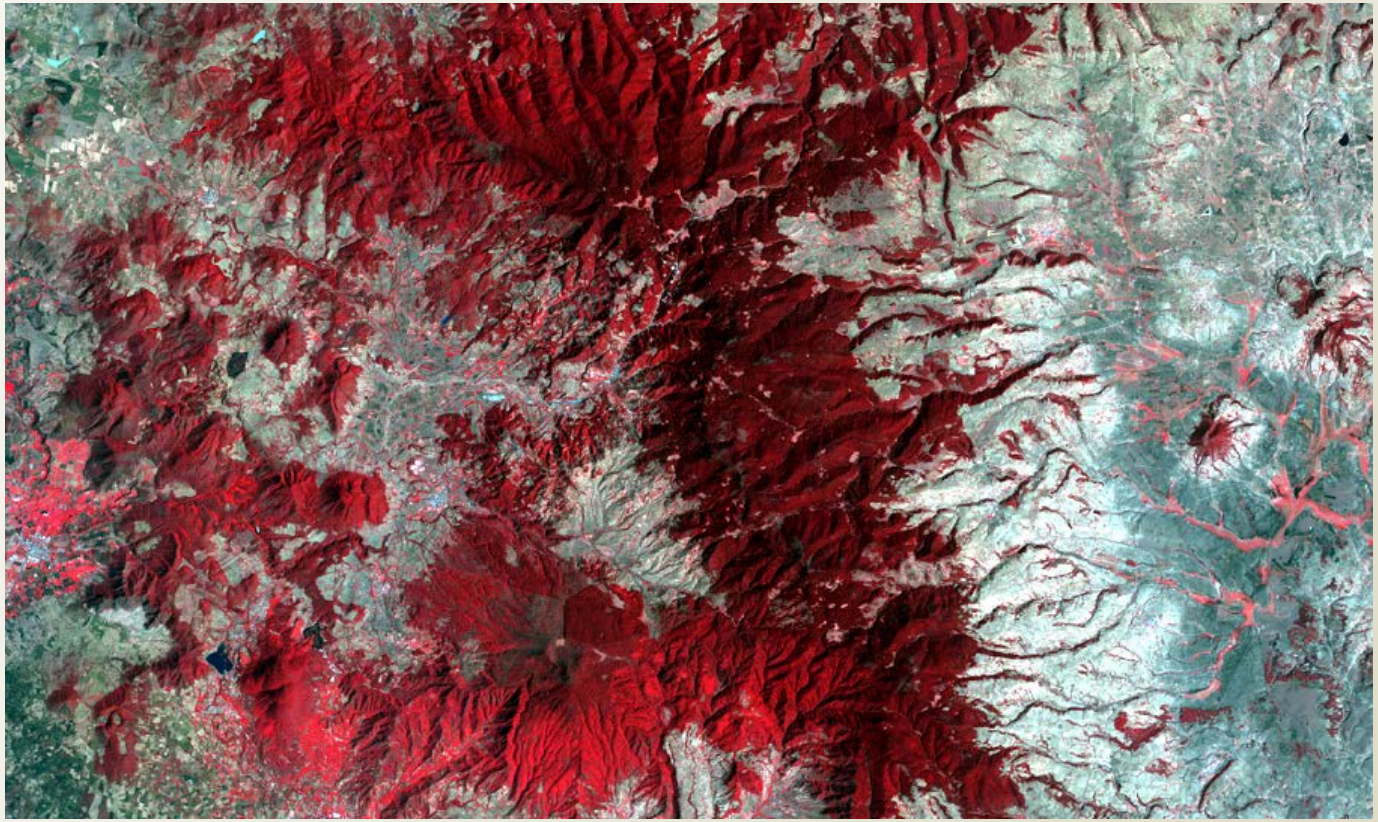
100 0 200 400
Kilometers

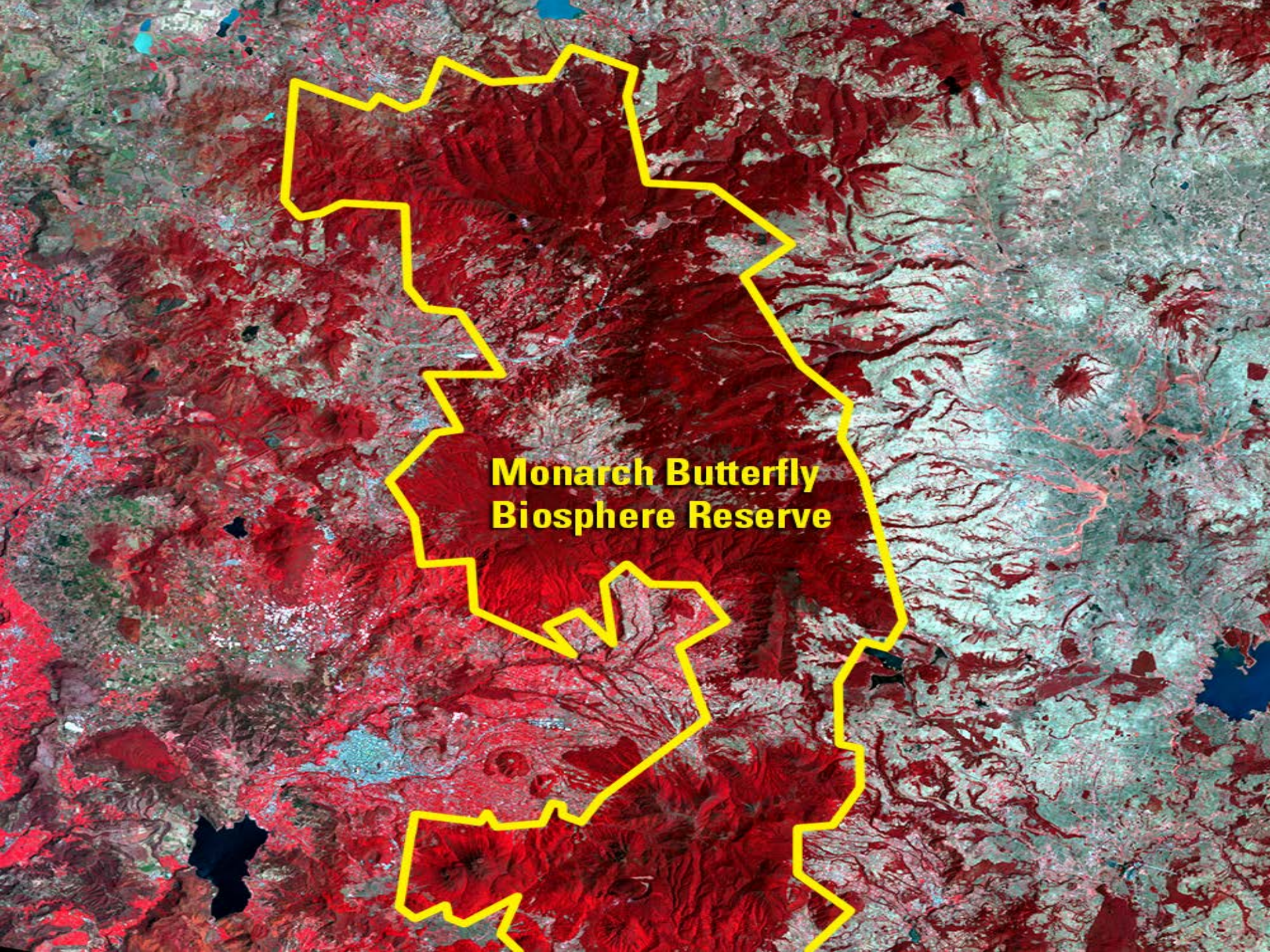
Base: Vegetation map by A. S Leopold (1951) refined and adapted following various climate and vegetation studies by other authors.

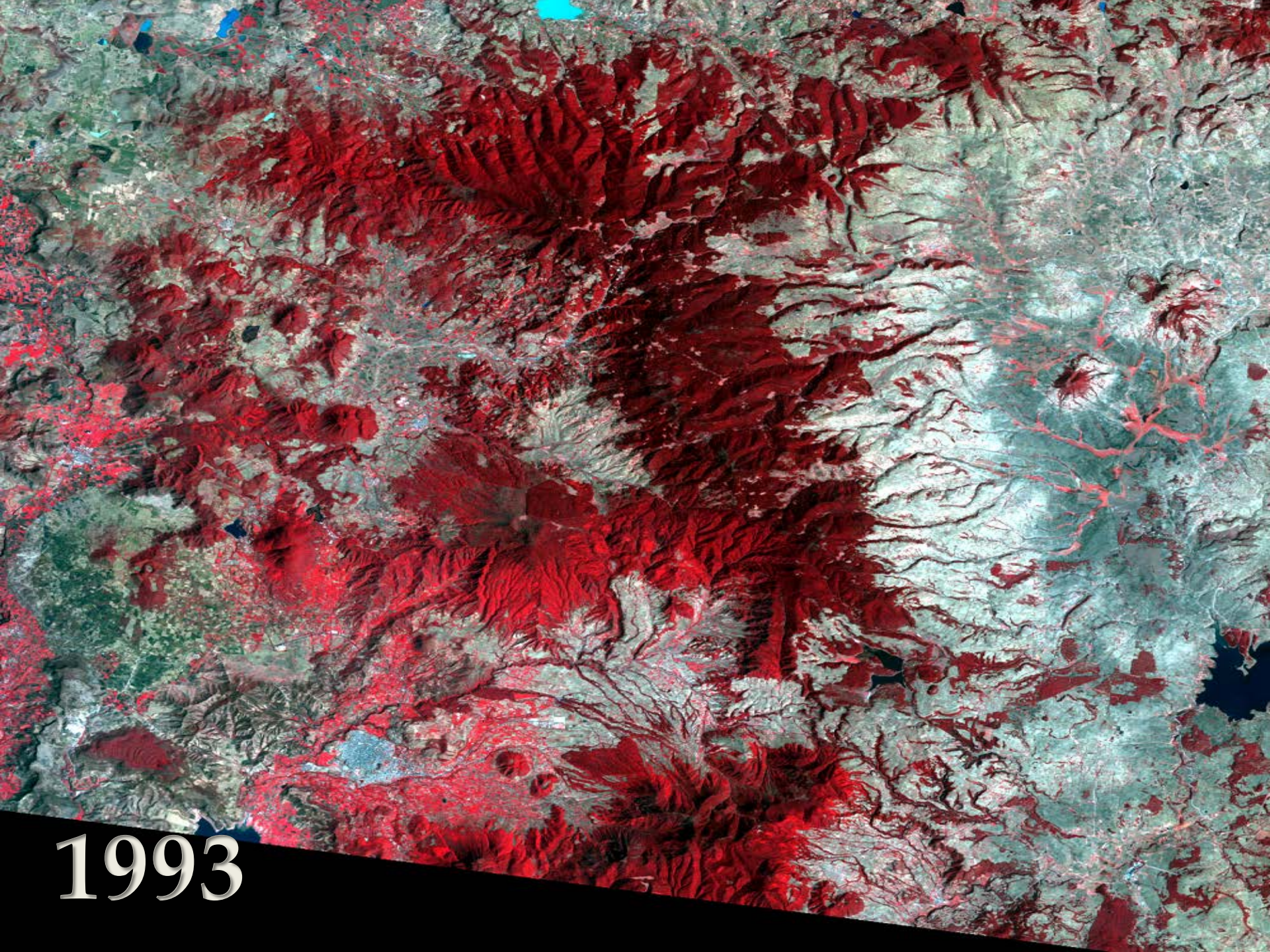

Altamirano
Contapec
San Andres
Mil Cumbres
Ciudad Hidalgo
Sierra Chincua
Angangueo
El Rosario
La Mesa
Chivati-Huacal
Lomas de Aparicio
Zitacuaro
Cerro Pelon
101 W
100 W
Piedra Herrada
San F. Oxtotilpan
Palomas
KEY
CITY
Town
Butterfly Colony
MEXICO CITY
TOLUCA
JourneyNorth.org

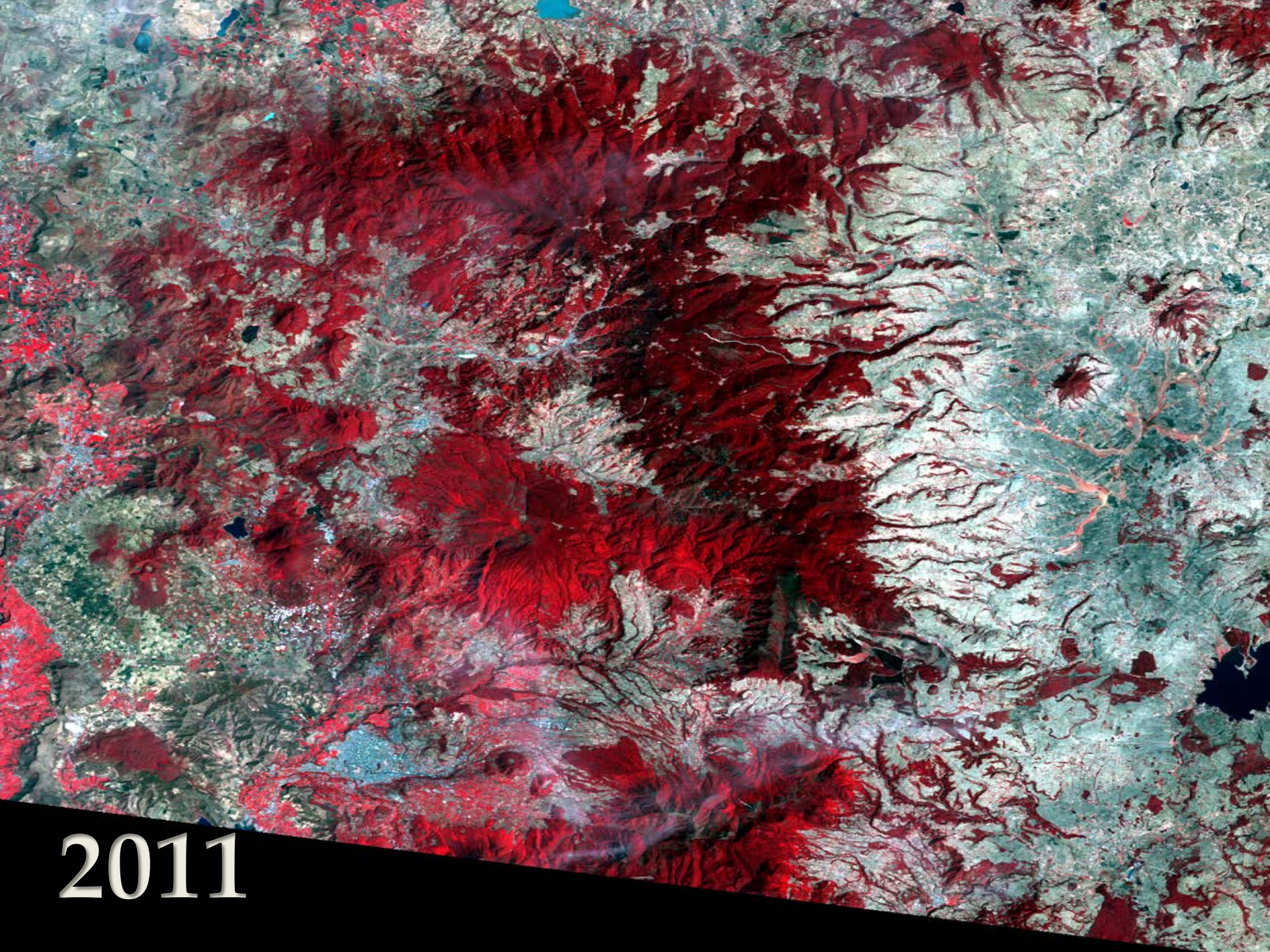
The Monarch Butterfly Biosphere Reserve, established in 1986, is intended to protect the overwintering areas.
But studies have shown that deforestation has occurred within the reserve. Some of that deforestation can be tracked from space with NASA's Landsat (satellite) imagery.

Vegetation is displayed as red in these false color images. As you take a closer look, watch for gray patches in areas that were once red. This indicates a degraded forest.

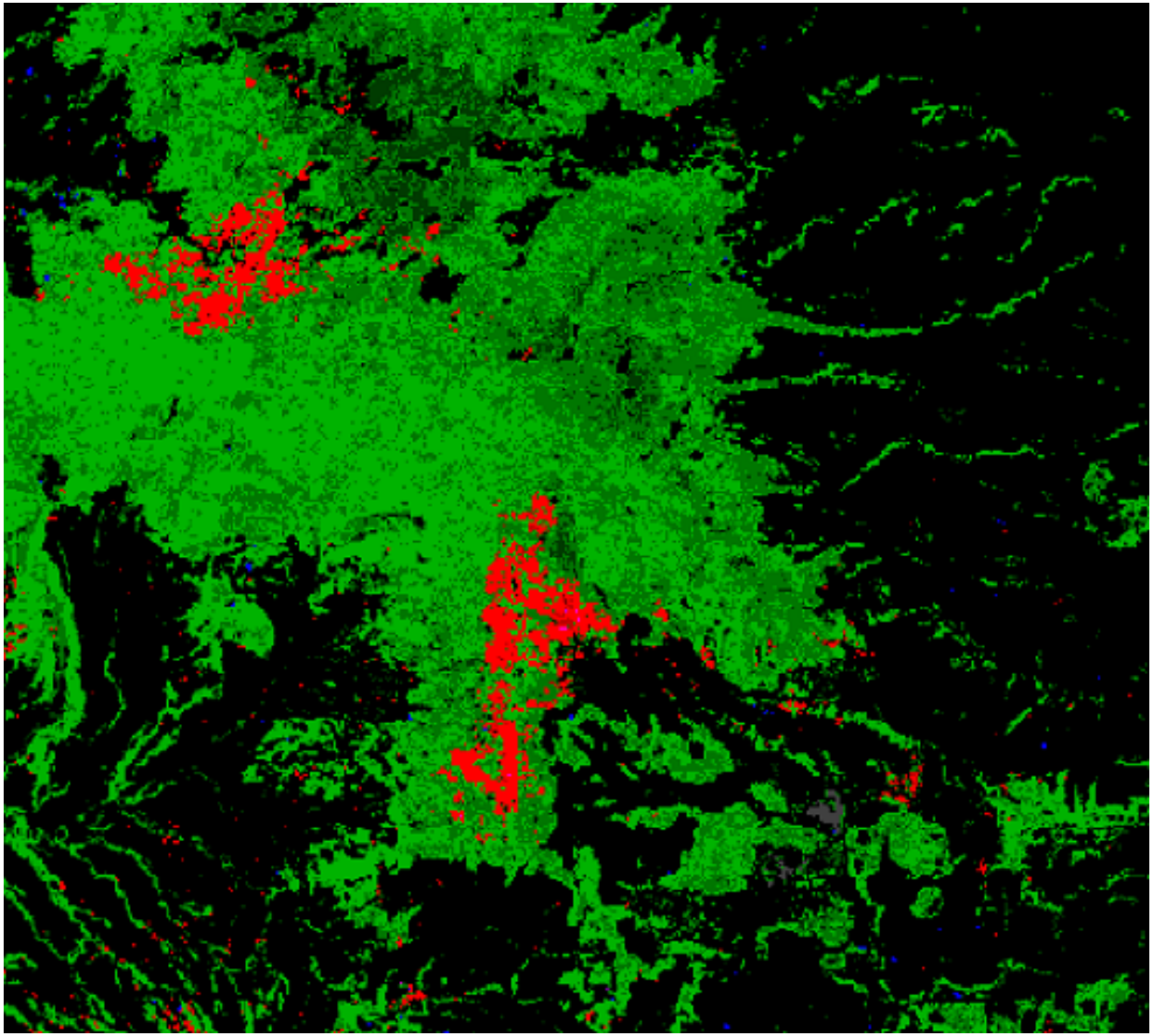


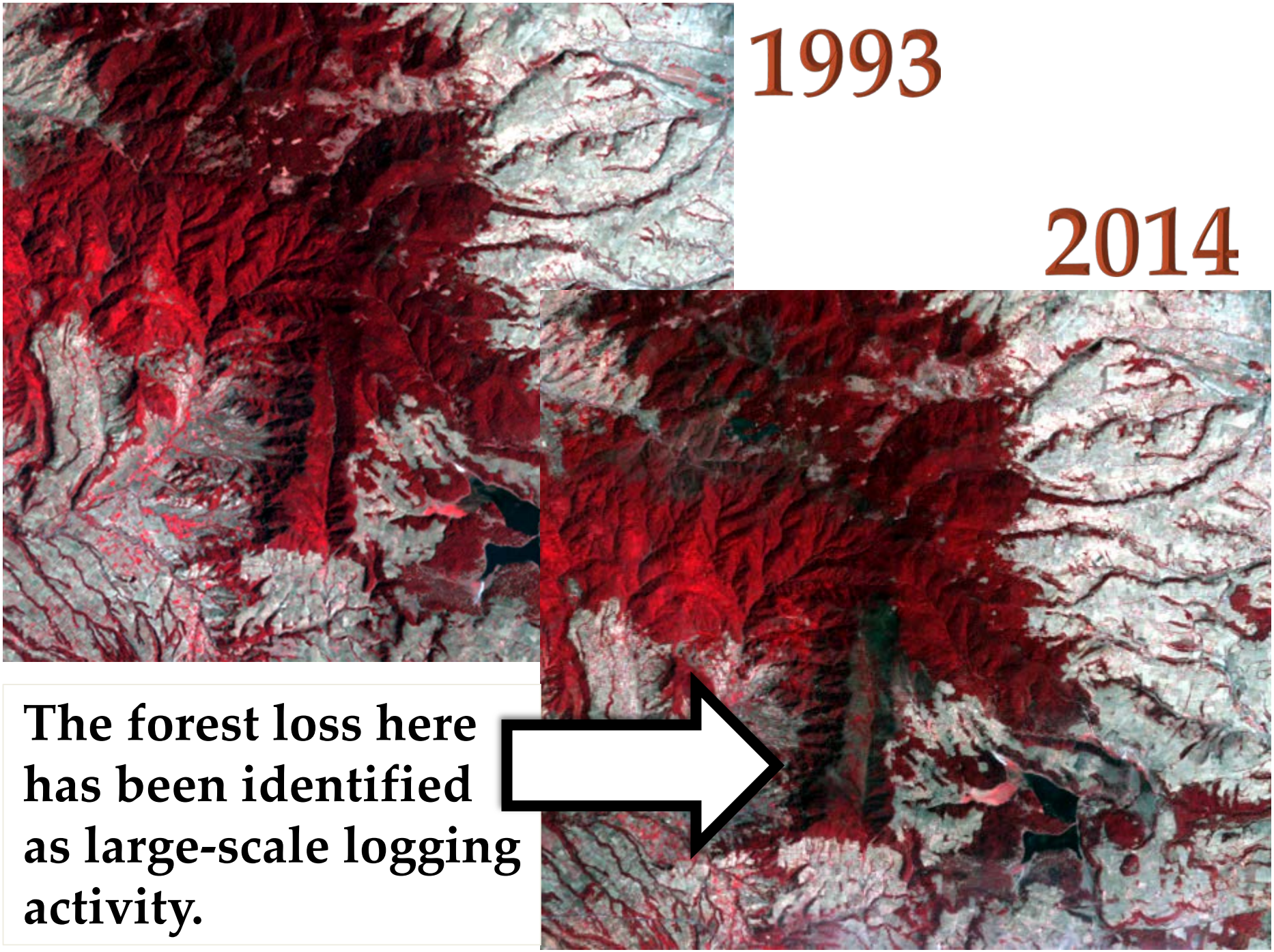

Monarch Butterfly
Biosphere Reserve


1993

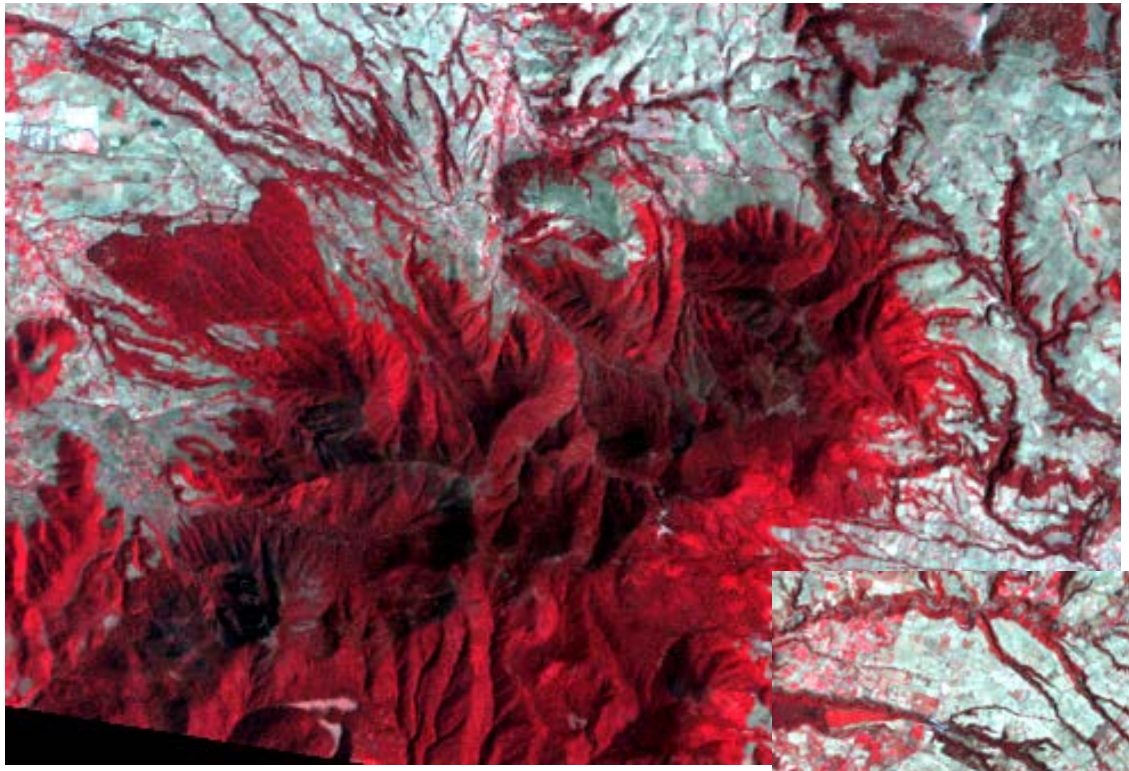

2011

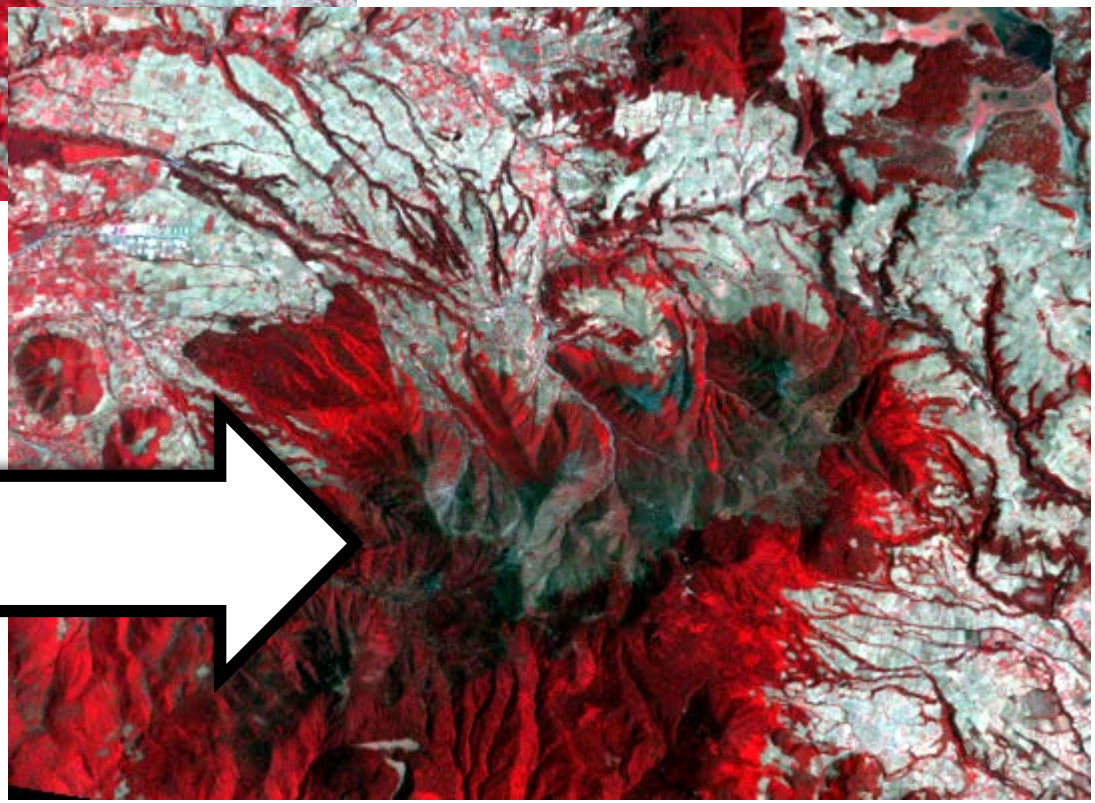
The red spots in this global forest map indicate forest loss. The image is the reserve's core zone.





The forest loss here has been identified as large-scale logging activity.





Another part of the reserve shows significant forest loss within the reserve.

Good News?

In the recent decades, some seasons have seen a significant increase in the overwintering sites of Mexico.

It's been an encouraging new trend, but researchers continue to keep an eye on the situation…

Bad News?

Despite the good news, some scientific studies predict up to a 50% chance that monarch numbers may drop so much in the next 20 years that the species won’t be able to recover…

Migrating Monarchs

Sources:

USGS Earth Shots
https://earthshots.usgs.gov/earthshots

Journey North
https://journeynorth.org/tm/monarch/SanctuaryFactsOyamel.html

Created by P. Merrill, OKAGE