



# *THE MONARCH BUTTERFLY*

*North America's Amazing Migrant*

*DEBRA VALOV*

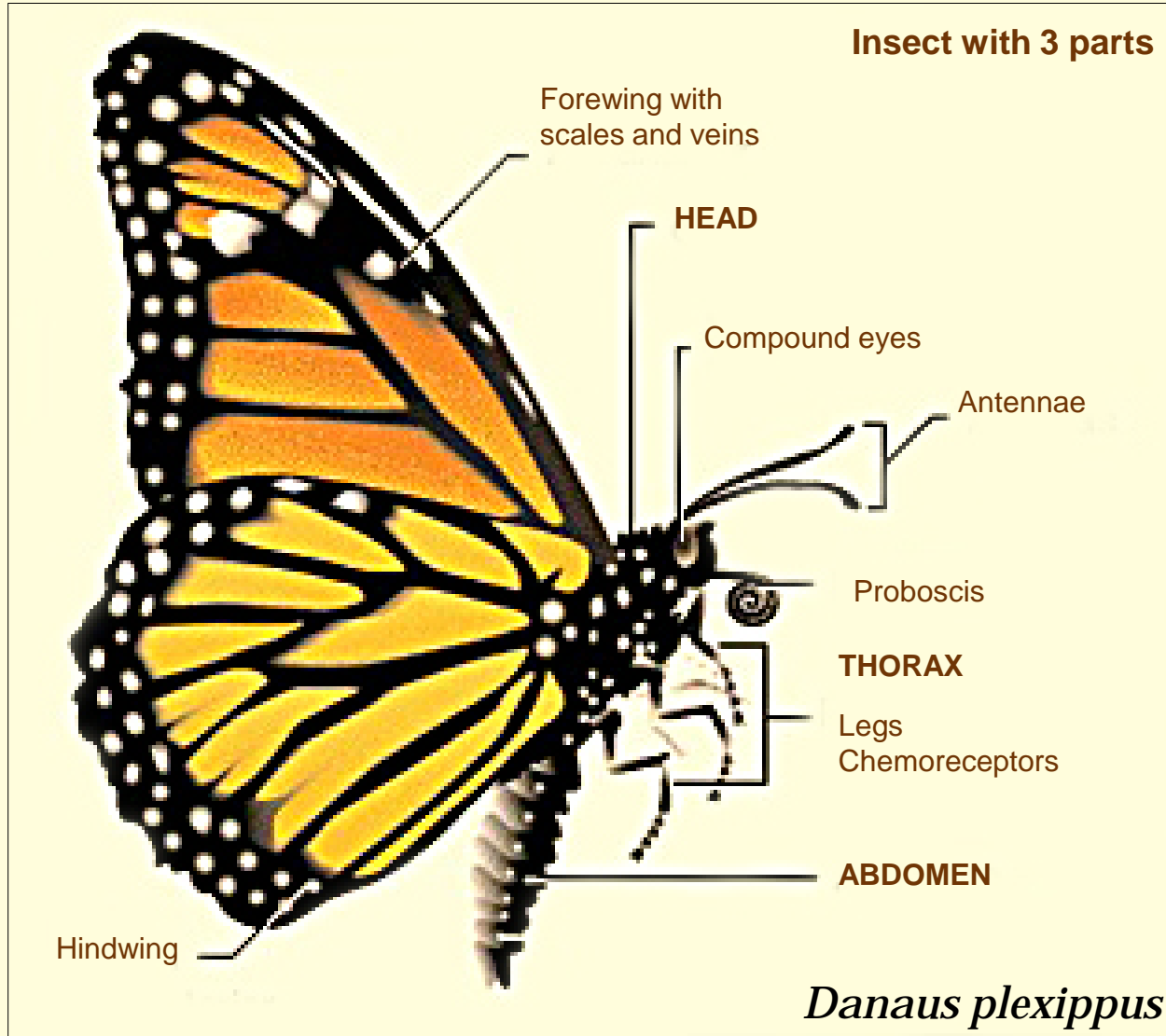
[WWW.LASECOMUJERES.ORG](http://WWW.LASECOMUJERES.ORG)

A vertical strip on the left side of the slide shows a close-up of monarch butterfly wings. The wings are orange with black veins and white spots along the edges. The background of the slide is a light beige color.

# Outline

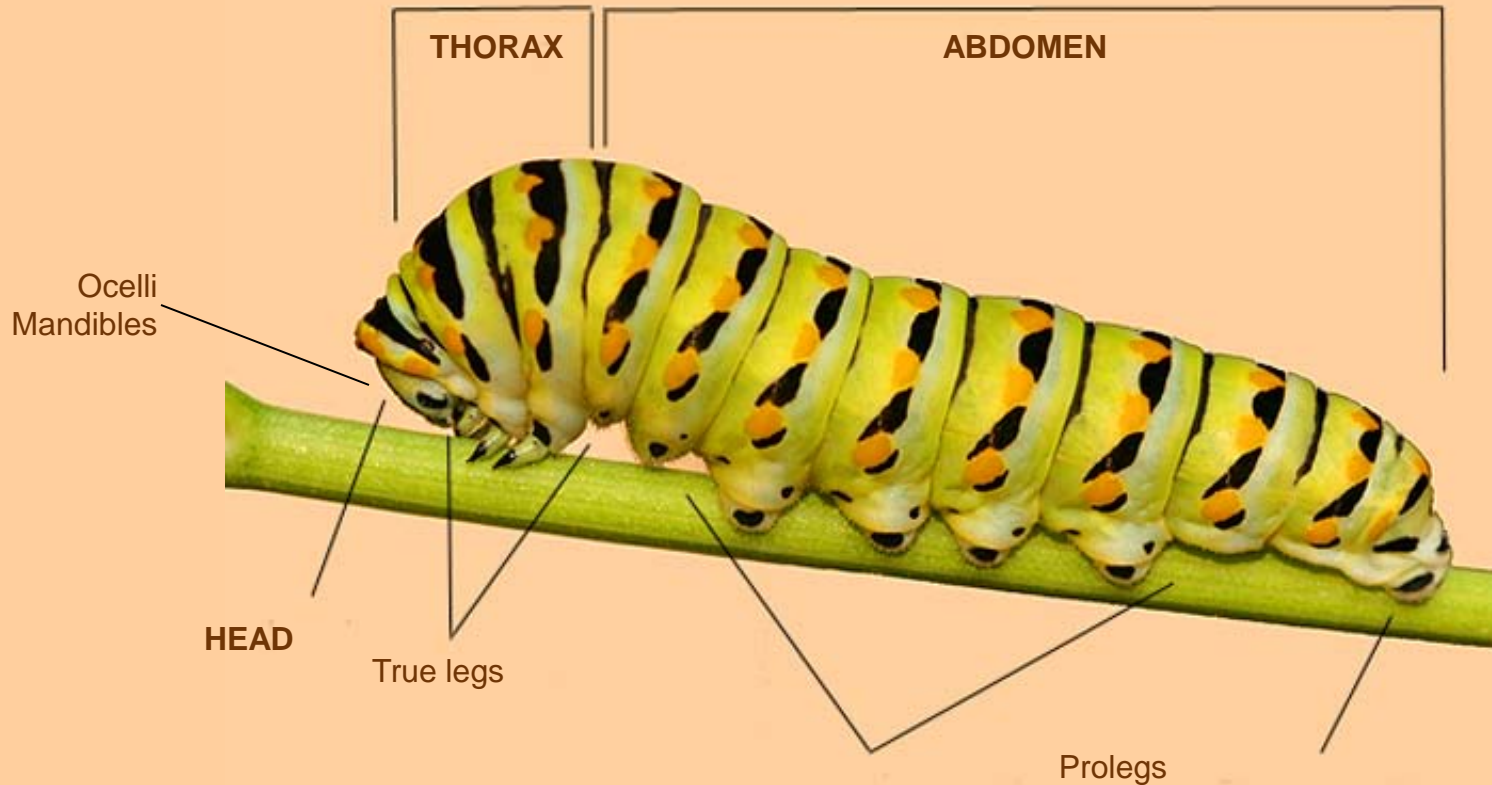
- **Monarch Biology**
- **Monarch Life Cycle**
- **Monarch Annual Cycle and Migration**
- **Conservation**
- **The Monarch's Cultural Significance**

# Butterfly Morphology



# Caterpillar Morphology

## CHITINOUS EXOSKELETON



# Dimorphism

- Female
  - Thicker veins
  - Slightly smaller
- Male:
  - A black spot on each hindwing
  - Appear paler



# Function

**Caterpillar**



**Feeding and Growth**

## **Host Plants**

*Asclepias* spp.

Milkweed

Foliage

**Adult**



**Reproduction**

... plus a wide variety

Nectar  
10% sugars

# Milkweed



- Great diversity
- 100+ species
- 25 native ornamental plants



- Toxic chemicals
- Milky latex sap / *savia lechosa*
- Natural insecticide
- Monarchs accumulate toxins

# Milkweed







# Aposematic Colors

**Caterpillar**



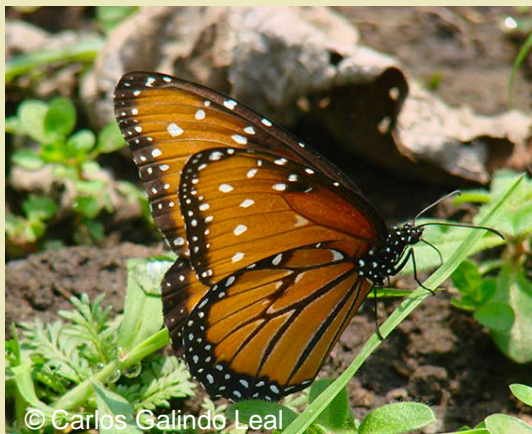
Warning / Advertencia  
Don't eat me! / ¡No me comas!

**Adult**



Camouflage / camuflage

**LOS DOBLES**



© Carlos Galindo Leal

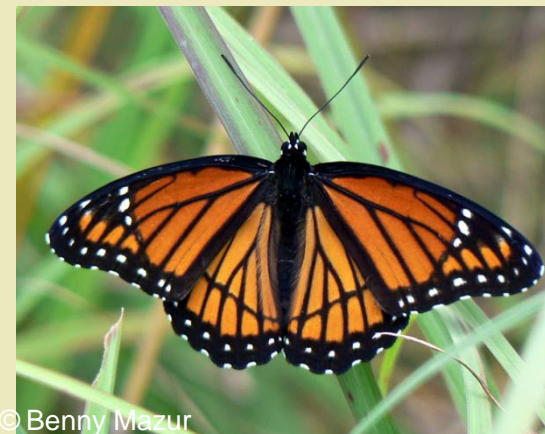
**Queen–*Danaus gilippus***



© Ken Thomas

**Soldier–*Danaus erisemus***

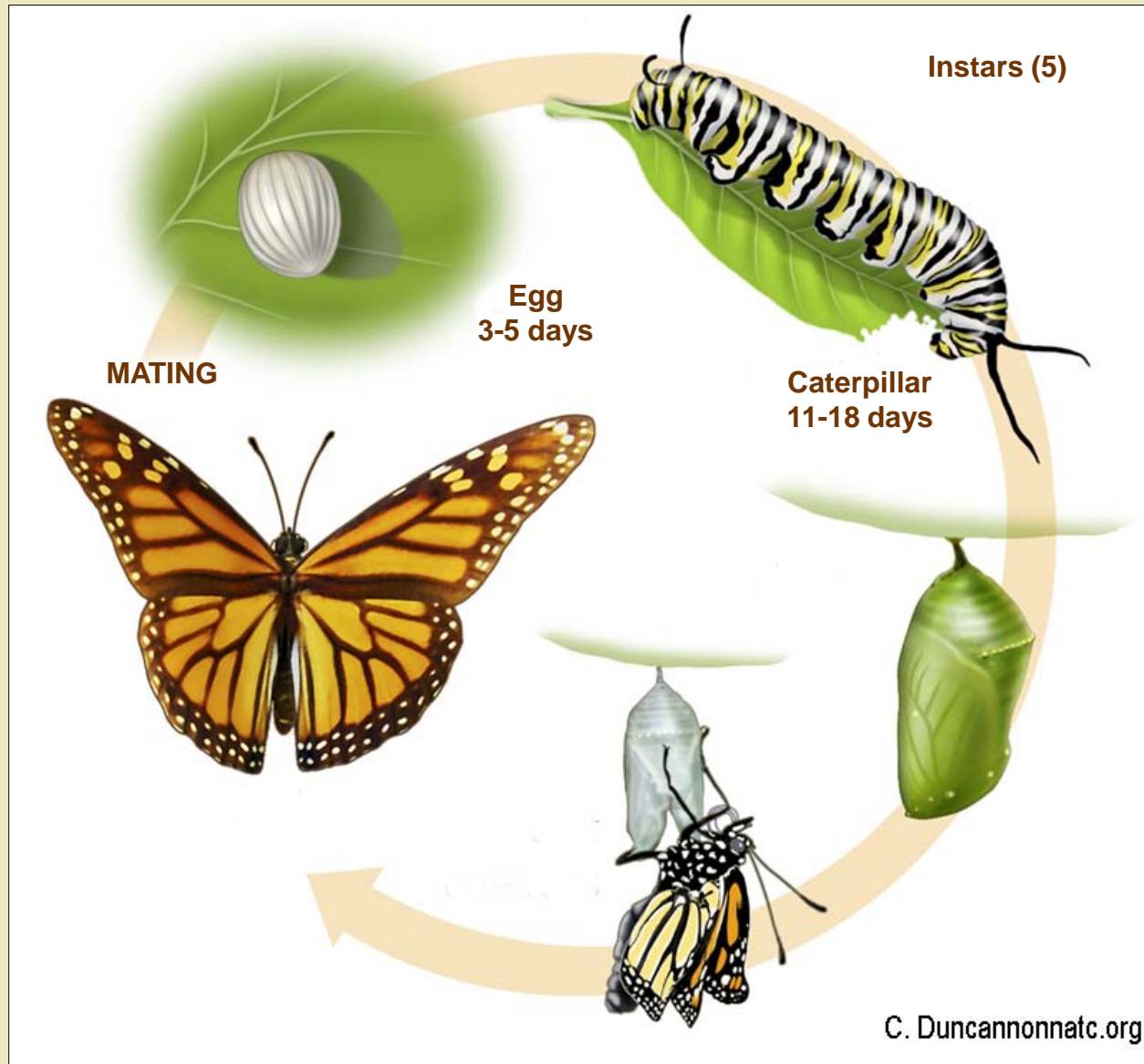
**LOS IMITADORES**



© Benny Mazur

**Viceroy–*Limenitis archippus***

# Life Cycle



# Five Instars

1 - 2 mm L



6 - 9 mm L



10 - 14 mm L



13 - 25 mm L



25 - 45 mm L



Shed exoskeleton 4 times

In 14 days, their body weight increases about 2700 times

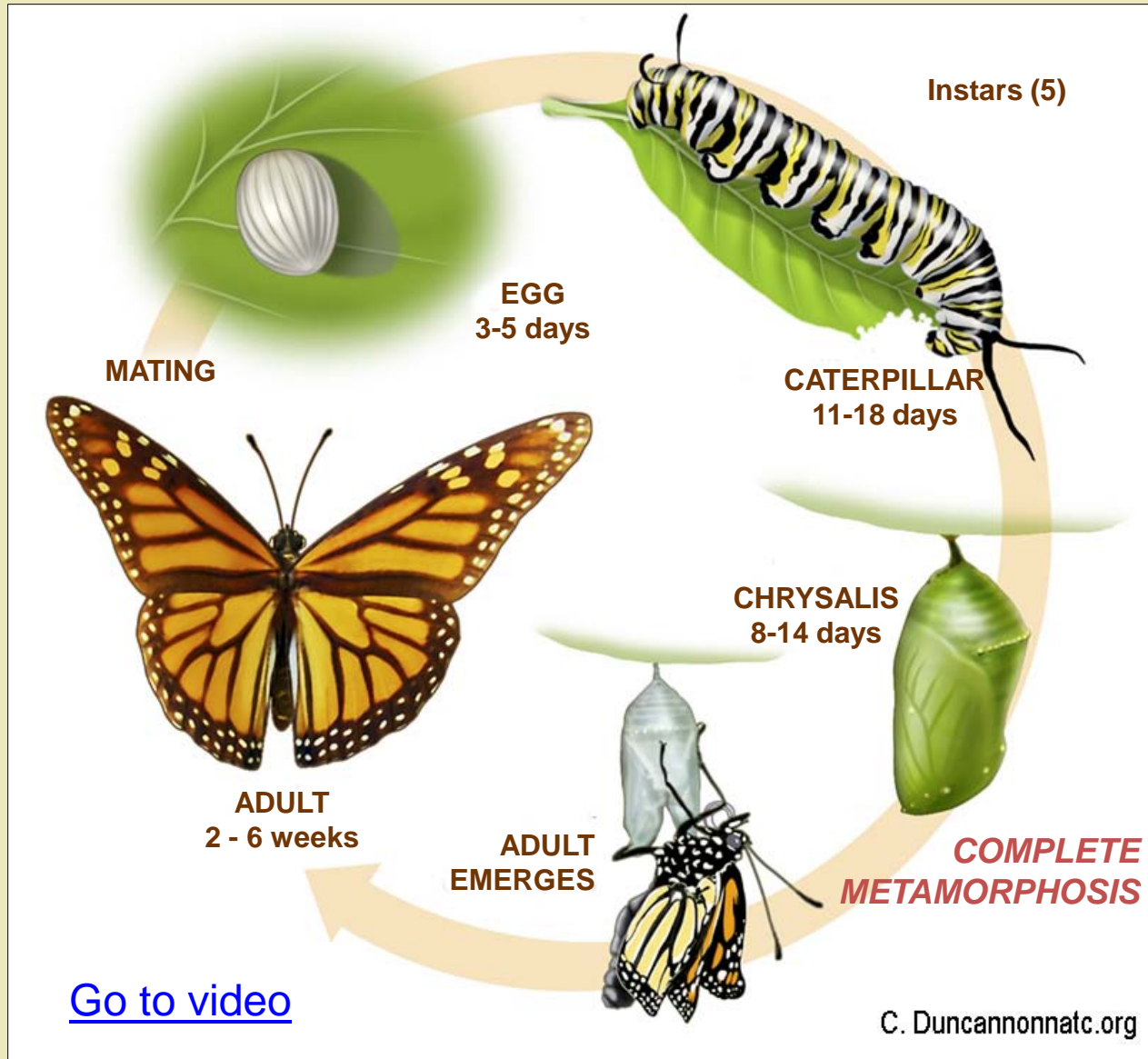


Human baby (8 lbs)



Orca (21,600 lbs or 10 tons)

# Life Cycle



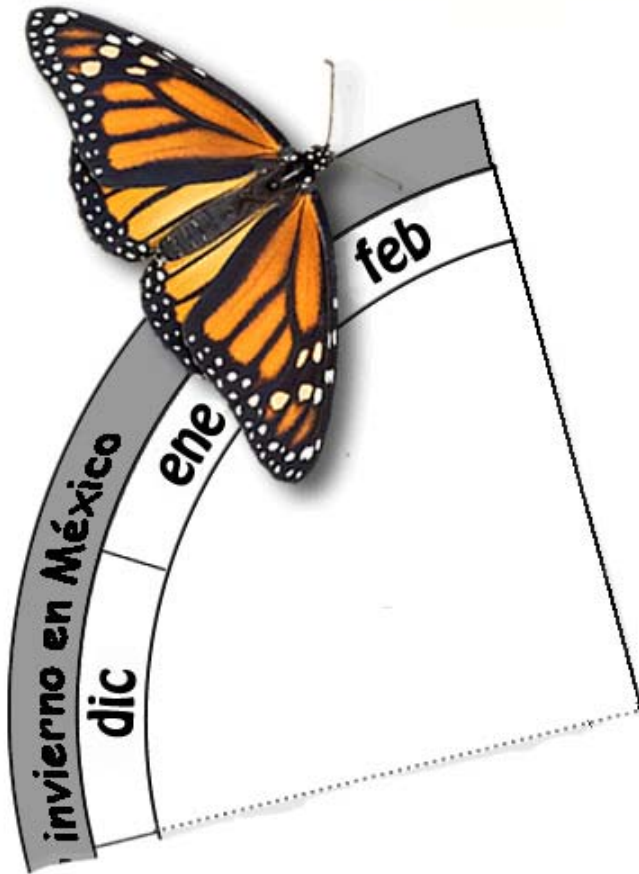


# Migration and Their Annual Cycle

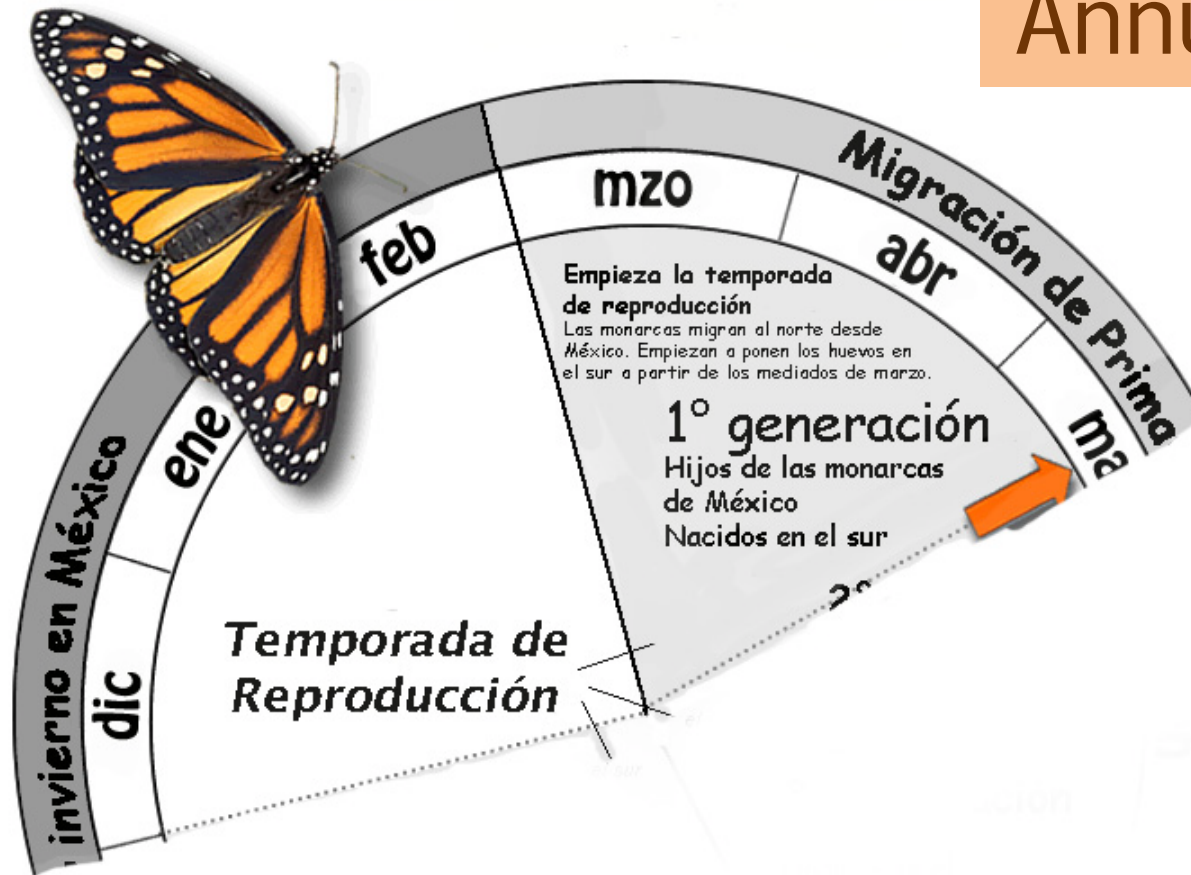
- **A long and unique migration in the animal kingdom.**
  - Trinational (3 countries, approx. 3,000 miles)
  - Multigenerational (4 or 5 generations)
- **Why do they migrate?**
  - Can't tolerate winter temperatures in the north (body temp.  $\geq 55^{\circ}$  F)
- **How do they know when to reproduce or migrate?**
  - Reproduction: day length & temperature
  - Migration: day length
- **How do they know where to go?**
  - Angle of the sun
  - Earth's magnetic field (possible)



# Annual Cycle

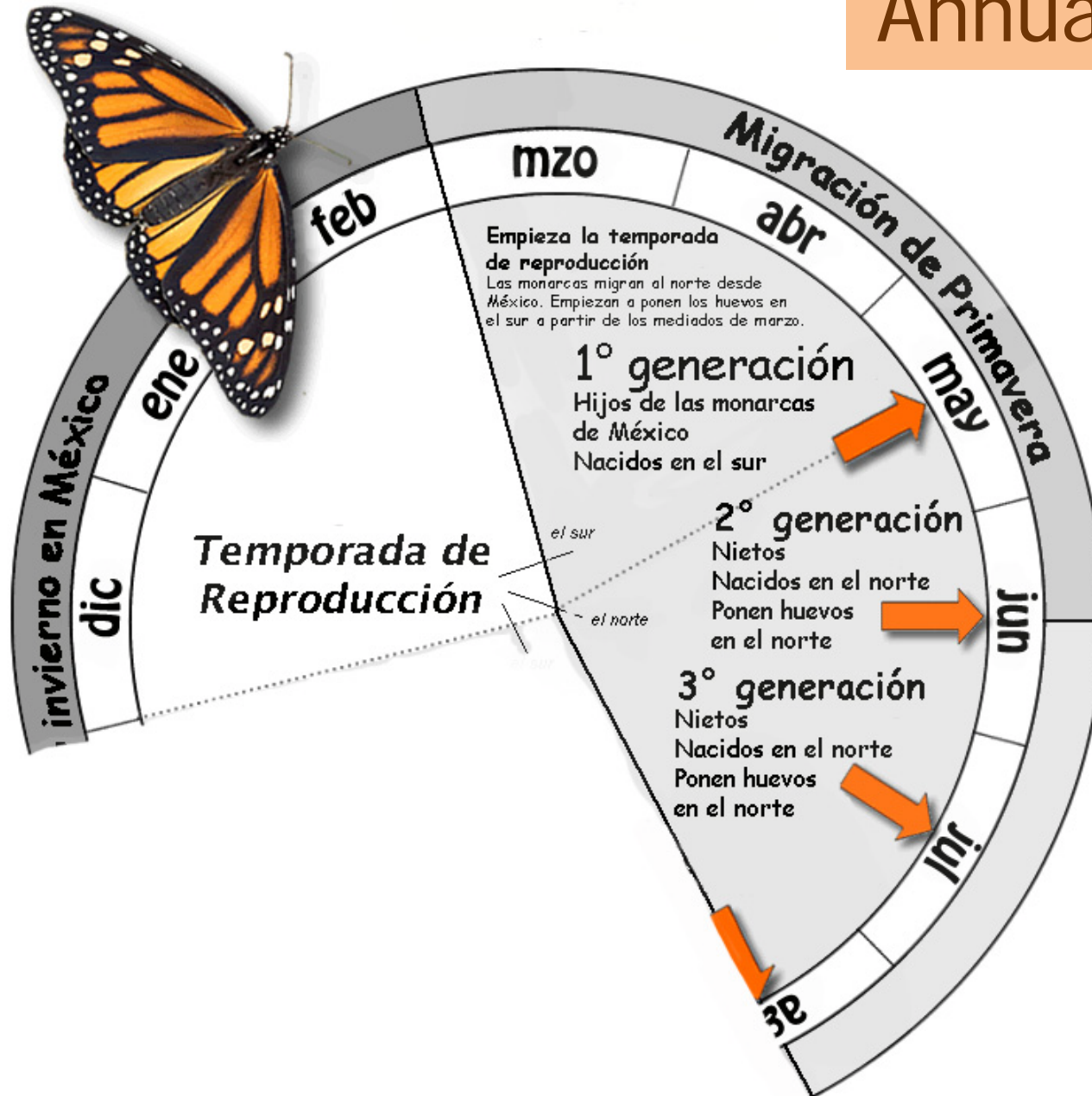


# Annual Cycle

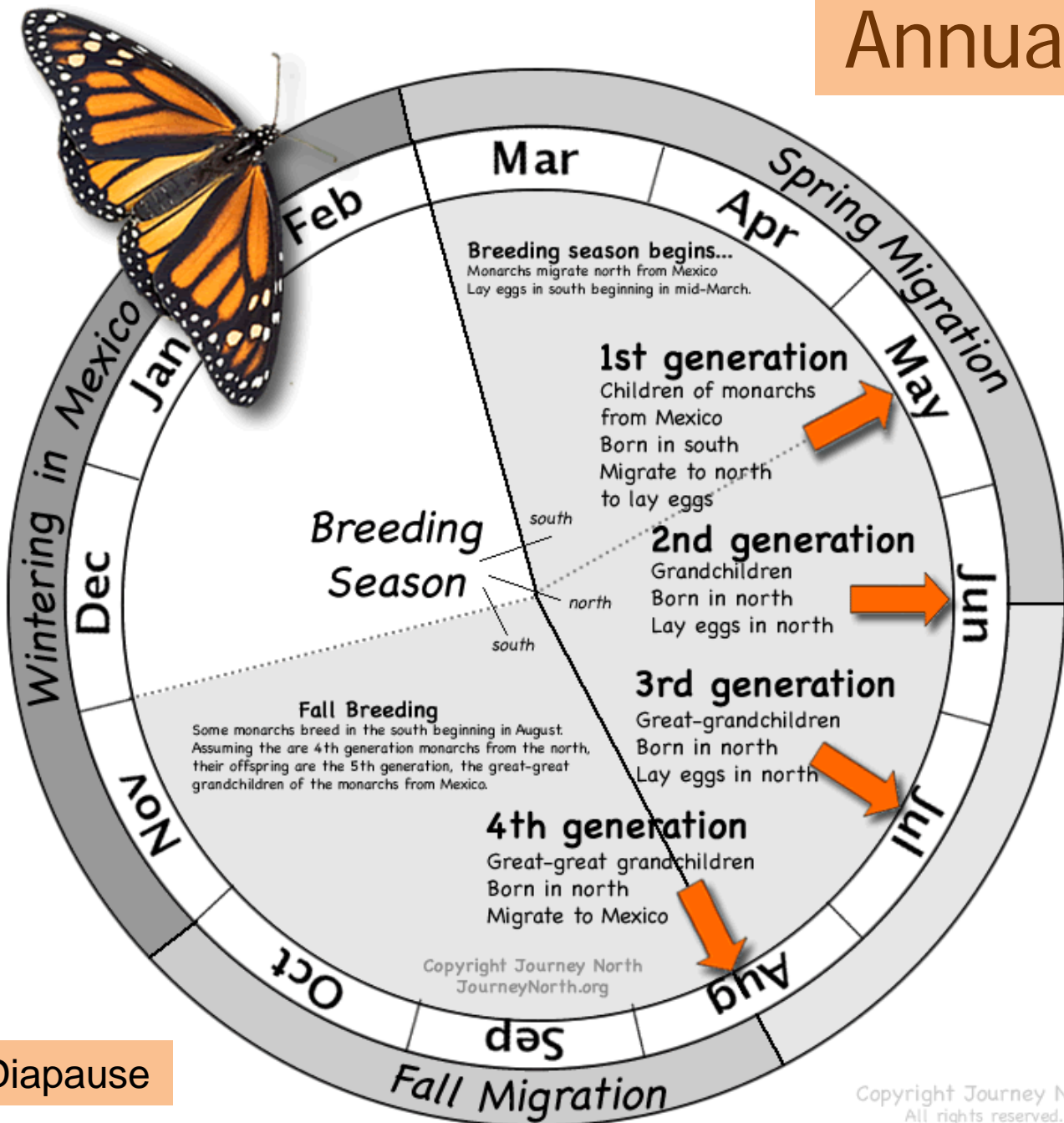




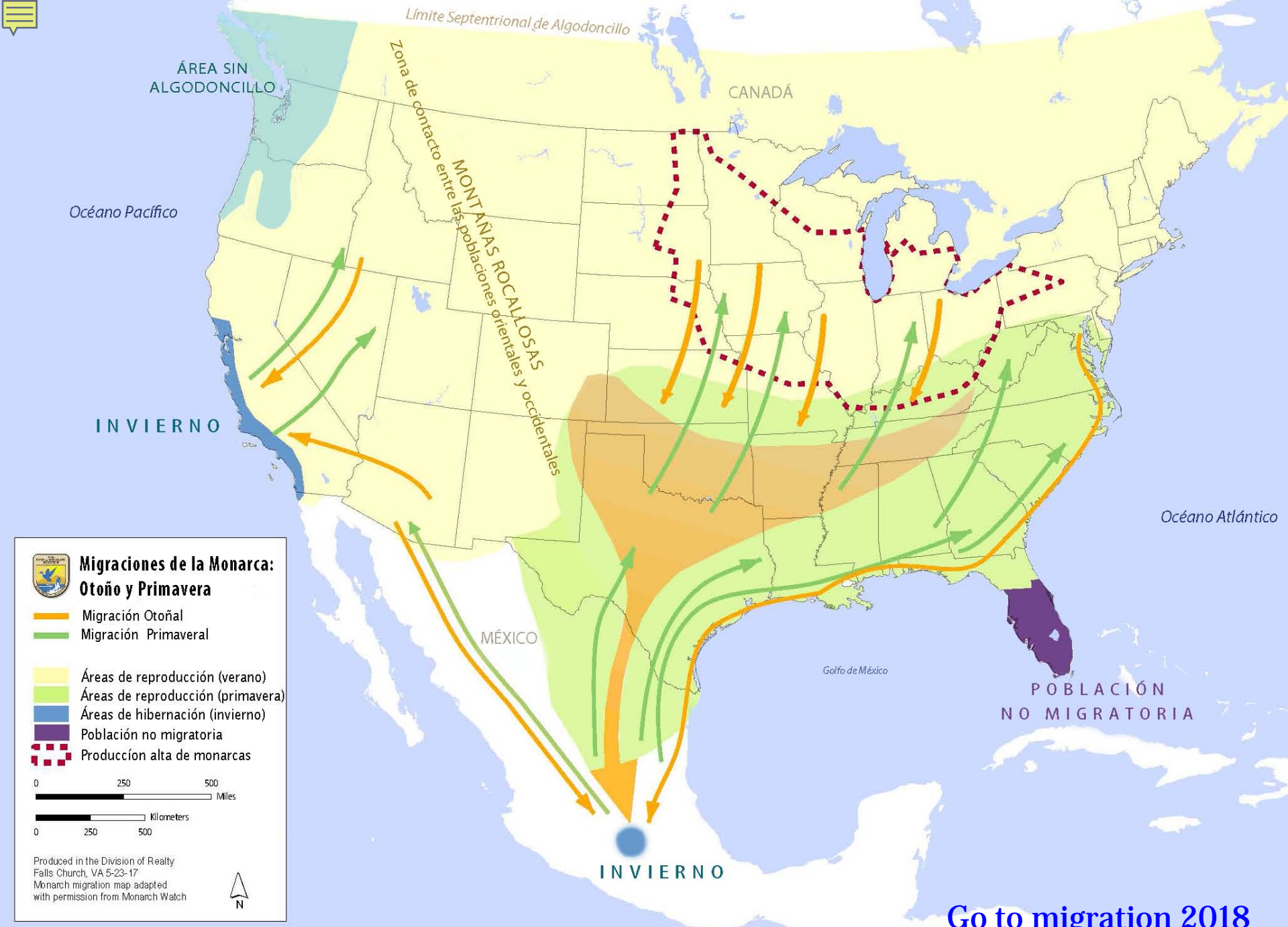
# Annual Cycle



# Annual Cycle

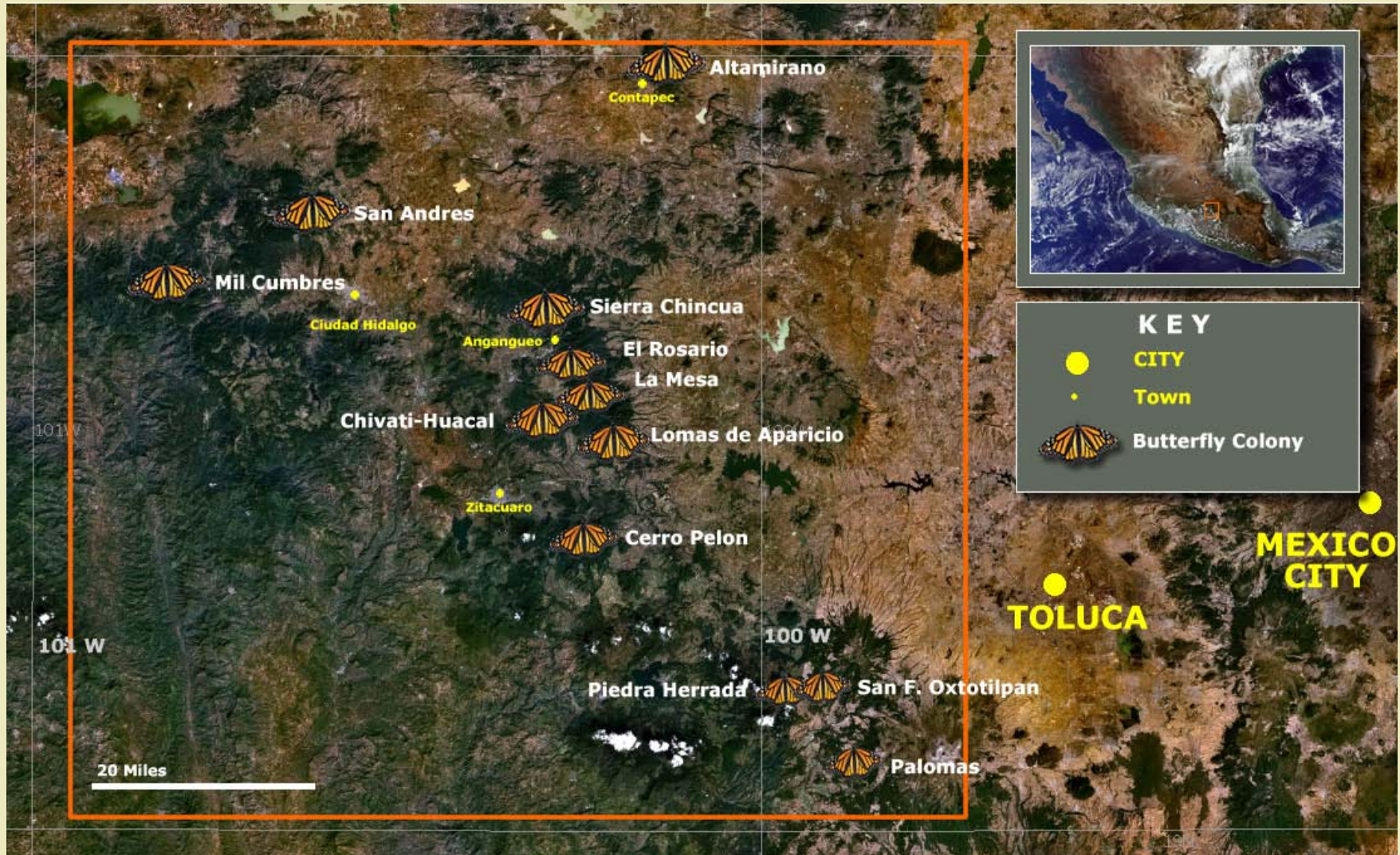


Diapause



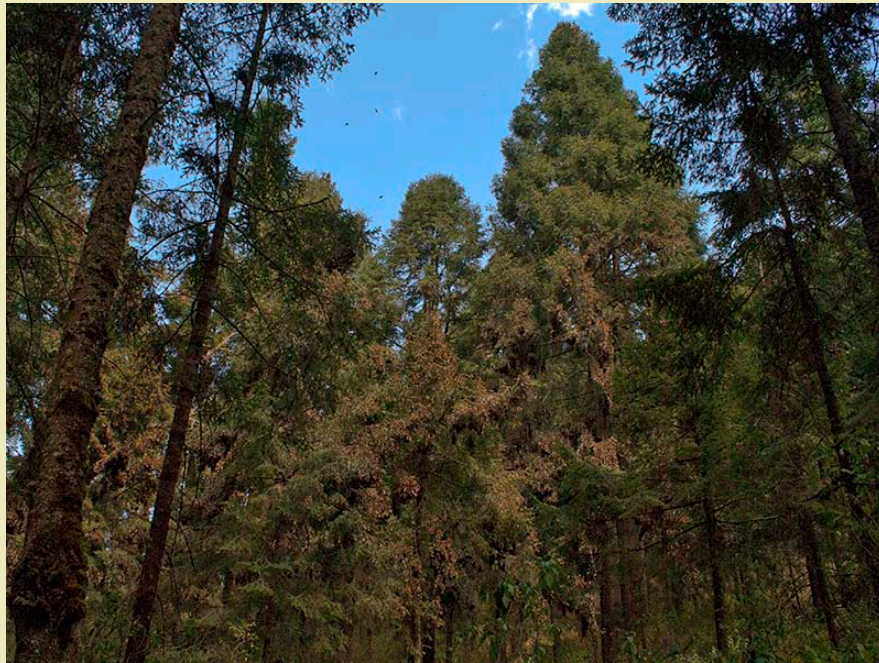
[Go to migration 2018](#)

# Arrival in Mexico



On the border of the states of Michoacán and México  
between 7800 and 11,700 feet

# La Reserva de la Biósfera Mariposa Monarca



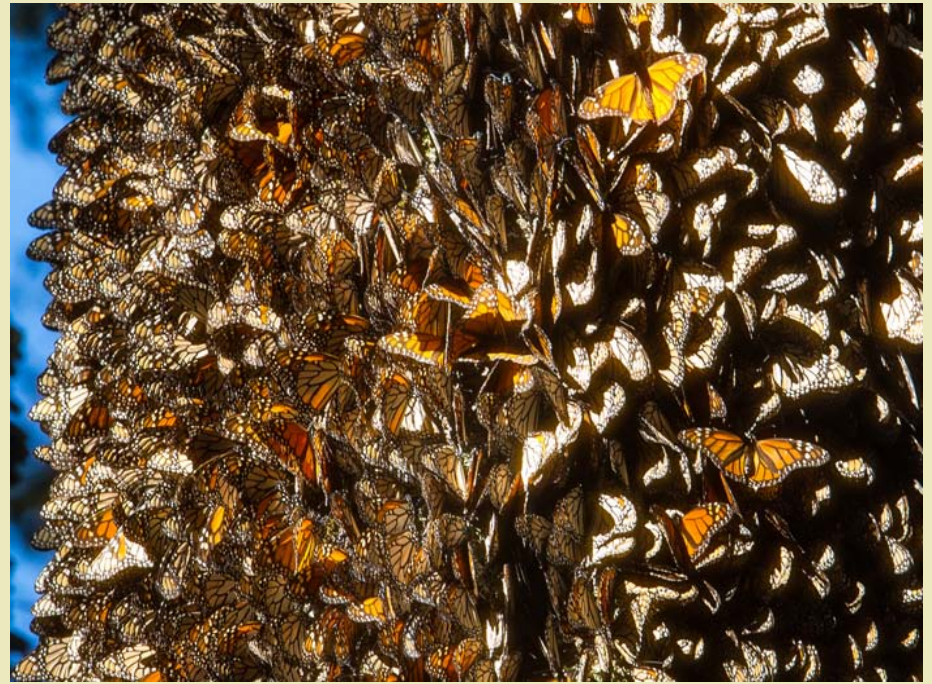
- Hibernation
- Oyamel Fir forest
- Microhábitat with mild temperaturas, high humidity & little wind
- 138,380 acres

- World Heritage Site (Un sitio del Patrimonio de la Humanidad) –UNESCO
- 4 tourist stations (Sierra Chincua, El Rosario, La Mesa, El Capulín)
- 2017-18: 124 million in 6.3 acres (± 6 football fields)

[Go to video](#)











# Cultural Significance



Their ancestors are returning

Arrival of monarchs  
coincides with Day of the  
Dead



# Threats

## Loss of milkweed habitat



Agriculture



Urbanization



Pesticides y herbicides

## Climate change

### Loss of forest refuges



Illegal clearcutting



Extreme weather



Unexpected changes



# Conservation



Migration to Mexico discovered

1907



Official protection begins in Mexico

1980



Trinational workshops for "sister" protected areas begin

2006

Trinational Working Group to protect and conserve migration established

2014

1975

Hibernation areas located



2000

Declared a Biosphere Reserve



2008

Named World Heritage Site



2010

Network of organizations along the migratory route form



Current population  
124 million

Longtime average  
300 million

Historic high  
1 billion



# ¡Gracias!

This ISSI presentation can be found at:  
[www.lasecomujeres.org](http://www.lasecomujeres.org)