# Anderson Academy

## BIO 140 B · Binomial Nomenclature

## Extracurricular: Biology

# Lecture 5: Costa Rica

# Costa Rica

- Size of West Virginia
- Between two continents = remarkable species richness!



## Ecosystems to explore:

- Lowland rain forest
- Dry forest (Northwest)
- Cool cloud forest (Mountains)

# The Macaws



## Scarlet Macaw

*Ara macao*

- Ara = Tupi name for macaws
- macao = old word for the bird
- (First placed in Psittacus by Linnaeus)



## Great Green Macaw

*Ara ambiguus*

- ambiguus = doubtful (early describer's uncertainty)
- Found in Caribbean lowlands

# Two Kinds of Sloth



## Brown-throated three-toed sloth

*Bradypus variegatus*

- Brady (slow) + pous (foot)
- variegatus = of varied color (mottled fur)



## Hoffmann's two-toed sloth

*Choloepus hoffmanni*

- Choloepus = lame-footed (Greek)
- hoffmanni = honors Karl Hoffmann (German naturalist, 1850s)

# Claws & Cousins

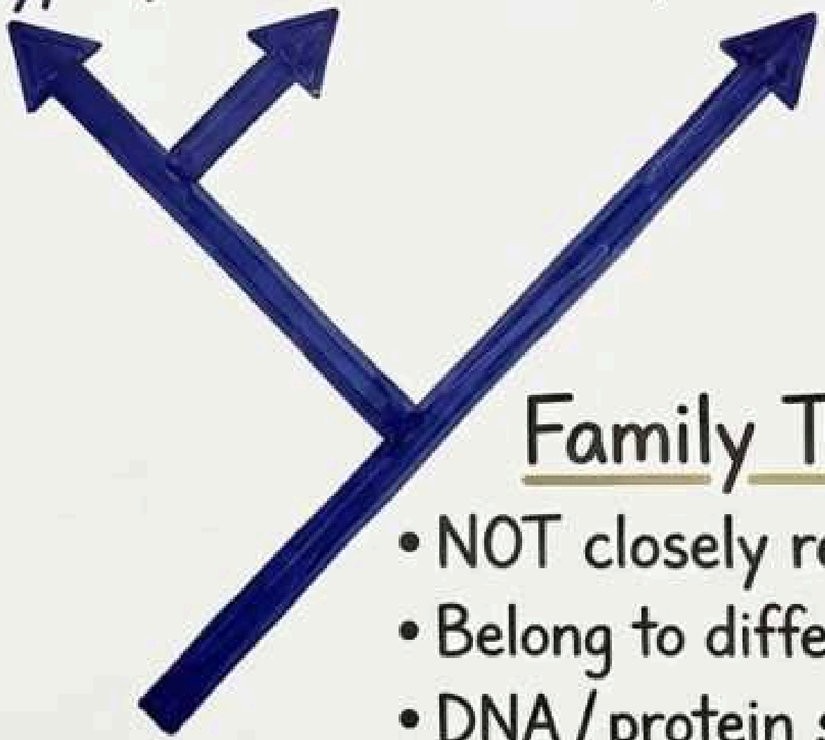


## Counting Claws:

→ Look at the FRONT feet!

→ Three-toed = 3 claws

→ Two-toed = 2 claws




## Family Ties:

- NOT closely related!
- Belong to different families
- DNA / protein studies (since 2019) continue revising their fossil family tree

# Reading Sloth Names Slowly

## Scientific clues vs. Common clues:

- *Bradypus variegatus* = "slow-foot of varied color"
- *Choloepus hoffmanni* = "lame-foot of Hoffmann"
  (Neither name mentions toes!)

## Field Marks:

→ Look for green tint in fur (symbiotic algae)

→ Look for dark eye stripe (three-toed)



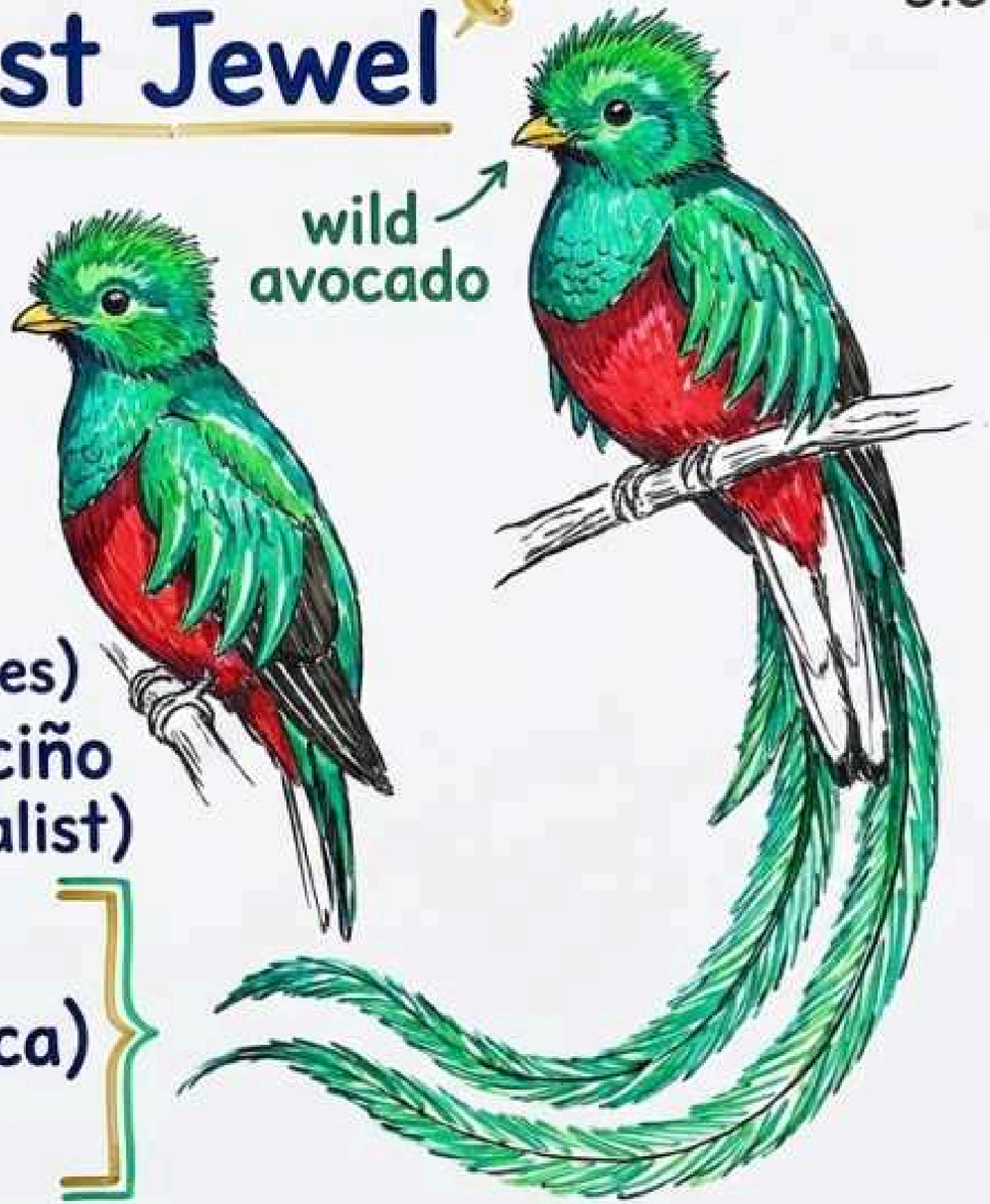
Both declared Costa Rican National Symbols in 2021!



# The Cloud Forest Jewel

## Resplendent quetzal
## *Pharomachrus mocinno*






### Name Decode:

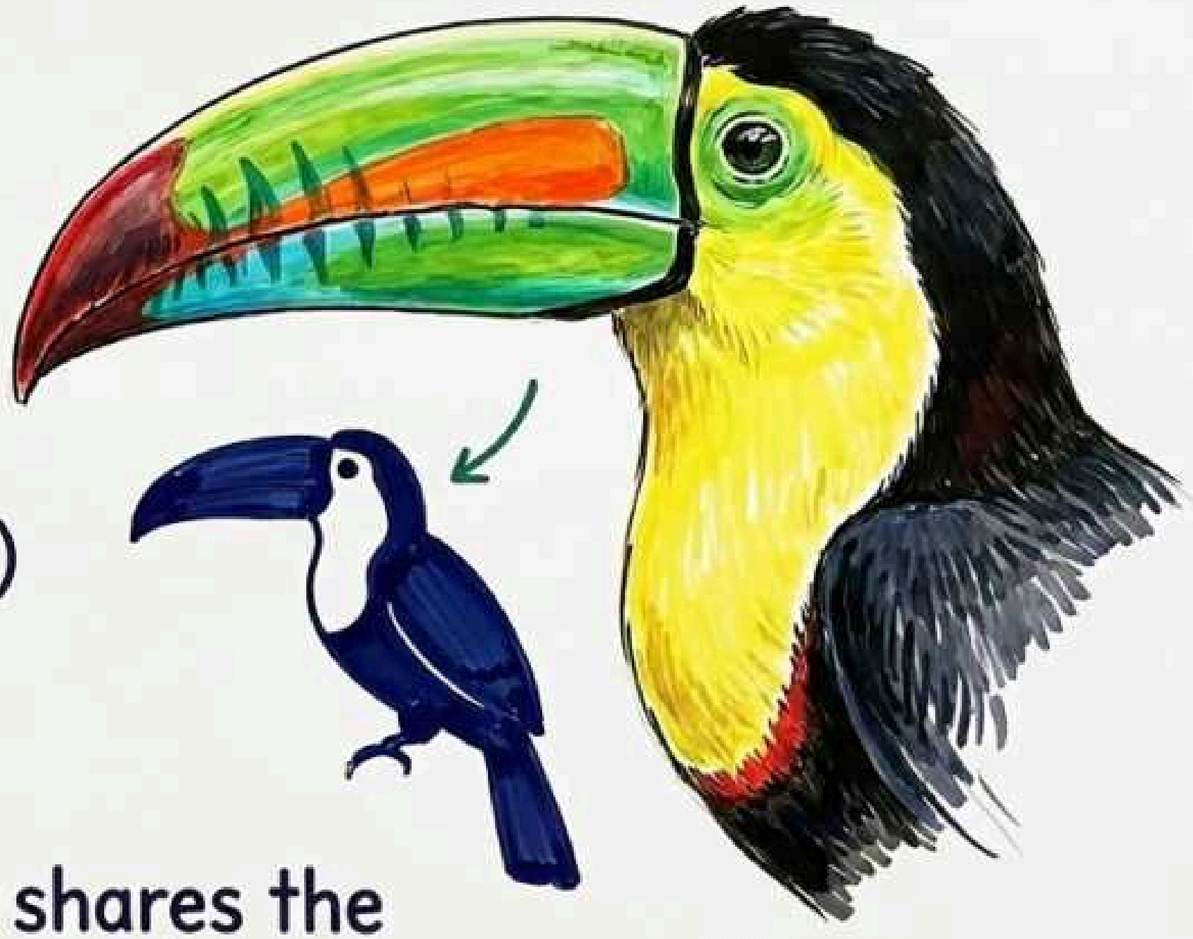
- *Pharomachrus* = long mantle / cloak
  (Greek, for its tail plumes)
- *mocinno* = honors José Mariano Mociño
  (18th-century Mexican naturalist)

### Habitat & Diet:

- Cloud forests (Monteverde, Talamanca)
- Feeds on wild avocados

# The Toucans (Family: Ramphastidae)

## Keel-billed toucan
## *Ramphastos sulfuratus*



### Name Decode:

- *Ramphastos* = beak (Greek *rhamphos*)
- *sulfuratus* = sulfur-colored (its yellow chest)

- Note: Yellow-throated toucan shares the same big-beak genus (*Ramphastos*).

# Costa Rica's National Bird

## Clay-colored thrush (Yigüirro)

*Turdus grayi*

Surprise! Not a macaw or quetzal, but a plain brown thrush.

**Name Decode:**

- *Turdus* = thrush (Same genus as the American robin!)
- *grayi* = honors George Robert Gray (British ornithologist)
- Named by Charles Bonaparte, 1838. Song announces the rainy season.



# Canopy Primates



## Mantled howler monkey
## *Alouatta palliata*

- *Alouatta* = French version of local name
- *palliata* = wearing a cloak (golden fur fringe)

## White-faced capuchin



## *Cebus imitator*

- Split in 2012 from *Cebus capucinus* prandient (named for Capuchin friars' robes) via genetic study.

# Famous Frogs

## Red-eyed tree frog
## *Agalychnis callidryas*

- *callidryas* = beautiful tree nymph

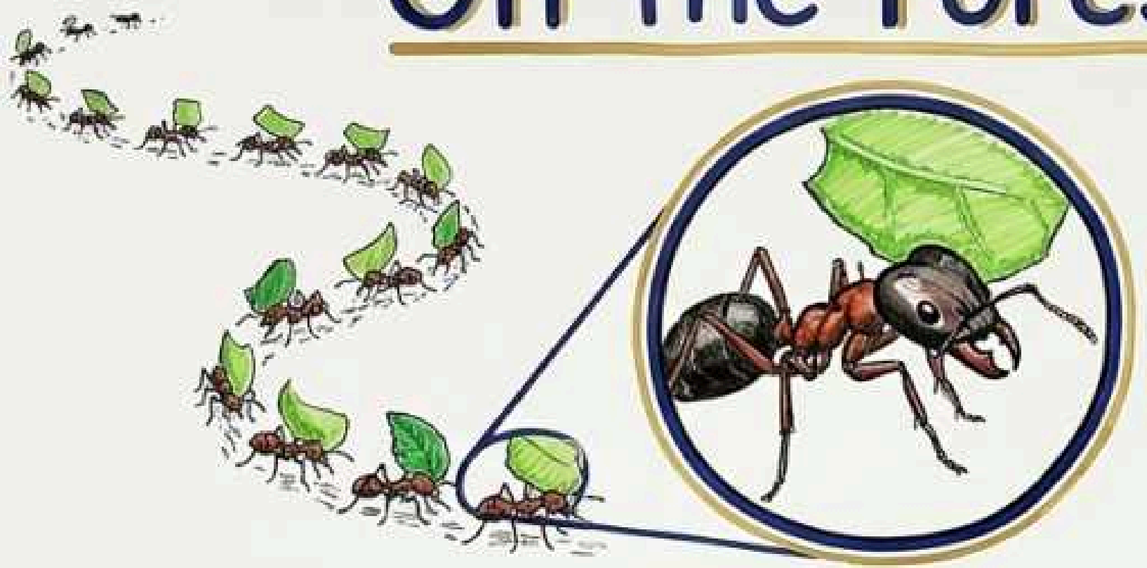


## Strawberry poison frog
## *Oophaga pumilio*

- Name revision! Moved from *Dendrobates pumilio* (2006)
- *Oophaga* = egg-eater (mother feeds unfertilized eggs to tadpoles)
- *pumilio* = dwarf



# On the Forest Floor



## Leafcutter ant

*Atta cephalotes*

- *cephalotes* = big-headed (the soldiers)
- (They don't eat leaves—they farm fungus!)

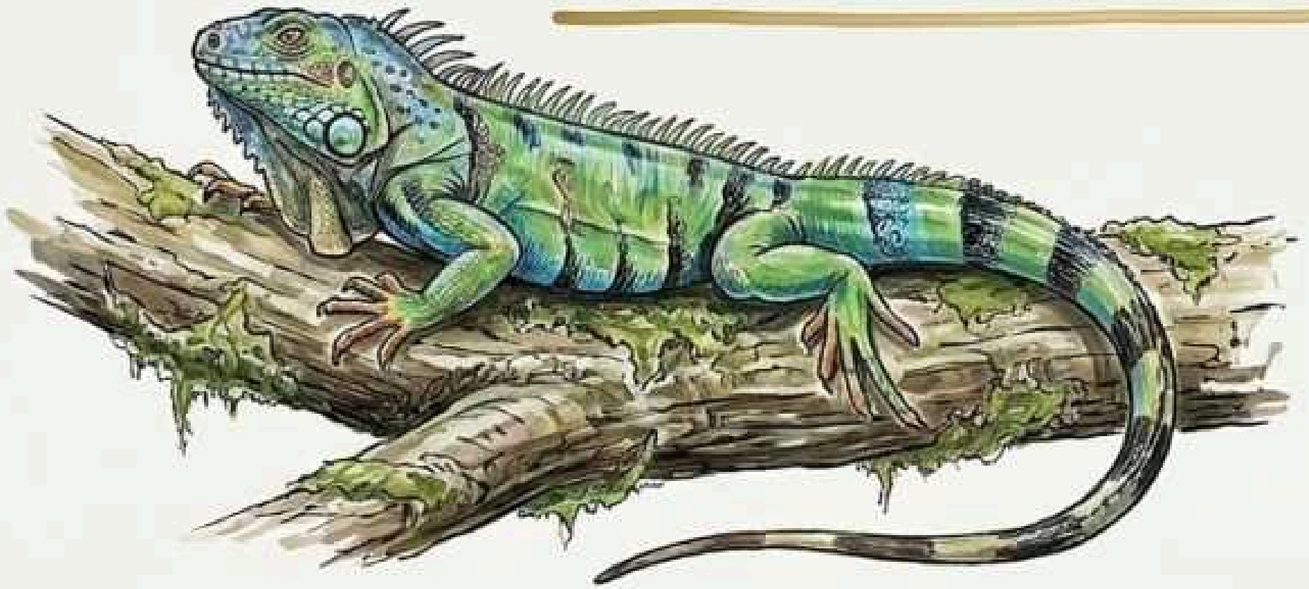


## White-nosed coati

*Nasua narica*

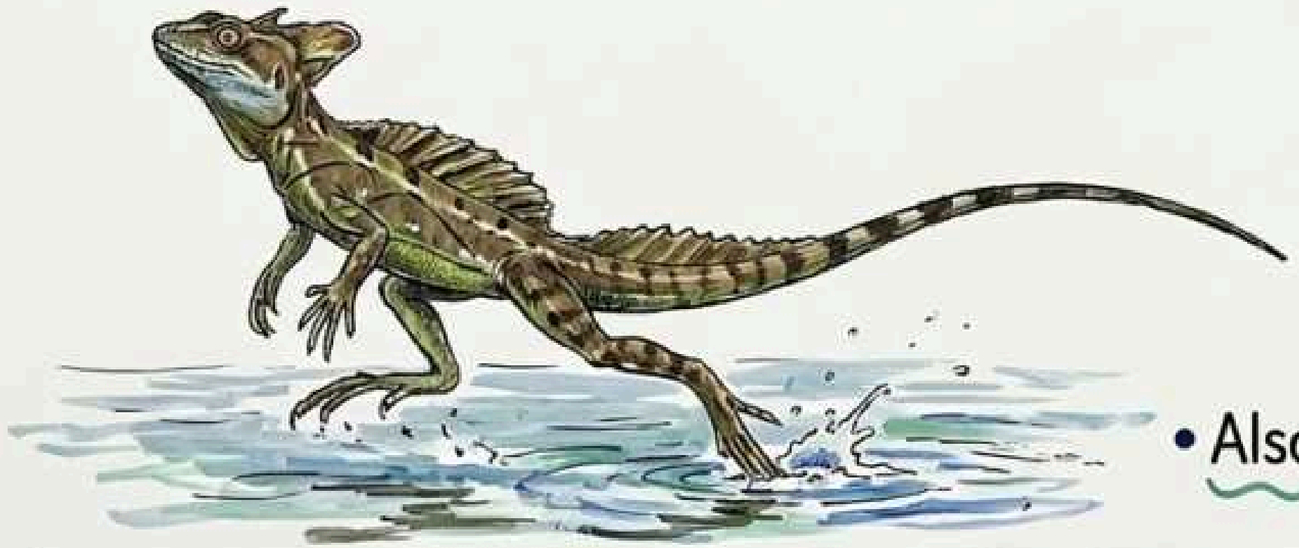
- *Nasua* = nose (Latin *nasus*)
- Long-snouted raccoon relative

# Lizards are Everywhere



## Green iguana
*Iguana iguana*

- A tautonym! (Same word twice)
- *Iguana* = Taíno language of the Caribbean

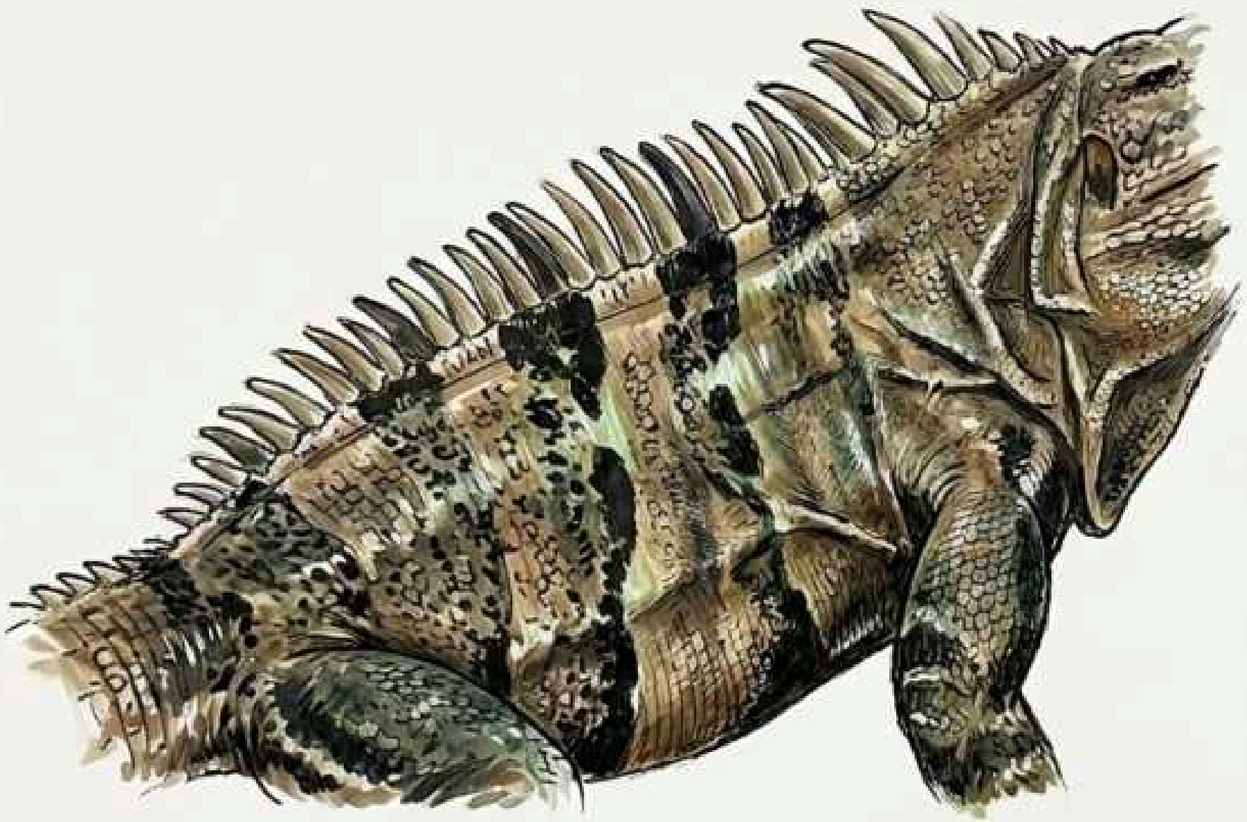


## Black spiny-tailed iguana
*Ctenosaura similis*

- Found in the dry northwest

- Also watch for the Basilisk, running on water!

# Practice Decode



Guide says:
*Ctenosaura similis*

Split & Translate:

Cteno → comb (spines along back)
saura → lizard
similis → similar (looks like another species)

= "Comb-lizard, similar"

**The habit**: Take 10 seconds to translate before you look it up!

# The Ear Tree



## Guanacaste
(Costa Rica's National Tree)

*Enterolobium cyclocarpum*

## A name you can see:

- *Entero* (intestine) + *lobium* (pod)
- *cyclo* (circle) + *carpum* (fruit)

➜ Perfectly describes the coiled, ear-shaped seed pods!

➜ Gives its name to Guanacaste province.

# The Rain Forest Giant

Ceiba

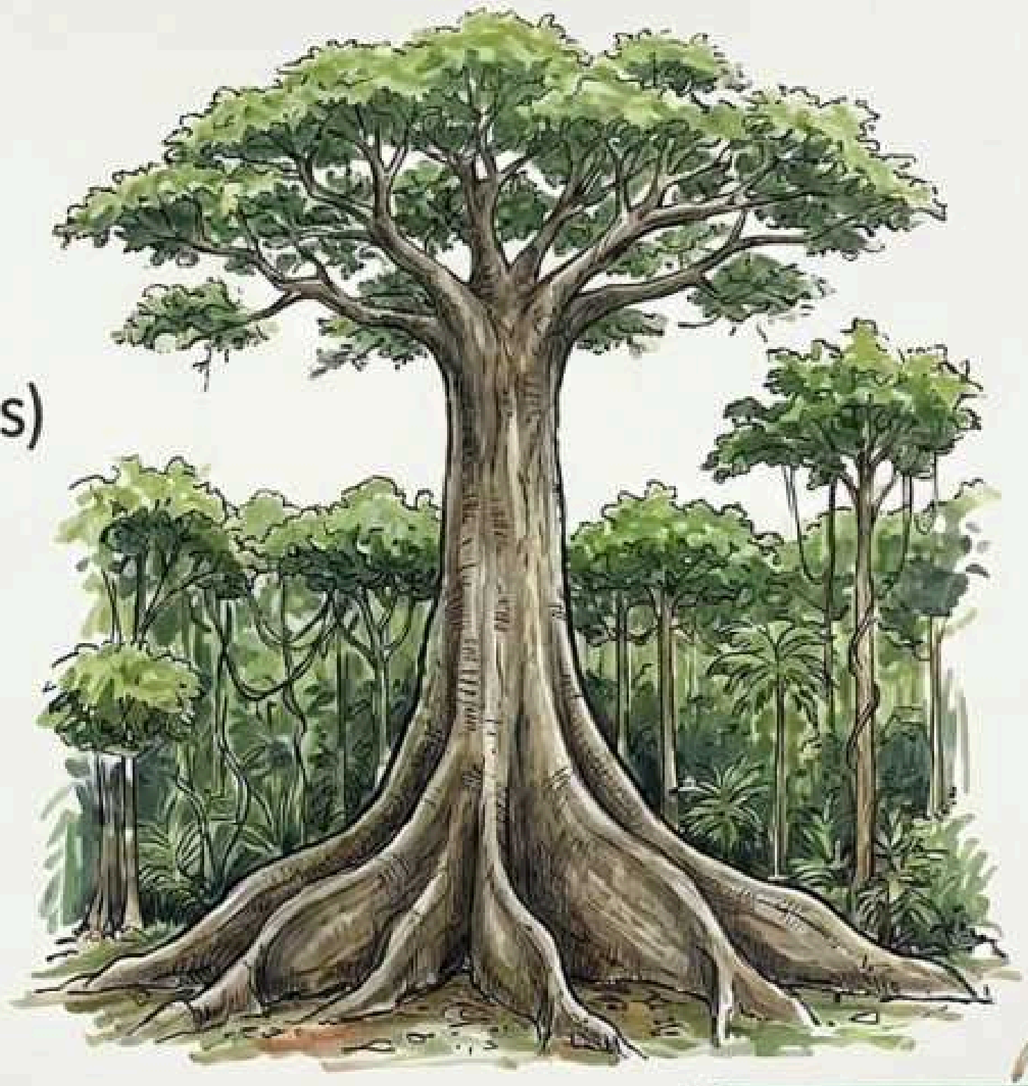
*Ceiba pentandra*

- *Ceiba* = Taíno word
- *pentandra* = five stamens (flower parts)

## Authorship quirk:

- [L.] Gaertn.
- Linnaeus originally named it *Bombax pentandrum*

Sacred to the Maya. (Don't confuse with Argentina's ceibo!)



# The National Flower

Guaria morada
*Guarianthe skinneri*



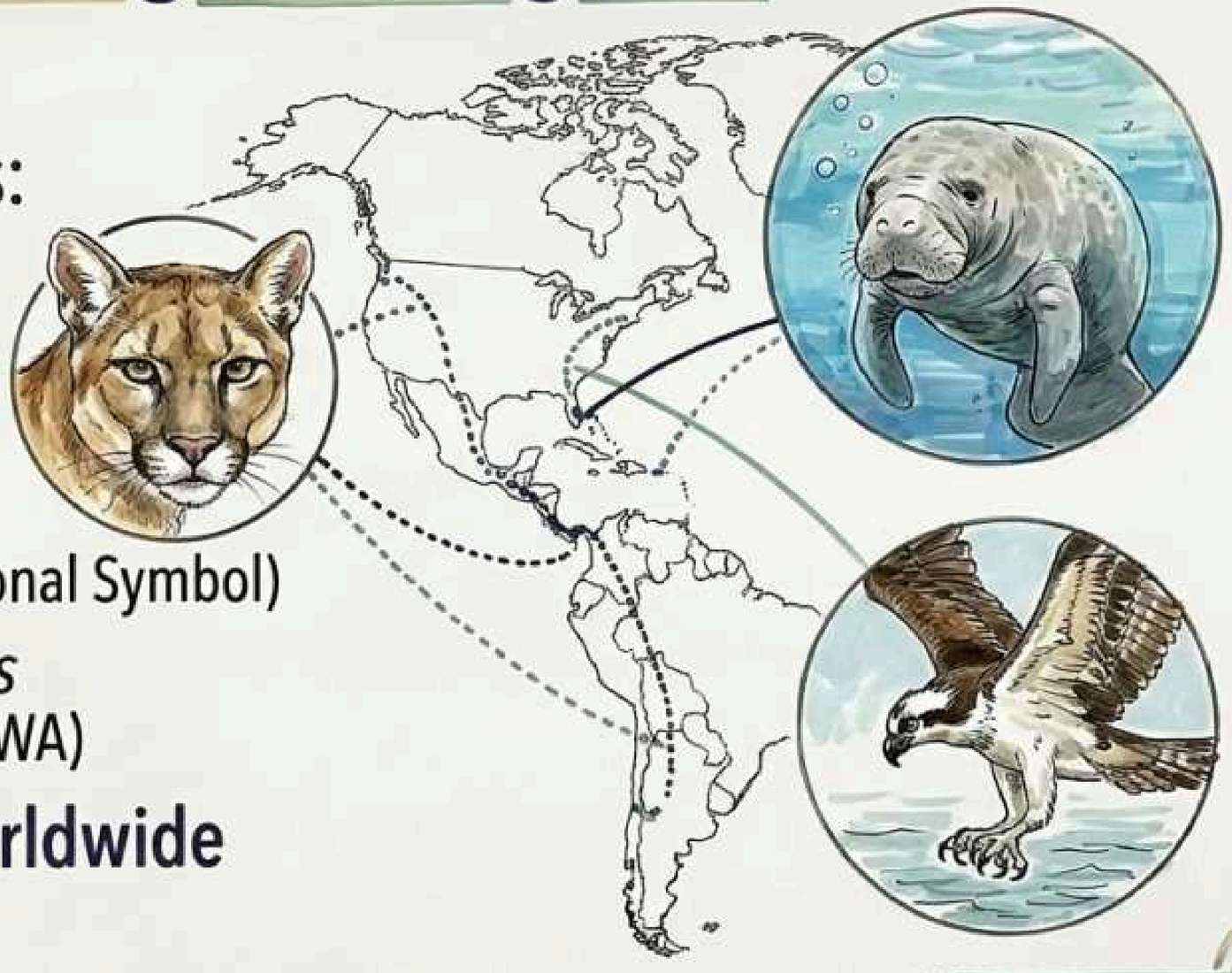
## A 2003 Name Change:

- Split by Dressler & Higgins from *Cattleya skinneri*
- *guaria* (Costa Rican word for orchid) + *anthe* (Greek for flower)
- *skinneri* = honors George Ure Skinner (Scottish merchant)

# Connecting the Regions

Species spanning thousands of kilometers:

- *Puma concolor* (Ranges up to Washington)
- West Indian manatee / *Trichechus manatus* (Caribbean coast, 2014 National Symbol)
- Osprey / *Pandion haliaetus* (Winters here, nests in FL & WA)



**Binomials reveal the worldwide web of relatives!**

# Lecture 5 Lessons Decoded

## Descriptive Greek:

- *Bradypus* & *Choloepus* (Sloths)

## Visual Accuracy:

- *Enterolobium cyclocarpum* (Ear tree pod)

## Modern Splits & Shifts:

- *Cebus imitator* (Monkey)
- *Oophaga pumilio* (Frog)
- *Guarianthe skinneri* (Orchid)

## Famous Genera in Plain Sight:

- *Turdus grayi* (Thrush)

## Next Stop: Patagonia!