Overview of the Chiricahua Mountains

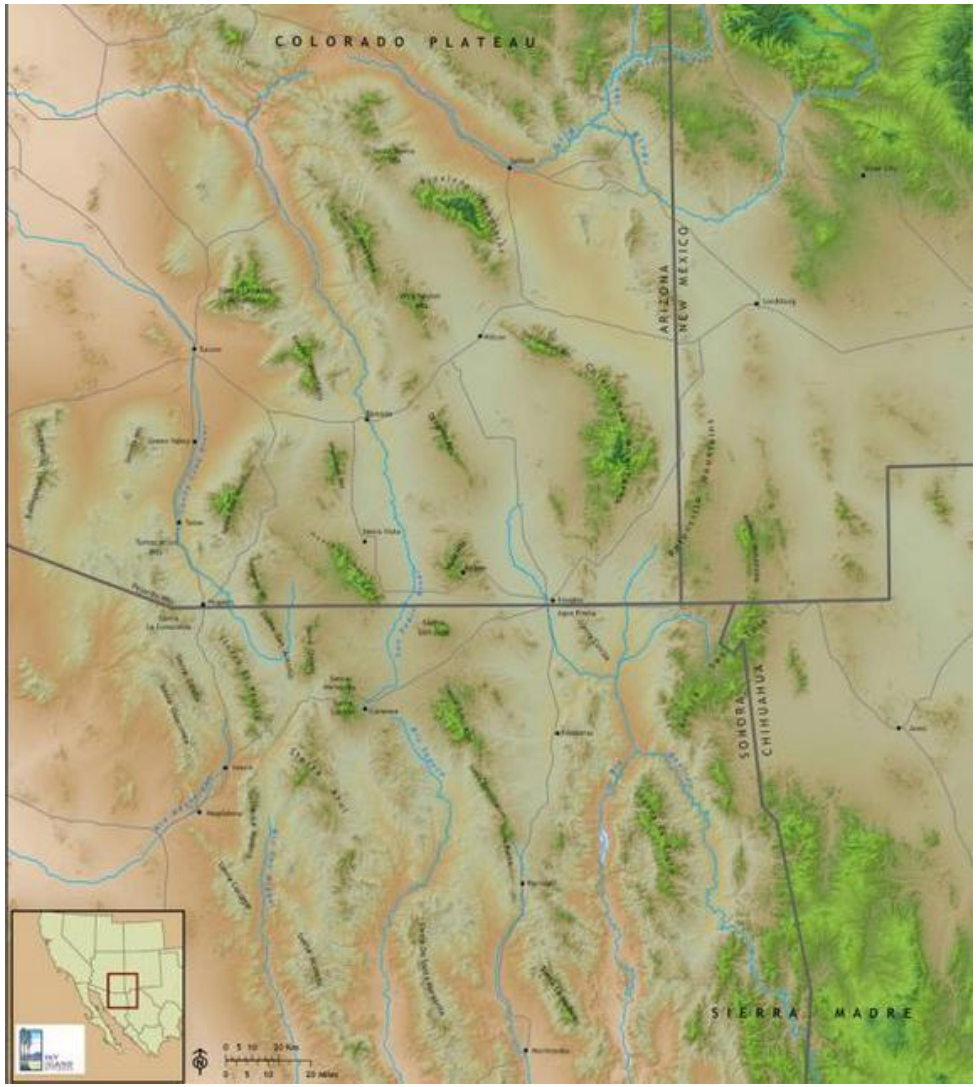
Sky Islands of Southern Arizona:

Forested mountain ranges isolated by desert and grasslands

1) Isolated mountain tops (forested) surrounded by lower-elevation valleys (‘oceans’) of desert vegetation

2) ~65 mountain ranges

→ ***Very high biodiversity***



Sky Islands of southern Arizona:

The “island”

The “ocean”

Sky Islands of southern Arizona:

→ Intersection of desert, tropical and temperate species

Half of the bird species in north America

500 bird species

4,000 plant species

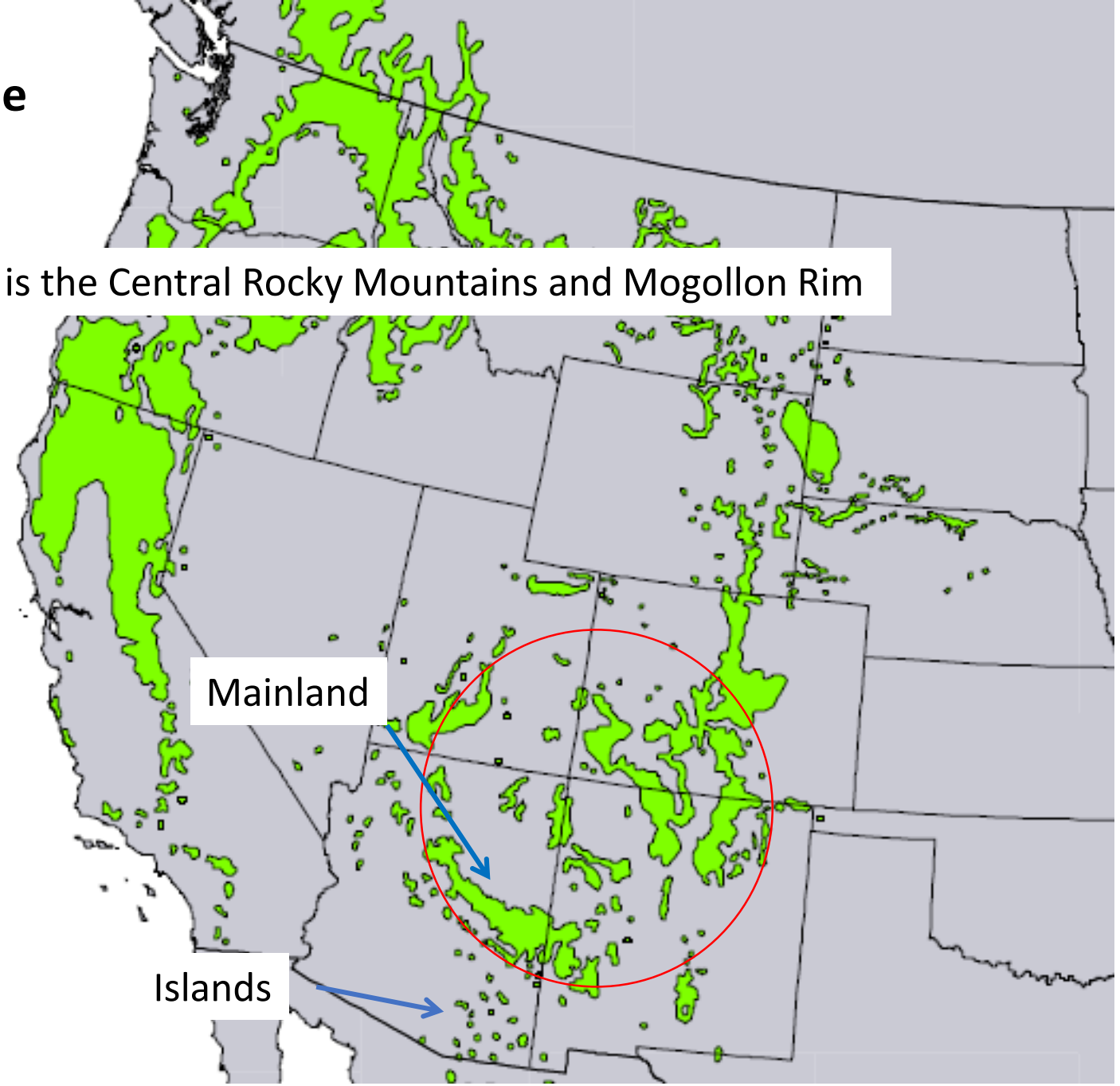
104 species of mammals

- insects, reptiles, amphibians

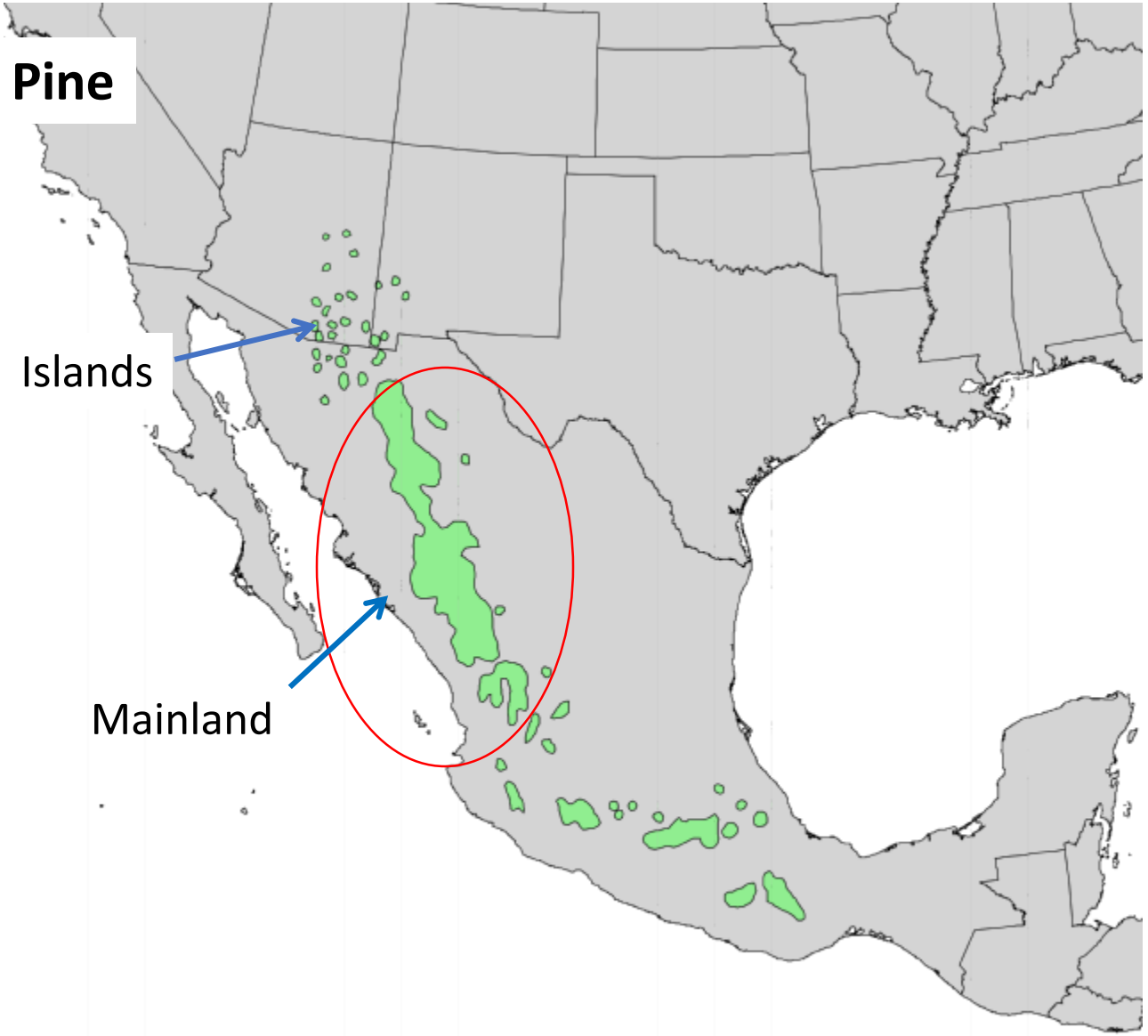
www.skyislandalliance.org

Ponderosa Pine

‘Mainland’ source is the Central Rocky Mountains and Mogollon Rim



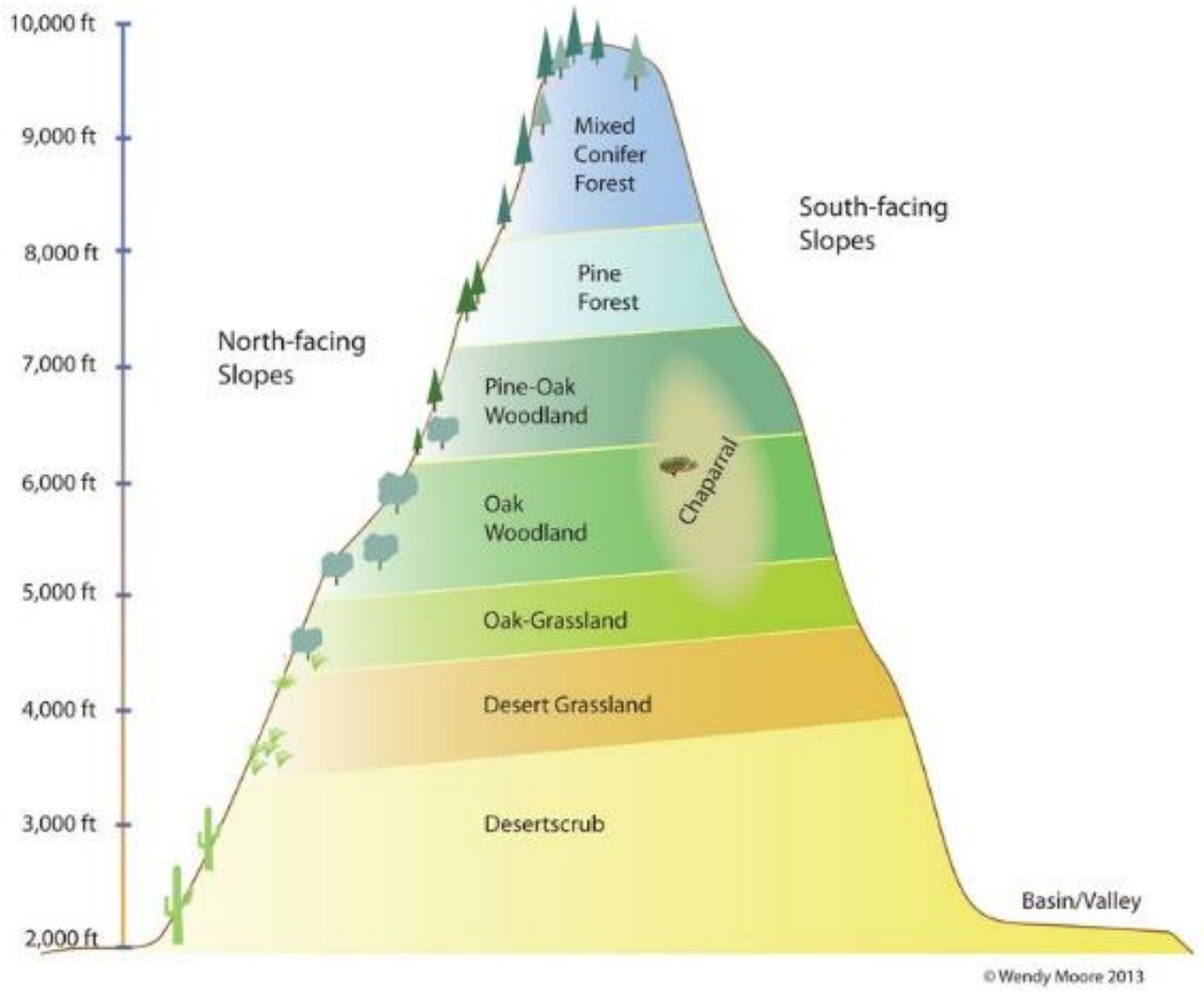
Chihuahua Pine



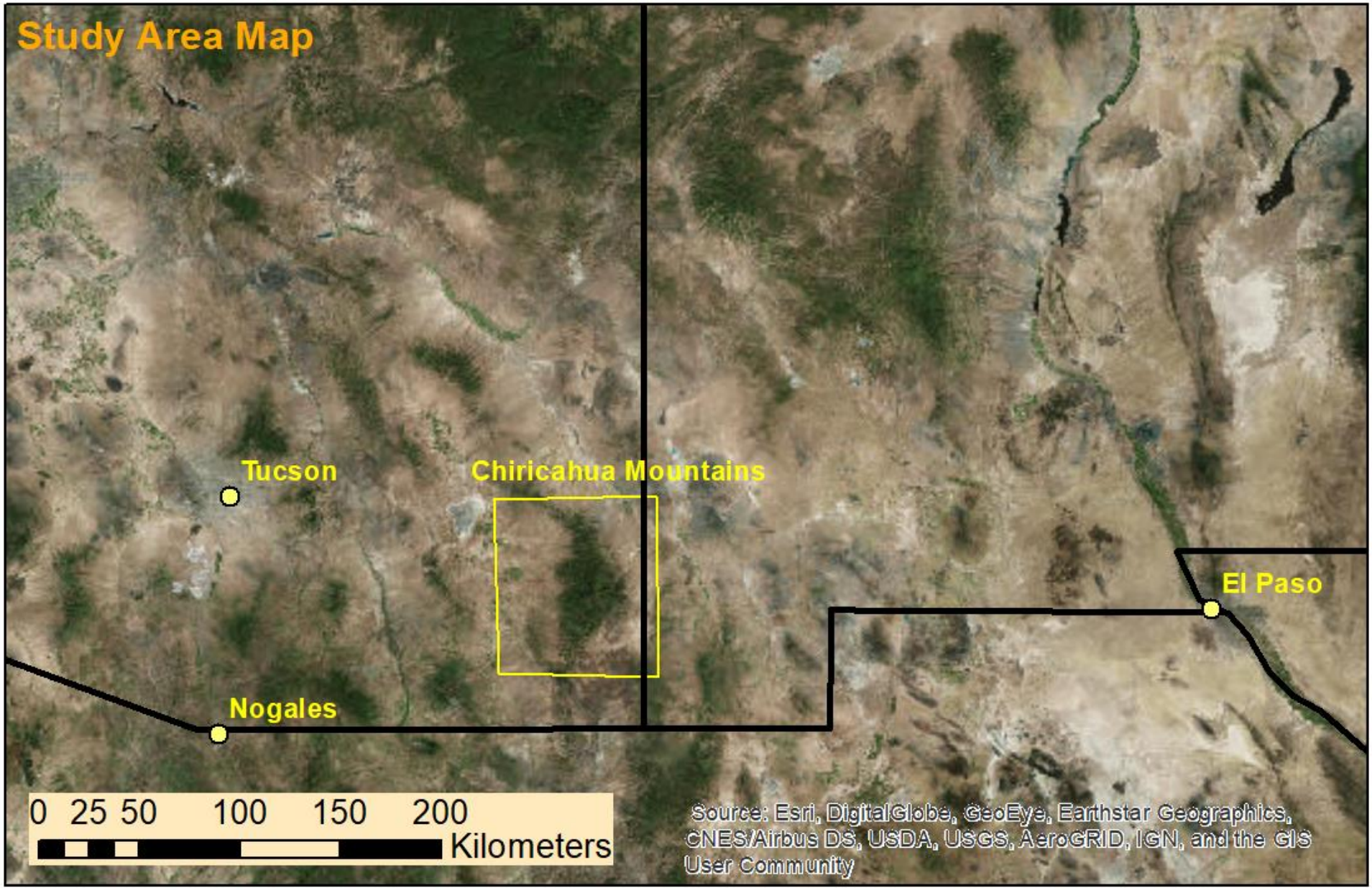
‘Mainland’ source is Sierra Madre Mountains in Mexico

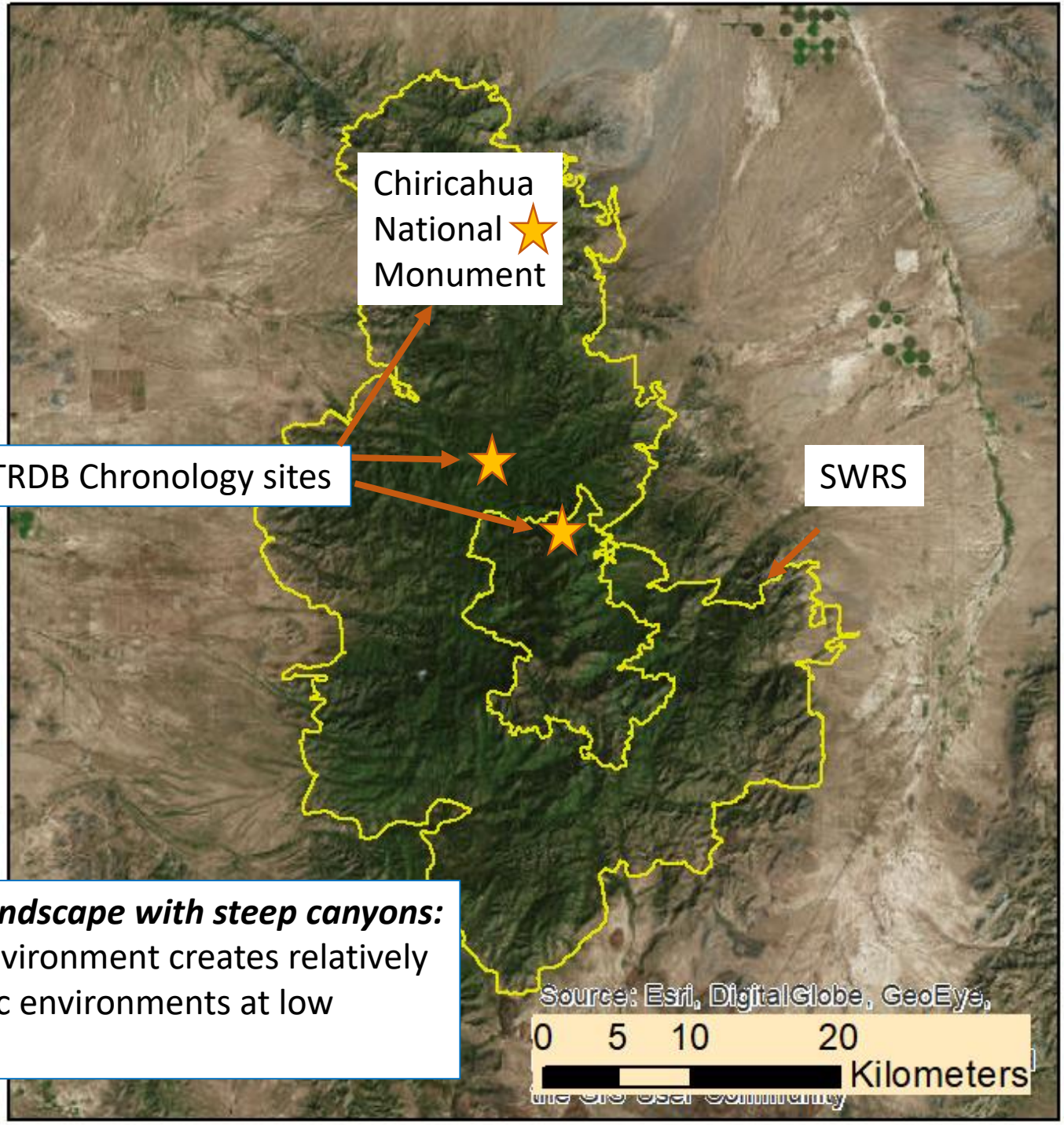
Rugged and steep topography contributes to high biodiversity:

Rapid transitions in
1) Elevation
2) Aspect
3) Slope



Chiricahua Mountains:



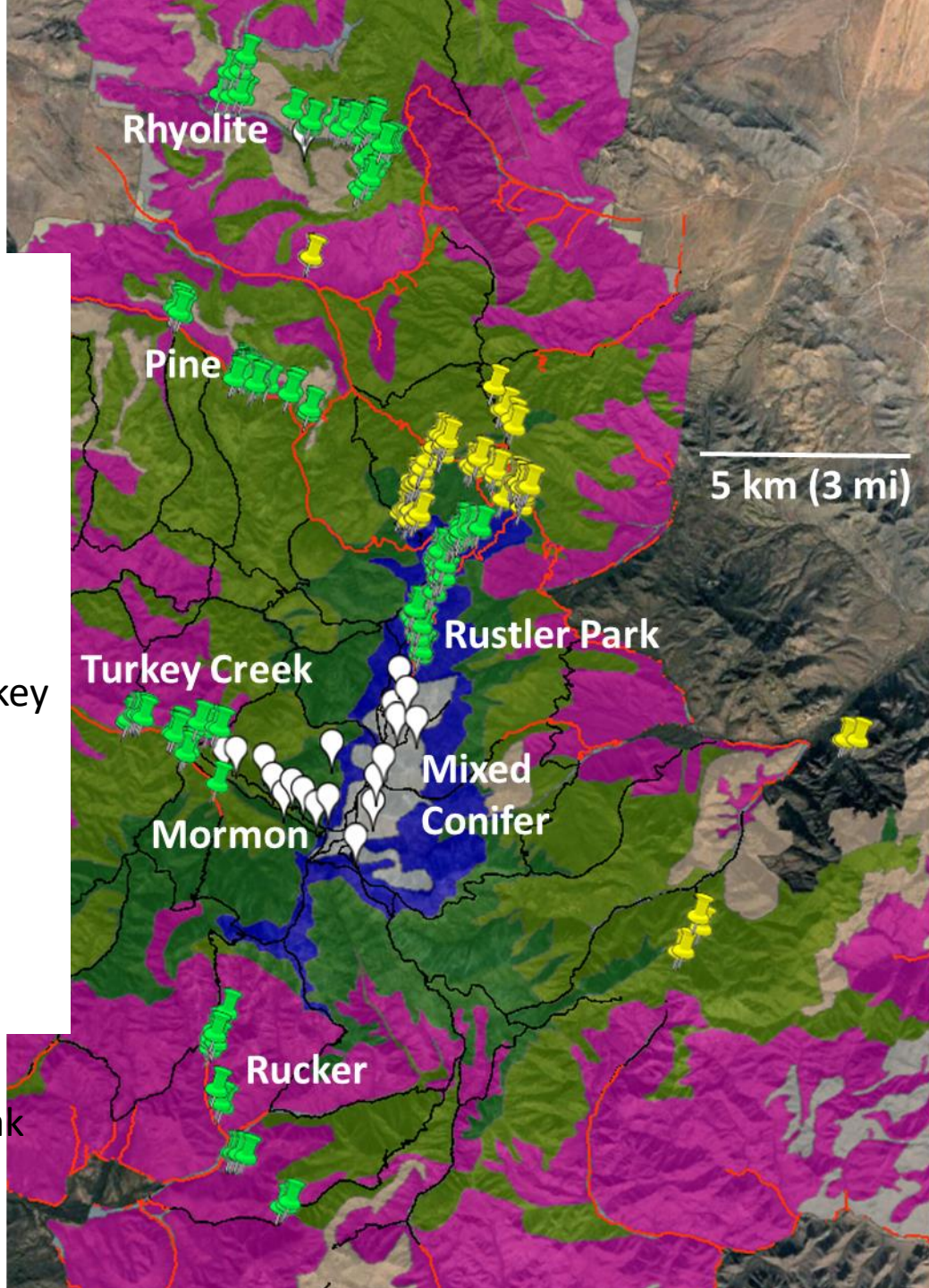


Rugged landscape with steep canyons: Canyon environment creates relatively cool, mesic environments at low elevations

Fire History Collections:

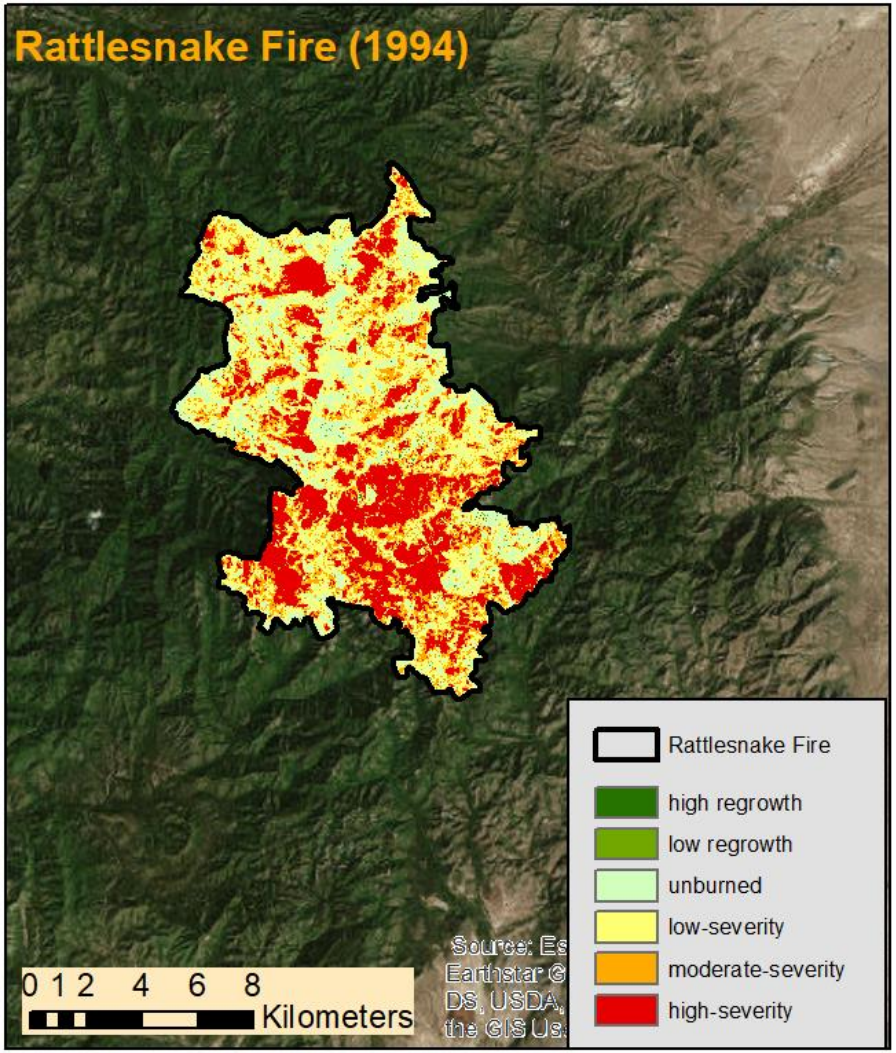
- **Canyons**
  - Rhyolite (Swetnam & Baisan)
  - Pine, West Turkey Creek, Rucker (Kaib)
  - Mormon (Morino & Baisan)
  - Cave Creek
- **Upland Pine Forests**
  - Upper Pine, Upper Pinery, East Turkey Creek
  - Upper Mormon Canyon, Ward Canyon (Morino & Baisan)
  - Barfoot Lookout, Rustler Park, Bootlegger Saddle (Seklecki & Grissino-Mayer)
- **Mixed Conifer**
  - Fly Peak, Cima Park, Chiricahua Peak (Morino & Baisan)

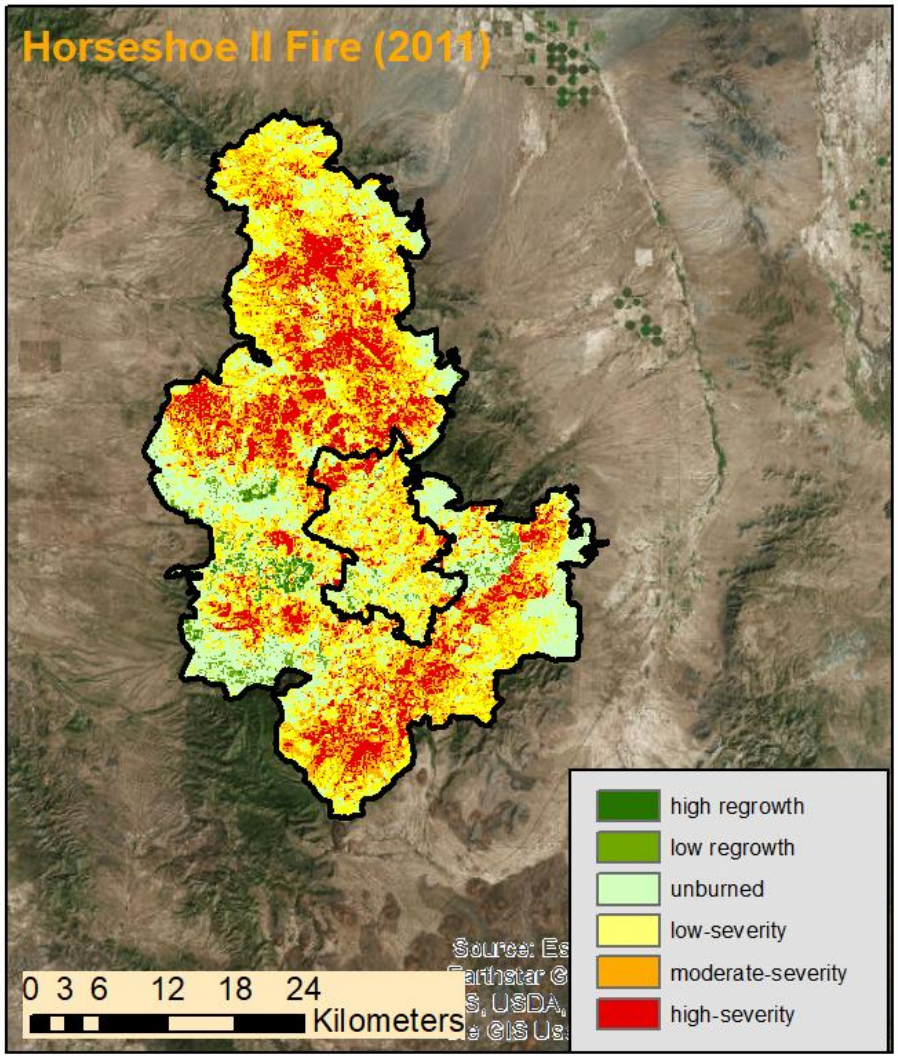
Credit: Jesse Minor



Recent Wildfires: Rattlesnake Fire (1994) and Horseshoe 2 fire (2011)

Rattlesnake fire covered ~ 10,000 ha in the center of the range
Horseshoe 2 covered ~ 90,000 ha and completely encompassed the Rattlesnake Fire



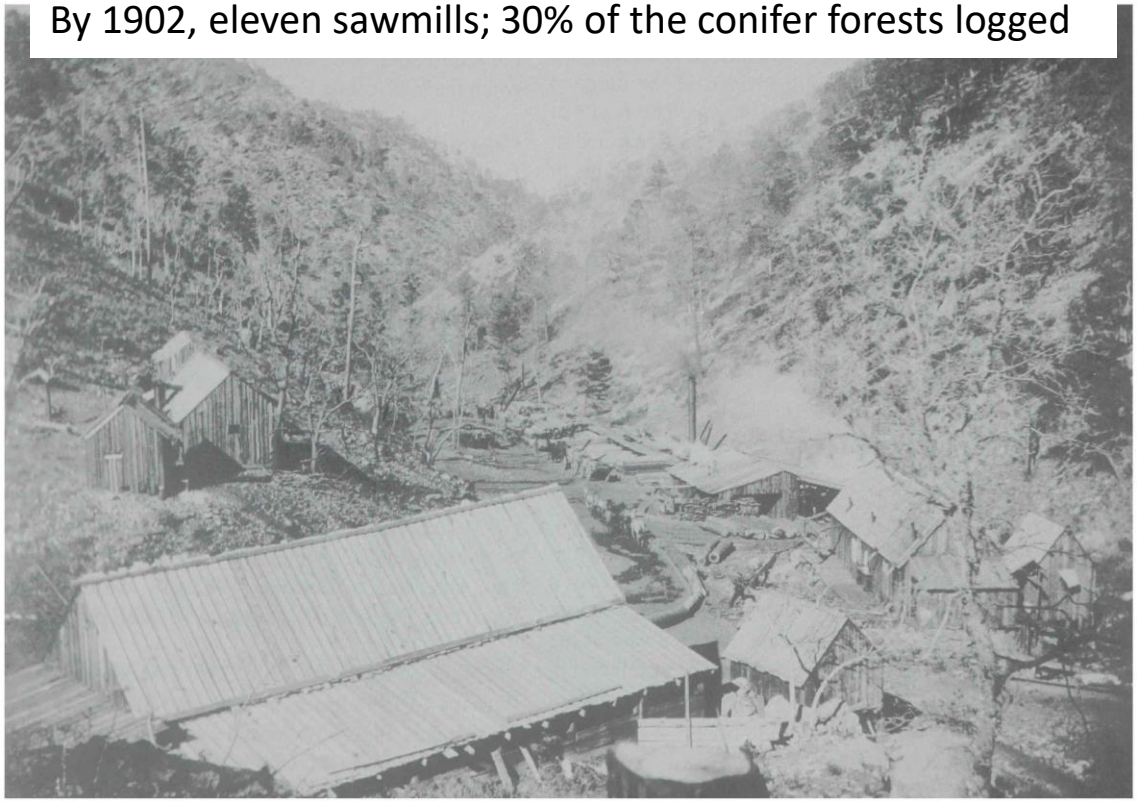


Credit: Jesse Minor

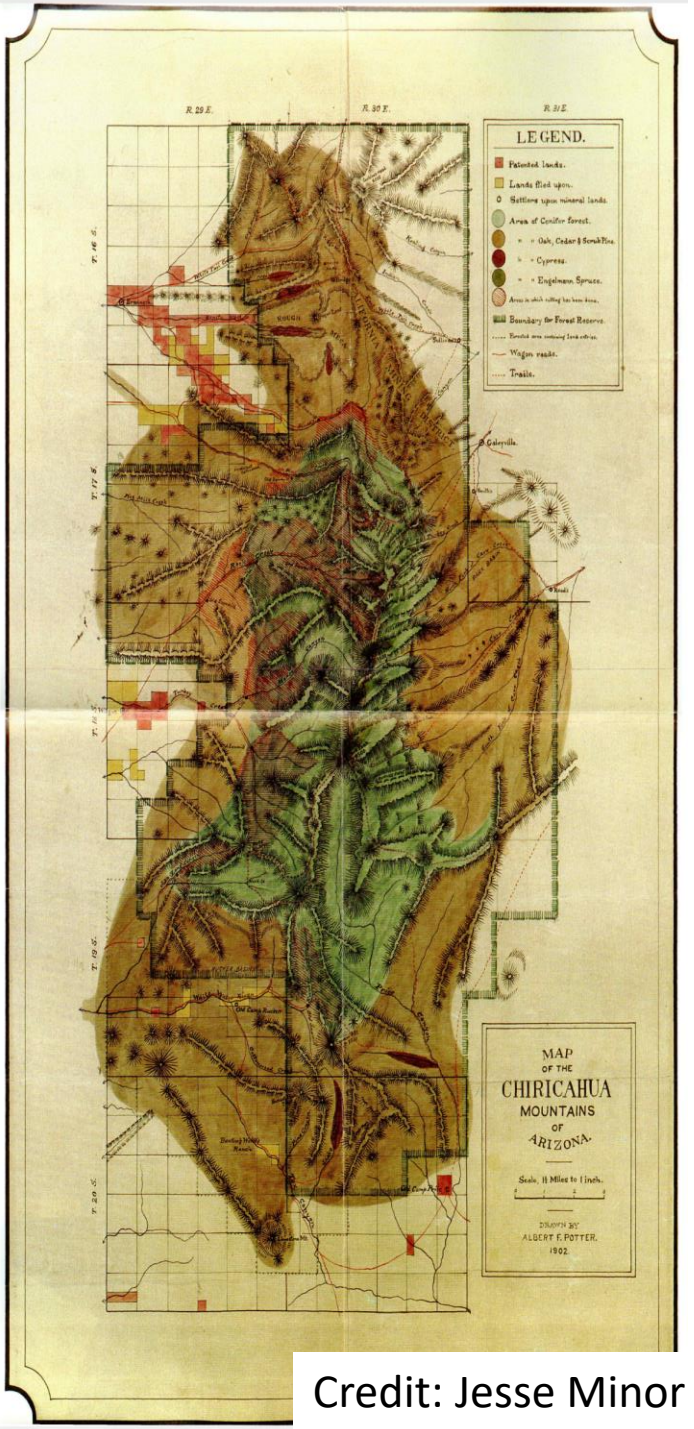
Settlement history of the Chiricahuas:

Rapidly settled from 1860 – 1880s:

1865: Ft. Bowie soldiers logged lower Pine & Pinery canyons
1872: Chiricahua Apache Reservation created
1876: Chiricahua Apache Reservation delisted
1879: Sawmill and ranch in Morse Canyon
By 1880, all of the lower canyons were “settled up”
By 1902, eleven sawmills; 30% of the conifer forests logged



Ross Sawmill, Chiricahua Mountains (Bahre, 1995)



Credit: Jesse Minor

Logistics:

Thursday, May 17th, 2018

8 am – meet at LTRR, pack vehicles and get ready to leave at 8:30 am
8:30 – 11:30 am – Depart Tucson and drive to SWRS
11:30 am – 12:30 pm – Arrive SWRS, deposit luggage and go to the field

Lunch on Thursday: make sandwiches, pick up some sandwiches

Friday, May 18th:

Ecology and Climate groups sampling in upper elevation forests

Saturday, May 19th

Ecology group continue with sampling
Climate group will head home . . .

Sunday, May 20th

Wrap up sampling and head home mid-day

Bring hats, sunscreen, water
Backpack, notebook, sturdy boots

We bring sampling equipment

Alex, Erica, Don, Ramzi and Dave will be driving UA vehicles
All meals are provided by SWRS (sack lunches on field days)
→ SWRS provides linens and towels for dorm rooms (bring your own towel for the pool)
→ Alcohol is allowed, fridge available, *education room for us to use*
→ *discuss research questions/backgrounds*

So many species

3,860-4,500 plant species in the state of Arizona…third in the nation in plant diversity (just barely behind California and Texas)

>2,100 plant species reported from the U. S. portion of the Sky Island region

Estimates for the Mexican Sky Island region add another 1,000-1,500 species

Catalina Mtns alone ~1,500 plant species!

Margaret Evans

500 bird species reported from SE Arizona, more than can be found in any other similar-sized land-bounded area in the U. S.

>1/2 of the bird species in all of North America (957)

Elegant trogon

the Great Mesquite Forest of the Santa Cruz River here in Tucson once rivaled the riparian forest of the San Pedro River for bird diversity…

Thick-billed parrot (Chiricahua Mtns…extirpated in the 1930's)

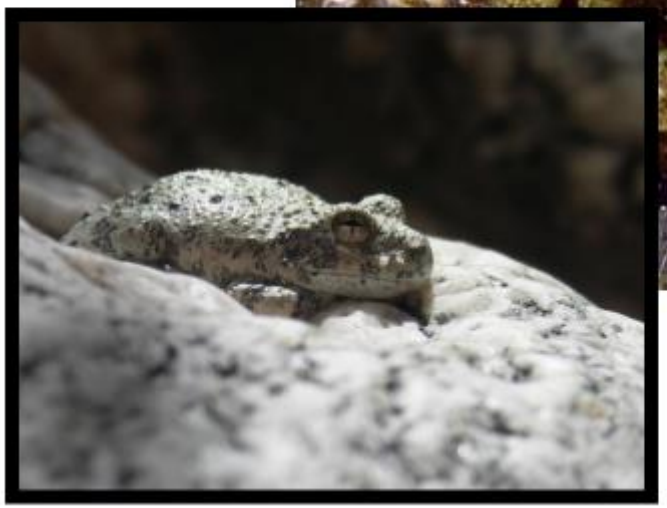
Mexican spotted owl
Arizona woodpecker…
Imperial woodpecker (extinct)

Margaret Evans

~50 species of snakes, which is >1/3 of all U. S. snake species

176 reptiles

Margaret Evans



44 amphibians

Margaret Evans

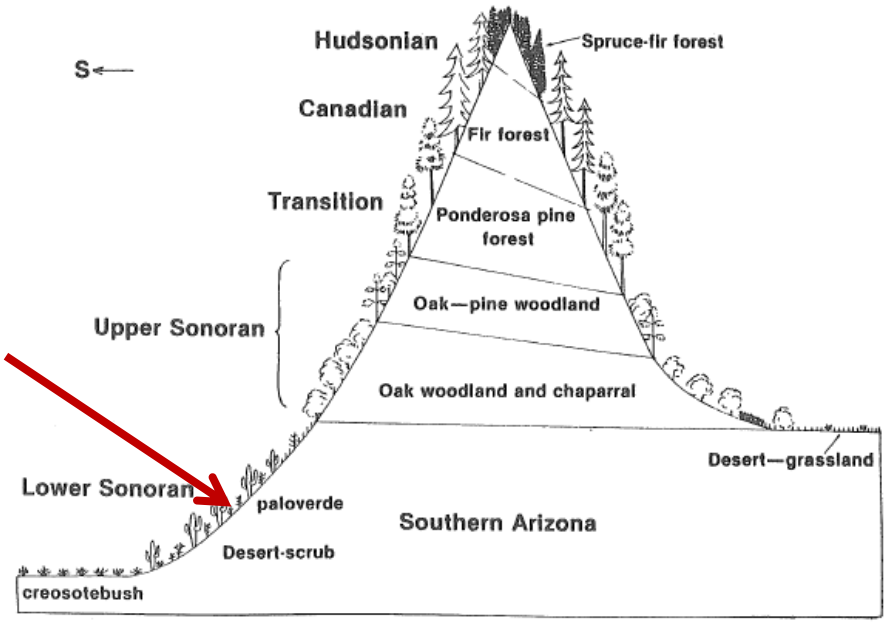
More than in any other similar-sized area north of Mexico

Including 7 species of tree squirrels (more than anywhere else in NA)

>12 federally-listed endangered vertebrates

Margaret Evans

Ascending Mount Lemmon:



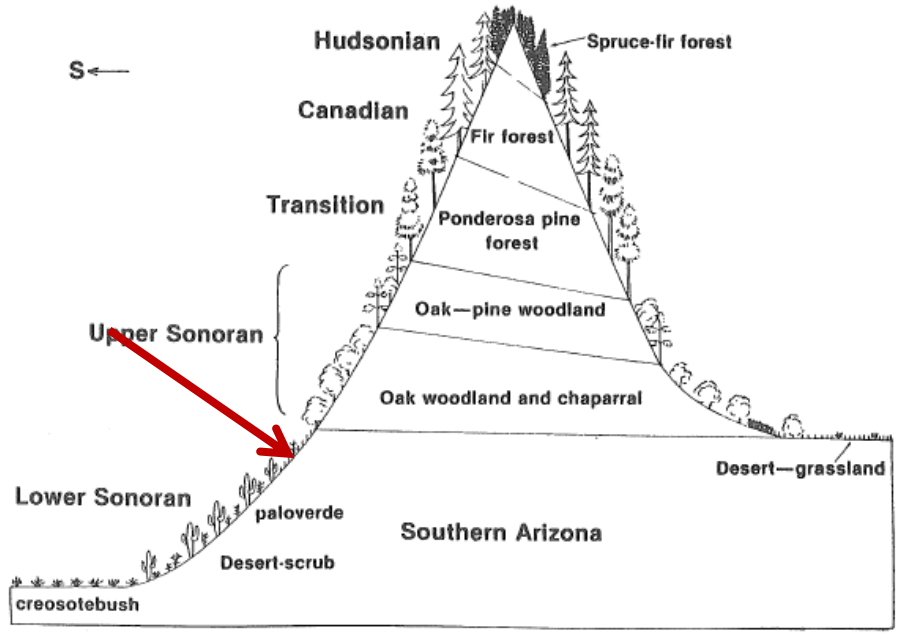
Sonoran desert (Desert Scrub)

Up to 4,000 ft

Palo Verde, Mesquite, Acacia, Creosote, chollas Saguaros, barrel cactus

High biodiversity

Ascending Mount Lemmon:



Desert Grassland

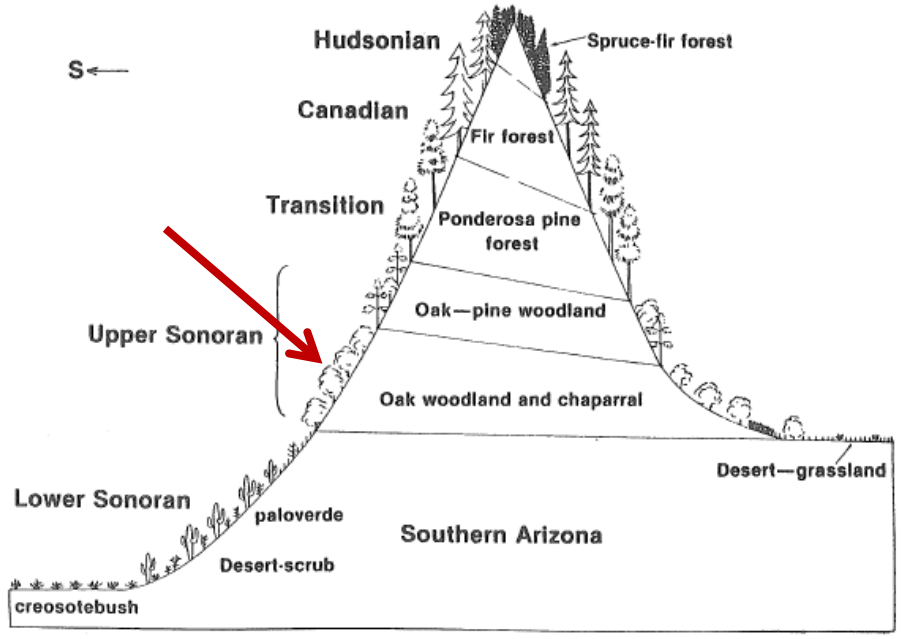
4,000’ – 5,500’

Most-diverse ecosystem on the mountain

Grasses, agaves, sotol

Mostly on steep slopes on southern side

Ascending Mount Lemmon:



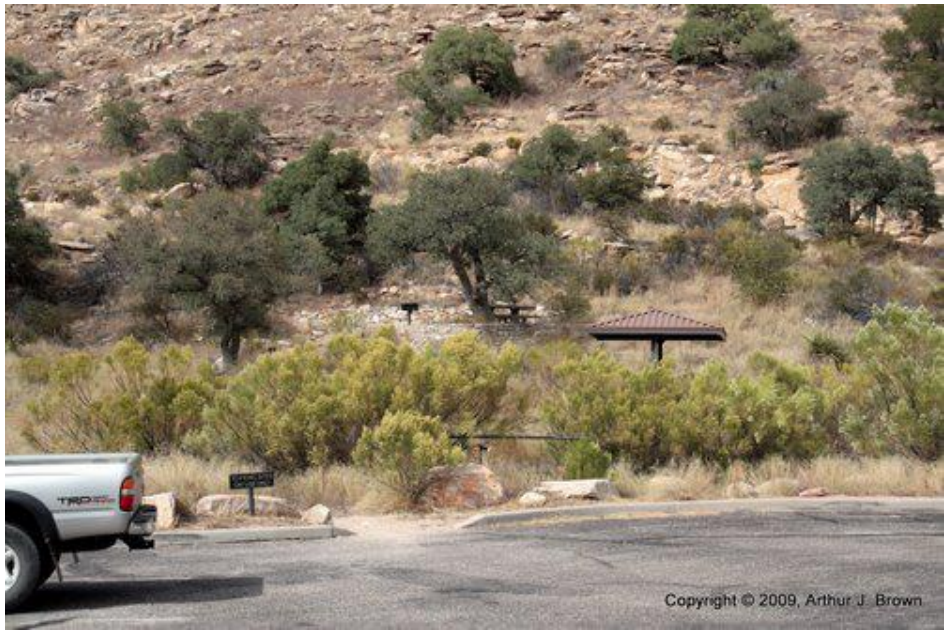
Oak Woodland and Chaparral

5,500’ – 6,500’

Silver Leaf Oak is dominant

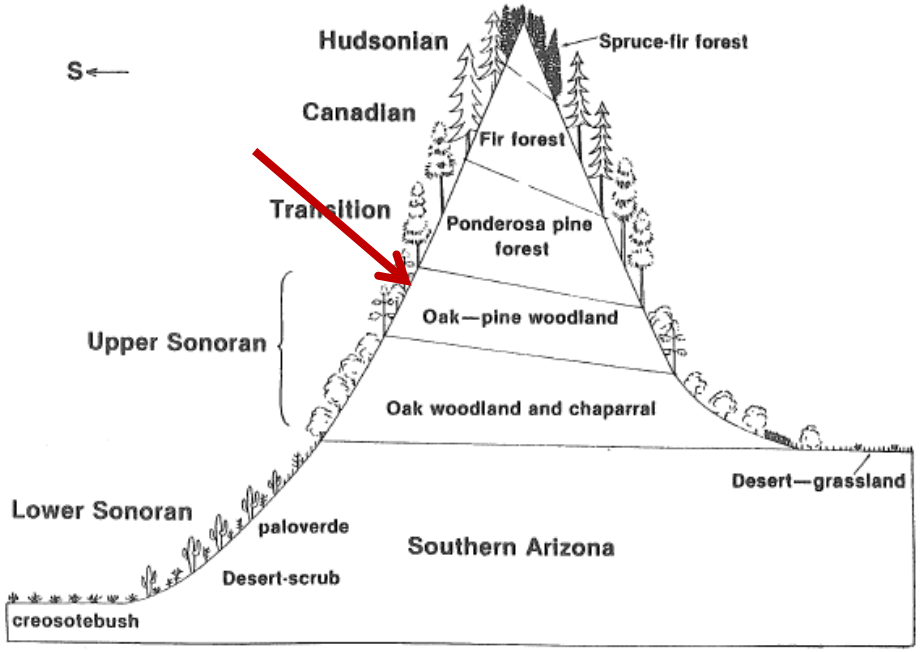
Transition zone from grasslands to pine-oak woodland

Shrub and grasses in the understory (also known as chaparral)



Molino Basin Campground

Ascending Mount Lemmon:



Pine-oak woodland

6,000’ – 7,500’

Appearance of pines
(Pinon Pine dominant)

More dense on north-facing aspects = wetter/cooler slopes

Ascending Mount Lemmon:

Ponderosa pine forest

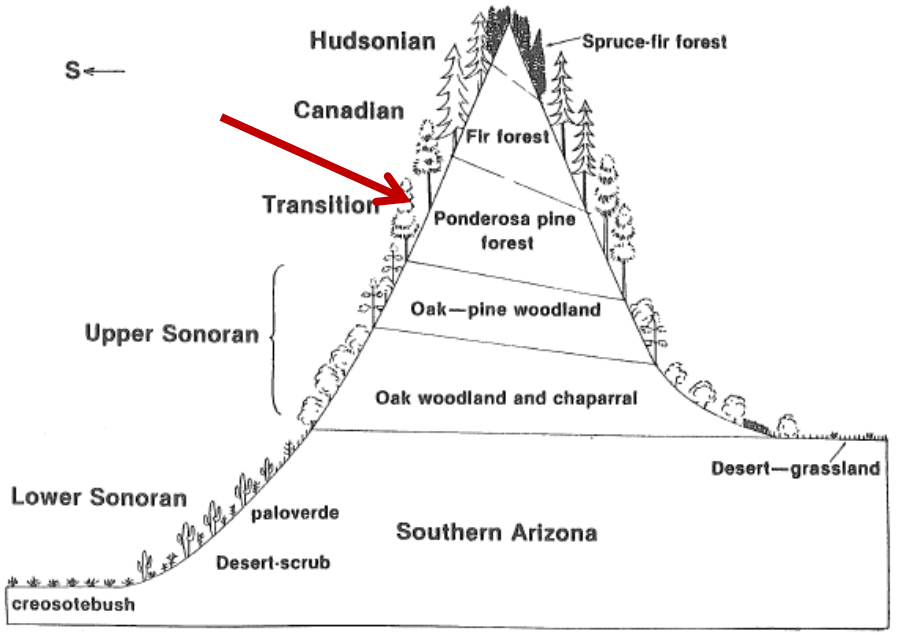
7,000’ – 8,500’

Open, park-like stands, grassy understory

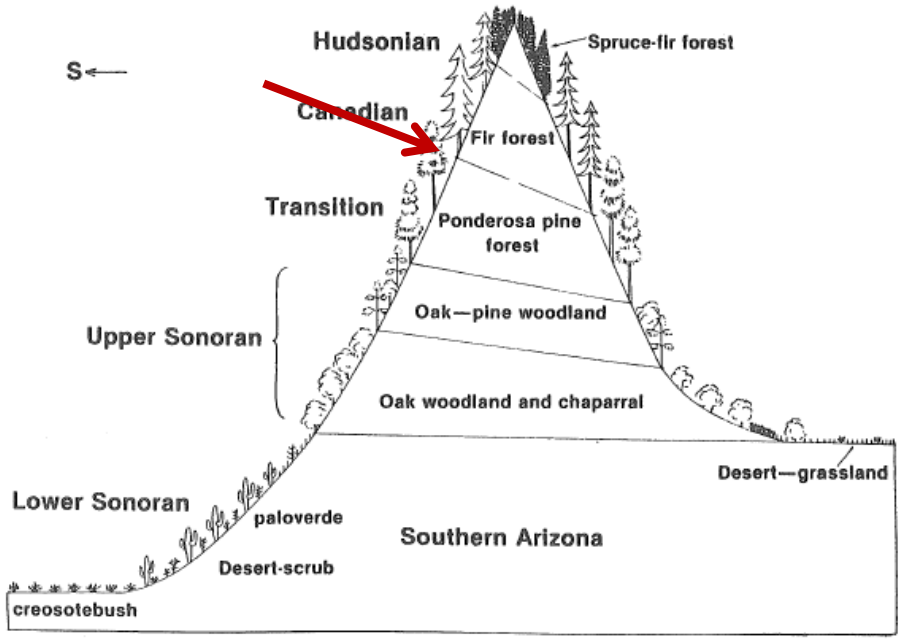
Fires were common historically

Now, can be dense in the understory

We skipped this on the way up the mountain, but what about the pine trees at Bear Canyon Picnic Area?



Ascending Mount Lemmon:



Mixed conifer forest

8,000’ – 9,000’

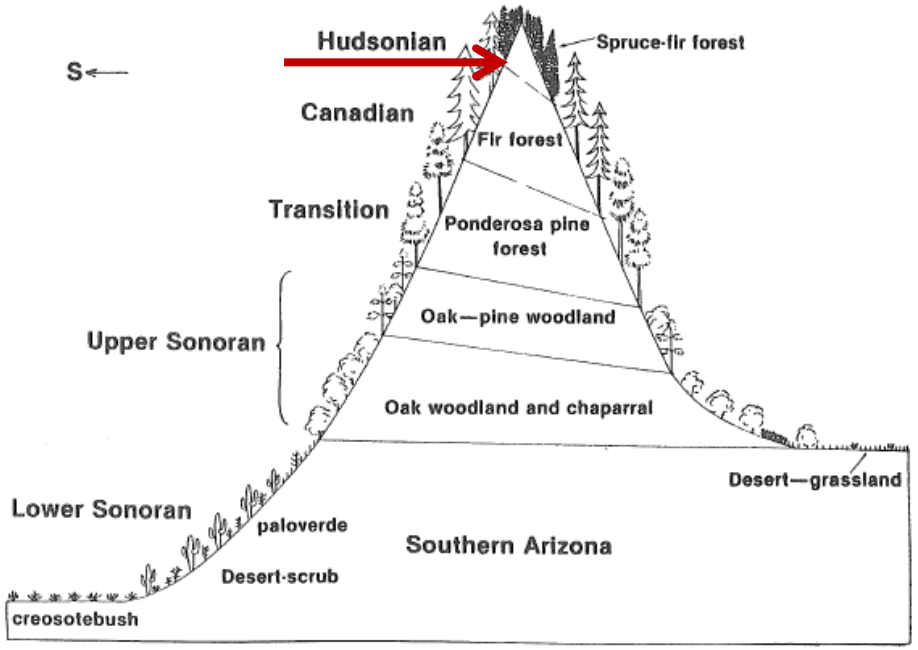
Ponderosa Pines, Douglas fir, white fir, aspen

Fairly dense forests, little understory vegetation

Cool, moist, snow in winter

Mt Bigelow on our trip up the mountain

Ascending Mount Lemmon:



Spruce-fir forest

> 9,000’

Welcome to Canada!

Spruce trees, fir trees

Dense forests, wet climate

Few pines