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Earth Science  
Standard  
E.5.e.



# Rainforests and Deserts: Distribution, Uses, and Human Influences

## **California Education and the Environment Initiative**

Approved by the California State Board of Education, 2010

### **The Education and the Environment Initiative Curriculum is a cooperative endeavor of the following entities:**

California Environmental Protection Agency  
California Natural Resources Agency  
California State Board of Education  
California Department of Education  
Department of Resources Recycling and Recovery (CalRecycle)

### **Key Partners:**

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### **Office of Education and the Environment**

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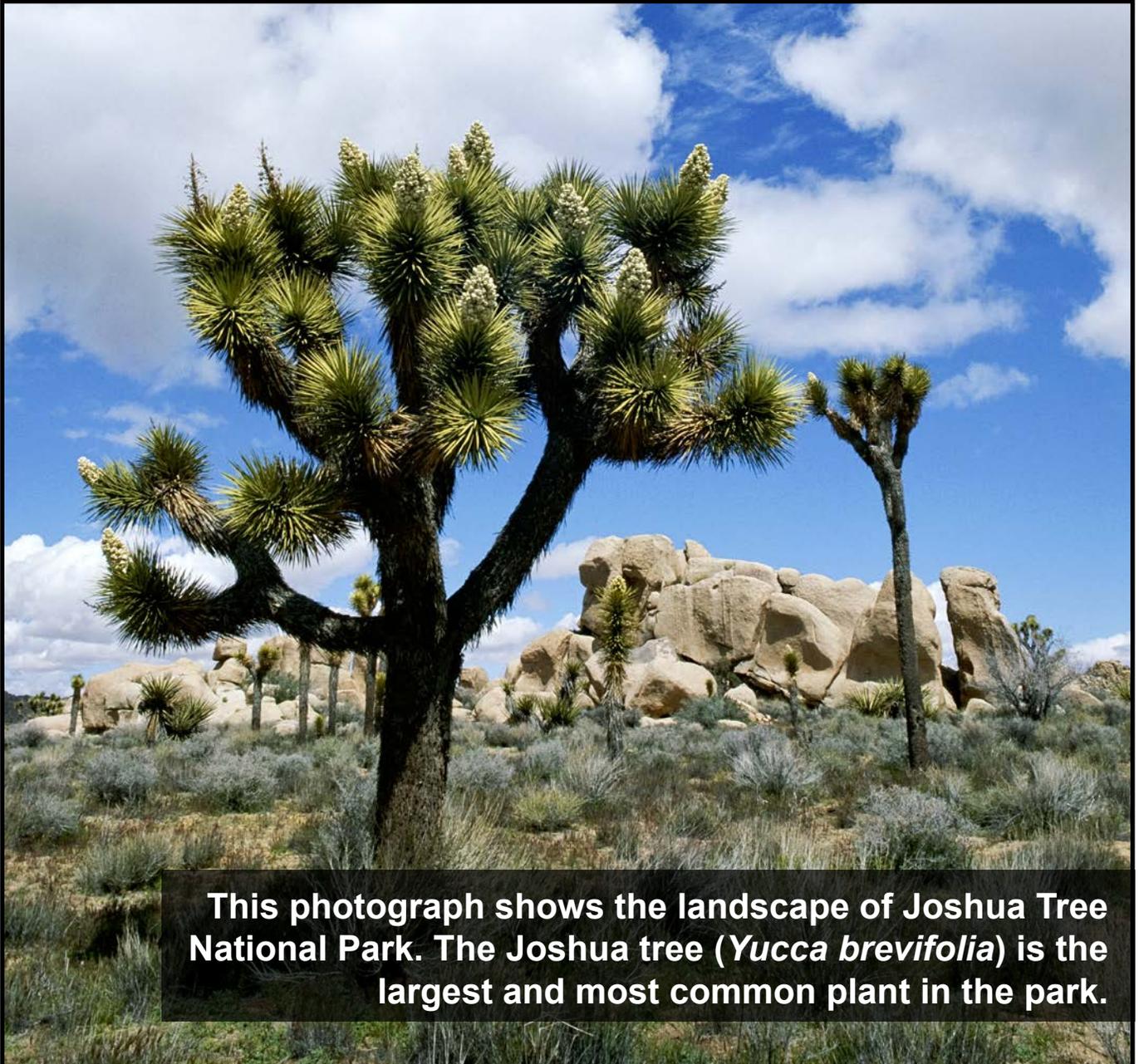
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## VA #1 Joshua Tree National Park



## VA #2 Barstow-Vegas Wagon Trail



### VA #3 Life in the Amazon Rainforest



## VA #4 Life in the Mojave Desert

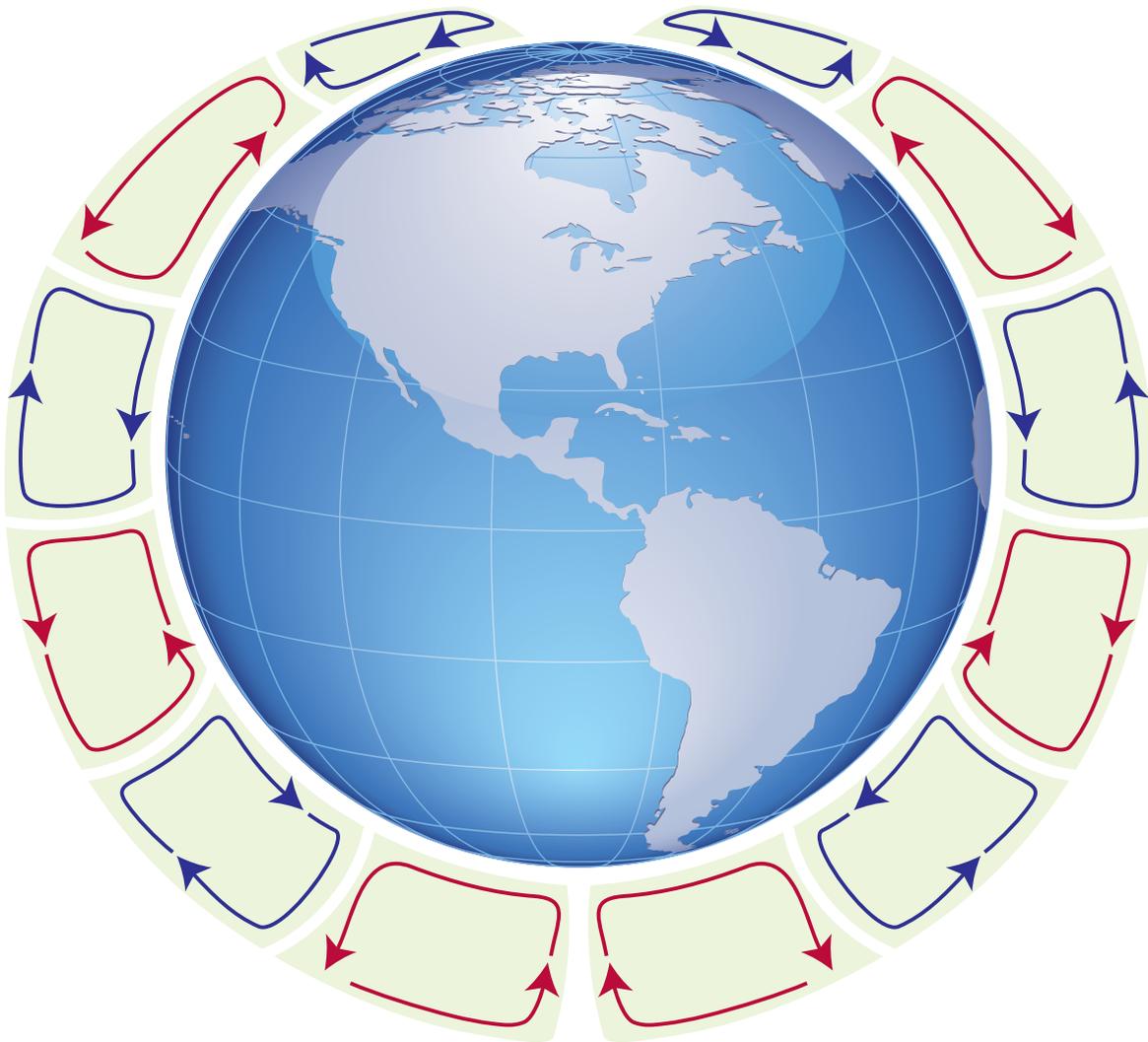


## VA #5 Latitude

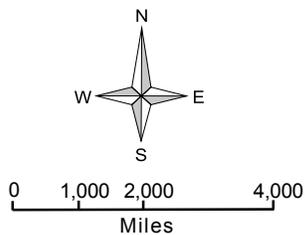
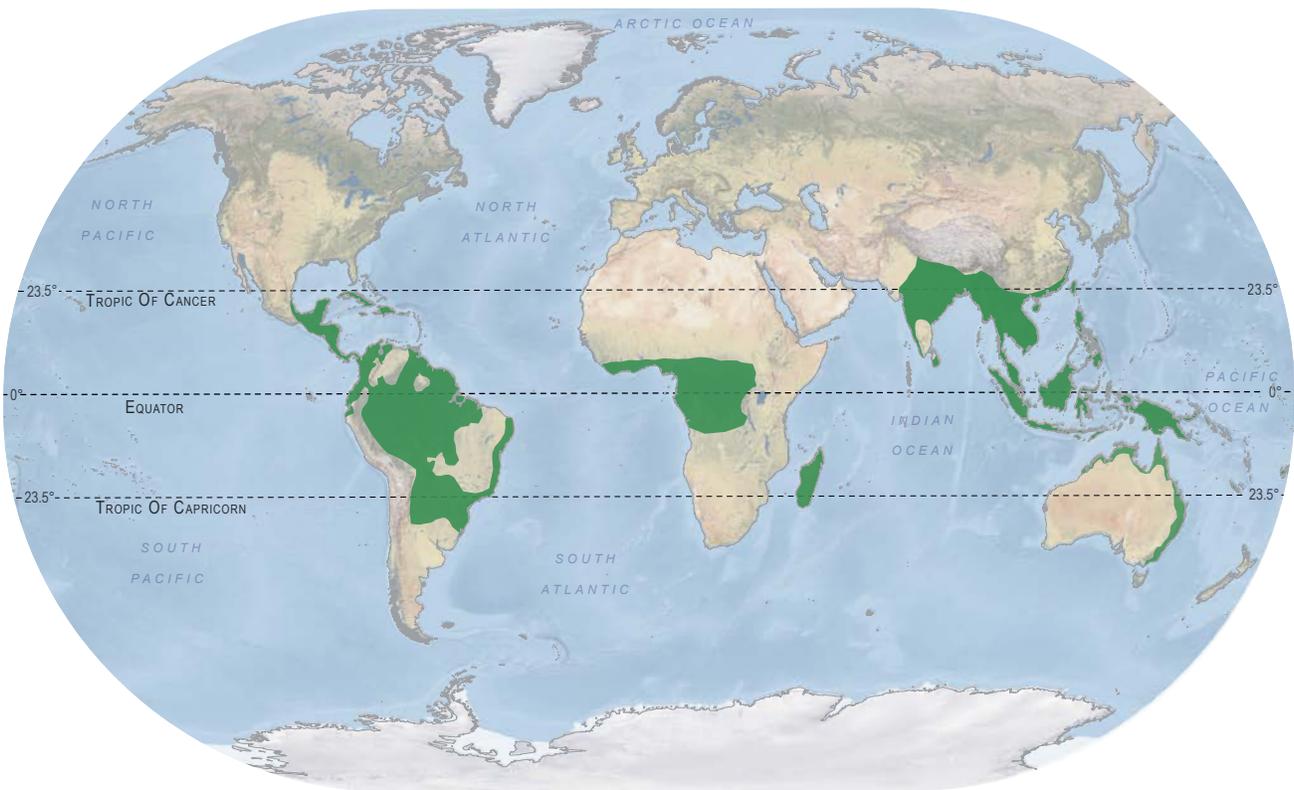
## Latitude



## VA #6 Global Convection Currents

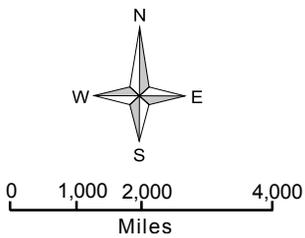
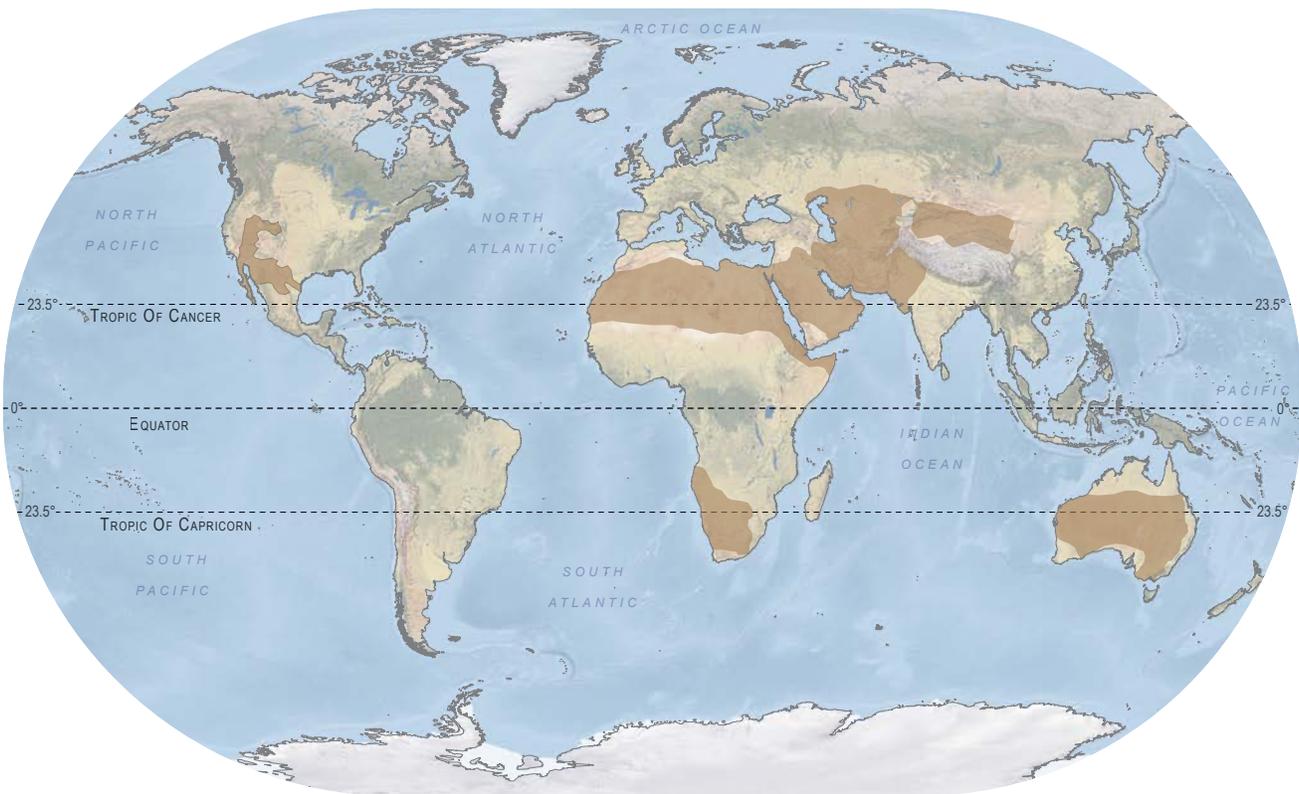


## VA #7 Global Distribution of Rainforests



 Rainforests

### VA #8 Global Distribution of Deserts



Deserts

## VA #9 Rainforest Uses

### Ecosystems Goods (5 points)

Trees

Flowers

Soil

Water

Oxygen

### Ecosystems Services (5 points)

Oxygen production

Carbon sequestration (long-term storage of carbon in forests, soil, and oceans)

Erosion control

Nutrient cycling

Regulation of water cycle

### Human Uses (5 points)

Timber for construction

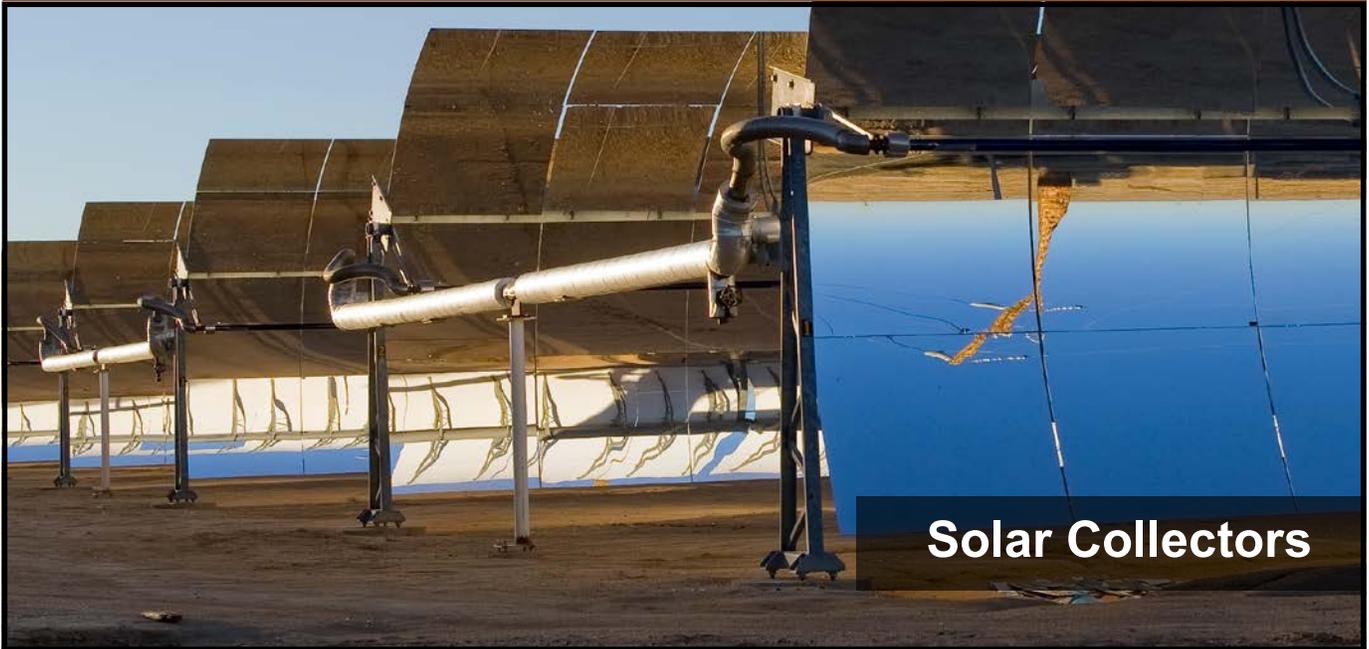
Agricultural crop seed sources

Pharmaceutical/medicinal discovery sources

Foodstuffs, including spices, nuts, and berries

Roots of plants keep soil in place and prevent erosion

VA #10 Solar and Wind Power from the Desert



## VA #11 Desert Uses

### Ecosystems Goods (5 points)

Land

Plants

Animals

Petroleum—crude oil

Minerals, precious metals, and gemstones

### Ecosystems Services (5 points)

Atmospheric services (for example heat, wind)

Water supply/storage

Potential for solar and wind power

Erosion control

Pollination by insects

### Human Uses (5 points)

Solar and wind energy

Recreation

Food production

Land for farming

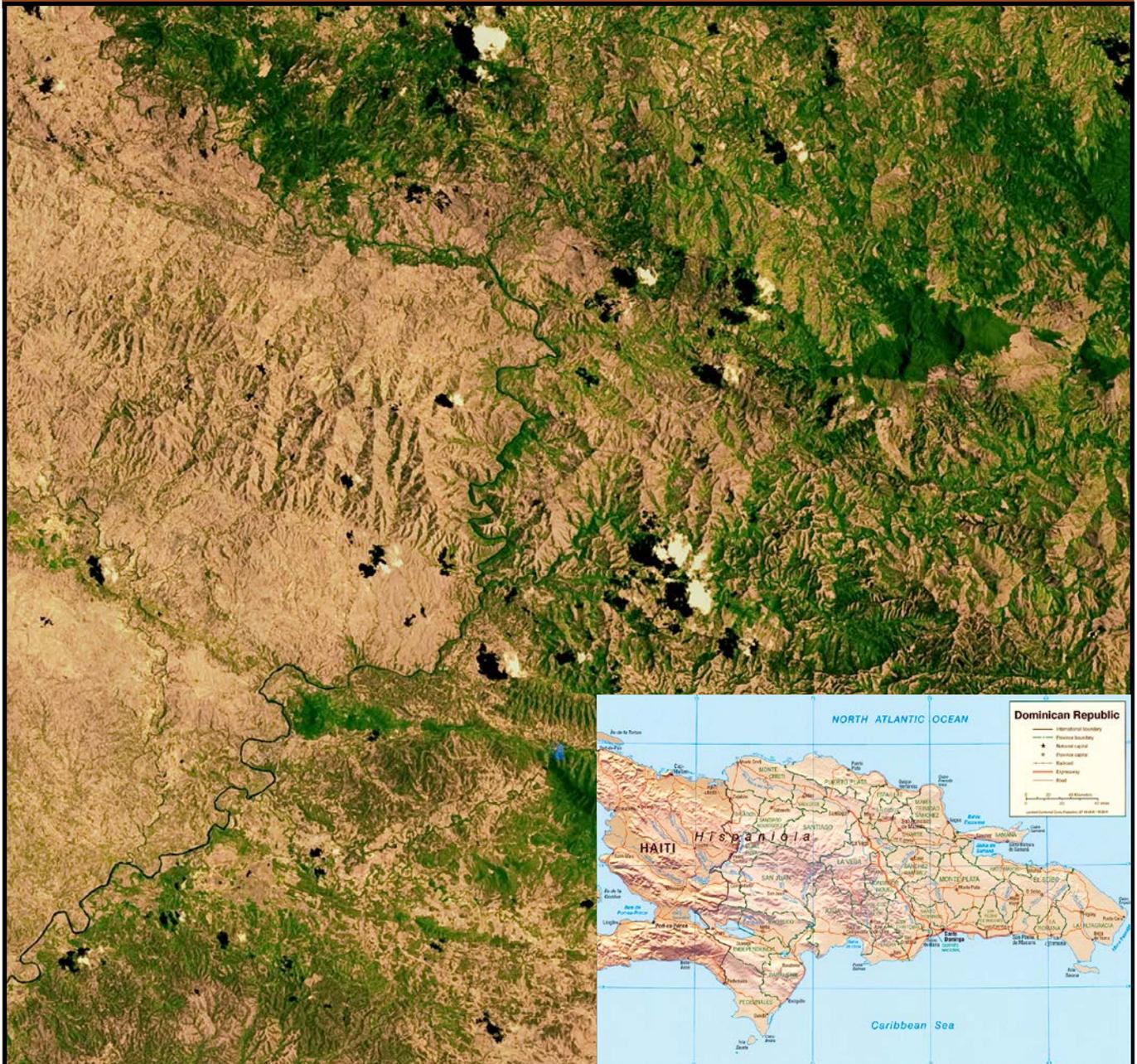
Habitat for plants and animals

Land for development and housing

## VA #12 Human Activities in Rainforests



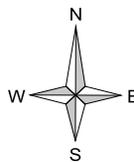
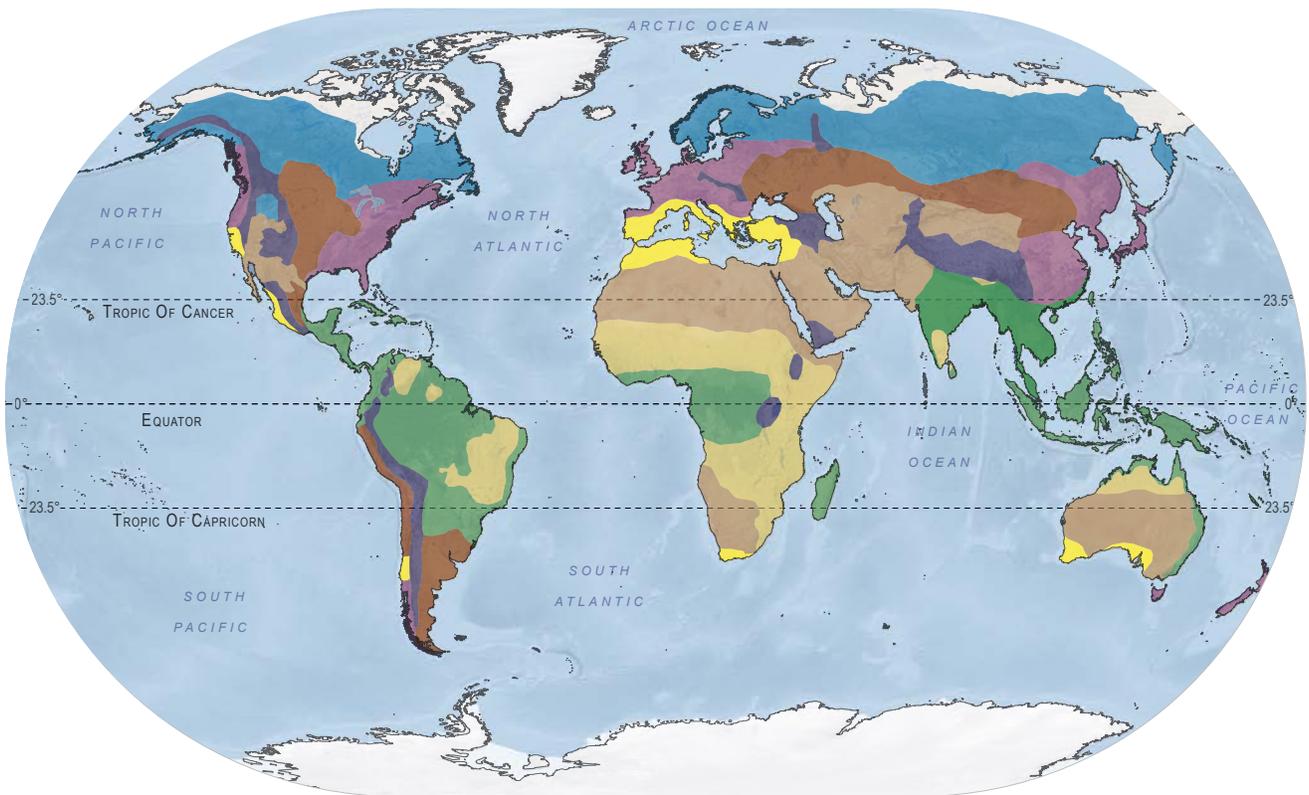
## VA #13 Border Between Haiti and Dominican Republic



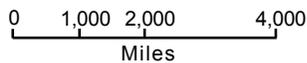
## VA #14 Human Activities in Deserts



VA #15 World Biomes



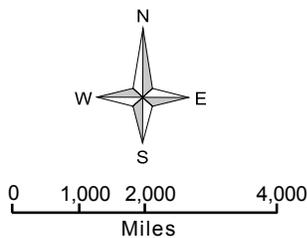
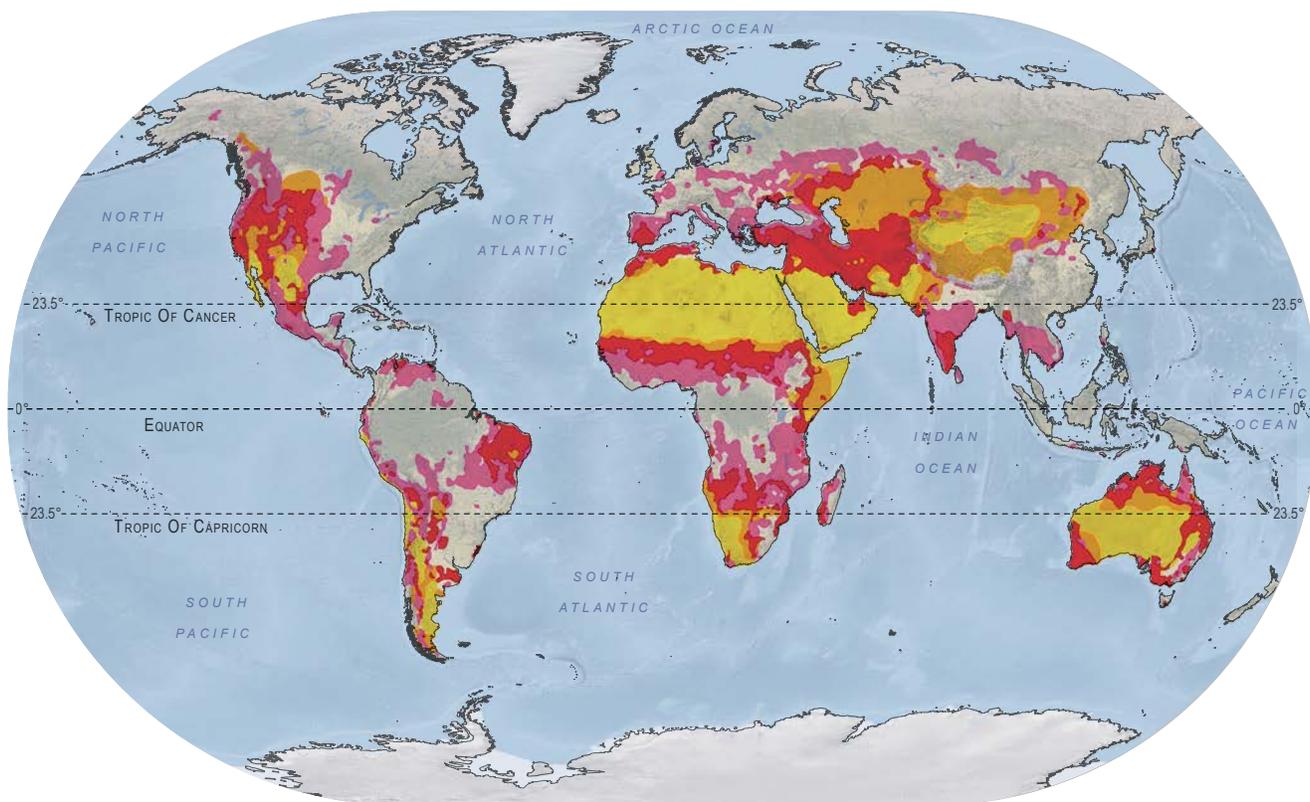
- |  |  |  |
|--|--|--|
|  Desert     |  Alpine       |  Deciduous Forest |
|  Rainforest |  Taiga        |  Savanna          |
|  Chaparral  |  Tundra/Polar |  Grassland        |



## VA #16 Ecosystem Recovery



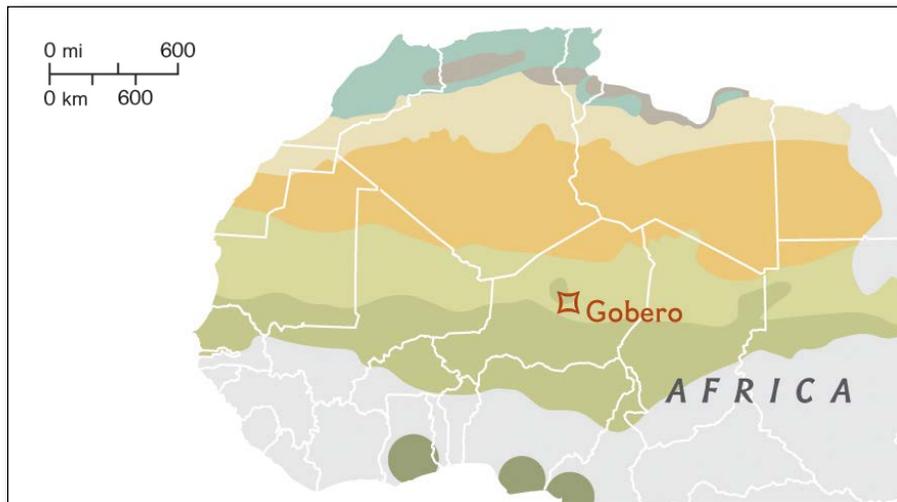
VA #17 Global Desertification Vulnerability Map



**REGIONS**  
 Arid  
 Semi-Arid

**DESERTIFICATION VULNERABILITY**  
 High  
 Moderate

VA #18 Changing Boundaries of the Sahara Desert

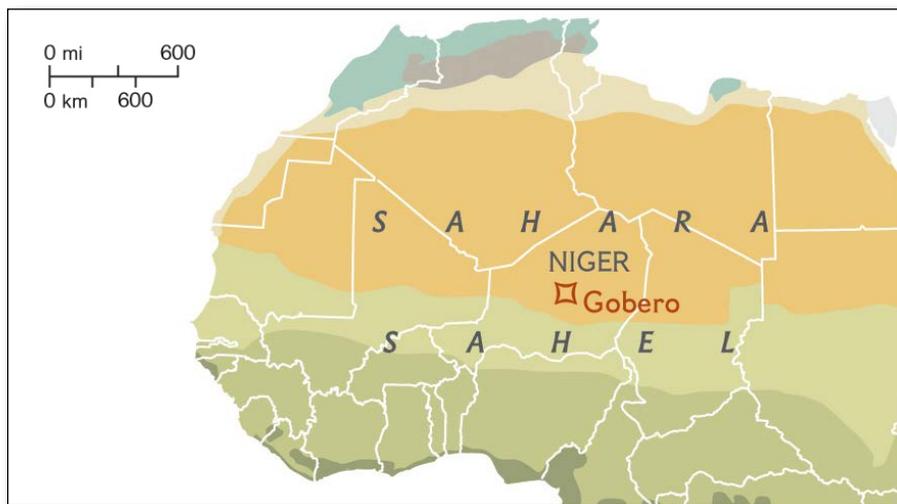


Vegetation

- Forest
- Steppe
- Semidesert
- Desert
- Savanna
- Savanna and forest
- Rain forest
- No data

Sahara 8,000 Years Ago

Gobero – Ancient Burial Site



Sahara Today

Gobero – Ancient Burial Site

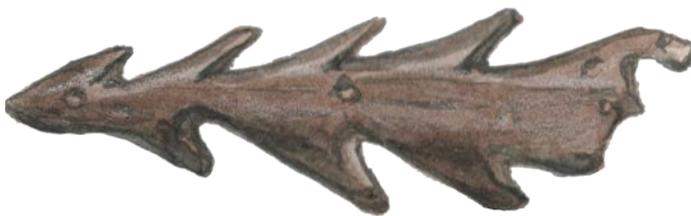
## VA #19 Artifacts of the Kiffian Culture



fishhook tool



spear tip

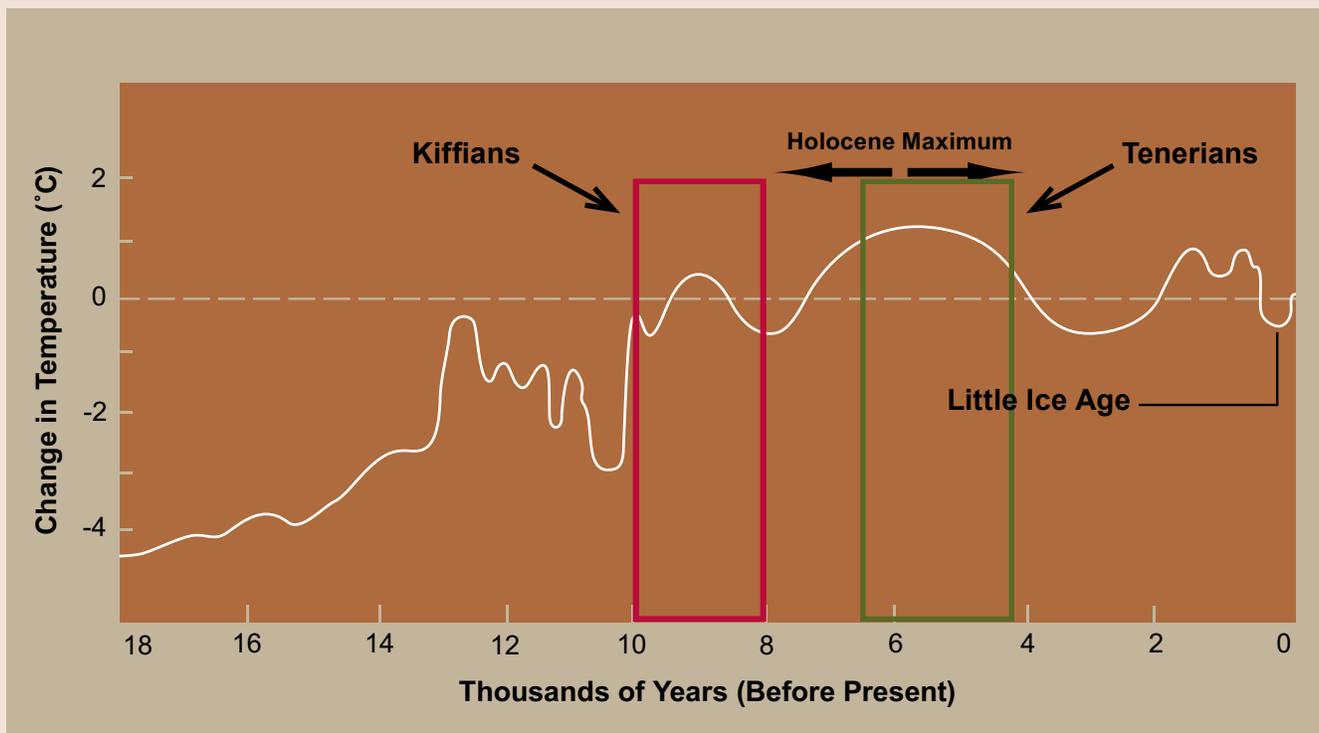


harpoon



harpoon

VA #20 Global Temperature Change



Kiffian Culture lived in Green Sahara



Tenerian Culture lived in Green Sahara

## VA #21 Artifacts of the Tenerian Culture



arrowhead

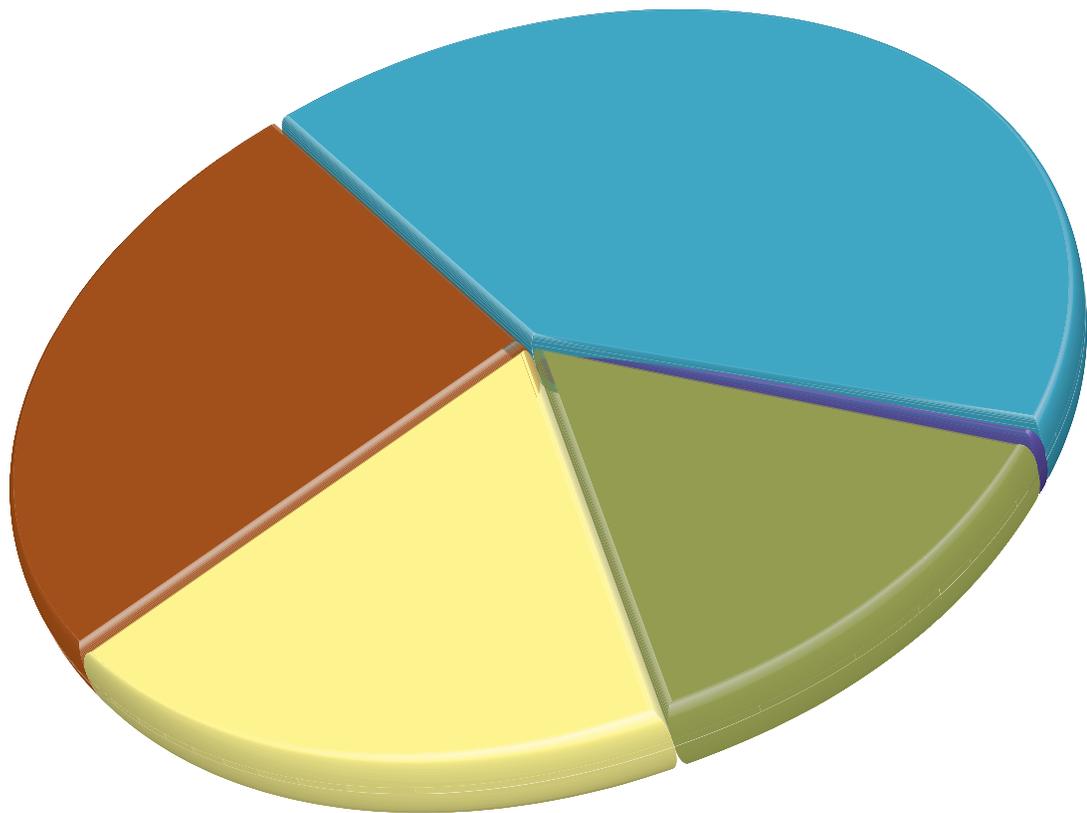
tool from  
antelope knuckles

arrowhead

### VA #22 Mojave Desert Ecosystem



## VA #23 Who Manages California's Mojave Desert Lands?

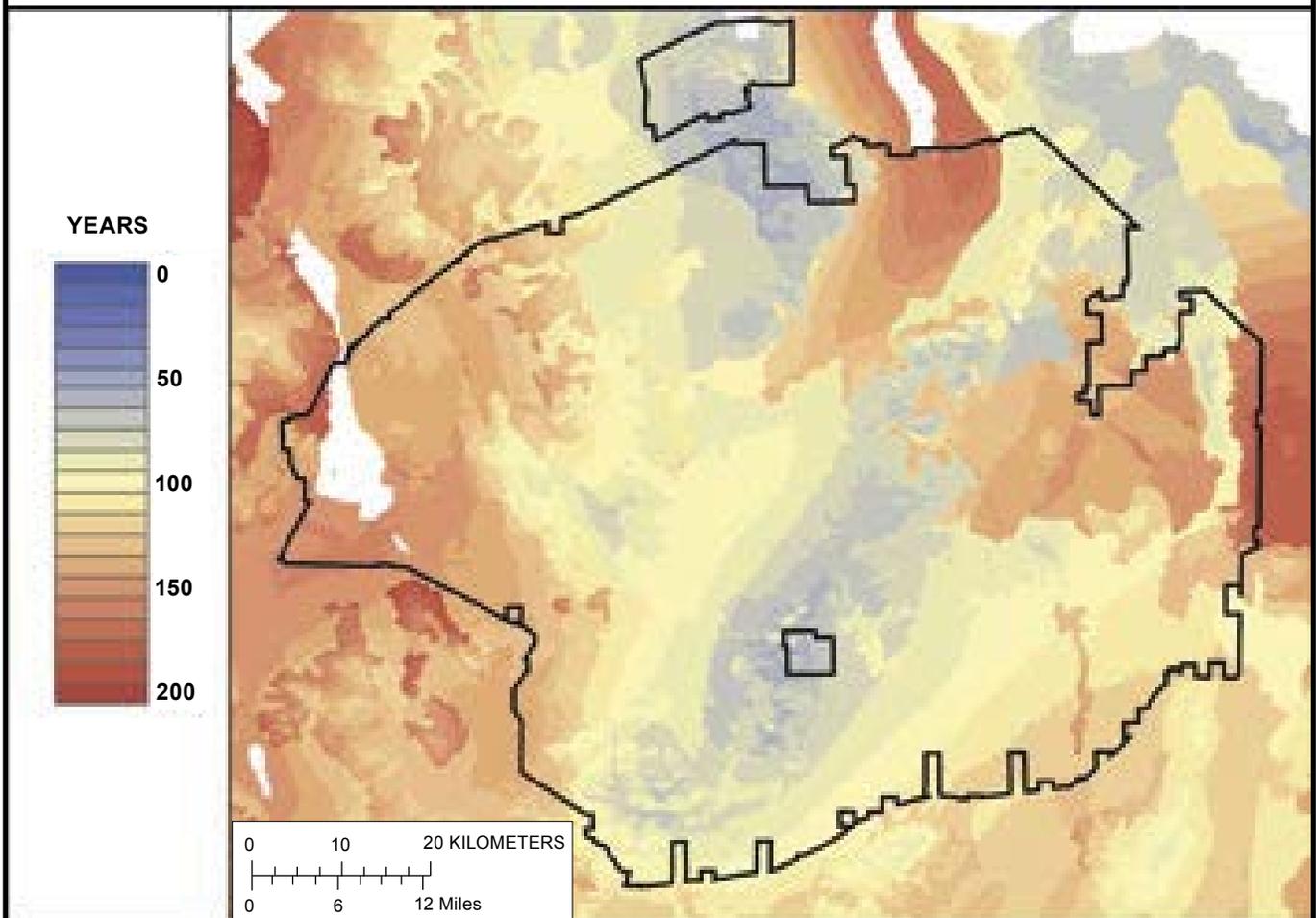


- Bureau of Land Management
- National Park Service
- Private Landowners/Municipalities
- Department of Defense
- State Parks/Fish and Game

VA # 24 Desert Crusts



## VA #25 Spatial Map for Soil Compaction Recovery



Geospatial map of the USGS Recoverability and Vulnerability of Desert Ecosystems (RVDE) study site in the Mojave Desert shows the time necessary to recover from soil compaction.

Source: Used with permission of the U.S. Geological Survey.







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