

THE LAST DAYS OF EASTER ISLAND



WHERE IS EASTER ISLAND?

- Latitude: 27S
- 2000 miles west of South America
- 1400 miles from the island of Pitcairn
- Named April 5, 1722 on Easter Sunday by Dutch Explorer Jacob Roggeveen



Easter Island 400AD

Tropical Paradise



colonized



Resources on Easter Island

- huahua and toromiro trees, woody shrubs, herbs, ferns, grasses, palm tree (82 feet tall and 6 feet wide). Primary producers which represent sources of food (energy), timber, rope, and fuel wood.



Resources on Easter Island

Seabirds:

- albatross, boobies, magnificent frigate birds, tropicbirds, storm petrels, terns, shearwaters, fulmars, prions



Resources on Easter Island

Aquatic Resources:

- Fish
- Porpoise
- Seal
- Shellfish



Resources on Easter Island

Land Birds

- Barn owls
- Herons
- Parrots
- Rails



WHAT TYPES OF RESOURCES WERE PRESENT?

- **PERPETUAL RESOURCE** – solar energy is continuously renewed.
- **RENEWABLE** – resource that can be replenished fairly rapidly (hours to several decades) through natural processes.
- **NONRENEWABLE** – resource that exists in a fixed amount in various places in the earth’s crust and has the potential for renewable by geological, physical, and chemical processes taking place over hundreds of millions to billions of years.
- **POTENTIALLY RENEWABLE** – resource that can be replenished fairly rapidly (hours to several decades) through natural processes, but if used faster than it is replenished (unsustainably), it can be converted into a nonrenewable resource. [forests, grasslands, wildlife, surface water, groundwater, fresh air, soil]

Invasive Species (food resources)

- Chickens
- Rats
- Sugar cane



Statue Construction 1200 – 1500AD



THE MOI

- 200 completed statues and 700 incomplete statues.
- Statues erected stood as high as 33 feet tall and weighed up to 82 tons.
- Incomplete abandoned statues stood as high as 65 feet tall and weighed as much as 270n tons.



WHY DID THE RAPPA NUI BUILD THE MOI?

The MOI faced inward from the sea to attract the Gods to protect the Rapa Nui.

Rappa Nui built bigger MOI over time to show power and wealth over other clans.



WHAT WENT WRONG?

- 800AD deforestation was ongoing.
- 1400 the palm and other trees and shrubs had become extirpated.
- Rats scavenged palm nuts and other fruits and seeds and prevented the regeneration of the critical primary producers for food, fuel wood, hemp and timber for canoes.



PARADISE LOST

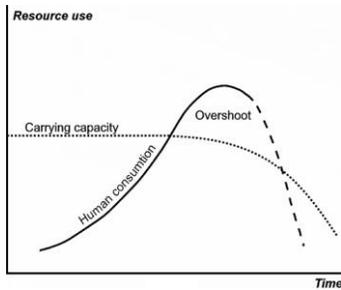
BARREN WASTELAND

CARRYING CAPACITY EXCEEDED

- By 1500 the land and sea birds were gone.
- Mutualistic relationships were disrupted and this led to the total disappearance of the forest.



WILDLIFE AND FOOD RESOURCES DISAPPEARED



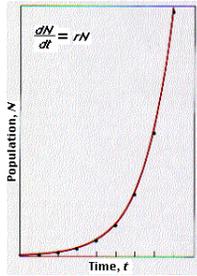
POTENTIALLY RENEWABLE RESOURCES BECOME NONRENEWABLE

- With no roots from vegetation to anchor soils, they eroded into the sea.
- This caused streams and springs to dry up.
- Crop yields decreased drastically until there was no more arable land.



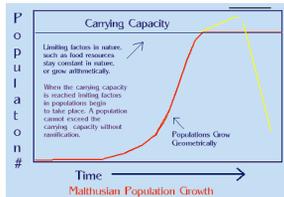
POPULATION GROWTH (NRI = birth rate > death rate)

- 400 – Population of Polynesian immigrants was 2000
- Population grew exponentially to as many as 20,000
- “J-curve” (+FBL)
- “runaway loop”



POPULATION DECREASE (NRD = death rate > birth rate)

- As population increases exponentially, natural resources decrease exponentially.
- Sophisticated political structure fails.
- Division of resources no longer shared.
- Warfare over resources begins and population begins to decline (-FBL)
- “Corrective Loop”



DESPERATE MEASURES FOR SURVIVAL

•As food resources became unavailable, cannibalism predominated until only 2000 emaciated Rapa Nui were found by Roggeveen in 1722 in the barren wasteland they had created.

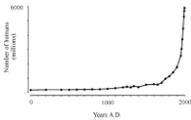


"Cannibalism" by Salvatore Dali

PAIRED FEEBACK LOOPS

Positive Feedback Loops (runaway loop)

- Exponential growth
- Unsustainable use of resources diminished quality of life



Negative Feedback Loops (Corrective loop)

- Population decline
- Cannibalism
- This allows resources to recover BUT...they will NEVER reach their original carrying capacity again.

IS THIS OUR FUTURE?

- Population
- Depletion of renewable resources
- Depletion of nonrenewable resources
- Depletion of potentially renewable resources
- Poverty
- Political Structure
- Warfare (economic power = military power)
- Cannibalism or Intelligence?
- Greed or Sustainability?
- Technology (friend or foe?)

WHAT CAN YOU DO?

- Get involved
- Write to government representatives
- Join Public Interest Groups or NGO's
- March for what you believe in.
- Alter your lifestyle just a little
- Educate yourself by reading

***CHANGE COMES SLOWLY BUT SURELY
FOR THOSE WHO ARE PERSISTENT!***
