

Case Study: Easter Island and review of scientific studies

The Lesson of Easter Island

Observation: While presently denuded of large vegetation, examination of sediment cores from lakes, ancient nut casings, carbon-channels in the soil, charcoal, and analysis of ancient script all indicate that Easter Island once had a thriving palm forest.

Hypothesis: The forest was lost due to climate change.

Results: Evidence disproved this hypothesis, supporting an alternative hypothesis that the forest was lost due to human-caused environmental degradation. Archeological evidence indicates that, traditionally, the palms and other trees were used for fuel, for building materials for houses and canoes, and as fibers for clothing, and that the fruit was eaten. However, as tribes began to make and move massive stone statues, palms were harvested for rope and to use as rollers to move the statues. Pollen analysis of the lake sediment cores shows decreasing plant populations and plant species diversity until there was very little vegetation by A.D. 1400. Deforestation led to increased erosion, as revealed by the increasing depth of the lake sediment layers. Higher erosion rates decreased soil quality, resulting in smaller crop yields. Other evidence of forest loss can be seen in the decreasing diversity of animal species used as food, with early islanders eating many species of forest birds and marine animals and later islanders eating only domesticated chickens. Archeological evidence supports the conclusion that extreme scarcity of food led to intertribal warfare and collapse of the Easter Island society.