Akiapolaau

The Diversity of Life by E.O. Wilson

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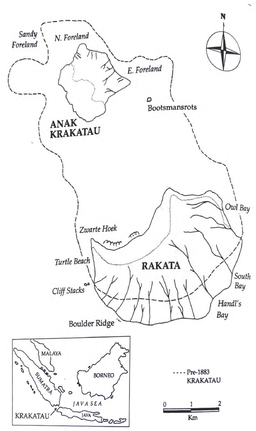
Introduction

In The Diversity of Life, E. O. Wilson tells a tale about how our earth is on track for another extinction event and humans are at fault. Wilson discusses various topics such as environmental preservation, biodiversity and its importance, and how life has evolved over time. Wilson views biodiversity differently than many as he focuses on all species found in the ecosystem rather than narrowing his focus on one. He mentions how new species can be created by groups evolving and developing new skills or existing in new environments. Species are going extinct and being created constantly; these extinctions don't have to be large; they can exist on small scales yet still cause an impact on the entire ecosystem. Wilson goes on to explain that humans have existed for a small period of time yet we are the number one cause of extinction events within species. Ultimately, humans will be the cause of our own downfall as the environment is a reflection and product of human actions.

Inevitability of Biological Diversity

Wilson is a firm believer that destruction is a crucial piece in building and developing complex ecosystems. Earth's history is proof that catastrophic destruction will inevitably lead to a growth in biodiversity of organisms.



The explosion of Krakatau in 1883 destroyed all floral and faunal life on the island and left a deserted landscape that was prime for scientific research on how biodiversity forms. Species began to emerge on the island due to a variety of processes (plankton, swimming, flying, rafting, and parasitic transportation) that combined to form a biologically diverse island despite the initial destruction. Krakatau is one of the best examples of the inevitability of biological species diversifying themselves.

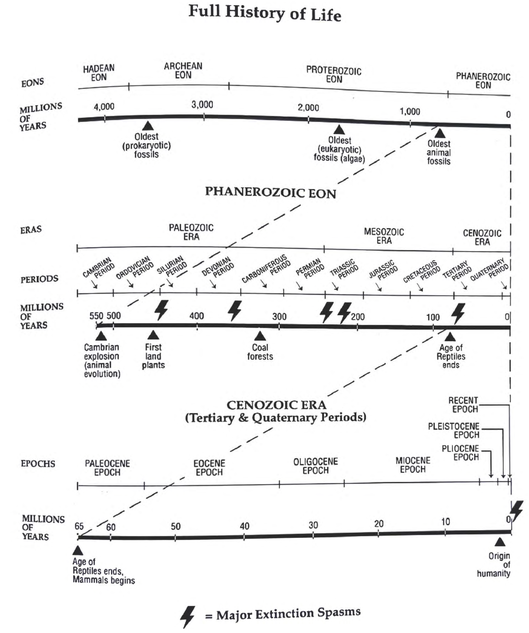
Despite the *ability* of organisms to biologically diversify and to rebuild their ecosystems after destruction, Wilson argues that we can not rely on this ability and ignore the causes of these destructive events. **Biologically diversifying an environment takes centuries and millennia to achieve**. He believes the "primary agent of destruction was long-term climate change" in every catastrophic event seen on the planet (30). Thus, human behavior must go through some sort of widespread, societal change in order to prevent another mass destruction of biological life due to climate change.

"[The timeline on biodiversity] should give pause to anyone who believes that what Homo sapiens destroy, Nature will redeem. Maybe so, but not within any length of time that has meaning for contemporary humanity."

Adaptation and Resilience

Wilson fosters a constant theme of **change**. Change is continuous while also unpredictable when magnified to a species level. Change comes in the form of evolution, natural selection, species selection, and adaptive radiation.

- ★ Natural selection is the key driver of evolution
- ★ 3 features of creative evolution: Mutations, speed of natural selection, and ability to assemble complicated new structures
- ★ The Akiapolaau serves as an example of microevolution attaining the scale of macroevolution. Darwin's Finches: The Galapagos allowed for a single colonizer to expand into 13 contemporary species
- ★ Most of the planet is unexplored and the measurement of species is far behind our other scientific measurements



Ecosystem biodiversity results from adaptations & creates resilience within the community. Global biodiversity is at an all-time high with the introduction of the human race. The presence of species within an ecosystem is by chance but is largely determined by the species already living within the area. The development of species follows along the same lines. The primary method for analyzing communities is to study the order in which species enter and exit an area. To better study biodiversity, **Wilson argues for a bottom-up approach that examines inter-species interactions to make conclusions about the ecosystem**. This is a change in how scientists had studied ecosystems. The introduction of the human race, even though a small part of the history of life, has altered many preconceptions concerning Earth's resilience.

The Human Impact

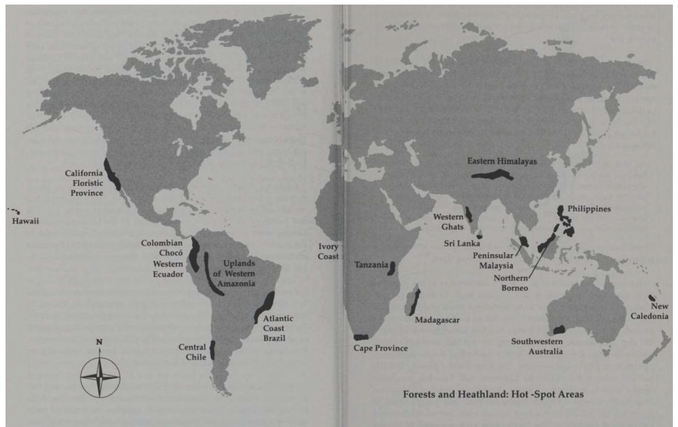
In The Diversity of Life, Wilson spends a large portion of time discussing certain historical groups and their responsibilities for the extinction of specie groups. A few examples are listed below:

- ★ The Lapita People: the Lapita people ate their way through the entire Polynesian fauna by eating through all the ancient species of birds and turtles.
- ★ The European Settlers in Hawaii: in 1778, there were 50 native species but after two centuries, a third of those had disappeared.
- ★ The Maoris in New Zealand: the Maoris in New Zealand were responsible for the extinction of the large Moa bird.
- ★ Malagache in Madagascar: responsible for the extinction of 6-12 elephant bird species.

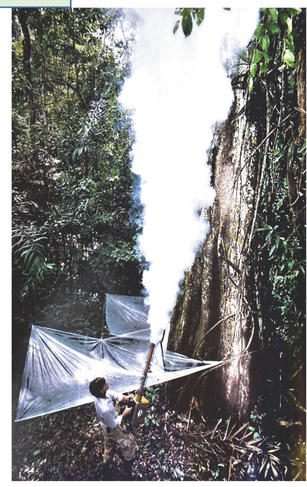
Wilson also identifies key ecosystems in need of desperate attention:

- ★ San Bruno Mountain in California: native flora and fauna is threatened by increase in vehicular traffic.
- ★ Colombian Choco: the Choco is relentlessly invaded by timber and logging companies.
- ★ Uplands of Western Amazonia: 65% of the upland forests have been cleared or converted to palm-oil plantations

Due to the intense amount of strain humans have placed on the environment, **we will be the next cause of a great extinction event.** This is due to us being the only force of nature that can break the crucible of biodiversity through our manipulation of the environment. However, manipulation can be used to patch up and slow down the destruction we have caused. E. O. Wilson explains how we can look toward native knowledge of species since they have supported them their entire existence. He mentions a variety of species that embrace the environment and increases its health versus causing harm and deterioration. The Gaint Amazon River Turtle can produce 22,000 lbs of meat per acre in a properly manipulate environment compared to the cattle in nearby operations. Wilson is very adamant about **exploring alternate avenues of food and material sources.** Kenaf (African Plant) can be used for newspapers, saving trees.

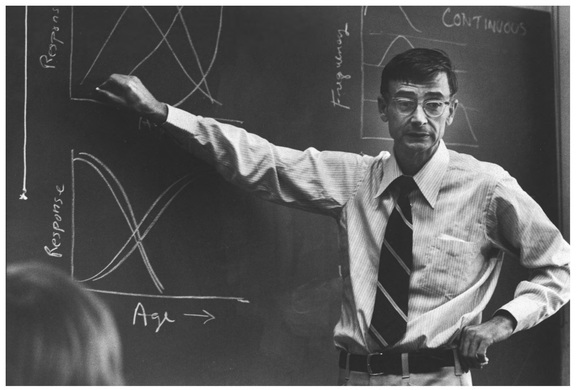


Conclusions



Everything matters from the smallest blade of grass to the biggest elephant, a point that Wilson makes that many other scientific writers do not focus on. **If we are to make substantive change in terms of the environment, then we must do so with attention paid to every single element of every single ecosystem.** Shown to the right is a Peruvian farmer Terry Erwin who is fogging a tree with an insecticide that is biodegradable, a manner that protects both the tree and the organisms that coexist with the tree.

"If enough species are extinguished, will the ecosystems collapse, and will the extinction of most other species follow soon afterward? The only answer anyone give is: possibly. By the time we find out, however, it might be too late. One planet, one experiment."



References

Wilson, E. O. (1992). *The Diversity of Life*. W. W. Norton & Company.