

What Is A Species?*



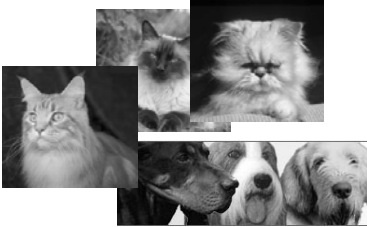
* Variations in a theme. One snail species, many varieties.

One Species Or Many?



Charles Darwin's favorite animal!

How Many Species of Dogs And Cats Are There?



One!

Two Species Or One?



Neandertal

Modern Human

Study: Human DNA Neandertal-Free

By Jennifer Fiegels, Discovery News

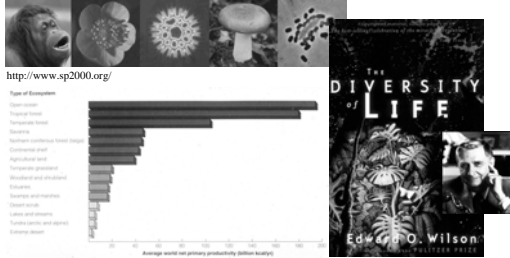
Cro-Magnon vs. Neandertal

May 12, 2003 — Neandertals did not contribute to the gene pool of modern humans, according to a recent study that compared the DNA of two ancient Cro-Magnons with that of four Neandertals.

While Neandertals and early humans coexisted in Europe for a few thousand years 40,000 years ago, the findings suggest they did not interbreed, an action that would have made Neandertals a direct ancestor of modern humans. The study also supports the "Out of Africa" theory. According to this view, modern humans evolved in East Africa and then spread into Europe and Asia through the Middle East.



Species Define each System



.... and each system is driven by environmental change.



Even today.



Thu Sep 16, 3:35 AM ET

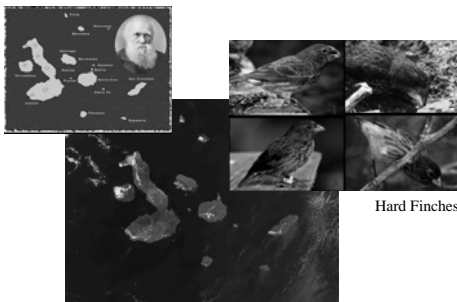
AP Associated Press



Purple Throat
Humming Bird
+
Heliconia bihai

Made For Each Other
(quite literally!)

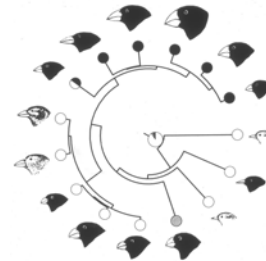
The Galapagos Islands

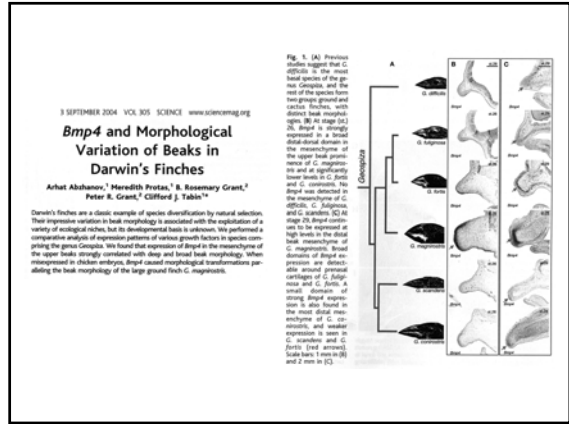
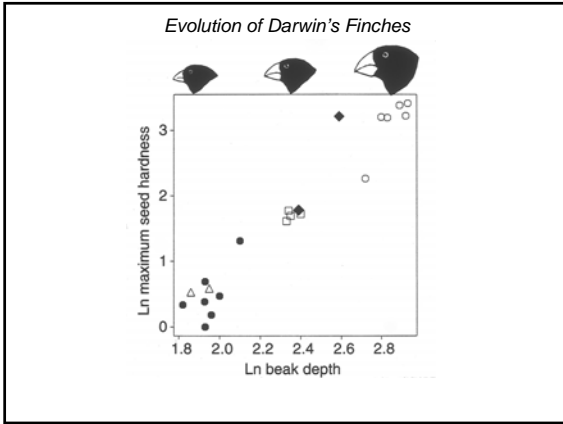


Learn more: <http://www.talkorigins.org/faqs/wells/finches.html>

Photo: NASA

Genetic Relationships Among Darwin's Finches Beak Size and Shape





The Concept Of Niche*

The Three Body Problem

The Nth Body Problem

"No two species can occupy the same niche."

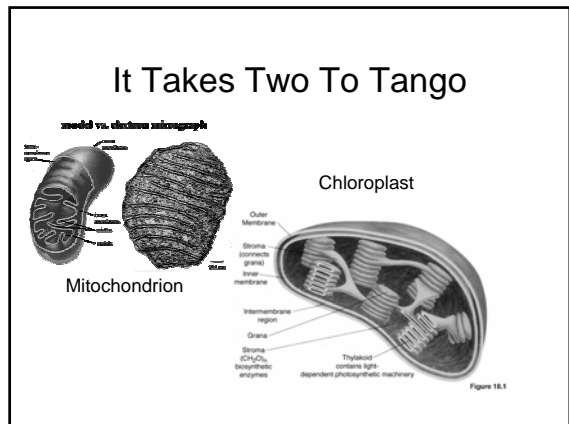
* as developed by G. Evelyn Hutchinson

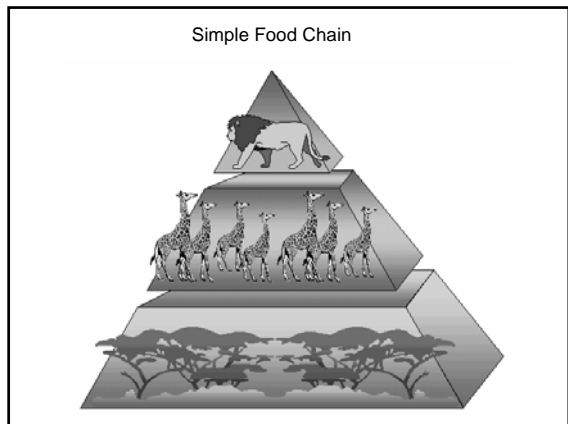
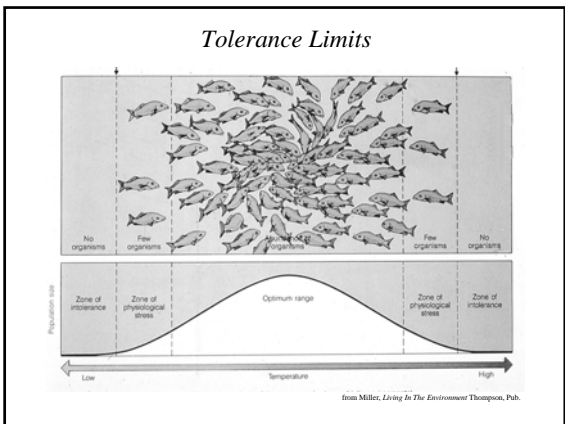
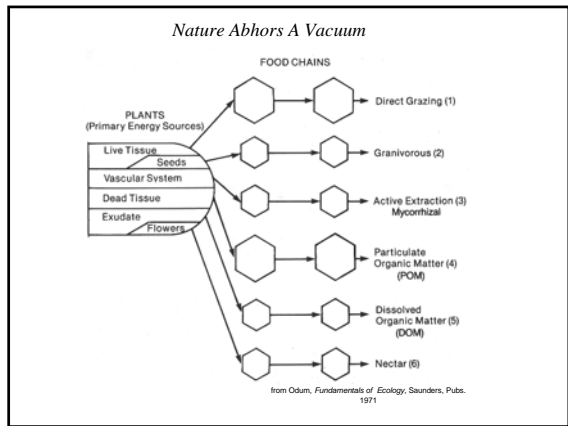
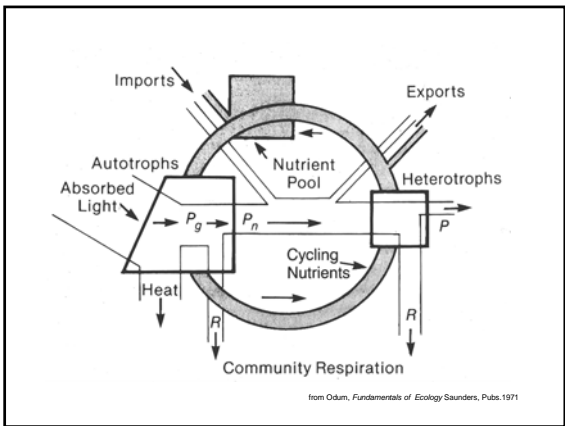
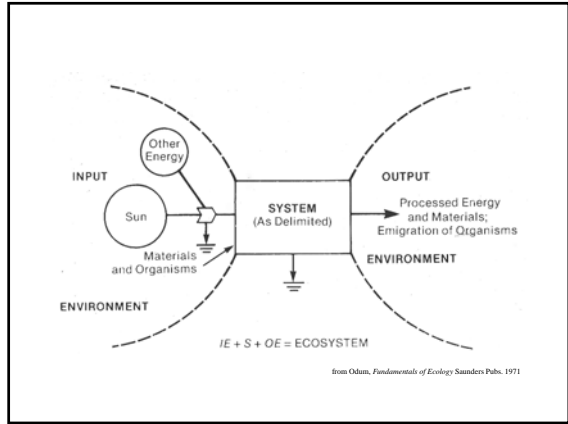
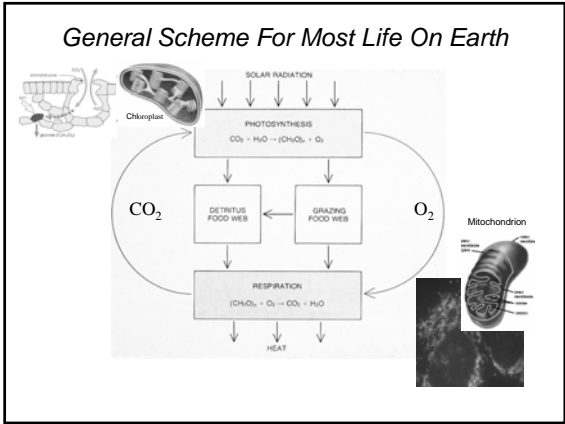
SPATIAL CONCEPT OF NICHE

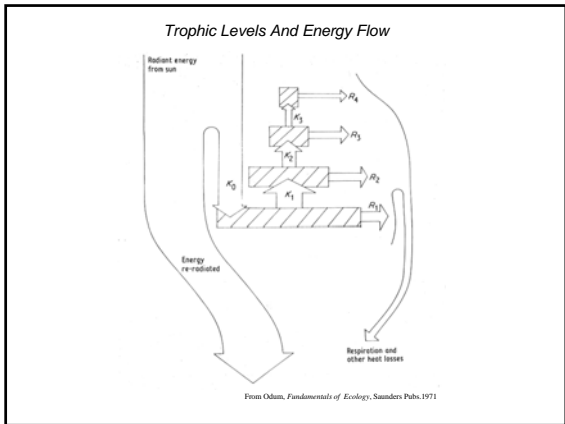
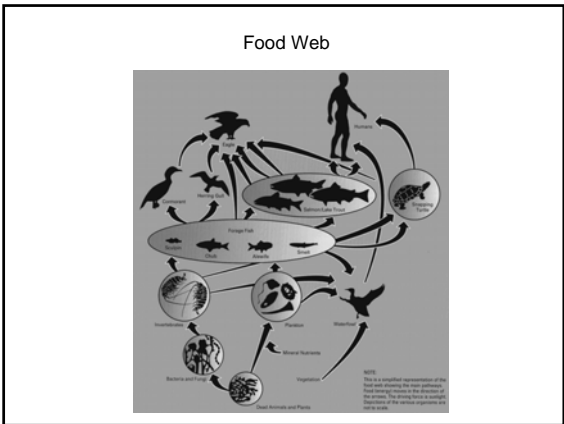
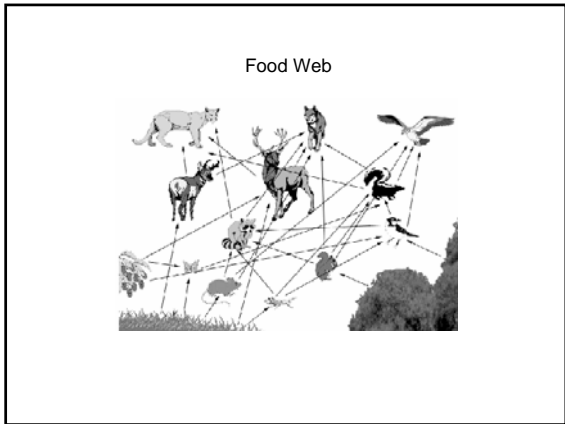
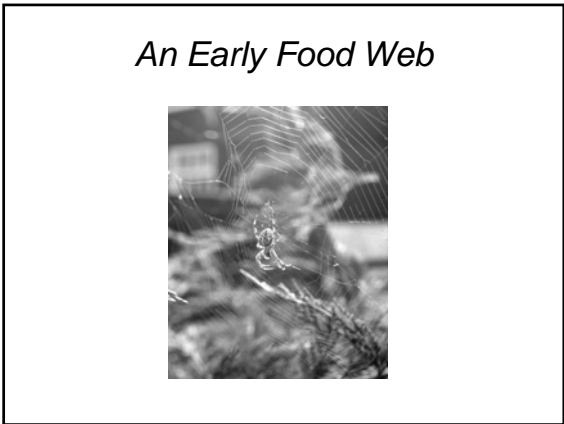
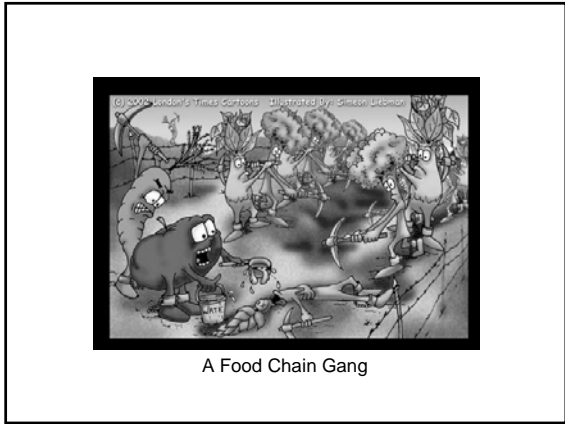
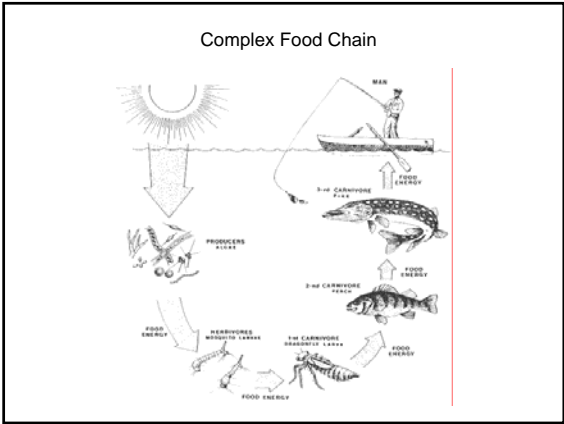
- G.E. HUTCHINSON (1957), A YALE SCHOLAR: "THE NICHE IS AN ABSTRACTLY INHABITED HYPERVOLUME"
- CONCEPT OF DIMENSIONALITY OF CONTROL FACTORS
- FUNDAMENTAL VS. REALIZED NICHE

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There Can Be No Ecosystems Without Plant-Animal Interactions







Trophic Relationships

