

*Read the following article and discuss the questions on your own paper...*

## Leapin' Evolution Is Found in Lizards

By Nicholas Wade; May 1, 1997



Darwin's theory of evolution is the foundation of biology, yet the process is so slow that it has seldom been witnessed outside the laboratory. A remarkable experiment with lizards in the Bahamas has now shown that evolution moves in predictable ways and can occur so rapidly that changes emerge in as little as a decade or so.

The finding bears on debates as to whether evolution on the time scale of millions of years is governed by the same rules as short-term evolution. Biologists favoring the idea of punctuated equilibrium have argued that there are natural constraints that may keep a species unaltered for millions of years. The new study can be interpreted as showing that there are no such constraints, and no difference between long-term and short-term evolution.

The experiment involved introducing a species of lizard to 14 small, lizard-less islands near the Exumas in the Bahamas and leaving them for 14 years. Lizards in the Caribbean have been carefully studied by biologists because, like Darwin's finches in the Galapagos Islands, they have adapted to the different conditions on various islands with changes in body shape. For example, lizards that inhabit large trees tend to have long legs, while those that live on twigs are shorter limbed. The reason has to do with speed, which is essential for success in the lizard world, both to catch insects and elude predators.

Dr. Jonathan B. Losos of Washington University in St. Louis said such information enabled him and his colleagues to forecast what would happen to the lizards exiled to the 14 islands, some of which were smaller than a football field. The more the vegetation differed from that of their original home, Staniel Cay, the more the lizards should evolve, and the direction of evolution should be toward shorter legs, since Staniel Cay is wooded and most of the islands are almost treeless.

Fourteen years after being delivered to their new homes, the lizards have evolved as predicted, with those with the stubbiest legs being found on islands with the scrawniest vegetation, Dr. Losos and his colleagues report today in the journal *Nature*.

Dr. Douglas J. Futuyma, an evolutionary biologist at the State University of New York at Stony Brook, said the study was "distinctive and exciting and one that will be cited for many years to come." Though there are many examples of rapid evolution in terms of an animal's biochemistry, like the development of resistance to pesticides, there are far fewer instances of bodily changes like those seen in the lizard study, Dr. Futuyma said.

### QUESTIONS...

1. What happened when the species of lizard was introduced to the Caribbean islands? Be specific.
2. What did this evidence tell the researchers about evolution?
3. Is this contradictory or does it support what biologists believed to be true about evolution prior to this experiment?
4. Why was the length of the lizards' legs critical to surviving in their environment?
5. Use this example to explain how natural selection works. Be specific.