



# National Center for Science Education

Defending the Teaching of Evolution in Public Schools

[www.ncseweb.org](http://www.ncseweb.org)

## **Guide to *Episode 3: Extinction!***

For a 45–60 minute dialogue on Episode 3 of *Evolution*

By Phina Borgeson, M.Div.

“A theological approach to evolution must come to terms with the costs of evolution. The evolution of life is exuberant, bountiful, and beautiful. It is awe-inspiring. But it can also strike the human observer as destructive and alien. There are aspects of the evolution of life that human beings can find unpleasant, disturbing and frightening. These include the evolutionary dead ends and mass extinctions of uncounted species, as well as predation, pain, and death that are a constant part of the process.”

— Denis Edwards, *The God of Evolution: A Trinitarian Theology* (Mahwah NJ: Paulist Press, 1999), 34.

### **Image**

Scientists are sitting around a table looking at photos from their camera traps: pictures of crocodiles, tapirs, tigers, leopards, and poachers.

### **Dig**

The scientists’ photos suggest an interesting shift. While extinction is a normal part of the evolutionary process, and while rapid massive extinctions have happened in the history of life on our planet, the current acceleration of extinction (300 times the normal rate) has much to do with human activity. The poachers are an icon of the whole complex of human impact on diversity. Habitat destruction and human facilitation of biological invaders are the major causes of current extinctions. What evidence of decreasing diversity do you see in the yards, parks, farmlands, or wild places in and near your community?

### **Dialogue**

Dealing with the “red in tooth and claw” (as Tennyson put it) aspects of evolution is a big issue for theologians. Why does a loving God allow such destruction and apparent waste? To address this question involves exploring how one’s faith tradition understands death, transformation, freedom, and the power of God — a program for a life’s work, not one brief study!

To make a beginning, consider in what ways the sacred texts of your tradition speak to bringing forth something new from that which has died, withered, or become exhausted. What insights from these teachings can help you answer the why of extinction and the rise of new species?

### **Explore**

1. For more background on mass extinctions, the title essay in Stephen Jay Gould’s *Dinosaur in a Haystack* (New York: Crown Publishers, 1995, 147–158) offers a good introduction and also gives some insights into the methods of evolutionary scientists. For a full-length treatment, see

*Night Comes to the Cretaceous: Comets, Craters, Controversy and the Last Days of the Dinosaurs* by James Lawrence Powell (New York: W. H. Freeman, 1999). *Darwin's Dreampond: Drama in Lake Victoria* by Tijs Goldschmidt (Cambridge: MIT Press, 1998) offers a contemporary case history of extinction.

2. The importance of diversity in earth's biota, a theme of this episode, cannot be overrated. Diminishing diversity not only weakens natural habitats and communities, but the chance of human survival. Where does the theme of strength in diversity appear in your faith tradition? How might this illuminate your thinking about the current acceleration of extinction rates?
3. Humans' evolutionary success — enabling us to spread throughout the globe and reshape the various environments to sustain human lives — may also be our undoing. What are the evolutionary issues in this dilemma? What are the ethical and moral issues? Episode Six provides more background on these issues.

## Act

Many activists' preoccupation with endangered species focuses only on the tip of the iceberg: conspicuous mammals and birds — the “poster species” of our current environmental crisis. We learned in this episode that a focus on the large carnivores is appropriate, in that their demise is a marker for the destruction of whole ecosystems. Yet we need to consider ways in which attention can be brought to bear on a more systemic approach to human impact on habitat destruction and natural diversity. Many denominations have environmental action ministries. The Presbyterian Church USA, for example, passed a resolution at its 2001 General Assembly “On preserving biodiversity and a call to halt the mass extinction.” Many groups have web sites worth exploring. A place to begin with many resources and links is [www.earthministry.org](http://www.earthministry.org).

Please send comments on these guides, and any questions about ideas and resources for extending the conversation, to:

Phina Borgeson  
Faith Network Director  
National Center for Science Education  
420 40th Street, Suite 2  
Oakland, CA 94609-2509  
[borgeson@ncseweb.org](mailto:borgeson@ncseweb.org)  
[www.ncseweb.org](http://www.ncseweb.org)