



Out of the Ashes: Dawn of the Age of Mammals

hhmi | BioInteractive

Abbreviated Film Guide
Educator Materials

OVERVIEW

The short film [Out of the Ashes: Dawn of the Age of Mammals](#) explores how life on Earth recovered after the Cretaceous-Paleogene (K-Pg) asteroid impact, which caused the extinction of the non-avian dinosaurs, and how those events led to the diversity of plants and animals today. The film also discusses the fossil record and how it helps scientists understand the evolution and diversity of life on our planet.

Additional materials for the film can be found on the accompanying [film activity webpage](#), including a “Student Handout” that probes students’ understanding of the key concepts addressed in the film and “Educator Materials” that provide suggested pause points in the film with questions for students, background information, and detailed discussion points; a list of related resources and references; and an answer key for the “Student Handout.”

KEY CONCEPTS

- The Cretaceous–Paleogene (K–Pg) asteroid impact led to the mass extinction of 60%–80% of all species on Earth, including all non-avian dinosaurs.
- As Earth recovered after the K–Pg mass extinction, plants and animals coevolved in ecosystems once occupied by dinosaurs, leading to the current diversity of life on Earth.
- The fossil record provides evidence of how life recovered and diversified after the K–Pg mass extinction.
- Both professional scientists and other people interested in science can collaborate to collect scientific evidence about Earth’s history.

KEY REFERENCES

Grossnickle, David M., Stephanie M. Smith, and Gregory P. Wilson. “Untangling the multiple ecological radiations of early mammals.” *Trends in Ecology & Evolution* 34, 10 (2019): 936–949.

<https://doi.org/10.1016/j.tree.2019.05.008>.

Lyson, Tyler R., I. M. Miller, A. D. Bercovici, K. Weissenburger, A. J. Fuentes, W. C. Clyde, J. W. Hagadorn, et al. “Exceptional continental record of biotic recovery after the Cretaceous–Paleogene mass extinction.” *Science* 336, 6468 (2019): 977–983. <https://doi.org/10.1126/science.aay2268>.