



# YALE NATIONAL INITIATIVE

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Curriculum Units by Fellows of the National Initiative  
2018 Volume V: Manipulating Biology: Costs, Benefits and Controversies

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## **Endangered Species, De-Extinction and MANipulation**

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by Valerie Schwarz

Should we resurrect the passenger pigeon or de-extinct the woolly mammoth? The idea of using gene-editing to manipulate biology is no longer only an idea in a science fiction novel or movie. Scientists are using CRISPR and other methods to alter the genomes of organisms in an effort to counter the loss of species and the impending sixth mass extinction. Some scientists think the de-extinction of keystone species may be a viable way to solve biological problems brought on by human activity including climate change. This four-week science unit is written for fourth grade students but could be adapted for middle school students. It utilizes *Jurassic Park*, hands-on simulations and case studies to engage students to think critically and to consider the consequences of altering genes. The standards that are addressed are Virginia science standards 4.5 and 4.9.

(Developed for Science, Language Arts, and Social Studies, grade 4; recommended for Science and Language Arts, grades 4-6, and Social Studies, grade 4)

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