

Burning Issues: A Case-based Approach to Integrating a Multitude of Ecological & Conservation Biology Concepts

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Constructivist learning theory teaches us that our students are active constructors of knowledge. They do not come to our biology classes as blank slates, rather they come with all kinds of ideas about the natural world, many of which they internalize from cultural memes and popular media. Depictions of forest fires in the news, like the recent Camp Fire that destroyed Paradise CA, send powerful messages to our students about forest ecosystems, fires, and our own relations to these ecosystems. This workshop introduced a case study, which challenges and helps students overcome misconceptions they have about forests and fire. The case study explores ecological concepts such as keystone species, trophic cascades, succession, competition, disturbance and biodiversity in the context of how human developments impact some forest ecosystems. The workshop takes you on a virtual field trip to what once was the largest forest ecosystem (60-90 million acres) in all of North America that was dominated by a single tree species. You will also explore how to modify SimBio's popular Intermediate Disturbance Hypothesis lab simulation from a more verification-style lab into an inquiry-based exploration, in which students use the findings from their own experiment in order to understand the role that periodic disturbances have on biodiversity, integrity and ecosystem services.

Keywords: case study, forest ecosystems, fire disturbance, SimBio™ Intermediate Disturbance Hypothesis

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