



Curriculum Units by Fellows of the National Initiative

2020 Volume V: Caretakers versus Exploiters: Impacting Biodiversity in the Age of Humans

Strands of One Braided Cord: How Humans Are Impacting Biodiversity Through the Spread of Disease

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In an ever-connected world that is being altered by climate change and invasive alien species because of human's existence on our planet, we are seeing an increased rate in emerging diseases in humans and other species. This unit will examine the spread of chytrid fungus and discuss how its existence has led to an increased rate of amphibian extinction particularly in the *Atelopus* genus. The unit will discuss the Panamanian golden frog's disappearance from the wild mentioned in the book, *The Sixth Mass Extinction, An Unnatural History* written by Elizabeth Kolbert. Then the unit will discuss the emergence of zoonotic spread from coronaviruses looking specifically at the SARS-associated coronaviruses, Severe Acute Respiratory Syndrome, SARS 2003 and SARS-CoV2. Finally, the unit will discuss how SARS, chytrid, and human interactions with the environment are all related to each other. The unit will examine how humans have impacted climate change in turn impacting the rate at which zoonoses occurs and how humans trading goods over centuries has led to accidental or purposeful redistribution of amphibians. Overall, the unit will show how humans, viruses, frogs, and fungi are a part of one system, or one "braided cord". The classroom activities for this lesson are based off the 5E model with a focus on English Language Learners. The unit should take approximately five days to teach. Activities include comparing and contrasting images, making connections, practicing observations skills, lab safety practice/review, and introduction to vocabulary to name a few. Both online and in person activities have been included into this unit. Use of technology has also been considered and it is recommended that a teacher using this unit downloads FlipGrid (which is free for all educators). By the end of the unit, students will be able to make predictions on how humans' interactions with the environment impact the world from a micro scale to a macro scale.

(Developed for Science, grade 5; recommended for Science, grades 4-6)

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