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Curriculum Units by Fellows of the National Initiative

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

Viral Viruses: Land-Use Changes and Emerging Infectious Diseases

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To what extent will humans ignore the fact that we share the earth with 8.7 million other species in our unquenchable demand for resources? In bulldozing, logging, mining, and over-farming humans drain the earth of its biodiversity. Human driven land-use changes create bare, dry, infertile landscapes in once thriving and fertile habitats. However, there is another consequence to human encroachment into once wild habitats. The consequence is the increased interaction of natural virus reservoirs and humans. This curriculum unit first examines the growing habitat loss in the Amazon and Southeast Asia due to human decisions to create more grazing lands and farms for food production. In its second part, the unit explores the potential link between habitat loss and emerging infectious disease. Three viruses that have caused epidemics and pandemics are examined: Nipah virus, SARS, and SARS-Covid-2. Finally, students experiencing this curriculum unit will debate if there are viable solutions to these problems, and if so, whose responsibility is it to cure earth of its exploitation through policy change? This curriculum unit is intended for students in 11th and 12th Anatomy and Physiology and can be modified for an Environmental Science class.

Keywords: Land Use - Change, Deforestation, Emerging Infectious Disease, SARS-Covid-2

(Developed for Anatomy and Physiology, grades 9-12; recommended for Anatomy and Physiology, grades 9-12, and Biology, grade 9)

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