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Radiocarbon and ivory live together in perfect harmony

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Extant elephant species have been protected from excessive international commercial trade by the Convention on International Trade in Endangered Species of Wild Flora and Fauna at least since 1989. However, the legal protection usually allows for some exemptions, such as antiques, that might serve as a loophole for trade in modern ivory.

Comparison of the individual legislations of chosen states reveals that the term elephant antique ivory stands for different time periods throughout the globe. Radiocarbon dating is a powerful method of providing an objective age of ivory to distinguish legal from illegal. The analysis is generally successful for ivory dating between 1956 and 2017 covering the infamous big slaughters of African elephants. Ivory from 1947 to 1955 and younger to 2017 is not distinguishable by the method alone from ivory coming before 1947. Even though successful, the radiocarbon result may not be satisfactory or useful, as it is too vague for a specific legislative frame.

On a robust group of radiocarbon data of ivory confiscated in the Czech Republic in recent years, we will demonstrate how the legislation affects the radiocarbon dating ability to serve as evidence of a wildlife crime. If the legislative definition of antique does not respect the limitation of the method, the ratio of useless analysis increases. We will introduce an ideal legislative solution that maximizes the number of analysis that can decide whether the ivory is legal or illegal.

Student Submission

No

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