Identification of geographical origins of exotic wood using ^{87}Sr/^{86}Sr isotope ratios as a forensic tool AMANDA KIILERICH, KERRI MILLER, Department of Physics and Astronomy, University of Calgary, 2500 University Drive NW, Calgary, AB, T2N 1N4, Canada, HAIPING QI, TYLER COPLEN, US Geological Survey, 12201 Sunrise Valley Drive, Reston, VA, 20192, USA, MICHAEL WIESER, Department of Physics and Astronomy, University of Calgary, 2500 University Drive NW, Calgary, AB, T2N 1N4, Canada — Exotic rosewood species of the Amazon rainforest have desirable properties that have made them valuable for commercial use. Unsustainable logging has resulted in overexploitation. In effort to protect the endangered species they are illegal to trade and controlled by the Washington Convention (CITES). Despite united efforts of international trade officials to prevent trade and export of the species it is still an ongoing business. The goal of this study is to use variations in isotopic composition of strontium to assist in the identification of the geographical origin of wood samples. This can be used to target illegally logged wood and aid the effort to prevent the trade. The ^{87}Sr/^{86}Sr isotope amount ratios in 25 samples have been analyzed using thermal ionization mass spectrometry. The samples were identified by their species and country of origin. The result of this study is the most recent expansion of a database consisting of more than 250 samples with ratios between 0.704174(4) and 0.790396(3) with typical external reproducibilities of the order 10 ppm. Of the different geographical locations represented by the set of samples many exhibit distinct isotopic fingerprints that facilitate the strontium isotopic abundances as a forensic tool.

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