

Wildfires reduced by human activity

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For the last 2,000 years the climate has been the major cause of wildfires, but during the late 19th and early 20th century, human activity dramatically reduced burning in many parts of the world, according to new research published in *Nature Geoscience* this week.

The study by two scientists from the University of Bristol, with colleagues in Europe and North America, was based on analysis of records from more than 400 ancient charcoal sites taken from lakes on six different continents.

Up to about 1750 the records show there is a gradual decrease in

wildfires worldwide, probably resulting from a long-term global cooling trend that culminated in the Little Ice Age. This cooling offset any possible influence of population growth and related land-use changes on fire.

After 1750, the charcoal record shows an increase in wildfires coincident with rising atmospheric carbon dioxide and population growth. The highest levels of fire activity in the last 2,000 years occurred between 1750 and 1870. Several factors such as land clearance, the introduction of intensive grazing and fire management combined to generate conditions favourable to wildfire at this time.

Professor Sandy Harrison from the University of Bristol said: “The 100-year decline in wildfires worldwide recorded between 1870 and 1970 is contemporaneous with an unprecedentedly high rate of population increase. This led us to conclude the decline reflects a global expansion of agriculture and intensive grazing of livestock, which in turn reduced the amount of fuel available for wildfires. Improved fire-management may also have played a role.”

However, the researchers cautioned that the sediment record does not provide information on trends in the last 30 years – when observations suggest increased burning is associated with global warming and fuel build-up.

Charcoal records have drawn increasing attention from researchers during the past 25 years because these data can track wildfire activity – both incidence and severity – over very long time periods, beyond the timescale for which we can use observations of fires from satellites or from fire-scarred trees.

Reference: Climate and human influences on global biomass burning over the past two millennia. J. R. Marlon, P. J. Bartlein, C. Carcaillet, D.

G. Gavin, S. P. Harrison, P. E. Higuera, F. Joos, M. J. Power & I. C. Prentice. *Nature Geoscience*, published online: 21 September 2008 | doi:10.1038/ngeo313.

Provided by University of Bristol

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