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Wildfire Statistics: Implications for Ecology, Risk and Government Agency Reporting

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There is increasing evidence that wildfire burned areas satisfy power-law or other heavy-tailed frequency-size statistics. Although many in the academic communities are accepting heavy-tailed statistics, many government agencies still assume a thinner-tailed distributions (e.g. Gaussian) to describe the frequency-size distribution of burned areas. The choice of the statistical distribution used or assumed has many implications to both wildfire research (including wildfire models) and the reporting of wildfire statistics (e.g. 'average area', number of fires burned) by government agencies. In this paper we will present the frequency-size distributions for wildfires in several regions worldwide, found to be robust power-laws, and the implications of these statistics to ecology, risk and the reporting of wildfire summary statistics by government agencies.