Appendix 6

To assess the sensitivity of our projections to uncertain estimates of the area burned in fires before the historical record on fires, we performed an additional set of simulations by using Miami-LU and compared the results to those presented in Fig. 3. In this second set of simulations, we parameterized the fire model in Miami-LU to burn approximately one-half the area per year before fire suppression activities as in the cases used in the main analysis (e.g., approx. 440,000 $km^2 y^{-1}$ vs. nearly 880,000 $km^2 y^{-1}$).

As Fig. 6 illustrates, our model is not very sensitive to assumptions about the area burned in the distant past. For the 1980s, the estimated average annual fluxes are almost identical in each case. There are differences, however, in the estimated historical fluxes, and future fluxes assuming fire suppression fails. Reduced assumptions about historical fire activity results in higher biomass stocks before settlement, corresponding larger fluxes to the atmosphere during land clearing for agriculture, and a smaller flux back to the atmosphere assuming fire suppression fails. However, assuming fire suppression continues, the effects of fire suppression estimated for the 1980s and beyond are largely the result of the reductions in fire that have occurred during the period of record on fires, and not substantially influenced by patterns of fire in the distant past when the uncertainty is greatest.