Supplementary Information for

A fire deficit persists across diverse North American forests despite recent increases in area burned

Authors

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Figure S1. NAFSN sites and fires that occurred from 1984-2022 (i.e. contemporary fires), plotted over major ecological regions. NAFSN: North American tree-ring fire-scar network.

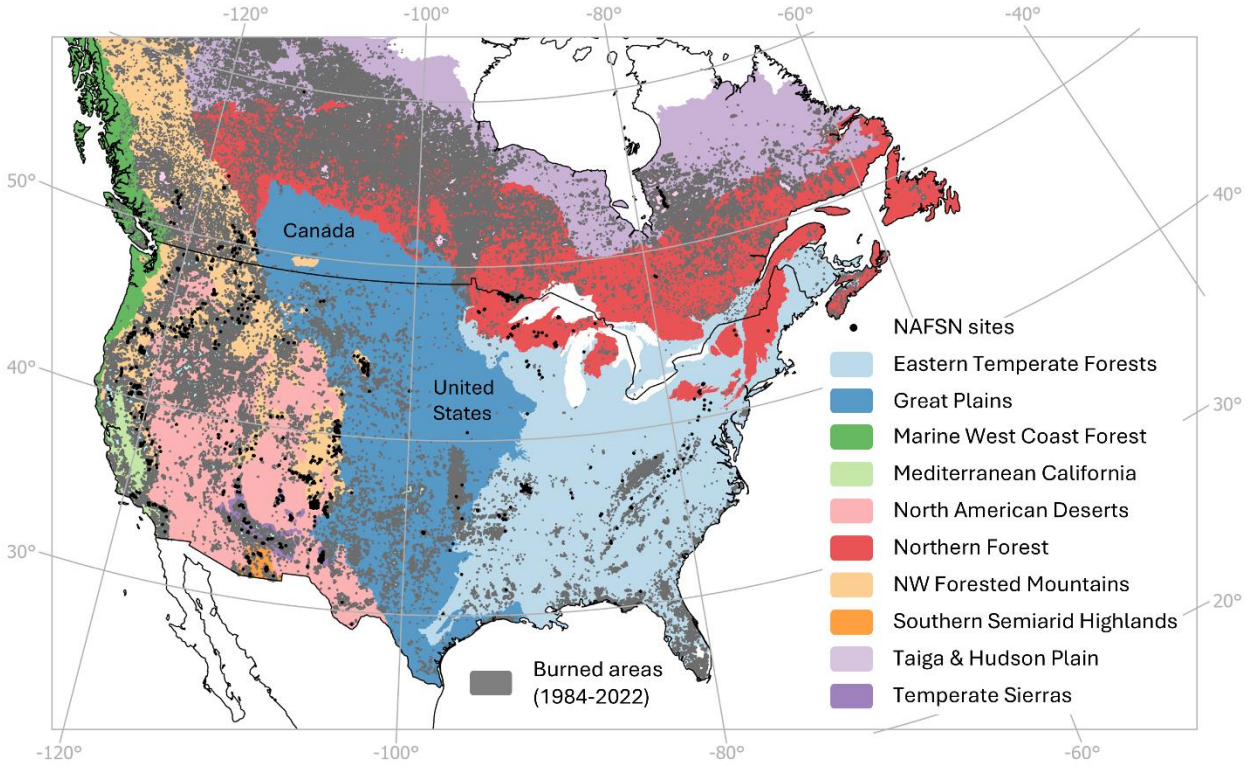

Figure S2. Maps show the share of sampled trees belonging to some of the most common fire-scarred tree species for each hexel. Collectively, these maps illustrate the diversity of forest types represented in our study. Fire scars were recorded by over 70 tree species in this study.

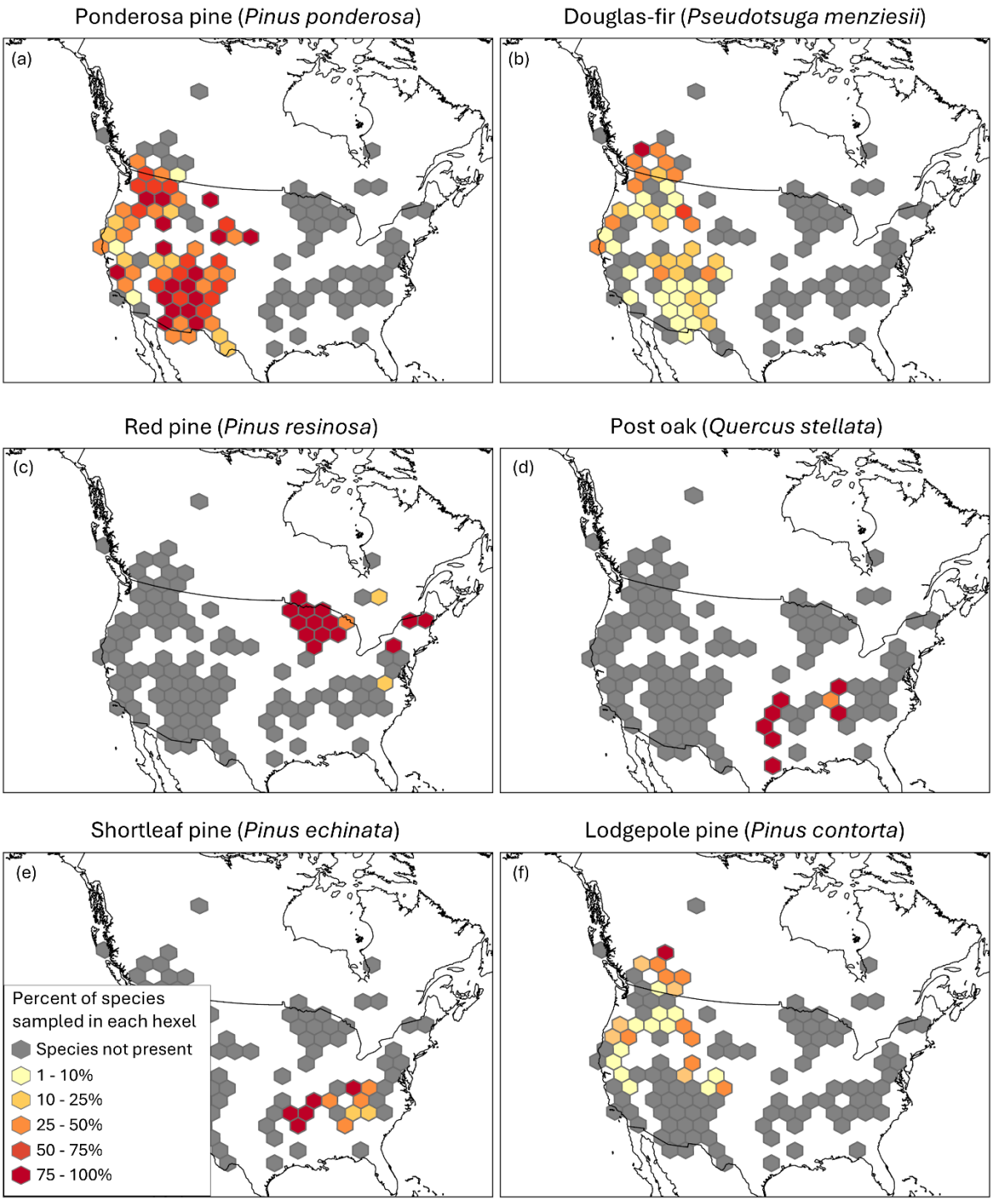

Figure S3. Sample depth curves show the percent and number of fire-scar sites recording the presence/absence of fire from 1600-1880 for the North American tree-ring fire-scar network (NAFSN) sites used in this study. The year shown in each panel indicates the start of the historical reference period and corresponds to the year when at least 100 sites or 25% of sites recorded the presence/absence of fire.

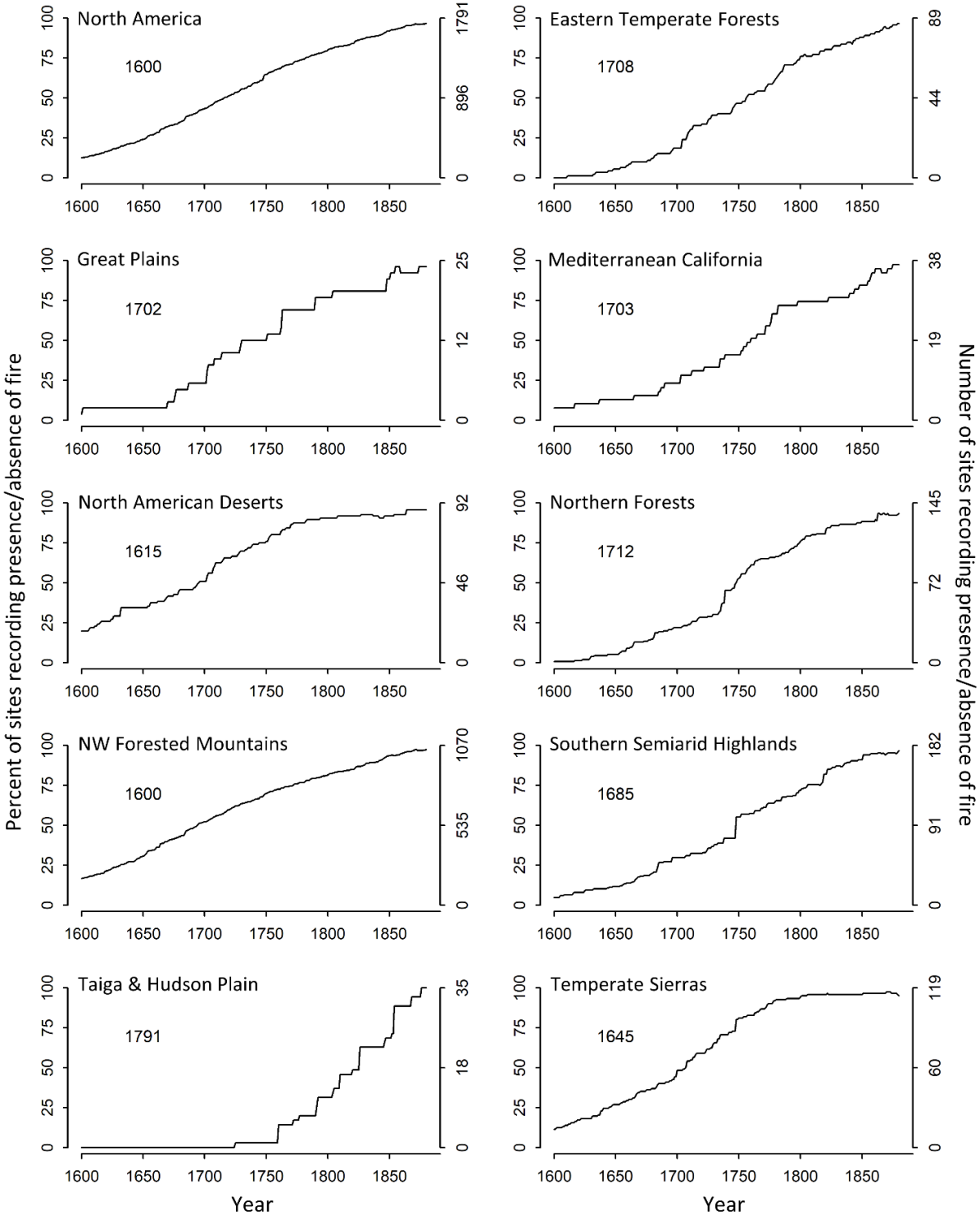

Figure S4. Percent of sites recording fire that burned in 1652 (a), 1748 (b), 1800 (c), 1855 (d), 2011 (e), and 2021 (f). These correspond to the years in which the highest average percent of sites burned within hexels in the historical (1600-1880; a-d) and contemporary (1984-2022; e-f) time periods (refer to Fig. 2b). Historically, fires in particularly active fire years were generally widespread across the study area. In 2011, however, fire was more localized and concentrated in the south-central United States (e), and in 2021, most fire occurred in the Pacific Northwest, with a few additional hexels recording fire elsewhere (f). Overall, fire in particularly active historical fire years was spatially more widespread and ubiquitous compared to contemporary active fire years.

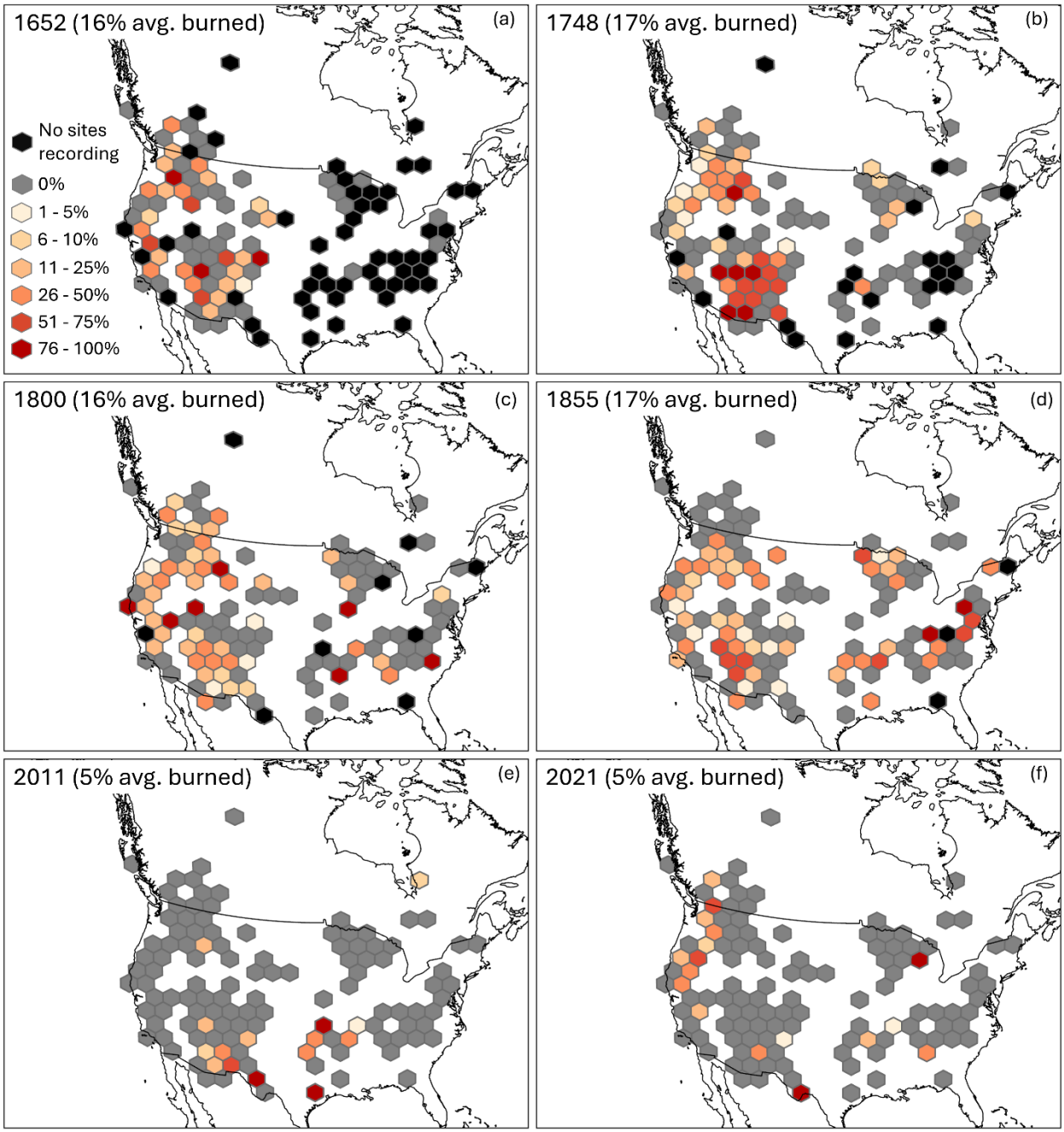

Figure S5. Example illustrating how buffered NASFN sites are intersected with contemporary (1984-2022) fire perimeters in order to compare historical and contemporary fire. Here, the NAFSN site centroid does not intersect any contemporary fire perimeters, but the buffered NAFSN site polygon (radius = 2,526 m; area = 2,005 ha) intersects two contemporary fire perimeters, which we then compare to historical fire occurrence. NAFSN: North American tree-ring fire-scar network.