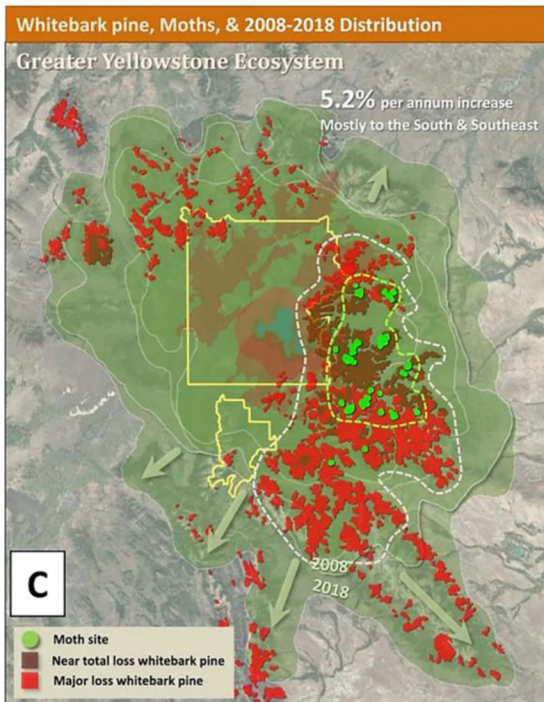
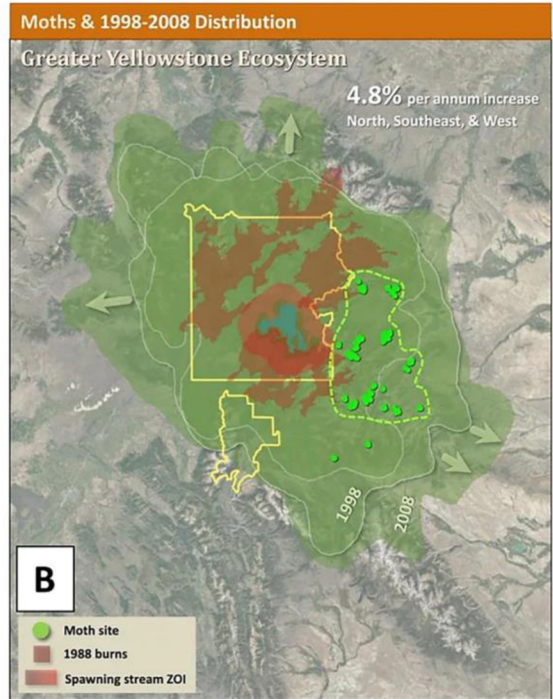
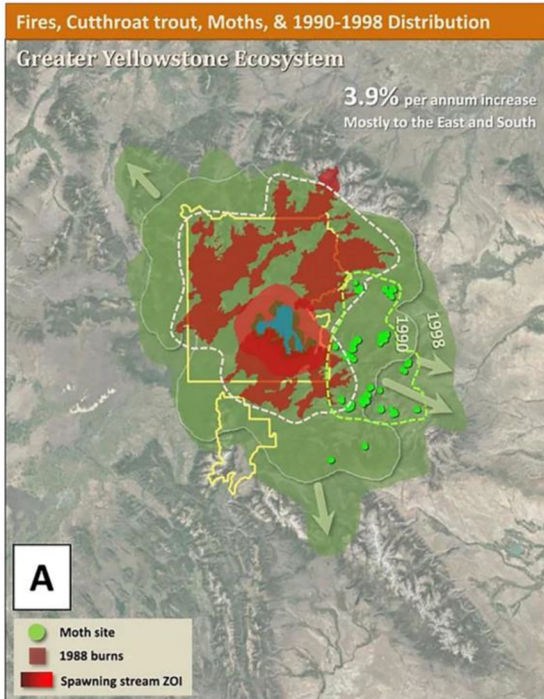


Effects of Habitat Change on Distribution – Greater Yellowstone

Grizzly Times <https://www.grizzlytimes.org/foods-demography> by David Mattson



These three maps show increases in distribution of the Greater Yellowstone grizzly bear population relative to major environmental changes for three time periods : (A) 1990-1998; (B) 1998-2008; and (C) 2008-2018. Grizzly bear distributions are shown in green, with boundaries for beginning and end years of each transition differentiated by gray lines. Areas of major increase in distribution are identified by arrows. Per annum rates of growth in distribution for each period are also shown in the upper right-hand corner of each map. The white dashed lines delineate areas within which major environmental changes were concentrated. Areas burned during 1988 are denoted by dark red in (A), as is the area around Yellowstone Lake within which bears that consumed cutthroat trout tended to concentrate. Green dots denote sites where bears fed on army cutworm moths beginning in the mid-1980s.

Foraging on moths increased dramatically between 1985 and 1995; cutthroat trout were driven to functional extirpation as a bear food between 1995 and 2005; and the 1988 fires burned extensive forest areas that had previously been used by bears to forage on whitebark pine seeds. The areas shaded red and burgundy in (C) denote heavy to near-total mortality of whitebark pine caused by an unprecedented outbreak of mountain pine beetle between 2002 and 2009. Key take-away points are, first, increases in distribution have accelerated over time, far in excess of any increases in population size, and second, areas with the most rapid increases in distribution are associated with major changes in availability of important foods.