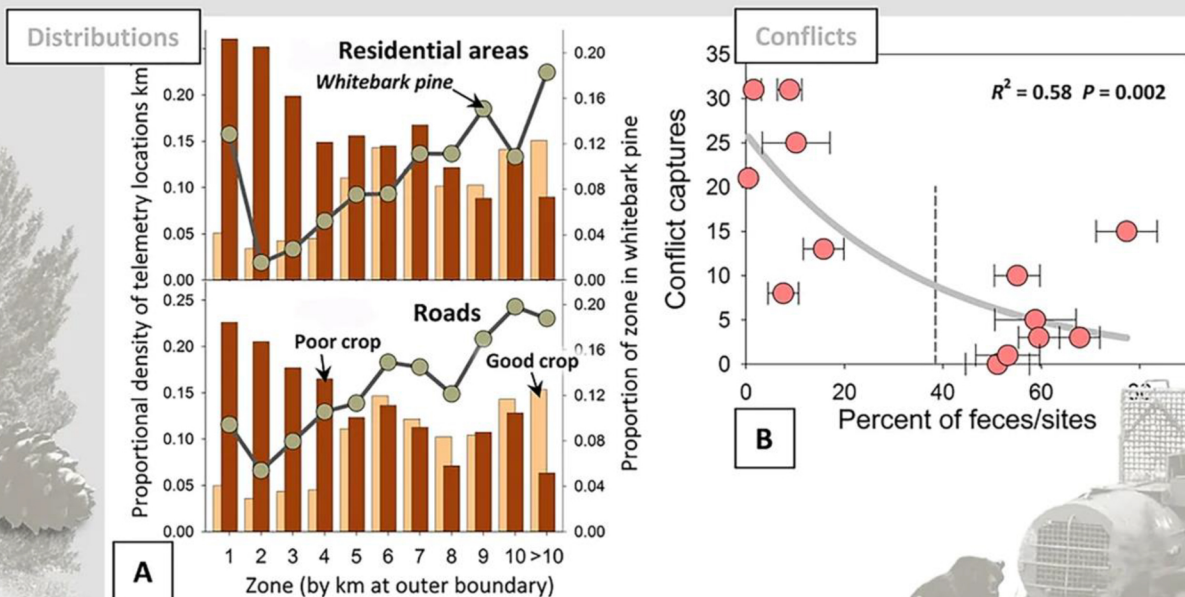


# Effects of Whitebark Pine Seed Crops on Demography – 1975-2002

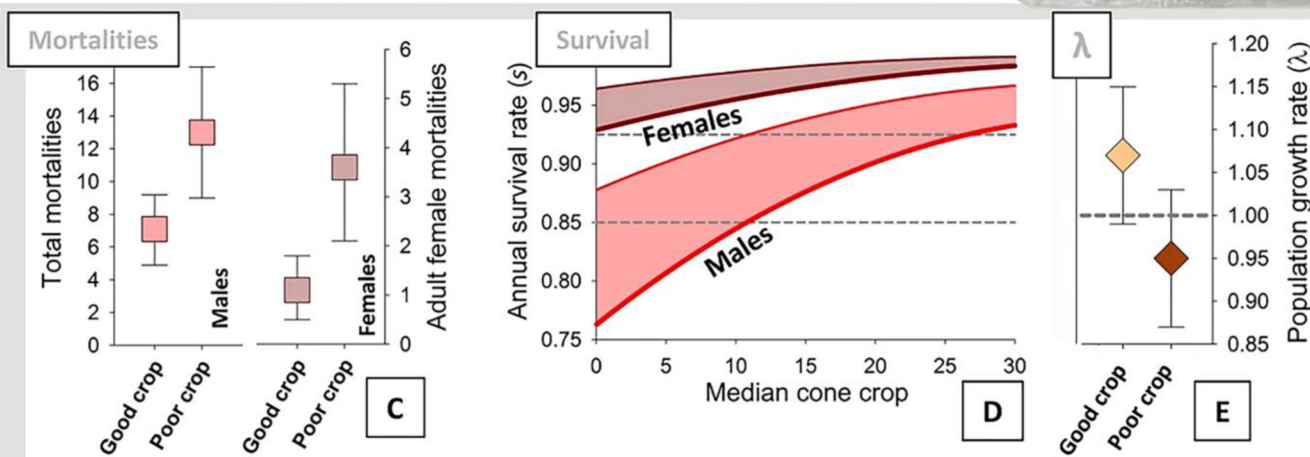
Grizzly Times <https://www.grizzlytimes.org/foods-demography>

by David Mattson

## Effects on Distributions & Conflicts



## Effects on Demography



These graphics summarize the documented effects of variation in availability of whitebark pine seeds on grizzly bears in the Greater Yellowstone Ecosystem during 1975-2002, prior to the loss of most mature whitebark pine to an unprecedented outbreak of mountain pine beetles. Figure (A) shows relative availability of whitebark pine with increasing distance to residential areas and roads in Yellowstone National Park (gray dots and lines) along with distributions of grizzly bears during years with good (tan) versus poor (burgundy) seed crops. This change in distribution reflected consumption of pine seeds by bears, exposure to people, and related levels of human-bear conflict, manifest in a negative relationship between consumption and conflict (B). More conflicts naturally led to more bear deaths during years of poor seed crops (C), along with reduced survival rates (D), and population growth rates (E). These results are from Mattson et al. (1992); Mattson et al. (2004) and unpublished data; Mattson (1998); Schwartz et al. (2006); and Pease & Mattson (1999).