Sarcoptic Mange in Yellowstone's Wolves: Dynamics, Impacts, and the Role of Citizen Science

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Sarcoptic Mange, caused by the mite (*Sarcoptes scabiei*) invaded the wolf (*Canis lupus*) population within Yellowstone National Park in 2007. Since its invasion, we have followed the mite's spread throughout the park, conducting monthly observational surveys to assess individual infection status and pack prevalence. The spatio-temporal patterns of mange invasion have been largely consistent with patterns of host connectivity and density, and we demonstrate that the area of highest resource quality, supporting the greatest density of wolves, have been the region's most susceptible to parasite-induced declines. Heavily infected individuals suffer twice the mortality rate as uninfected individuals and pack growth rates are much more likely to decline in the presence of mange. Future monitoring will be augmented by a new citizen science website, aimed at collecting visitor photographs of wolves and acting as an interactive public resource for information and research updates on Yellowstone's wolves.