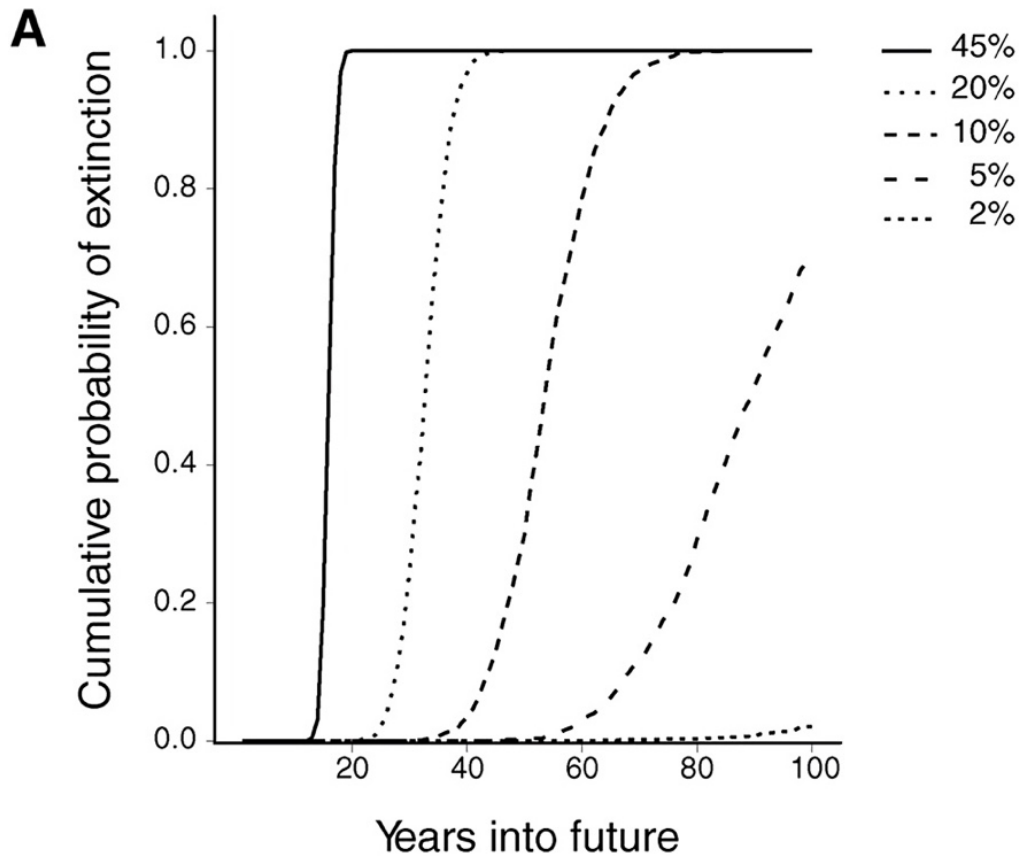




White-Nose Syndrome in Bat Populations



Caption: Estimated cumulative probabilities of extinction for the little brown bat population in the northeastern United States. These probabilities were projected for five annual rates of population decline (45%, 20%, 10%, 5%, or 2%) under an infectious disease called white-nose syndrome (WNS). Each projection was simulated for up to 100 years after the disease emerged in the population.

OBSERVATIONS, NOTES & QUESTIONS

BACKGROUND INFORMATION	BIG IDEAS, NOTES & QUESTIONS
<p>In 2006, an infectious disease called white-nose syndrome (WNS) began wiping out bat populations in North America. WNS is caused by a fungus known as <i>Pseudogymnoascus destructans</i> (formerly <i>Geomyces destructans</i>). Although the fungus does not harm bat populations in Europe, where it is thought to have originated, it kills about 73% of the bats it infects in North America. In North America, the fungus grows on the skin of hibernating bats. This skin infection often makes the bats wake up from hibernation too early, leading them to use too much energy during the winter and eventually starve to death. By killing large numbers of North American bats, many of which eat insect pests, WNS may devastate ecosystems and increase pest control costs.</p> <p>Scientists investigated how WNS may impact one major North American bat population: the little brown bat (<i>Myotis lucifugus</i>) population in the northeastern United States. The scientists created a mathematical model based on the population's observed survival and breeding rates with and without WNS. They used this model to project the probabilities that the population will go extinct within 100 years. The scientists also considered the possibility that the population of bats could eventually evolve resistance to WNS, which would slow the population's decline. To account for different levels of resistance, the scientists ran the model under five different annual rates of population decline: 45%, 20%, 10%, 5%, and 2%.</p>	