THE **HEAT** IS **ON**

Species feeling the effects of climate change


USFS

Snowshoe Hare

Lepus americanus

Region:
Northern United States and Canada

Area affected:
Northern forests

Climatic change:
Shorter snow season

Impact:
Phenologic mismatch

ABOUT THIS SPECIES

Snowshoe hares are the primary northern rabbit species, ranging throughout the boreal forests of Alaska and Canada and into the northern and mountainous regions of the Lower 48. They eat grasses, clover and the twigs and branches of maple, pine, willows and other trees and shrubs. The young are born with a full coat of brown fur and are capable of hopping and feeding on their own almost immediately. Their main habitat requirement is lots of dense undergrowth for feeding and cover from predators, which include coyotes, bobcats, foxes, lynx, raptors and owls. They also rely on camouflage for protection from predators. Depending on the season their coats are either brown to blend in with the bare ground or white for camouflage against the snow.

DESCRIPTION OF IMPACT

The snowshoe hare is a poster child for "phenological mismatch," a phenomenon that occurs when the timing of important events in nature is not in sync. For the hare these events are day length and season. The hares change coat color in response to a release of hormones triggered by changes in seasonal daylight, which historically reliably correlated to the onset of snow cover in the fall and snow melt in the spring. Now temperatures are shortening the snowy season on both ends, while the day-length cycle that triggers color change remains the same. In both fall and spring, researchers are seeing more hares that no longer match their background habitat and, as a result, increasing mortality from predation. **One study found that for each week of color mismatch, the chance of a hare being preyed on rises 7 percent.** Hares in a few locations remain brown year-round, but no flexibility in the timing of autumn molt has been observed in populations that do change color. It might not all be bad news for the hares, however. Recent research indicates their range may be expanding in the far north as Arctic shrubs grow larger due to higher temperatures, creating new habitat and cover for the species.

References

Diep, F. 2016. Climate change is deadly for snowshoe hares. *Pacific Standard Magazine*. http://www.psmag.com/nature-and-technology/bye-bye-bunny

Mills, S.L. et al. 2013. Camouflage mismatch in seasonal coat color due to decreased snow duration. *Proceedings of the National Academy of Sciences* 110(18): 7360–7365. http://www.pnas.org/content/110/18/7360.full

Sullivan, J. 1995. *Lepus americanus* in Fire Effects Information System. U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station, Fire Sciences Laboratory. http://www.feis-crs.org/feis

For more information on other wildlife affected by climate change, visit our website at **www.defenders.org/climatechange**

DEFENDERS OF WILDLIFE
1130 17th Street, NW
Washington, DC 20036-4604