

Make way for the Arctic's mighty mammal

Rain, short winters not good for tiny lemmings

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They may be small and cute but in the Arctic food web, lemmings are a mighty keystone species whose future depends on snow — and plenty of it.

If some climate models pan out, suggesting that areas of Nunavut will get more snow thanks to global warming, the ubiquitous hamster-like creature will flourish.

But shorter winters, and perhaps more rain — which is what some climatologists predict — could spell disaster for lemmings, the furry snack of choice for many northern predators.

Models reveal only possible outcomes, of course. No one knows for sure how much snow will fall in the coming decades, and where.

For now, lemming populations here are healthy and thriving, says Frederic Bilodeau, a PhD candidate at the Université Laval, who presented his Bylot Island research at last month's ArcticNet conference in Ottawa.

“I’m not really concerned about the lemming population in North America,” says Bilodeau. “This is definitely going to be a problem in time. Of course, the entire ecosystem will be in trouble if the lemming numbers go down. But we’re not seeing that right away.”

Bilodeau says the fate of lemmings elsewhere is not so secure.



Studies from Scandinavia show that warmer temperatures have encouraged the march northward of new predators, causing a decline in lemming numbers there.

In Russia, it's the influx of voles that are outcompeting lemmings for food.

Aside from the increasing appearance of the red fox in Nunavut, new predators and competitors have not become a problem in the eastern Arctic. What matters most here seems to be amount and quality of snow.

The tiny mammals live under the snow nine months of the year. They make tunnels in the pockets of air between ground and snow, relying on a thick cover to hide from predators, have babies, get access to vegetation for food and shelter themselves from cold.

Annually in spring, from 2007 to 2010, Bilodeau visited Bylot Island in Sirmilik National Park, to study the impact of snow on brown and collared lemmings, the two species that inhabit Nunavut.