**Talk title, abstract and presenter information**

**Title**

Long-term, enzootic persistence and cross-species transmission of canine distemper virus in Arctic wildlife in North America

**Abstract**

Canine distemper—a viral disease with high mortality and no cure—poses a major threat to wild carnivores, especially Arctic species that are already vulnerable due to climate warming and habitat loss. Canine distemper virus (CDV) has been distributed globally with most infections reported in domestic dogs and cats, but in recent decades it has also been increasingly reported in wildlife. However, little is known about CDV in the Arctic and Nearctic regions, and whether CDV may persist in wildlife. To fill this gap, we sequenced CDV genomes from Arctic foxes and other canids in Alaska and Yellowstone National Park (YNP) from a range of outbreak years (2012–2021) and performed phylogenetic and phylodynamic analyses. We found evidence for cross-species transmission of CDV during an outbreak in wildlife, and that CDV persisted in Alaskan Arctic foxes for at least 9 years with periodic outbreaks, suggesting enzootic CDV in a wildlife population. The estimated number of foxes contracting CDV from an infected fox was high (~7) for the 2021 outbreak in Alaska, suggesting explosive transmission dynamics in Arctic wildlife. Further, the CDV strain from a YNP wolf was distinct from the strains circulating in the Arctic foxes, suggesting separate wildlife epidemics going on concurrently in North America. Understanding CDV genomics and dynamics in wildlife may better inform wildlife health management and conservation of threatened carnivores, in addition to reducing spillback potential of wildlife strains to domestic animals.

**Presenter**

Nicole Nova, PhD

Postdoctoral Research Associate

**Affiliation**

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**Brief CV**

Dr. Nicole Nova is a Postdoctoral Research Associate at the High Meadows Environmental Institute at Princeton University, working closely with Professors Bryan Grenfell and Jess Metcalf in the Department of Ecology and Evolutionary Biology. Dr. Nova received her PhD in Biology from Stanford University in 2022, co-advised by Professors Erin Mordecai and Dmitri Petrov. As a graduate student, she became a Stanford Data Science Scholar and a Predoctoral Fellow at the Center for Computational, Evolutionary and Human Genomics. At Stanford, she was also an active member of the Program for Disease Ecology, Health and the Environment and the Program for Conservation Genomics. Dr. Nova also holds a Master's degree (MS; Master of Science) in Statistics from Stanford University. She undertook her undergraduate studies at Karolinska Institutet in Sweden and earned a Master’s (MSc; Master of Science) in Dental Surgery. Since her early years as a university student, Dr. Nova has been fortunate to hold research positions and internships at Duke University, Harvard, and MIT, which ultimately helped her transition from clinical work to quantitative biological research. Her past and current research uses mathematical and statistical modeling with epidemiological and/or genomic data to study the ecology and evolution of infectious diseases in humans and wildlife, focusing primarily on dynamics and transmission across different species. Dr. Nova’s research goal is to find solutions that benefit human and environmental health, and the health and conservation of wildlife.

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More information at: <http://nicolenova.com/>

A full CV can be found here: <http://nicolenova.com/Files/CV_Nova.pdf>