

One Health Zoonotic Disease Management



Rabies in Alaska as an Example

Karsten Hueffer

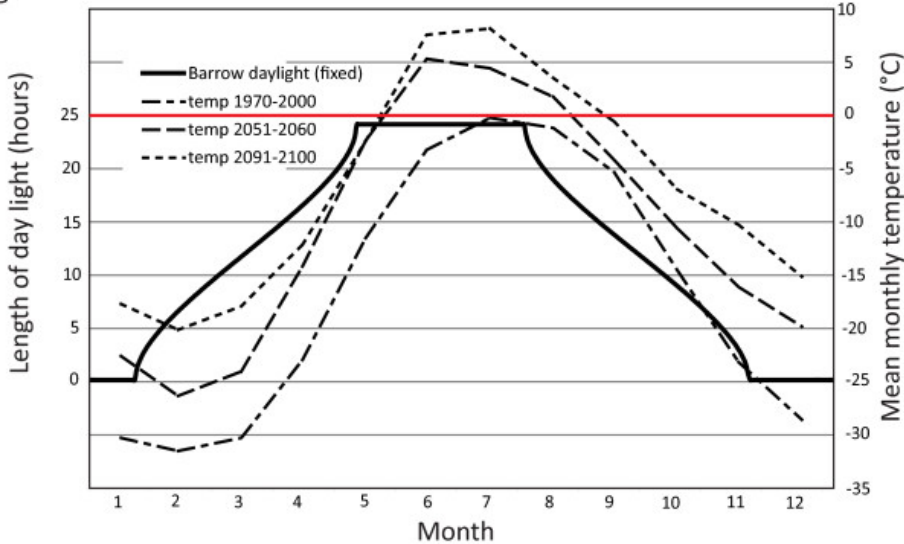
Department of Veterinary Medicine

College of Natural Science and Mathematics

UAF

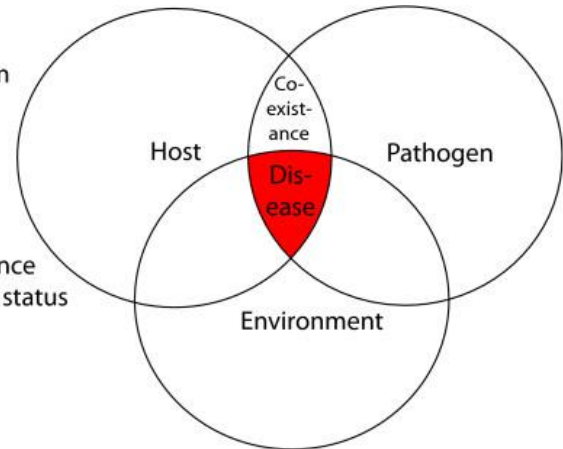
Infectious Diseases in a Changing Arctic

B

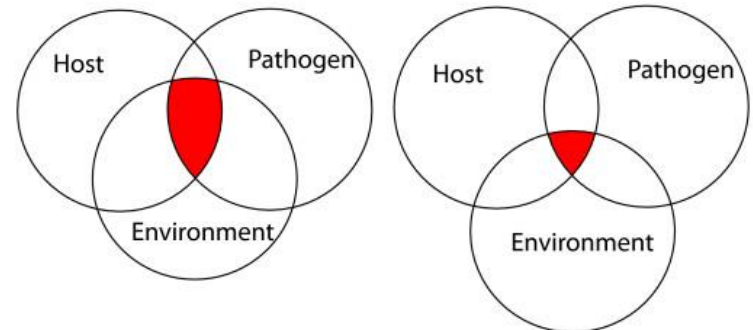


Host:
 hibernation
 migration
 insulation
 range
 condition
 immune
 competence
 nutritional status

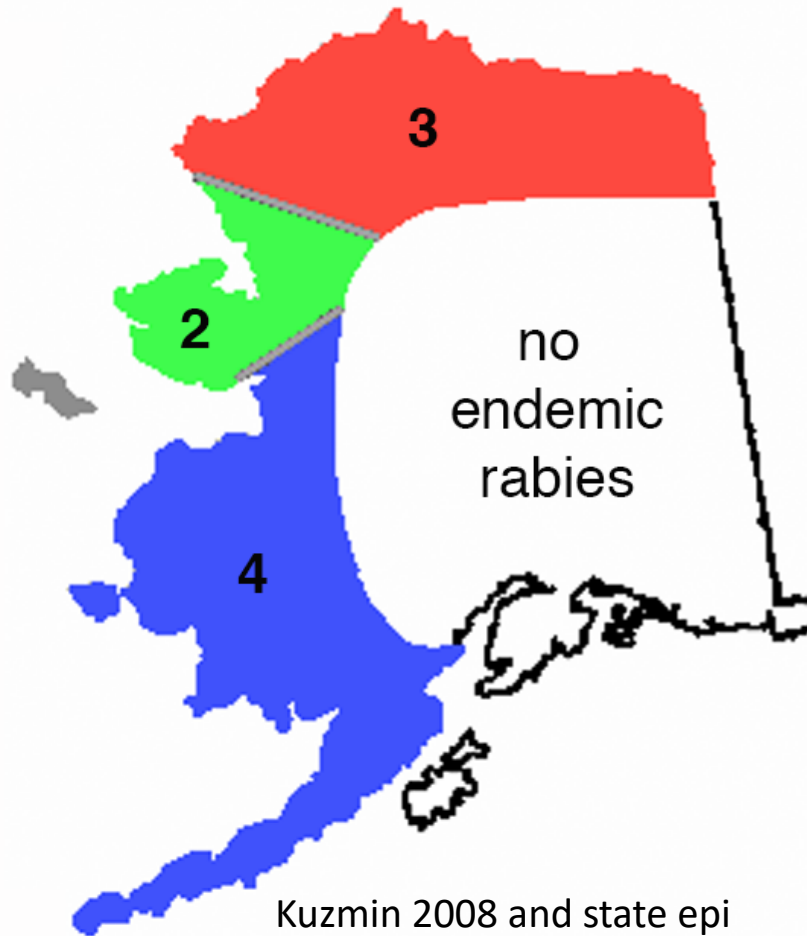
Pathogen:
 life cycle needs
 freeze tolerance
 vector require-
 ments



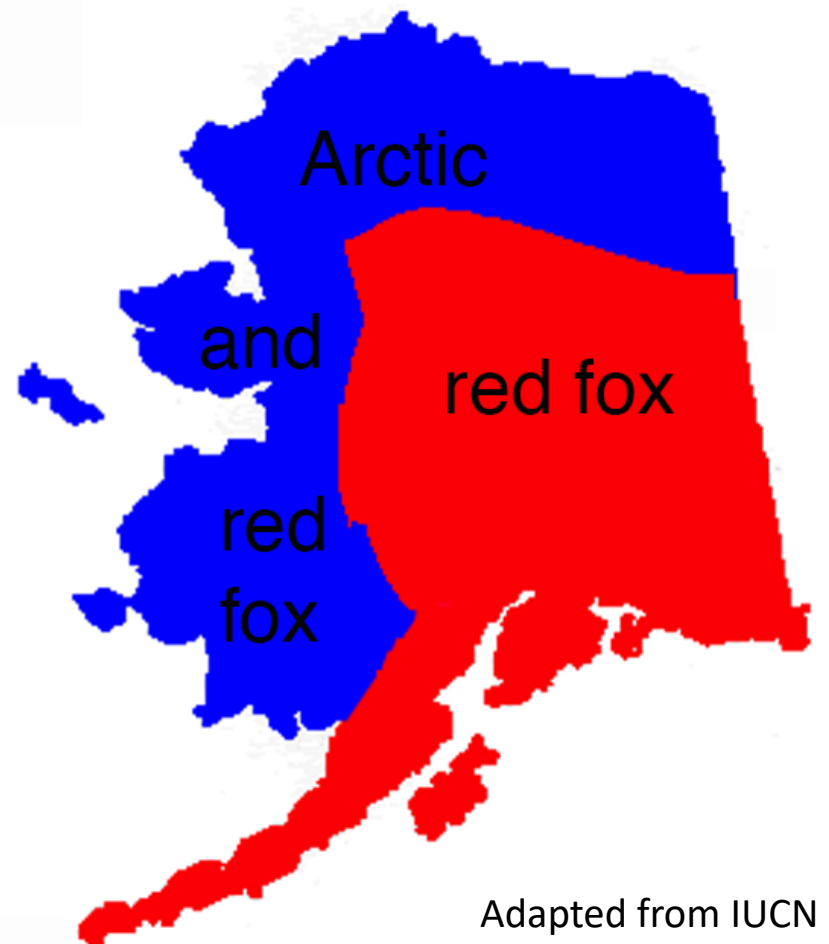
Environment:
 Extreme seasonality
 marine or continental
 vector habitat



Foxes and Rabies in Alaska



Rabies



Foxes

Conceptual Framework for Rabies in Alaska

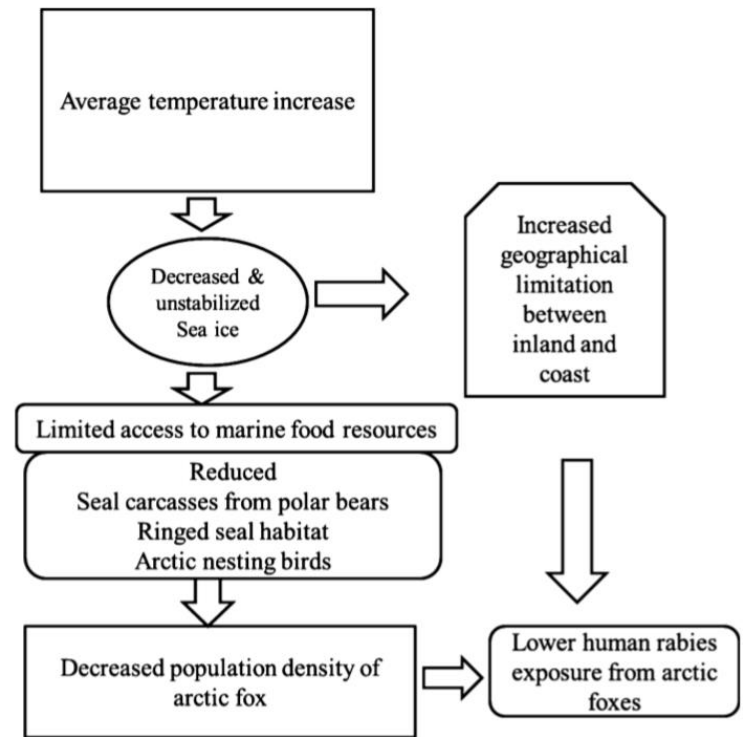
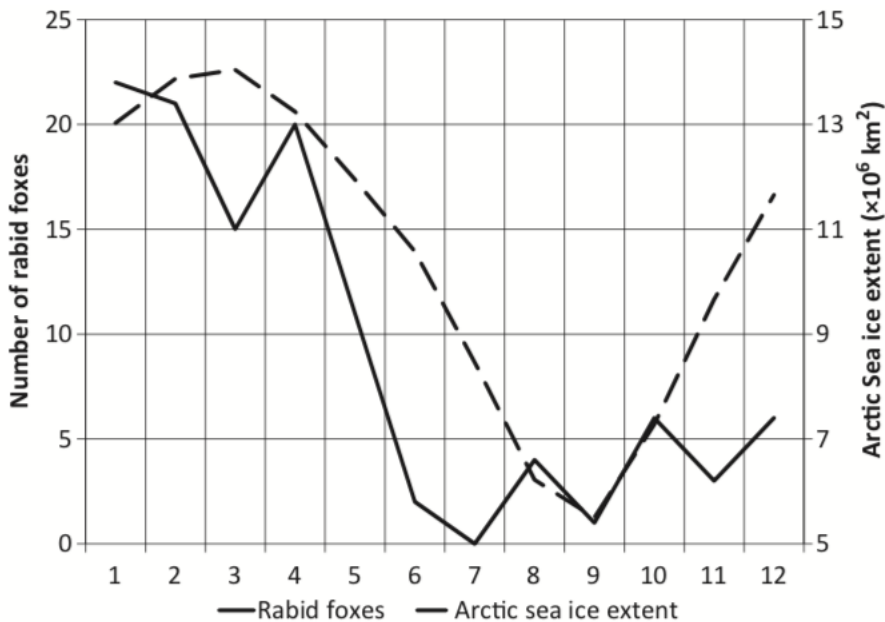
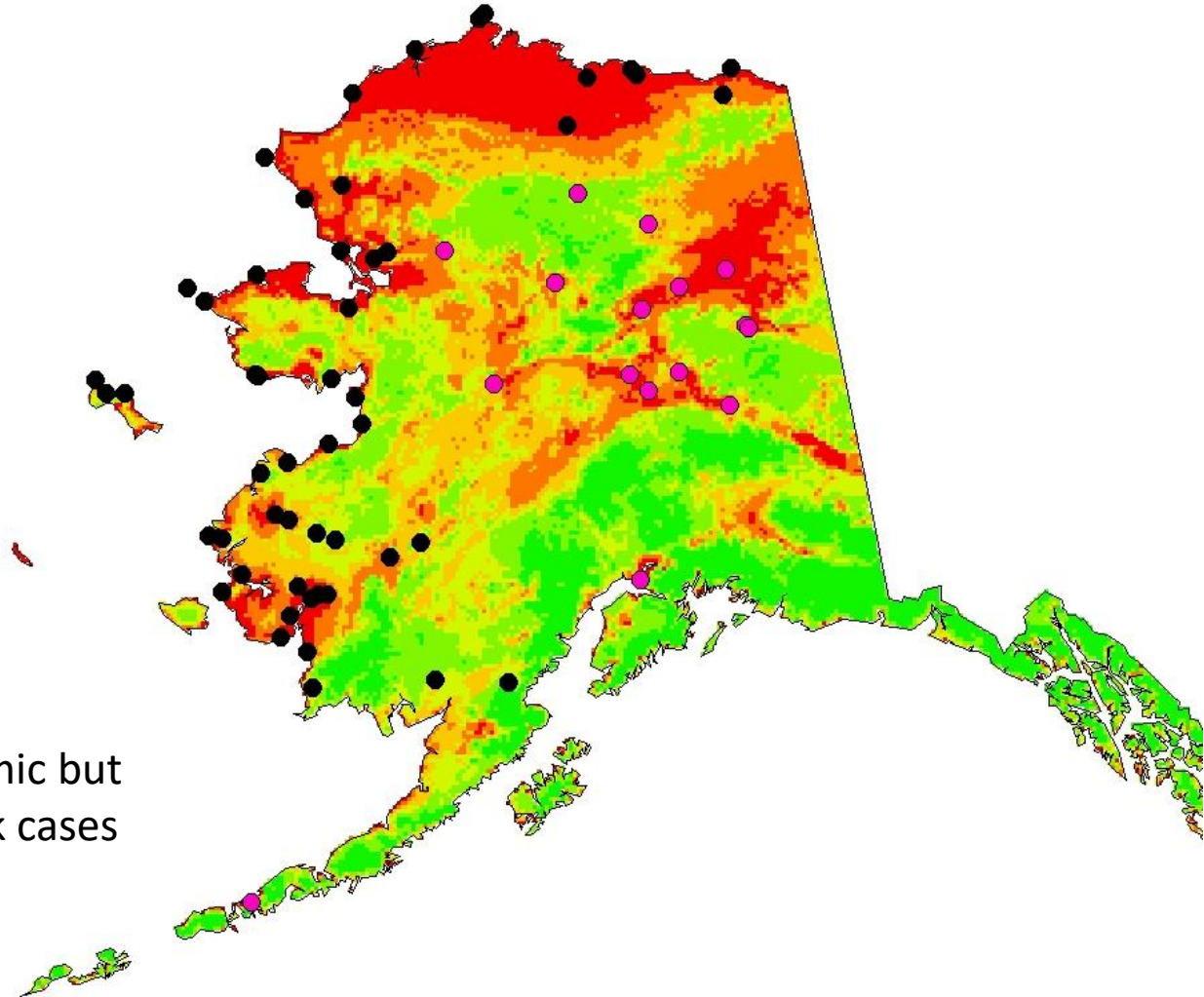


Fig. 4. Hypothetical model of climate change on human exposure to arctic fox rabies in Alaska.

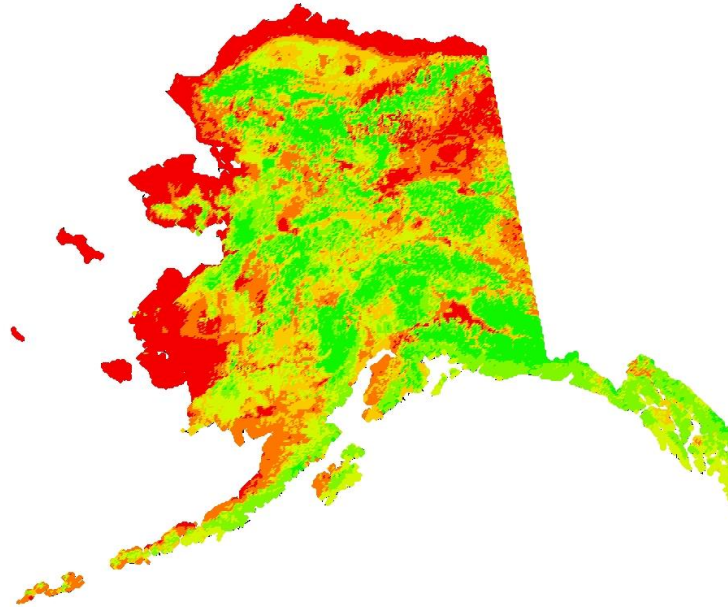
Ecological Niche of Rabies in Alaska



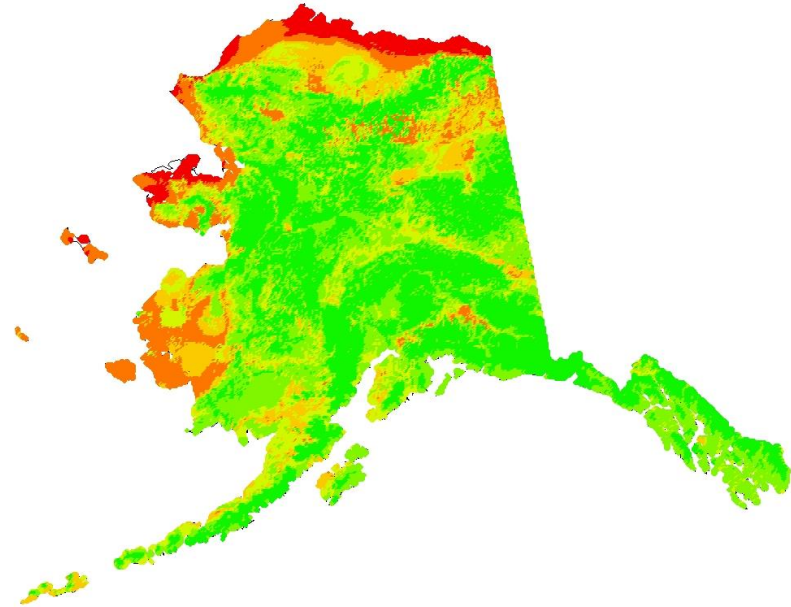
Model based on endemic but
predicts most outbreak cases
as well

Will Climate Change Alter the Ecological Niche for Rabies in Alaska?

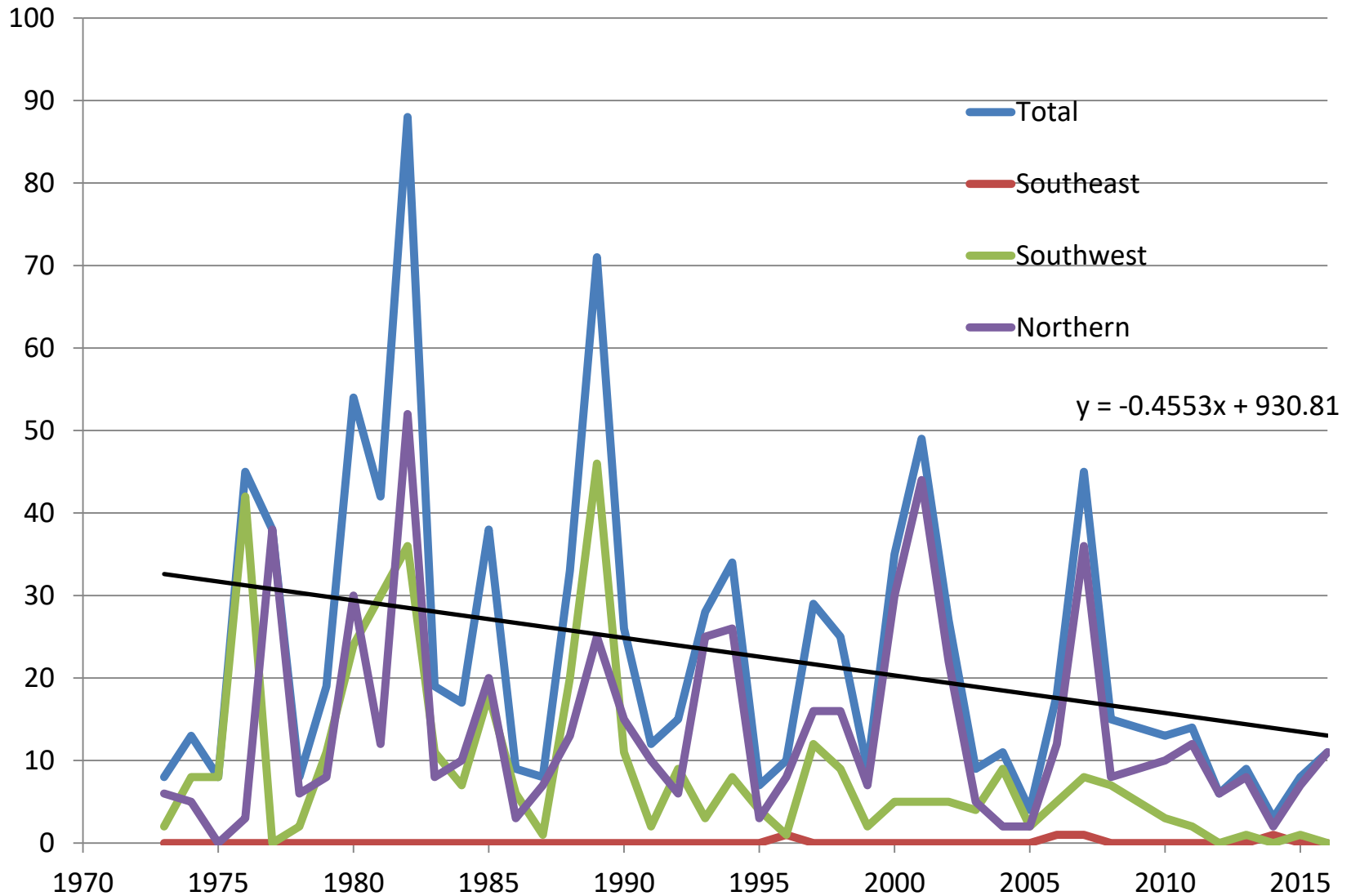
2010



2050



What has happened so far?



Outlook

- It's connected
- It's complicated
- It's going to be surprising

