

Chasing Northward?

A Shift in Four-Spotted Chaser Distribution

Ann-Mari Byrkjeland, Adrian Hauge Haugland, Ingrid Svanes Haukereid, Kristine Hovland Holm and Eirik Ottesen Hovland

Why should we care about this?

With rising temperature, more summer droughts and increased precipitation we need a good indicator to study the biological changes across Norway (1). Dragonflies make excellent bioindicators because of their sensitivity to both temperature and water availability with their respective life cycle (2).

Aim of study

Has there been a change in the distribution of Four-Spotted Chasers (*Libellula quadrimaculata*) in Norway between 2004-2021, and could it be climate related?

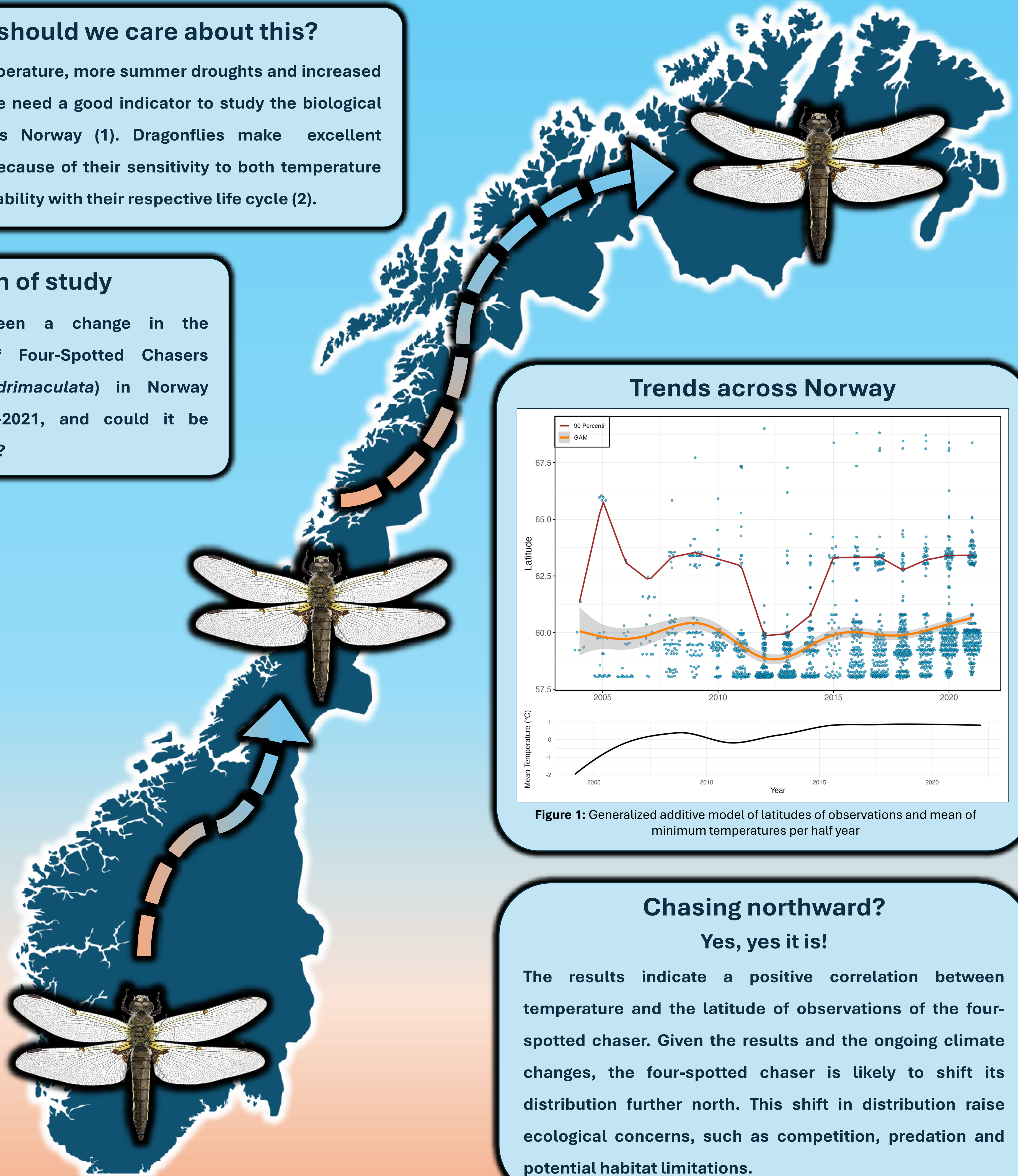
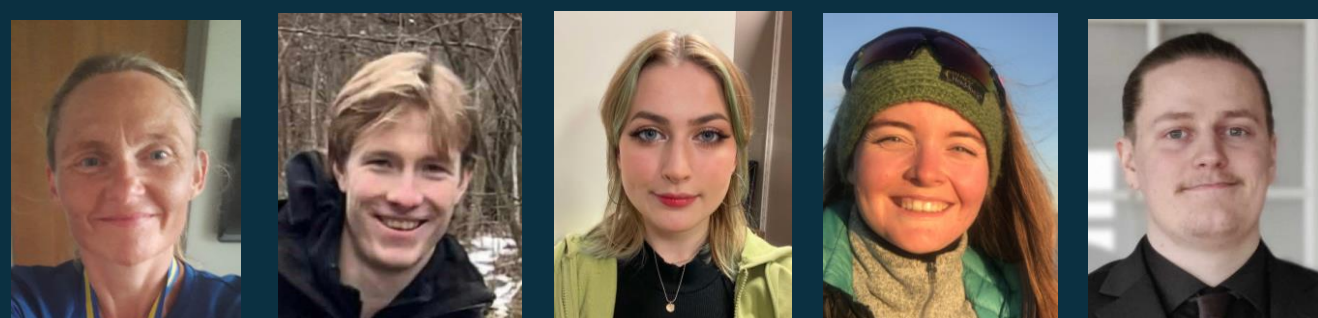


Figure 1: Generalized additive model of latitudes of observations and mean of minimum temperatures per half year

Chasing northward?

Yes, yes it is!

The results indicate a positive correlation between temperature and the latitude of observations of the four-spotted chaser. Given the results and the ongoing climate changes, the four-spotted chaser is likely to shift its distribution further north. This shift in distribution raise ecological concerns, such as competition, predation and potential habitat limitations.



References

1. Norway Climate Resilience Policy Indicator – Analysis (2022) IEA. Available at: <https://www.iea.org/articles/norway-climate-resilience-policy-indicator> (Accessed: 17 October 2024).
 2. Olsen, K., Svenning, J.-C. and Balslev, H. (2022) 'Climate Change Is Driving Shifts in Dragonfly Species Richness across Europe via Differential Dynamics of Taxonomic and Biogeographic Groups', *Diversity*, 14, p. 1066. Available at: <https://doi.org/10.3390/d14121066>
- Data: <https://datadryad.org/stash/dataset/doi:10.5061/dryad.8pk0p2nsw>
Pictures: map from vemaps.com and dragonfly from Artsdatabanken.no

