

Top avian predators of the circumpolar Arctic: Status and trends of Peregrine Falcons and Gyrfalcons

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Gyrfalcon

- Arctic resident / short distance migrant
- *Largely* terrestrial – *mostly* linked to ptarmigan prey base (cyclic)



Peregrine Falcon

- Long-distance migrant
- *Largely* terrestrial – highly varied prey base (birds) across the Arctic





The falcons are
CBMP Focal Ecosystem Components (FEC)

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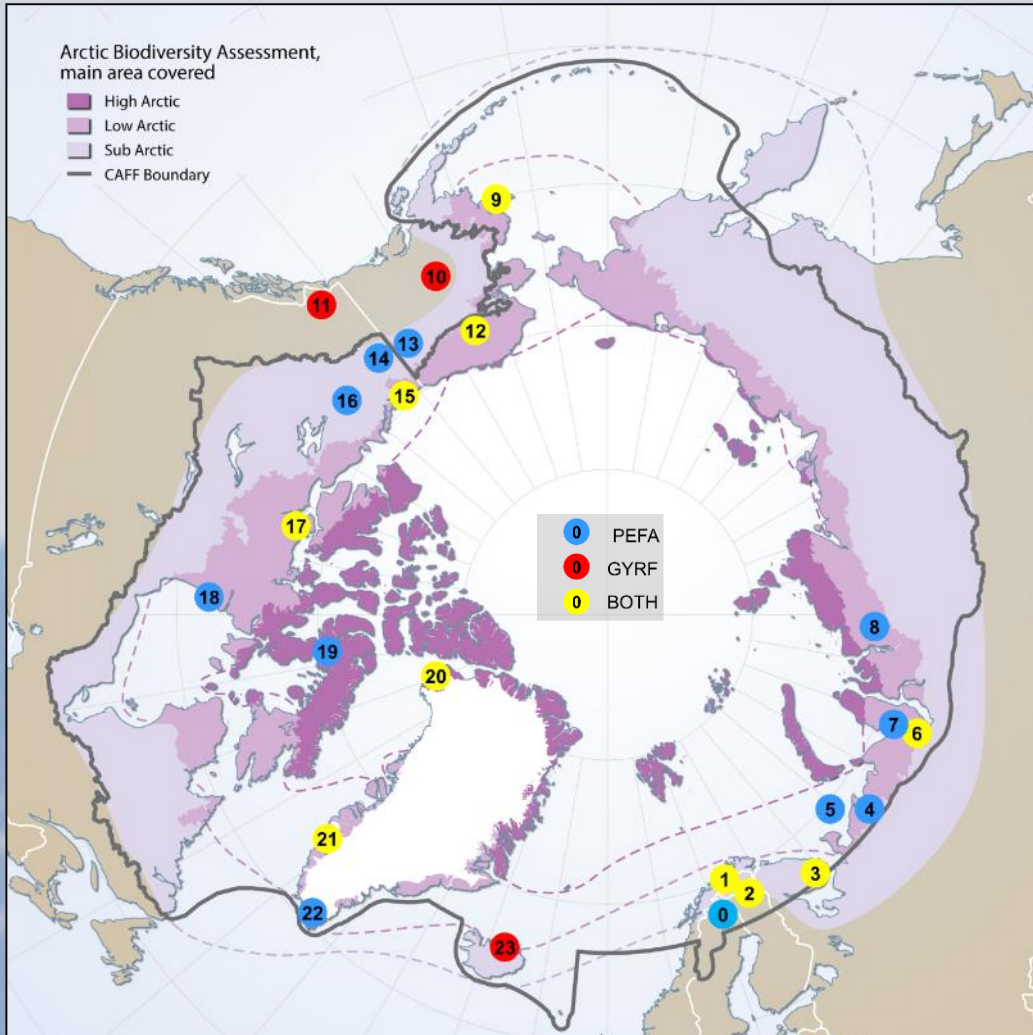
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Coverage as of 2017



24 'Monitoring sites'

- Few in eastern Russia and High Arctic
- Rivers/coastline 265-800 km or inland areas 100 to 84000 km²
- Duration 5-66 years
- Total ~800 field seasons
- 14 sites monitored >30 years
- 21 sites active by 2017



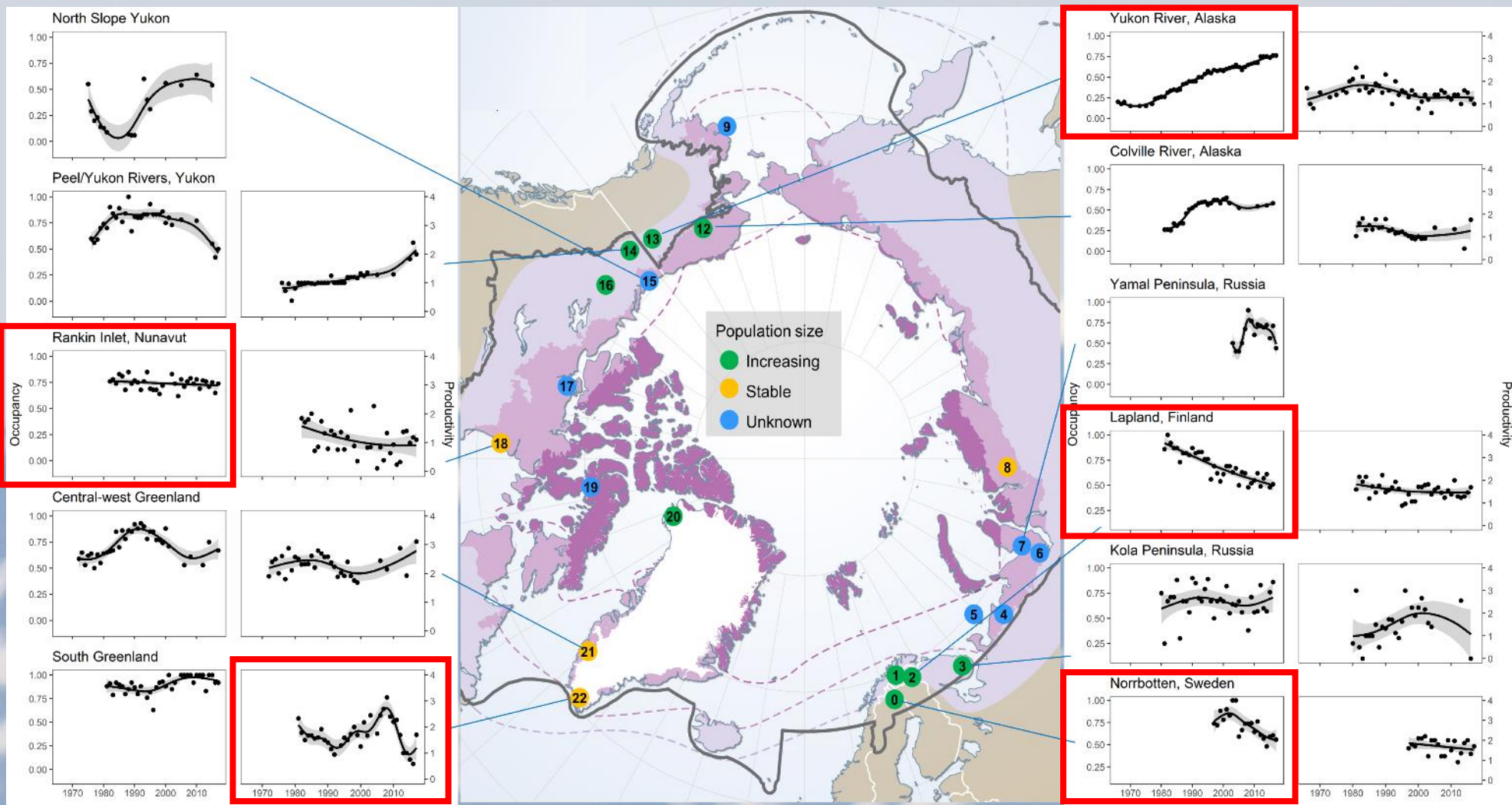
CBMP "FEC attributes" – coverage



Abundance	X
Distribution	X
Demography (productivity, occupancy)	XXXX
Phenology	X (XX)
Diversity (genetics)	X
Health (contaminants)	XXX
Temporal cycles	XX

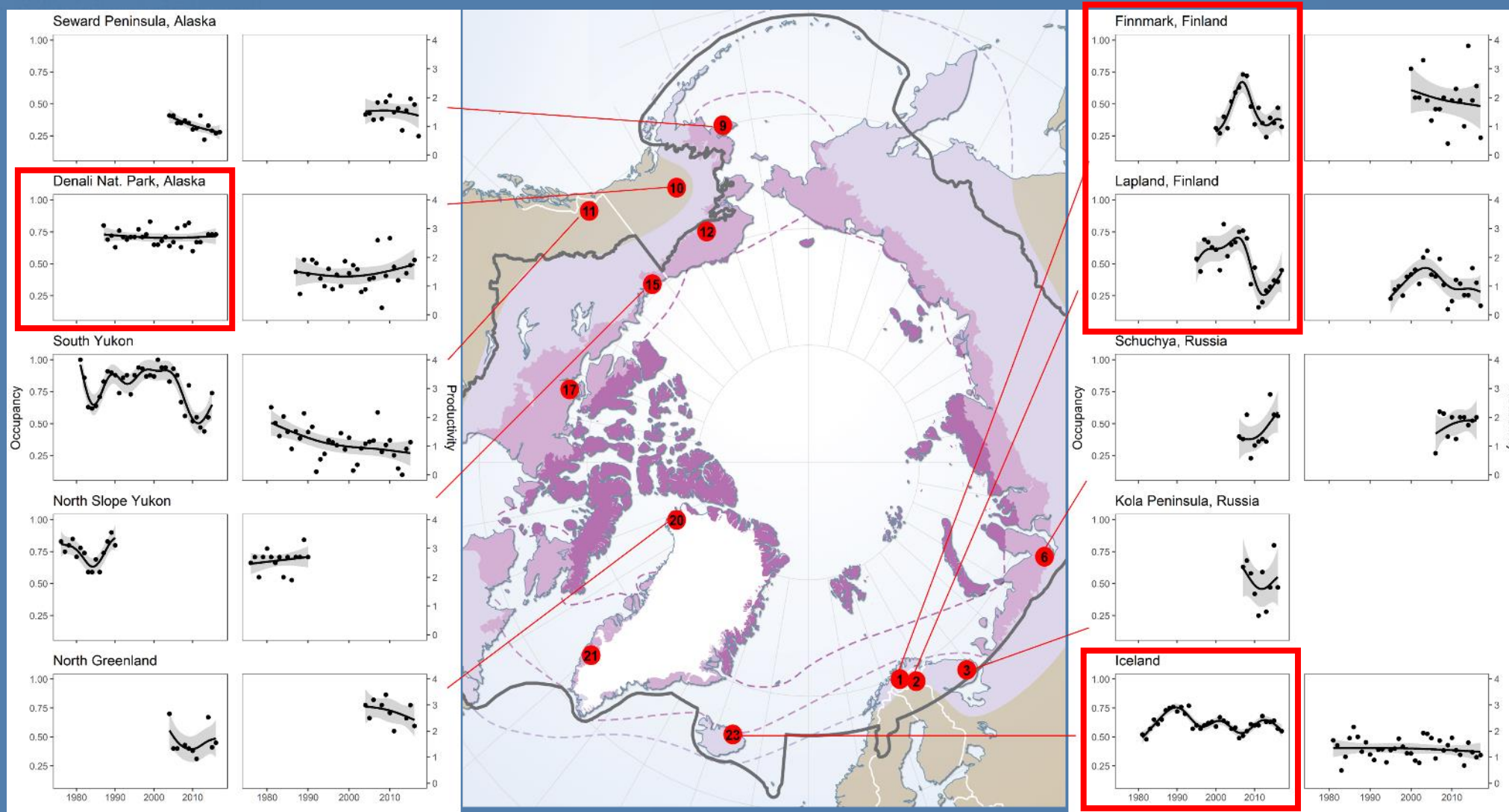
X = data available, **X** = treated in Ambio paper

Peregrine – abundance & demography

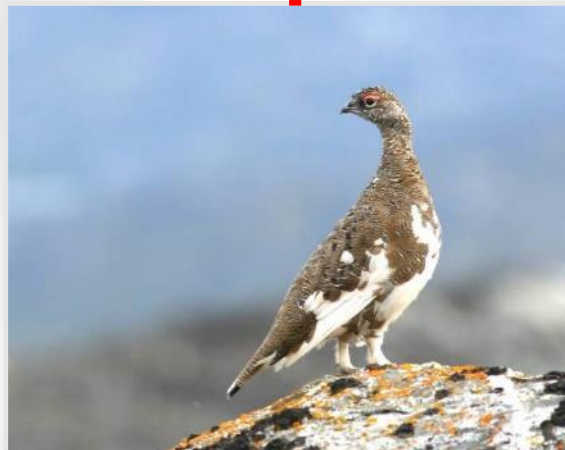
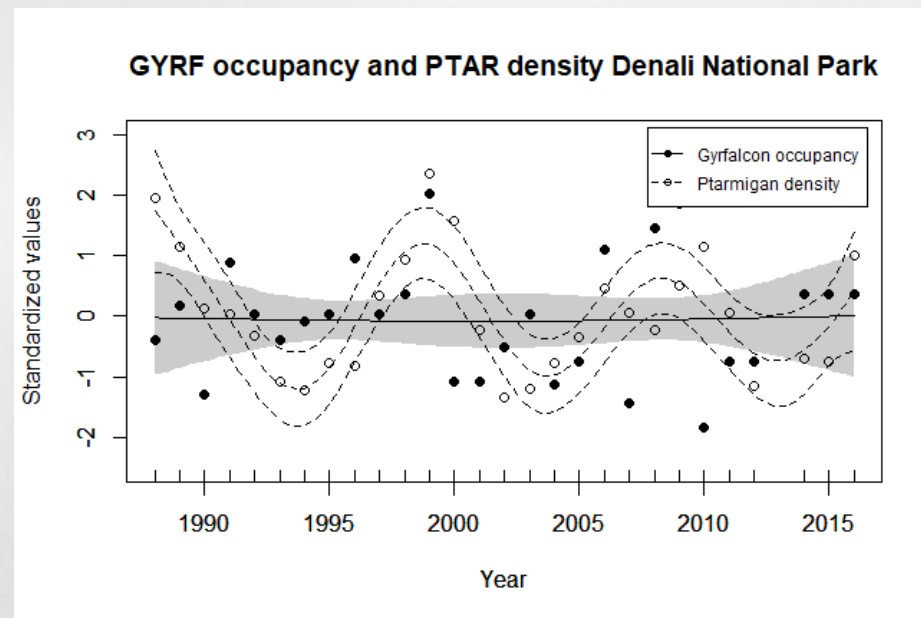
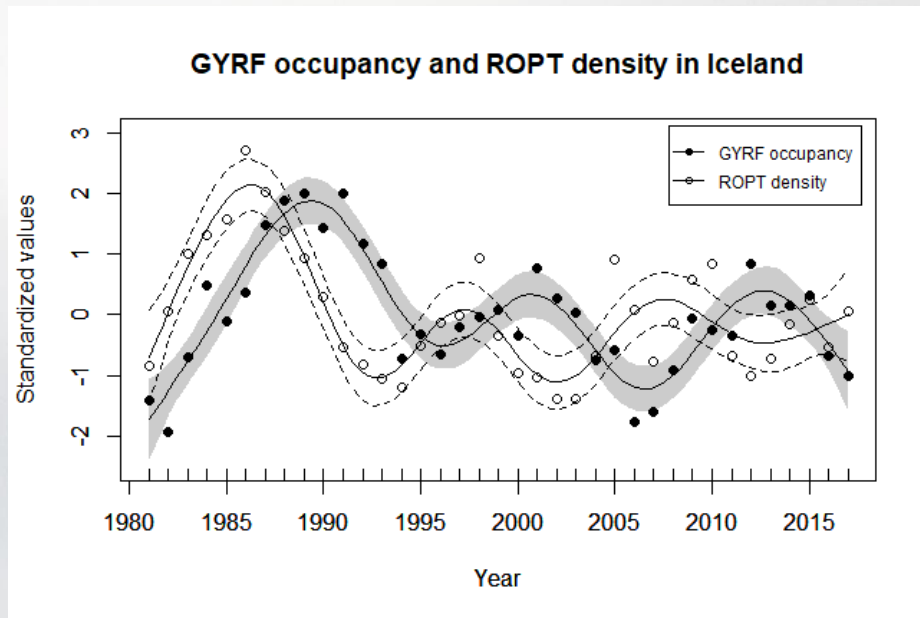




Gyrfalcon - demography

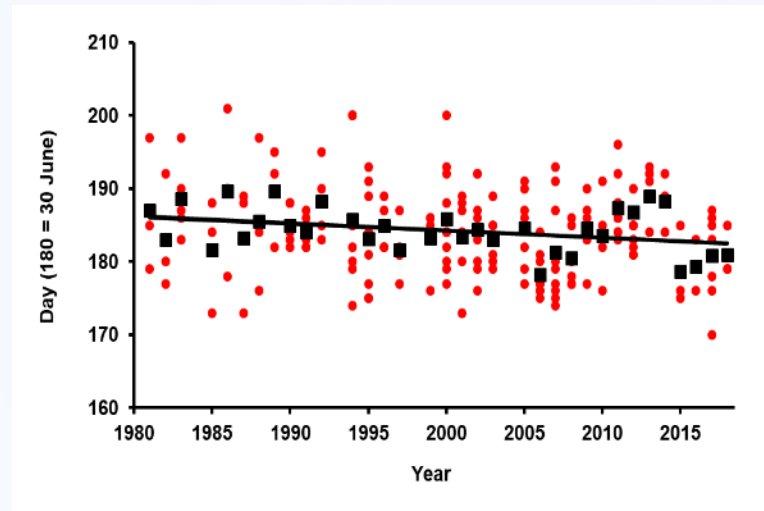


Temporal cycles – prey interactions



Phenology

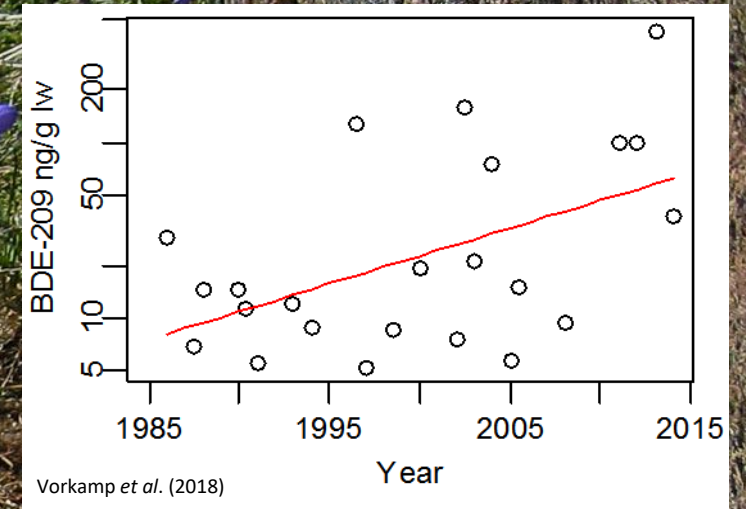
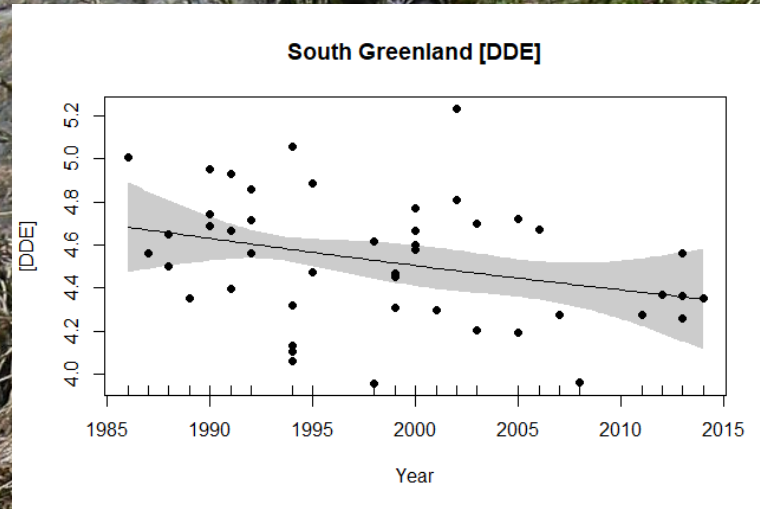
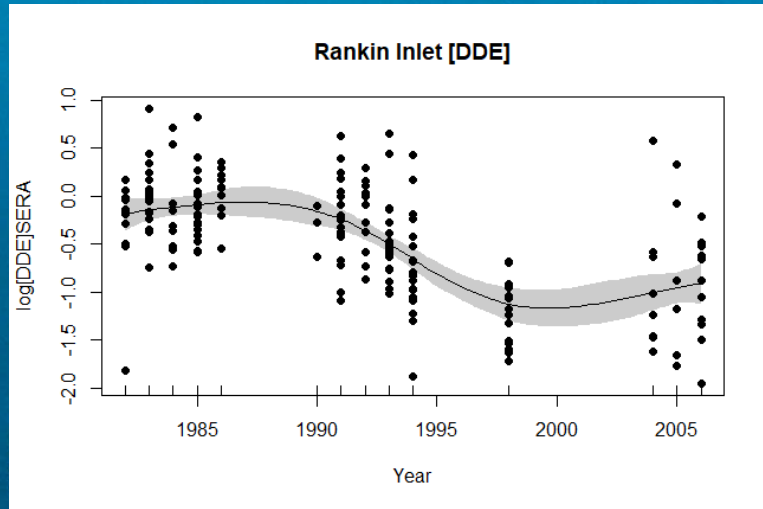
- Mackenzie River, Canada, 1985-2010: hatching advanced 1.5 to 3.6 d/decade depending on latitude
- South Greenland 1981-2017: hatching advanced 0.9 d/decade



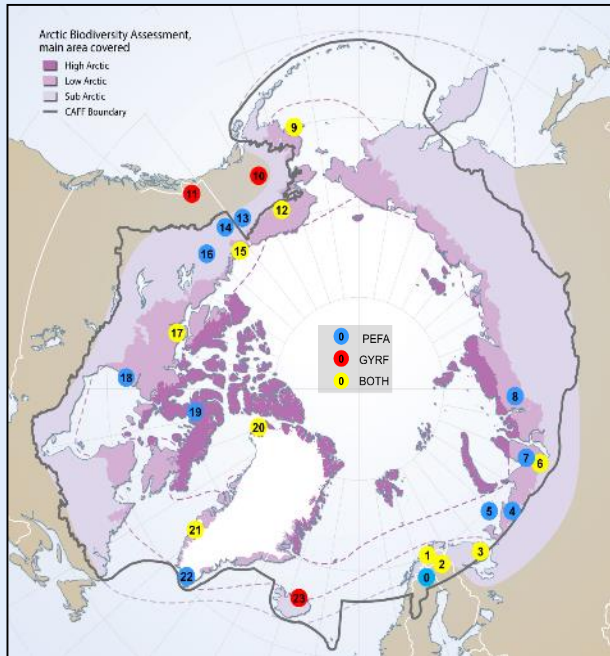
Date of first egg hatching



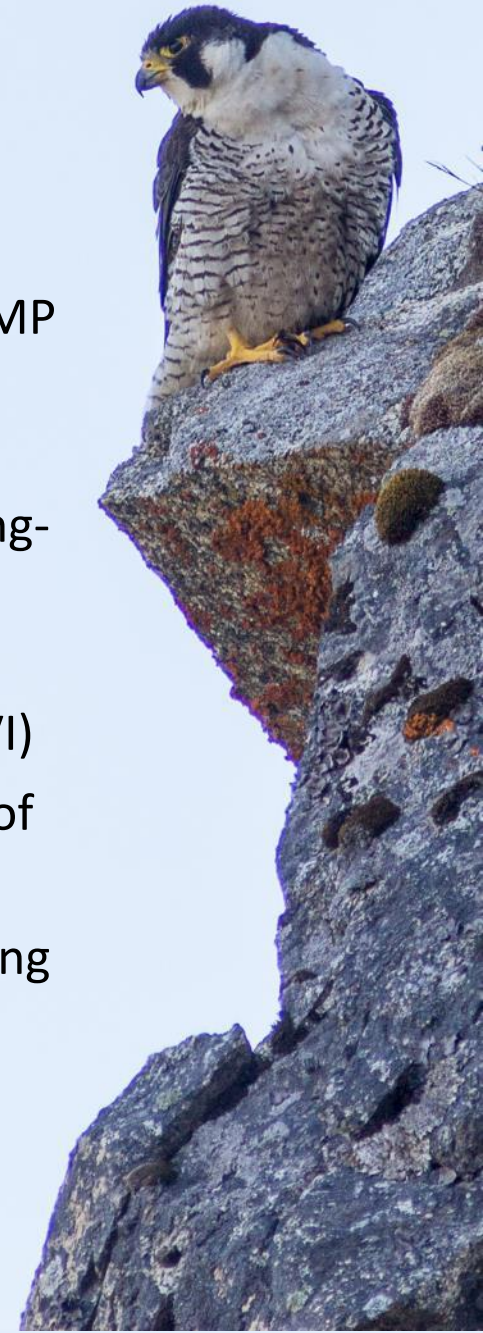
FEC attr. Health - examples of contaminant changes



Conclusions



- Firm basis for future top predator monitoring – feed into CBMP Terrestrial; would hope to see expansion in High Arctic and eastern Russia
- Huge potential for *data mining and re-analysis* of existing long-term data (e.g. phenology)
- Identify covariates to investigate annual variation in demography, phenology (e.g. weather, prey abundance, NDVI)
- Contaminant monitoring – falcons still efficient 'samplers' of the environment
- Promote pan-Arctic harmonisation of basic sampling/reporting protocols
- Promote coordinated research and monitoring across study sites





Thank you

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Climate Change Canada