Study tour E011

SID: 2050507

2023-04-02

## Link

<https://earth.google.com/earth/d/1x9tUInzkKxO3WleaMHIMv31jXNK72c6L?usp=sharing>

## Minimising bird collisions with wind turbines

Wind power is an essential part of efforts to reduce reliance on fossil fuels to tackle climate change. However, the growth in size of wind turbines and scale of wind farms poses collision risks for birds, especially seabirds offshore and raptors onshore. It is thought that birds find it hard to see moving turbines. Researchers at Smøla Vindkraftverk in Norway tested whether painting one of the turbines black would make them more visible and therefore reduce collision mortality in birds. They found that annual mortality was reduced by 70% compared to nearby unpainted control area.

May et al. (2020)

Photo credits: Ian Davies

[eBird S28857002](https://ebird.org/checklist/S28857002)

[Macaulay Library ML 26861391](https://macaulaylibrary.org/photo/26861391?__hstc=60209138.8800e5de1c8e68a1ec86fa2121d42340.1680341203412.1680341203412.1680341203412.1&__hssc=60209138.1.1680341203412&__hsfp=2695420997)

## Crumbling coastlines impact

Happisburgh is one of a number of places on England’s North Sea coast where coastal erosion is damaging housing and infrastructure and threatening coastal villages and communities. A major contributor to erosion is storm surges when large storms and high tides combine. A recent modelling study of extreme storm surge risk and projections in the North Sea has found that climate change is increasing both mean sea level and storm intensity and is likely to generate more frequent major surges in the future.

Vousdoukas et al. (2016)

Photo credits: Mike Page

## Invasive species and pests spread as climate changes

Red-band pine needle disease is caused by a fungus called *Dothistroma septasporum* which damages the leaves and prevents photosynthesis. It has devastated Thetford Forest over the last two decades because it particularly effects Corsican pines which constitute over half of the 25000 Ha of trees. This has necessitated mass felling and diversification of planting. Prior to the 1990s it rarely caused outbreaks in the Northern Hemisphere. French researchers have found that reduction in summer precipitation increases tree stress and susceptibility to infection, and warming temperatures allows fungal pathogens to spread, increasing the likelihood of exposure of fungal infections. This poses ongoing climate-related risks to UK pine forests.

Desprez-Loustau et al. (2007)

Desprez-Loustau, Marie-Laure, Cécile Robin, Grégory Reynaud, Michel Déqué, Vincent Badeau, Dominique Piou, Claude Husson, and Benoît Marçais. 2007. “Simulating the Effects of a Climate-Change Scenario on the Geographical Range and Activity of Forest-Pathogenic Fungi.” *Canadian Journal of Plant Pathology* 29 (2): 101–20. <https://doi.org/10.1080/07060660709507447>.

May, Roel, Torgeir Nygård, Ulla Falkdalen, Jens Åström, Øyvind Hamre, and Bård G. Stokke. 2020. “Paint It Black: Efficacy of Increased Wind Turbine Rotor Blade Visibility to Reduce Avian Fatalities.” *Ecology and Evolution* 10 (16): 8927–35. <https://doi.org/10.1002/ece3.6592>.

Vousdoukas, Michalis I., Evangelos Voukouvalas, Alessandro Annunziato, Alessio Giardino, and Luc Feyen. 2016. “Projections of Extreme Storm Surge Levels Along Europe.” *Climate Dynamics* 47 (9): 3171–90. <https://doi.org/10.1007/s00382-016-3019-5>.