ECOLOGY

Intraspecific dispersal

Ecol. Lett. http://doi.org/7hg (2015)

Shifting their geographical range is one of the main mechanisms by which species can, and in many cases already are, adapting to climate change. Range shifts are controlled by thermal preferences, among other factors, but these are not necessarily uniform across individuals within a particular species.

Elvire Bestion, from the Station d'Ecologie Expérimentale de Moulis, CNRS, France, and co-workers studied the dispersal of individual common lizards (*Zootoca vivipara*) in response to climate warming using a semi-natural warming experiment to investigate the potential for intraspecific variation in dispersal.

They find that individuals with preferences for low temperatures dispersed more from warmer habitats than those preferring relatively high temperatures. The authors hypothesize that this selective dispersal process may result in the segregation of thermal phenotypes along dispersal routes. They go on to argue that this could facilitate local adaptation to climate warming and that range shift models would be improved by including intraspecific variation in thermal phenotype and dispersal. *AB*

PUBLIC OPINION

Disengaged youth

WIREs Clim. Change **6,** 523–534 (2015)

Climate change will disproportionately impact younger generations. But tackling the issue is a low priority for most young people, as it is for most adults. The reasons for young people's disengagement remain largely unknown, however, making it difficult to target calls for action.

Adam Corner, from the Climate Outreach Information Network, and colleagues reviewed existing literature and ran focus groups with young people to understand their views, and to work out how to design effective engagement strategies.

They found that younger generations seek 'minimal inconvenience', so it's important to focus on activities that are easy to execute. Young people are also motivated by a sense of self-efficacy, so must be persuaded that their actions have a real impact. Trusted messengers are the best people to convey this message. That means more interactive learning with parents, teachers and other young people, and fewer lectures from politicians.

Improving understanding of young people's views is essential to ensure that future decision makers are properly prepared for the challenges that climate change will bring. *MH*

CARBON CYCLE

Oceanic sink changes

Glob. Biogeochem. Cycles http://doi.org/7hk (2015)

The North Atlantic is one of the world's most important ocean carbon sinks , which partly mitigate climate change. However the efficiency of CO_2 uptake is expected to be reduced by changes in circulation and biological processes, although the magnitude of their effect is unclear.

Nadine Goris, from the University of Bergen, and Bjerknes Centre for Climate Research, Norway, and colleagues showed that decreasing biological activity is the main reason for the warming-induced reduction in this carbon sink. They compared two model simulations from 1850–2099 (one with warming due to increases in atmospheric CO_2 included, and one without) to explore the biological, chemical and physical drivers of carbon uptake in the North Atlantic.

Under warming, biological production decreased CO_2 uptake while ocean circulation had the opposite effect, but the extent to which these processes counteracted each other differed by regions. A more pronounced reduction in biological activity in the subpolar region resulted in a decrease in CO_2 uptake (~8 PgC) twice as large as the subtropical North Atlantic (~4 PgC).

To better understand the effects of climate change on the ocean carbon cycle and its implications we must improve our limited knowledge of biological production in the oceans. *ET*

EXTREME EVENTS

Simultaneous occurrences

Proc. Natl Acad. Sci. USA http://doi.org/7hj (2015)

Climate extremes, such as heatwaves and droughts, have important impacts on food, water and energy supplies with detrimental effects on human health and well-being. The co-occurrence of two extreme events can intensify the individual impacts, causing even more damage.

Omid Mazdiyasni and Amir AghaKouchak, from the University of California at Irvine, US, show that the concurrence of heatwaves and droughts, termed compound events, has significantly increased in the US. They evaluated daily temperature and monthly precipitation records between 1960 and 2010 to determine trends in these events.

The intensity and duration of these compound events has increased in the south, southeast and some parts of the western United States, despite no observed trend in drought-only occurrences. Furthermore, the frequency of longer, more severe compound events has increased more than for shorter, less severe ones. Understanding how climate change will affect the trends in concurrences of climate extremes is essential for effective planning and adaptation in susceptible areas. *ET*

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