estimated impact adds to the damage costs of climate change. *MC*

EVOLUTIONARY ECOLOGY

Survival of the fittest

Climatic Change **110,** 697–707 (2012)

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The greater frequency and amplitude of mean temperature changes in the future, as are anticipated from climate change, could influence which human males survive gestation and how long they live for.

That conclusion comes from a demographic study of men born in Sweden between 1850 and 1915. Although it is understood that natural selection has conserved mechanisms to spontaneously abort fetuses — overwhelmingly male fetuses — that are unlikely to survive cold weather, the ages achieved by men born during mild periods who then confront frigid winters at tender ages, has been left unanalysed.

Now Ralph Catalano, of the University of California, Berkeley, and his colleagues, have placed records of cohort survival from age one next to an estimation of warm-to-cold temperature shifts that occurred from ages one to four. As expected, the males born in gentle conditions who then met tough times did not live as long as males born during other times. This result holds when adjusted for the longevity of females. The authors propose that developing countries that are less able to shield themselves against extremes of weather are most likely to see an effect on their already relatively short lifespans. *AP*

GENETICS

Demise of the clones

PLoS ONE http://doi.org/fxx8wn (2012)

The marked decline in seagrasses over the past 20 years has been linked to global warming, and their chances of adapting to further climatic shifts depend largely on their genetic diversity. Now a team led by Sophie Arnaud-Haond of Ifremer DEEP-Centre de Brest, in Plouzané, France, has analysed the microsatellites of one species, *Posidonia oceanica*, sampled from 40 populations across 3,500 kilometres of the Mediterranean Sea.

They report very large clones that spread over 1–15 kilometres of sea bed, with a prevalence of 3.5–8.9%. This finding suggests two things: that the clonal age and size estimates of *P. oceanica* in the literature are limited by sampling scale, and that, to grow so big, the large clones must be hundreds to thousands of years old.

The authors suggest that, among the large clones, natural selection has favoured genotypes able to withstand fluctuations in conditions that occur over a massive time scale. Such genotypes probably convey a high degree of phenotypic plasticity. So, even though meadows of *P. oceanica* are shrinking at 5% a year overall, patches of seagrass may be more resilient than expected. *AP*

IMPACTS

Preserving our past

Sci. Total Environ. http://doi.org/fzb4mw (2012)

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To adapt to climate change it is helpful to be able to anticipate climate impacts so that proactive measures can be taken to minimize damages. One area that has so far received relatively little attention in this regard is the potential impact of climate change on cultural heritage.

To investigate how climate changes might affect indoor heritage collections, Paul Lankester and Peter Brimblecombe from the School of Environmental Sciences at the University of East Anglia, UK used building simulations combined with high-resolution climate projections to predict indoor temperature and humidity, and damage arising from changes to the internal climate of historic rooms in England.

They found that damage from mould growth and pests is likely to be enhanced in the future, while humidity-driven dimensional changes to materials such as wood can be expected to decrease. These results should help historic collection managers to prepare for the impact of long-term climate change to better preserve our cultural heritage. *AB*

ECOLOGY

Estimating extinction risk

Glob. Change Biol. http://doi.org/fj3s22 (2012)

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Extinction-risk estimates are important to correctly weigh climatic impacts against other drivers of biodiversity loss and in understanding potentially synergistic effects of climatic and other risk factors. Most commonly, models that simulate species range shifts are used to indicate extinction risk.

To investigate the efficacy of this approach, Damien Fordham, from the Environment Institute and School of Earth and Environmental Sciences at the University of Adelaide, Australia, and co-workers used a model that couples habitat suitability with demographic processes and applied it to five species of Australian plants with different demographic traits.

They found that the relationship between changes in total habitat suitability or geographic extent and extinction risk is often weak, and that extinction risk is strongly determined by life-history traits, such as recruitment response to fire. These results demonstrate the need to consider direct measures of extinction risk, as well as measures of change in habitat area, when assessing climate change impacts on biodiversity. *AB*

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