
Traditional knowledge matters



The *Araucaria* tree (*Araucaria angustifolia*), a conifer with candelabra shapes, is typical to southern Brazil's landscape. It is critical to ecosystem functioning and the livelihoods of smallholder communities, who hold traditional knowledge of maintaining the forest and preserving cultural and social dynamics. Climate change affects the resilience of the socioecological system, yet little is known about potential losses.

Mario Tagliari from the Municipal College of Education and Environment and colleagues from Brazil measured the socioeconomic impact of the trade of *Araucaria* nut-like seeds and the ethnoecological knowledge about climate change and generated an ecosystem services network. Combining these data with projected forest loss due to climate change quantified the risks of disruption of the socioecological system. The study finds that smallholders contribute to the provisioning of ecosystem services and cultural aspects. While climate change may reduce the *Araucaria* tree's habitat, valuing traditional knowledge, safeguarding the socioecological interactions and promoting conservation measures may protect the Araucaria Forest system.

Martina Grecequet

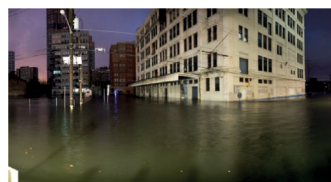
Nature Climate Change

Original reference: *Climatic Change* **176**, 2 (2023)

Research highlights

Adapting cities

Unequal transformations



Gentrification is a growing problem in cities, leading to increased socioeconomic stratification. In addition to the social and financial factors that contribute to gentrification, climate change may now also play a role, as climate risk may be an important consideration in peoples' choices with regard to where they live, driving migration. However, the full consequences of this migration are yet unclear.

Seung Kyum Kim from the Korea Advanced Institute of Science and Technology and Soona Park from Seoul National University investigated how migration following exposure to climate risk impacts coastal cities in the United States using a difference-in-differences framework. These cities are exposed to risk from hurricanes, which are becoming increasingly more severe, a trend projected to continue under climate change. The authors find that climate-risk-induced migration leads to gentrification, increasing mean income and decreasing the proportion of African American residents in areas with lower climate risk. The increase in socioeconomic inequality is a further impact of climate change that, in addition to ensuring the physical safety of communities exposed to risk, should be considered in city adaptation strategies.

Alyssa Findlay

Nature Climate Change

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Macroeconomics

Carbon taxes and inflation

The ongoing high inflation is causing widespread concern among the public, experts and governments, in particular for developed countries. At the same time, many countries have committed to decarbonizing their economies, raising concerns about the economic costs of climate change policies. Despite growing evidence demonstrating that carbon taxes indeed reduce emissions, little is known about their macroeconomic consequences.

Maximilian Konradt and Beatrice Weder di Mauro of the Geneva Graduate Institute, Switzerland, examined the responses of headline inflation and price components to carbon pricing. Based on 18 carbon taxes from Europe and Canada enacted over the last three decades, they find, on average, that carbon taxes did not lead to increasing inflation. Instead, they show that carbon taxes changed relative prices, increasing the cost of energy but leaving the prices of other consumer goods and services unaffected.

Comparing results across European countries, the authors provide suggestive evidence that independent monetary policy and recycling tax revenues helped to dampen the response of consumer prices. In sum, this work casts doubt on the view that carbon taxes lead to 'greenflation'.

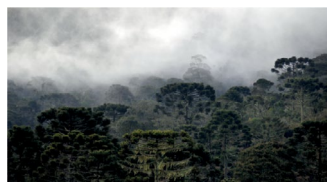
Lingxiao Yan

Nature Climate Change

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Socioecological system

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Ecosystem functions

Expanding range and role change

Climate-change-driven range shifts lead to the alteration of community compositions. How these changes impact various ecosystem functions remains poorly understood, particularly across longer timeframes.

Jared Balik from North Carolina State University USA, and colleagues from the USA, investigated the functional impacts of changes in larval caddisfly communities across 30 years in a subalpine permanent pond in the Rocky Mountains, western Colorado. Caddisfly assemblages dominate detritus breakdown and thus play a key role in defining nitrogen (N) and phosphorus (P) cycles, but different species have different N and P excretion and detritus processing rates. Since 1998, upslope expansion has seen the introduction of three novel caddisfly species to the pond. While the first and second range expansions did not result in changes in abundances or contributions to ecosystem processes, the third expansion led to decreases in both dominant and subdominant resident species' abundances and decreases in the dominant species' contributions to P supply and detritus processing. However, total ecosystem processing rates did not change, owing to increases in contributions from the range expanding species. The work highlights the potential that functional role shifts can have to stabilize ecosystem functions under change.

Tegan Armarego-Marriott

Nature Climate Change

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