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TITLE: Managing consequences of climate?driven species redistribution requires integration of ecology, conservation and social science

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ABSTRACT:

Climate change is driving a pervasive global redistribution of the planet's species. Species redistribution poses new questions for the study of ecosystems, conservation science and human societies that require a coordinated and integrated approach. Here we review recent progress, key gaps and strategic directions in this nascent research area, emphasising emerging themes in species redistribution biology, the importance of understanding underlying drivers and the need to anticipate novel outcomes of changes in species ranges. We highlight that species redistribution has manifest implications across multiple temporal and spatial scales and from genes to ecosystems. Understanding range shifts from ecological, physiological, genetic and biogeographical perspectives is essential for informing changing paradigms in conservation science and for designing conservation strategies that incorporate changing population connectivity and advance adaptation to climate change. Species redistributions present challenges for human well-being, environmental management and sustainable development. By synthesising recent approaches, theories and tools, our review establishes an interdisciplinary foundation for the development of future research on species redistribution. Specifically, we demonstrate how ecological, conservation and social research on species redistribution can best be achieved by working across disciplinary boundaries to develop and implement solutions to climate change challenges. Future studies should therefore integrate existing and complementary scientific frameworks while incorporating social science and human-centred approaches. Finally, we emphasise that the best science will not be useful unless more scientists engage with managers, policy makers and the public to develop responsible and socially acceptable options for the global challenges arising from species redistributions.

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