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Altri autori (Persone)	BacklundPeter JanetosAnthony C SchimelDavid Steven
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Sommario/riassunto

This book provides an assessment of the effects of climate change on U.S. agriculture, land resources, and biodiversity. It is one of a series of 21 Synthesis and Assessment Products (SAP) that are being produced under the auspices of the U.S. Climate Change Science Program (CCSP). This book builds on an extensive scientific literature and series of recent assessments of the historical and potential impacts of climate change and climate variability on managed and unmanaged ecosystems and their constituent biota and processes. It discusses the nation's ability to identify, observe, and monitor the stresses that influence agriculture, land resources, water resources, and biodiversity, and evaluates the relative importance of these stresses and how they are likely to change in the future. It identifies changes in resource conditions that are now being observed, and examines whether these changes can be attributed in whole or part to climate change. The general time horizon for this book is from the recent past through the period 2030-2050, although longer-term results out to 2100 are also considered. There is robust scientific consensus that human-induced climate change is occurring. Records of temperature and precipitation in the United States show trends consistent with the current state of global-scale understanding and observations of change. Observations also show that climate change is currently impacting the nation's ecosystems and services in significant ways, and those alterations are very likely to accelerate in the future, in some cases dramatically. Current observational capabilities are considered inadequate to fully understand and address the future scope and rate of change in all ecological sectors. Additionally, the complex interactions between change agents such as climate, land use alteration, and species invasion create dynamics that confound simple causal relationships and will severely complicate the development and assessment of mitigation and adaptation strategies.

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