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REVIEW

Linking ecosystem services and human health: the Eco-Health Relationship Browser

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Abstract
Objectives Ecosystems provide multiple services, many of which are linked to positive health outcomes. Review objectives were to identify the set of literature related to this research topic, and to design an interactive, web-based tool highlighting the weight of evidence, thus making the information more accessible.
Methods A systematic review was conducted to create the Eco-Health Relationship Browser (http://www.epa.gov/research/healthscience/browser/introduction.html). The search was conducted in four stages utilizing Google Scholar, PubMed and Science Direct, targeted journals, and targeted keywords; search results were limited to peer-reviewed journal articles published in English from 1 January 1990 to 31 December 2012.
Results The review identified 344 relevant articles; a subset of 169 articles was included in the Browser. Articles retrieved during the search focused on the buffering and health-promotional aspects of ecosystem services. Landscape and Urban Planning, Urban Forestry and Urban Greening, and Health and Place yielded the most articles relevant to this search.
Conclusions Results from the systematic review were used to populate the Browser, which organizes the diverse literature and allows users to visualize the numerous connections between ecosystem services and human health.

Keywords Human health · Ecosystem services · Green space · Systematic review · Urban ecosystem · Well-being

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Introduction

Ecosystems provide many nature-based goods and services that are beneficial to society. According to the Millennium Ecosystem Assessment (2005), ecosystems supply food, water, fuel, and fiber (provisioning services); help regulate climate, floods, disease, and air and water quality (regulating services); provide recreational and aesthetic benefits (cultural services); and promote processes such as photosynthesis and nutrient cycling (supporting services). Despite increasing isolation from the natural world, society is nonetheless fundamentally dependent on the flow of ecosystem services (MEA 2005).

The provisioning services of nature are largely self-evident. Previous research has addressed regulating services, including the filtration of air pollutants such as PM, ozone, NO_x, and SO_2 by trees and other greenery (Bealey et al. 2006; Escobedo and Nowak 2009), heat mitigation by green spaces such as parks and urban forests (Solecki et al. 2005; Jim and Chen 2009), and water regulation by wetlands (Ming et al. 2007). Several reviews have also summarized regulating nature-based services such as air filtration and carbon sequestration by forests (Karjalainen et al. 2010), water filtration and regulation by wetlands (Horwitz and Finlayson 2011), and water and climate