



Original article

Urban non-timber forest products stewardship practices among foragers in Seattle, Washington (USA)

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ABSTRACT

Our research seeks to expand the concept of urban environmental stewardship to include the everyday stewardship practices of urban nontimber forest products foragers. Ethnographic data from 58 urban foragers and 18 land stewards in the city of Seattle (USA) revealed that foragers reported using a variety of practices to enhance and minimize negative desirable species and their habitats. Many of these practices were identical to those practiced by restoration volunteers in formal programs and align with Seattle Parks Department management objectives. Foragers actively sought to learn more about what practices are sustainable; many mentored others in sustainable harvesting practices. Most foragers emphasized the importance of treating plants and their environment with respect. The land stewards voiced some concerns about foraging in city parks, but most were cautiously supportive of opening up the parks to foragers. The study results suggest that an opportunity exists for park managers to develop alliances with foragers so as to leverage foragers' everyday stewardship practices and accomplish some of their park restoration objectives. Doing so will require park managers to acknowledge the positive contributions that humans can make to novel ecosystems and foragers to develop or strengthen self-regulation norms.

1. Introduction

Community participation in environmental stewardship has emerged as an important strategy to expand and sustain the ecosystem services provided by nature in cities (e.g. improved air quality, storm water management, micro-climate regulation and wildlife habitat) (Romolini et al., 2012). Urban environmental stewardship includes a range of voluntary actions taken to conserve, manage, monitor, advocate for, and educate about local environments (e.g. restoration of forested parks, tree planting campaigns, and community gardens) (Campbell and Wiesen, 2011). With declining city budgets, urban stewardship offers a cost-effective means to address ecosystem needs and recovery (Sanderson and Huron, 2011; Wolf et al., 2013). Stewardship also embodies a nature-society relationship centered on caretaking and reciprocity (Campbell and Wiesen, 2011). A growing body of evidence demonstrates social and psychological benefits incurred through participating in urban stewardship including improved mental and physical health (Pillemer et al., 2010), and enhanced social

cohesion and resilience (McMillen et al., 2016). These reciprocal benefits motivate participation and sustain volunteer's commitment to stewardship actions (Asah and Blahna, 2013; Moskell and Allred 2013).

Research in urban environmental stewardship has focused on formal volunteer efforts, carried out under the auspices of city governments and civil society groups (Connolly et al., 2013; Romolini et al., 2013). A presumption often exists that stewardship does not emerge from individuals working in isolation from official institutions and structures (Fisher et al., 2012). However, studies focused on the diverse ways people engage with nature in cities, suggest that the informal practices people carry out as part of their everyday lives may play an important and positive role in environmental stewardship (Gobster, 2007; Head and Atchison, 2009). Because these informal, everyday practices take place outside of organized programs, such as park clean-up days or "friends of the park" activities, they often go unrecognized (Smith et al., 2010; Martinez et al., 2011).

Use of informal environmental stewardship practices as a management tool could have important benefits for urban conservation.

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Informal stewardship has demonstrated significance within low-income and underserved communities (Smith et al., 2010; Martinez et al., 2011; Jupp, 2012) whose members may face challenges participating in formal volunteer initiatives (Hobbs and White, 2016). Informal practices can take place in different types of urban spaces than formal volunteering and thus offer opportunities to expand the scope and geographies of urban stewardship (Hurley et al., 2008; Smith et al., 2010). Additionally, paying attention to informal stewardship practices can highlight previously invisible values, skills and capacities within local communities, offering opportunities to enhance resident's engagement with the natural world (Jupp, 2012; Krasny and Tidball, 2012).

This paper seeks to broaden the conversation about urban environmental stewardship by examining its intersection with everyday practices of urban nontimber forest products (NTFP) foraging. We define urban foraging as the harvest of non-timber forest products (NTFPs) such as wild berries, mushrooms, herbs, fallen branches, and tree fruits in city environments for food, medicine, fuel, craft materials, and other cultural uses. Humans have harvested NTFPs since time immemorial but foraging has only recently been recognized as an activity occurring in cities. Over the past decade, scientists have documented foraging practices in Baltimore (Jahnige, 2002), Charleston (Hurley et al., 2008; Hurley and Halfacre, 2010; Grabbatin et al., 2011), Philadelphia (Hurley et al., 2015), New York (McLain et al., 2013), and Seattle (Poe et al., 2013, 2014). In US cities, much of this activity takes place in parks and green spaces where foraging is commonly prohibited owing to concerns that it may negatively impact ecosystems (McLain et al., 2012; Poe et al., 2013). However, empirical evidence of the ecological impacts of urban foraging—either positive or negative—is limited. Moreover, exploratory research on urban foraging suggests that foragers may engage in activities similar to those employed by restoration and other vegetation management programs, such as removing invasive species; and transplanting and pruning native species (Jahnige 2002; McLain et al., 2013). Terada et al. (2010) examined the use of volunteers to replicate the traditional practice of foraging poles for firewood as a means for restoring Tokyo's *satoyama* forests. A limitation of this formal stewardship program was that the scale at which pole harvesting needed to occur far exceeded the capacity of volunteer-based programs. Terada et al. concluded that treating the *satoyama* as a working forest by permitting pole harvesting for personal or commercial use would be a useful complement to reliance on formal volunteer programs for achieving restoration goals.

Here we explore the potential for incorporating informal urban foraging activities into urban forest restoration programs using foraging and stewardship policies in Seattle, USA as a case example. Drawing on data collected during ethnographic research conducted in 2010 and 2011, we seek to answer three questions:

- 1.) What stewardship practices and norms are associated with foraging in Seattle?
- 2.) In what ways do those practices and norms complement or conflict with the Seattle Park and Recreation Department's management objectives, including its formal stewardship programs?
- 3.) What are key challenges to embracing urban foraging as a legitimate activity in urban green spaces, and what are the prospects for overcoming those challenges?

Although our research focuses on foraging practices in Seattle, the findings have broad applicability to other cities dependent on formal and informal public-private partnerships to achieve ecological restoration goals.

2. Methods

The study took place in Seattle, the largest city (pop. 608,660) in Washington State, and the economic center for the Puget Sound Region's 4.2 million inhabitants (U.S. Census, 2010). The region's

moist, temperate climate provides favorable growing conditions for numerous plants and fungi as well as the possibility for humans to gather NTFPs year-round. Foraging is a popular activity among Seattleites: a study of Seattle area residents found that 26 percent gathered or collected products in nature settings as a form of recreation (City of Seattle, 2014).

Data for our study were collected through semi-structured interviews with 58 urban foragers and 18 land stewards, including 13 paid land managers and five volunteers who organize stewardship activities for park agencies or non-governmental organizations. The interview data were triangulated with participant observations of more than 80 organized foraging and stewardship activities, including guided foraging walks, forest and urban orchard steward work parties, wild mushroom forays, and urban forest commission meetings. Purposive snowball sampling was used to select foragers with an eye toward maximizing the range of variation in products harvested, foraging experience, and residence within Seattle. Foragers were asked to describe which species they collected, efforts they made to improve the productivity and habitat of gathered species, their involvement with formal stewardship groups, and their perspectives on how well city policies address foragers' needs and values. Land stewards were asked to describe the ecological impacts of foraging that they had observed and their perspectives on the challenges and opportunities associated with recognizing foraging as a legitimate activity in city parks. The data were coded using AtlasTI. Analysis of the forager interviews entailed coding and analyzing the data thematically so as to identify stewardship practices, norms, and ethics. Additionally, data from foragers and land stewards were analyzed to identify the range of views regarding the potential for using foraging as a tool to support park management and restoration goals.

3. Results

3.1. Characteristics of foragers who participated in the study

The foragers in our study ranged in age from 23 to 83 years old with an average age of 44. Thirty-six were women and 22 were men. The majority (50) self-identified as White, Caucasian, Euro-American, or European. Two self-identified as Asian, two as Native American/White, one as Asian/White, one as White/Latino, and one as African-American. Most were highly educated with 44 having completed four or more years of higher education. The foragers were evenly distributed across income categories. Some had started to gather within the previous year, others had more than 60 years of experience; the average number of years of experience foraging was 24. Many harvested small quantities for personal use; however, roughly half earned some income from foraging, providing services such as guided foraging walks and the sale of value-added products. Products harvested were used for food, medicine, arts and crafts, fuel, and construction wood. Most harvested from multiple land use/habitat types, with parks, forests, and yards being the most common foraging sites. A total of 433 species of plants and 53 species of fungi were gathered, including 195 native plant species.

3.2. Foraging practices and stewardship

Three aspects of stewardship emerged from interviews with foragers about their harvesting practices in Seattle. One aspect had to do with the biophysical impact on plants, fungi and their habitat. A second aspect focused on the importance of knowledge acquisition and sharing in shaping foragers' understandings of how their actions affect plants. The third aspect concerned the ethics that influence how foragers interact with plants and the circumstances under which they consider plants or fungi "fair game" for harvesting. Table 1 summarizes key elements of the three aspects of foraging-related stewardship, including specific practices and examples of species affected.

Foragers used a variety of harvesting practices that fit the EPA's

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