

Stewardship to build habitat gardens

Yijie(Sarah) Li, Ulink College of Shanghai, Shanghai, China

Given the ongoing large-scale urbanization, native species and ecosystems face significant threats, while access to nature remains inequitable for citizens. To address these issues, habitat gardens are proposed. Considering the unique development models and high-density buildings in urban areas, habitat gardens are envisioned as relatively small multifunctional parks with native plants, maintained by the community (Kou et al., 2019). These gardens serve as vital habitats for native wildlife, while also offering scenic views, outdoor recreation, and community activities for locals. However, the lack of awareness of this concept makes it difficult for the community to initiate and maintain habitat gardens. Stewardship, actions taken by individuals to protect the environment in pursuit of socio-ecological outcomes, could be the solution. This article examines how stewardship can help to construct habitat gardens by enhancing environmental identity, environmental literacy, and social relations.

Stewardship in creating habitat gardens constructs environmental identity and forms a positive feedback loop. Environmental identity is a cognitive fix, defined as a sense of connection to the environment affecting our perception and action toward the world. Individuals with strong environmental identities will conduct relatively more pro-environmental behaviors. Place attachment, as one perspective of environmental identity, is significantly related to volunteer work in habitat restoration in urban parks, as Ryan (2005) found, which shows a positive association between the degree of environmental identity and the frequency of participation in stewardship. The cultivation of a habitat garden is an act of socio-ecological restoration, interactively forming individuals' strong place attachments in the process of modifying a site with habitat restoration. With a greater sense of emotional place attachment and environmental identity, civic engagement increases. This positive feedback loop supports a self-sustaining community empowered by strong environmental identities to grow native plants.

Participation in stewardship activities improves environmental literacy through education and empowerment. Stewardship, in formal training and informal discussions among participants (removing invasive species, planting natives, rejecting chemical fertilizers), teaches planning techniques and gardening technology. This low-threshold process can encourage more inexperienced people to join in and increase equity and inclusion in civic engagement. Meanwhile, awareness of environmental issues will be raised. Instead of traditional landscape management, the volunteers serving the habitat garden envision these places as returning to the appearance of untouched nature, rooted in concepts such as biodiversity and native ecosystems, whereas other park users could not realize these biophilic characteristics. Stewardship, therefore, proposes an action competence approach, intentionally targeting actions at solving the environmental problem of habitat restoration. Citizens will be making decisions and considering power relationships (Krasny et al., 2014).

Stewardship creates a cultural ecosystem with social connections and spillover of behavior changes. Involvement in stewardship communicates with people, develops shared beliefs and values, and goes beyond personal advantages to collective work (Krasny et al., 2013). The social interaction attracts participation while improving the quality of collaboration to develop habitat gardens. As the positive spillover effect illustrates, after civic participation,

individuals seek to contribute in a broader range, which in turn contributes to more resilient communities. According to a 172-respondents survey in Portland area parks, half of the volunteers suggested they talk to their neighbors about restoration to raise awareness while sixty percent indicated interest in leadership positions (Dresner et al., 2015). In the Herb Garden in Shanghai, stewardship helped to identify active and capable residents who could act as community leaders to mobilize others' participation in a garden building. The leaders train the residents and significantly accelerate the propagation of initiatives (Kou et al., 2019).

Despite the benefits of stewardship, some argue that the lack of trust challenges the effectiveness of plans. People are unwilling to take the time to steward and lack the trust to start building habitats together. Admittedly, the self-maintaining characteristic of a habitat garden makes it a demanding task for individuals. But currently, these projects are initiated by authoritative organizations and institutions, which are reliable and trustworthy locally. The initiative utilizes education and intergenerational recreation activities with the broader community, to foster social capital attributes, such as informal socializing and social trust (Krasny et al., 2015). The habitat garden has to be started by organizations and the capacity and confidence to self-maintain can be built with education and interaction.

Underuse of habitat gardens in urban areas would miss a potential chance to restore native habitat while improving community interactions, stewardship has to be utilized to construct more habitat gardens. The sense of place in environmental identity forms a positive feedback loop to motivate stewardship. The empowerment of environmental literacy allows actions to target the urban ecological problem. Despite the challenge of untrust, social connections, and leaders could guide the development of habitat gardens in the right direction.

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