

**Small-Scale Rewilding: Benefits and Challenges to Restoring Habitat on Less Than an
Acre**

Debbie Philp

Ecology, Spirituality and Religion, California Institute of Integral Studies

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Elizabeth Allison

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Isabella Tree's book, *Wilding* (2019), tells of the successful rewilding of Knepp Castle Estate in West Sussex, United Kingdom. While Tree's family's work was commendable, it was only possible because the family was already in possession of a large rural estate and had the financial means for the undertaking. Without such advantages, one might assume that those who live in urban and suburban settings and have limited resources cannot contribute to conservation through rewilding, and they will miss out on the benefits to their mental, physical, and spiritual well-being that can result from such an effort. Believing that mitigations of both biodiversity loss and human disconnection from the natural environment should be available to all, even in urban and suburban areas, I explored the benefits of and challenges to rewilding projects in the typical American backyard. I set out to make a case that even those with less than an acre of land can contribute to maintaining biodiversity while rewilding their own spirits.

Although I will touch on spiritual rewilding, which I consider to be the process of drawing out innate but suppressed sensations of belonging and wonder in relation to the more-than-human world, for the purpose of this research I defined the concept of rewilding from an ecological perspective. Rewilding is the creation or restoration of indigenous plants and wildlife habitats on land that had been previously altered by humans to diminish or remove those things. It is important to note that rewilding does not create wilderness, which is devoid of human alterations and is impacted by only limited human activity, but rather spaces where humans and more-than-human species can coexist. I focused on small-scale rewilding projects in private urban and suburban backyards, in the United States, which are typically less than an acre in size. While not considered here, I believe that balconies, rooftop gardens, and public park spaces can be similarly rewilded with many of the same benefits, although with additional or distinct challenges.

While space for humans and domestic pets and livestock is often incorporated into backyard landscaping, and should be part of a rewilded yard, this research focuses on spaces within the yard that are dedicated to wildlife. Wildlife is typically considered to be animals and insects that live wild in an area without having been introduced by humans. Ecosystem services, usually defined as the direct and indirect benefits provided to humans by the rest of the ecosystem, are expanded by rewilded backyards. I believe, however, it is important to consider the ways humans can provide benefits to other organisms they share the landscape with, as well, and will address these benefits to the ecosystem.

Private urban and suburban land has been undervalued in its potential to have a meaningful role in species conservation and the preservation of biodiversity through small-scale rewilding. Unfortunately, conservation has been promoted as the protection of far-off ecosystems or exotic species and not as something urban and suburban gardeners can directly take part in. Unlike the charismatic megafauna who get media attention when their numbers decline, the wildlife found in most backyards is unremarkable and often overlooked, but is also declining. For example, amphibians, including frogs and toads, are declining at an overall rate of nearly four percent per year and amphibians will likely disappear from half the places they exist in now within two decades (*Why Are Amphibian Populations Declining?* | U.S. Geological Survey, n.d.). By removing nonnative or invasive plants, cultivating native plants, and improving habitat for native wildlife, both the gardener and the wildlife derive benefit. A study showed that urbanites simply need to become aware that they can make a difference to become interested in conservation activities such as rewilding (Mumaw, 2017). I believe that there is great potential for enhanced well-being of humans and wildlife alike through small-scale rewilding projects and they should be given more attention.

Gardening is a popular activity for Americans, and it is how most relate to nature. The typical American urban or suburban garden, however, has a negative impact on the natural environment due to the planting of nonnative and invasive ornamental plant species which provide no ecosystem benefits, overuse scarce water resources, and require toxic industrial fertilizers and weed-killing herbicides to survive. Unfortunately, most of those surveyed in one study, while appreciative of the human benefits of time in nature, did not consider their yard or garden as part of the ecosystem and were not concerned about the ecological impacts of their gardening practices (Clayton, 2007). Promoting the benefits of small-scale rewilding may help to shift the attitudes of the typical urban or suburban gardener towards ecological awareness.

According to U.S. Fish and Wildlife Service's *2022 National Survey of Fishing, Hunting, and Wildlife-Associated Recreation*, more than half of the adult population of the United States enjoyed wildlife watching in 2022. The primary responsibility of U.S. Fish and Wildlife Service, a division of the Department of Interior, is to manage fish and wildlife resources in the public trust. The survey provides insight into how Americans interact with those resources. In the report, wildlife watching is defined as observing, feeding, or photographing wildlife, visiting public parks to view wildlife, and maintaining wildlife-friendly spaces around the home (*2022 National Survey of Fishing, Hunting, and Wildlife-Associated Recreation - Documents - USFWS National Digital Library*, n.d.). Although the 2022 survey had some changes in methodology to reduce respondent burden and nonresponse bias, there was still a significant increase in wildlife watchers from 34 percent in the 2016 survey (*1991-2016 Trend in Participation Rates for Wildlife Watching, by Demographic Group - Documents - USFWS National Digital Library*, n.d.). The lockdown period of the COVID-19 pandemic likely influenced interest in wildlife

watching, especially at home. It is my hope that interest remains high and the desire for more opportunities for wildlife watching will encourage an increase in small-scale rewilding projects.

An example of the type of rewilding projects being considered is the Texas Wildscapes program. Texas Wildscapes was begun in 1994 to teach homeowners how to create habitat which provides food, water, and shelter for a variety of wild species, even if all that is available is an apartment balcony (“Use Your Backyard to Create a Welcoming Habitat for Wildlife,” 2012). The organization National Wildlife Federation also has a program that expands beyond Texas Wildscapes’ minimum standards to include resources for wildlife to raise their young and sustainable gardening practices to ensure clean and healthy soil and water (*Certify Your Habitat to Help Wildlife! - Certified Wildlife Habitat*, n.d.). These programs are models for beginners to the rewilding process, but more can be done.

Benefits of Rewilding on Mental and Physical Well-Being

There is documented evidence that time in nature has positive effects on human mental health, including stress reduction and increased feelings of peace and calm. An Australian study found associations between time spent gardening and well-being in the older adults surveyed (Fjaestad et al., 2023). If any gardening will do, why is rewilding the best choice? It turns out the benefits received from time in the garden increase when a greater variety of life is present (Fuller et al., 2007). Creating or restoring habitat attracts and supports that variety of life.

Creating a wildlife garden and being in it invites a slowing down to wait for and then watch wildlife in the garden, which reduces feelings of stress and anxiety and provides an escape from perceived day-to-day pressures. Working in the garden can induce a meditative flow state that reduces mental fatigue and worry (Raymond et al., 2019). Curtin (2009) notes, “Clearly, one of the joys of wildlife watching is that it provides this time to stand and stare.”

In a study of home gardeners in Winnipeg, Canada, participants reported increases in gratification and confidence because of gardening for wildlife. It is gratifying to see native wildlife using the garden, as is receiving appreciation from others who view the garden. Simply witnessing the results of their efforts was satisfying for participants. Additionally, the learning involved with the creation of native habitat bolstered the gardener's confidence to experiment with native plants and create spaces that are outside the norm of the typical landscape style (Raymond et al., 2019). Through their gardening experiences, rewilders gained knowledge and skills that not only enabled them to be successful with native plants, but also motivated them to continue developing their stewardship (Mumaw, 2017).

Gardening also provides physical benefits. The work of creating and maintaining a garden is a low impact exercise that can be accessed by most. When some of the garden is dedicated to growing food, fresh fruit and vegetables are provided, improving nutrition and healthy eating behaviors that also improve physical health (Raymond et al., 2019)

Rewilding's Benefits for Ecosystems

In areas where landscape design is typically dominated by monoculture lawns and nonnative ornamental plants, native ecosystems break down. Typical urban and suburban lawns and gardens drain resources and provide little in return for what they use. Changing to native vegetation supports biodiversity, attracts wildlife, and returns resources in the form of ecosystem services (Delahay et al., 2023). Rewilded gardens not only create pockets of biodiversity but, when several exist in a neighborhood, also contribute more broadly to conservation by creating corridors between larger habitats (Rudd et al., 2002).

Surprisingly, urban areas may provide benefits that rural agricultural and forested areas do not. During periods when resources are scarce, such as droughts and temperature extremes,

which are increasing with climate change, human-altered rural settings may provide more access to food and water than the surrounding area. Large agricultural fields offer less diverse habitat types than urban and suburban areas which have gradations of landscapes and, due to designated small green spaces, may unintentionally preserve specialized habitats that have been eradicated from the agricultural landscape. Cities and their suburbs can be desirable stopovers for migrating wildlife as well, because food sources are condensed into smaller areas and there are fewer predators, which allows for safer rest periods (Spotswood et al., 2021). Birds and other migrating wildlife benefit from small-scale rewilding features such as feeders and native shrubs that provide food and shelter during their stopovers.

We are becoming more aware of the importance of pollinators for the human food supply and the health of ecosystems. Native pollinators, such as bees and butterflies, evolved alongside plants and many are plant species-specific. Unless we make space for those native plants, pollinators will suffer. Simply refraining from using herbicides on lawns, allowing the native “weeds” to grow among the grass, provides positive benefits to bee populations (Lerman & Milam, 2016). Citizen science projects based on garden observations have provided data for determining a plant’s attractiveness to pollinators, information that can be incorporated into garden planning (Erickson et al., 2022). Whether conducting an informal study on your own as part of your garden planning or by participating in a larger study, you will be engaging with and advancing science, helping to conserve pollinators, and getting the benefits of time in nature.

Native plants use fewer resources such as water and because they are accustomed to the soil conditions, they do not require industrial fertilizers to support their growth. Plants that are indigenous to the region also survive without the protection of pesticides and provide food to native animals and insects without suffering excessive or fatal harm. Some plants have evolved

symbiotic relationships with the animals and insects that eat them, such as that between the monarch butterfly and milkweed (Johnson et al., 2004). Nonnative ornamentals have become standard in the typical American garden, which is usually designed only for human aesthetics. Because they are separated from the species that evolved to eat them, in the United States they are therefore unblemished by animal or insect nibbles. These nonnative ornamental plants provide little or no food for native wildlife and may even become invasive. Restoring native flora and discontinuing fertilizers and pesticides may limit the expansion of invasive species.

When repeated on multiple properties, neighborhoods become wildlife corridors to connect habitat. In areas with human population density, public parks are typically the green spaces that provide habitat for diverse species. Parks tend to be isolated from one another. If wildlife cannot move between designated green spaces, the number of species within a park and genetic diversity of the species present will be limited. Rewilded backyards are “essential in developing the matrix that supports the large numbers of corridors required for connectivity” (Rudd et al., 2002). By providing passageways between larger habitats, a rewilded backyard helps improve the biodiversity within those larger spaces.

Interconnection and Other Spiritual Benefits of Rewilding

There are spiritual benefits such as having a sense of interconnection with nature that can be fostered by rewilding projects. When I discuss the spiritual benefits of rewilding, I am not referring to religion, although religious beliefs can influence one’s response to experiences. The spiritual experience I am seeking is an awareness of the vital, animating essence of life and inherent sacredness of all. Experiences that create feelings of wonder, awe, magic, and the perception you are part of a larger reality are spiritual. Many of the psychological benefits of engaging with rewilding projects cross into my understanding of the spiritual benefits.

Values and ethics are parts of one's spirituality. Doing the work of habitat restoration provides a way to consider the human impact on wildlife and natural ecosystems, which can result in shifting environmental ethics. One such shift is a desire to conserve biodiversity for the future and to become curious about the impact of past human actions on the present so as to avoid repeating or intensifying such impacts (Mumaw & Mata, 2022). Ethical considerations for a sustainable future inform the values humans apply to nature and the experience of nature connectedness, and influence the goals and design of education systems, transportation infrastructure, public green spaces, and cultural products such as visual art (Richardson et al., 2020). New ethics, inspired by a spiritual connection to nature, should "help shift ecological baselines toward recovering fully functioning trophic ecosystems, such that society no longer accepts degraded ecosystems and overexploitation of nature as the baseline for each successive future generation" (Carver et al., 2021). One's spiritual connection to nature becomes the motivation for restoring biodiversity for the generations of humans to come.

A sense of connection to nature inspires one to mindfully observe nature, and spiritual connection is in turn inspired by observations. For example, one study's respondents could intricately describe the diversity of plants and wildlife in their gardens, the movement of wildlife through their gardens, and the seasonal changes in the gardens (Raymond et al., 2019). Interviewees in another study indicated that gardening made them feel more attached to nature (Mumaw, 2017). Simply watching wildlife can invoke feelings of connectedness, but not necessarily a belief that their world is yours as well (Curtin, 2009). Being physically engaged in the ecosystem through gardening can help one to shift towards a true feeling of belonging in nature and a spiritual sense of interconnection.

While the land can connect us to our spirituality, spirituality can also provide motivation for caring for the land. I have noted already that spirituality can shape one's concern for future generations, which influences one's stewardship (Raymond et al., 2019). Although one may not consciously worship nature, the sense that nature is sacred can lead one to act to restore places that have been desecrated. One may become more sensitive to the destruction of ecosystems when land is cleared for development or resource extraction. As one's spiritual connection to nature deepens during time spent in a rewilded backyard and the resulting experiences of biodiversity, the desire to reciprocate for harm done by humans, past or present, may drive further rewilding efforts.

When nature experiences continue over a long period of time, such as the experience of planting a tree and observing its growth for several years, wildlife gardeners develop an attachment to the land (Raymond et al., 2019) that is in contrast to the ungroundedness of a generally mobile society. A study of wildlife gardeners in Melbourne, Australia, concluded that a sense of connection to place strengthened synchronously with connections to nature and community as a result of land stewardship practices (Mumaw, 2017). An avenue for future study of attachment to land would be the average time living in one place for wildlife gardeners versus the general population.

In this time of ecological crises driven by unjust systems, rewilding can also be an act of resistance. In a society that values conformity, switching from a typical American garden to a backyard habitat can feel like a revolutionary act, especially if yours is the first and only rewilded yard in your neighborhood. Rewilding can make you feel part of a subculture of resistance to norms. While not necessarily the intent, those who create wildlife gardens may inspire others to change their behaviors by their example (Goddard et al., 2013) and build a

spiritual movement. A strong spiritual connection to nature and the work of rewilding, along with a like-minded community, can help you maintain your motivation, especially when challenged.

Societal Benefits from Rewilding Projects

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Caring for native plants also provides an opportunity to learn and apply traditional indigenous knowledge. Learning about native plants and the original habitat is enhanced when there is acknowledgement that the typical American backyard represents colonialism, and native plants and wildlife were excluded and erased along with the indigenous people. Significant societal changes are required before the settler concept of property ownership falls to an indigenous kincentric and ecosystem-wide approach to land conservation (Hernandez & Vogt, 2020), but learning about native plants concurrently with the traditional indigenous knowledge surrounding them, such as the wisdom found in Robin Wall Kimmerer's *Braiding Sweetgrass* (2013), provides a foundation for greater change.

Society benefits when rewilded land contributes to climate change mitigation and resilience. A study found that simply changing from mowed lawn to tall grass or shrubs reduced the surface temperature of a yard (Francoeur et al., 2021). Native plants often have less water requirements than introduced exotics, and therefore reduce household water consumption, which is important during drought conditions. Additionally, stronger and deeper roots hold soil during both droughts and floods, conditions exacerbated by climate change, to reduce erosion and loss of topsoil.

Exposure to biodiversity such as is found in rewilded yards can change social norms. The environmental ethics of the entire society can shift toward ecological concern as more humans have positive interactions with wildlife and influence those norms. The more people feel connected with nature, the more likely they are to adopt positive environmental behaviors (Douglas, 2021). Creating opportunities for connection, even on a small scale, can contribute to the systemic changes needed to reduce human impact on the entire biosphere.

Backyard Landscape Planning Informed by Rewilding

Benefits derived from small-scale rewilding projects should inform backyard landscape planning and consideration should be given to opportunities for transformative nature interactions. Pathways to nature connectedness, including engagement of the senses and emotions, finding meaning, and practicing compassion, can inform urban and suburban landscape designs which illicit ecologically minded behaviors (Richardson et al., 2020).

Food, shelter, water, and safe places to rear young are necessary in wildlife habitats, but backyard ecosystems must balance the needs of both wildlife and humans (Poquette, 2003). Garden designers should anticipate wildlife's instinct to fight or flee when encountering a human and ensure there are escape routes and hiding places in the plan. Areas for children to play,

seating, and other human needs between and integrated into wildlife habitat make the garden more enjoyable and increases the benefits received from rewilding.

Consideration should also be given to beauty in the garden design. For example, carefully selected native wildflowers contribute to gardens that are both colorful and support biodiversity (Raymond et al., 2019). Even in miniature, wildflower meadows provide a pleasing, if untamed, look while feeding and sheltering birds, small mammals, and pollinators (Johnson et al., 2004) and increasing the number and diversity of soil microbes (Tessler et al., 2023). Satisfying other senses with garden design, such as including flowers with a sweet scent, is another way to make a rewilded garden feel beautiful.

A study of human interactions with green roofs provides an additional consideration which can be applied to backyard landscapes to improve psychological outcomes. For urban gardeners, the creation of rooftop garden habitat by a building's residents may be their best experience of rewilding. It is important to note that green roofs have added challenges to their creation, such as structural weight limits and the plants' lack of access to ground water, so creation requires additional expertise. One consideration stuck out as important and was not addressed in the other literature, however. For humans to get the psychological benefits of green roofs, they must have access to them and, because most of the access is via stairwell, there is a certain level of physical fitness needed (Williams et al., 2019). When designing backyard habitat, it is important to consider placement of gardens and other features so that they can be reached and maintained without overexertion which would diminish the calming effects or prevent regular visits, thus reducing opportunities for interaction with wildlife. Placing habitat areas where they are visible through windows would also provide benefit when remaining indoors is necessary.

Challenges to Small-Scale Rewilding

There are challenges to rewilding urban and suburban properties, but those challenges may be overcome. Perhaps the greatest challenge is prevailing social norms and neighborhood standards. In one study of suburban landscaping, garden designs in publicly viewable areas around the home rarely included wildlife habitat and instead were intended to reflect a desired social status (Goddard et al., 2013). Another study noted that the unmet expectations of a tidy garden appearance and the perceived nuisance created by the presence of wildlife created conflicts with neighbors (Raymond et al., 2019). Grove et al. (2006) suggested “[u]rban foresters and environmental planners might develop marketing strategies whereby they “sell” greener neighborhoods to different neighborhood-based consumer markets, building on their desire for social status and group identity” to expand the number of rewilding projects and reduce conflicts with neighbors. Another way to overcome objections within neighborhoods is with a top-down approach of municipal support for private landowners to create wildlife gardens as part of a broader municipal conservation plan. A study showed that, when government recognizes the importance of wildlife gardens to species conservation and supports their creation, most members of the community benefitted from increased well-being and connections to not only nature but to the place and the whole community (Mumaw, 2017).

While backyard rewilding projects are more accessible than farm-scale or public land projects, there can still be a cost involved that makes even a backyard project out of reach for some. Free or low-cost native wildflower seeds, shrub and tree seedlings, and pollinator-attracting perennials can improve accessibility. There is an opportunity for municipalities, nonprofit organizations, and community groups to assist low-income families with rewilding as part of community wellness initiatives.

Another challenge to small-scale rewilding is a lack of available information about wildlife-friendly gardening expect for those highly incentivized to seek it (Goddard et al., 2013). In urban areas, humans are in close proximity to each other and to nature, which creates greater opportunities for education and stewardship programs without the need to travel (Spotswood et al., 2021). Conservation organizations and municipalities should take advantage of that proximity and create learning opportunities that are easy to access in the urban setting.

An additional challenge is the absence of large predators or megafauna, such as wolves, in urban and suburban spaces. Megafauna is typically unwelcome in suburbia. There is insufficient space for potential habitat, and available space is too close to humans to avoid unsafe encounters. Because hunting near homes is often forbidden, it is difficult to control any populations of large animals that move into rewilded areas. Small prey animals can quickly become pests as populations expand due to the absence of large predators. Including the needs of smaller predators such as raptors and fox in wildlife habitat plans can mitigate pest problems.

As biodiversity increases, so does the potential for human-wildlife conflicts. Conflicts include wildlife denning or nesting in, on, or under homes, sheds, or other human structures, eating garden plants intended for human consumption, dumping garbage cans, and defending against attacks by pets. Often unwanted wildlife is considered to be a nuisance and trappers and exterminators are employed to resolve the conflict. For backyard rewilding to be successful, education on conflict avoidance should be prioritized over eradication of wildlife. Wildlife management agencies, historically focused on managing wildlife populations for hunting and trapping, need to shift to education and conservation efforts to reflect the societal values that support rewilding (Jacobson & Decker, 2006).

The availability of native plants for the small-scale gardener is also a challenge. There are insufficient quantities to meet demand if rewilding becomes more popular (White et al., 2018). Seeds for native plant gardens and to convert lawns to meadows must be grown, but there may not be sufficient profit for the farmers who grow for seed collection to switch to wildflowers from high-demand vegetables (Delphia et al., 2019). Additionally, local plant variations, and the characteristics of and connectivity to adjacent habitats, may limit the usefulness of the seeds and nursery stock of some plant species, further disincentivizing farmers who hope for significant demand. Unfortunately, broad demand will likely be created through the mass marketing of aesthetically pleasing plants which may not broadly provide habitat support to the uneducated, beginning wildlife gardeners. Similarly, products such as bird and invertebrate nest boxes are often designed and marketed for human visual appeal rather than ecosystem function, therefore creating the illusion of rewilding without truly creating habitat (Delahay et al., 2023).

Because wildlife does not understand property boundaries, rewilding projects may require neighborhood buy-in. As an example, education and leadership were needed to overcome initial neighborhood objections to backyard habitat that attracted noisy tree frogs (Anonymous, 2000). Connie Pranger, a National Wildlife Federation member, created tree frog habitat by installing two small ponds in her yard. In the spring, the frog calls were so loud that the local animal control officer issued a noise warning. Pranger contacted local media to provide public education about the frogs and their conservation. As a result, neighbors followed Pranger's lead and made their yards more welcoming for the frogs, exemplifying small-scale rewilding's possibilities and benefits.

Conclusion

Although there are challenges to be overcome, urban and suburban small-scale rewilding projects should be encouraged as part of any effort to mitigate biodiversity loss. When rewilding principles are included in garden design, the ecosystem benefits. Wildlife and pollinators are supported with food and shelter provided by the native plants they evolved with. Water use is reduced, and toxic chemical fertilizers and pesticides become unnecessary. Rewilded backyards contribute to a network of corridors between larger areas of wildlife habitat.

Humans benefit from rewilding projects as well, and backyard rewilding projects make those benefits accessible to many. Physical wellness, stress reduction, and a spiritual connection to the land are benefits provided to both the wildlife gardener and surrounding neighborhood. As rewilding becomes more desirable, societal shifts towards an ethical relationship with nature become possible. There is sufficient evidence of potential for enhanced well-being of humans and wildlife alike through small-scale rewilding projects and they should be given more attention.

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