

2022 METRA SCHOLARSHIP ESSAY

Alessandra Pandolfi
University of Central Florida

“The power of collaboration in building a sustainable future in Florida cities.”

Urbanization is one of the most severe and rapid human-driven factors threatening the environment (Liu et al., 2003; McDonald et al., 2008). The increased land transformation and development in Florida negatively impact natural resources and ecosystems. Urban sprawl in the main Florida cities threatens natural habitats and their connectivity, which is essential for supporting the movements of animals and plants (Squires, 2002). Dense concentrations of pavement, buildings, and other impervious surfaces that absorb and retain heat raise temperatures creating heat islands that will become uninhabitable for many species (Vujovic, 2021).

Central Florida is the epicenter of cultural and commercial activities. It welcomes millions of people annually, and Orlando is projected to increase in population by 75.3% by 2060, making it among the top 15 most rapidly growing cities in the US (Stebbins, 2022). With this growing human pressure, what are the possible interventions to support green practices and more resilient communities? One solution is to promote more “nature in cities” through natural and artificial Urban Ecological Infrastructures (Childers et al., 2019). These green infrastructures are terrestrial, aquatic, and wetland ecosystems that can mitigate regional and local risk factors and provide essential ecosystem services and human health benefits (Lee and Maheswaran, 2011).

It is necessary to develop a framework of investment for scientific research to gather data on these environments within the urban ecosystem and understand what supports their intrinsic value. Soil conditions and irrigation regimes are too often overlooked despite being two important factors in determining the health of an urban ecosystem and the survival and vigor of plants and consequent support of biodiversity. The role of native plants is remarkable in supporting ecological structure and ecosystem services provided by beneficial insects, like pollinators and natural enemies of pests (Pardee and Philpott, 2014; Nighswander et al., 2021). The Sunbridge Stewardship District in Osceola County is involved in a collaborative project with the University of Central Florida to create a specific landscape code that is ecological sound and that aims to improve management interventions and costs/benefits, guiding the design of future residential and urban landscapes. Establishing appropriate environmentally friendly management practices

using native plantings and strategic soil amendments, will reduce pressure and impacts on natural resources and promote biodiversity.

Enhancing collaborations becomes crucial for identifying efficient and long-lasting solutions that could mitigate the negative consequences of expanding urbanization. In this framework, interdisciplinary partnerships between scientific researchers, developers, planners, and other stakeholders, need to be fostered. It is vital to establish new approaches that promote high quality places, preserve natural spaces, and educate the community on the foundation of ecosystem health. Integrating nature and community is essential to provide recreational opportunities to humans and a network of natural elements that promote connectivity and heterogeneity of habitats for plants and animals. Together, we can develop better ways to design our cities to coexist with nature, diminishing conflicts and over-exploitation of resources and preventing biodiversity loss.

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