# Developing a Conservation Program Plan for the University of West Florida

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Thesis Proposal

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### Background

The University of West Florida's *Comprehensive Campus Master Plan 2021-2031* (2022) lists its first Guiding Principle for planning as "[improving a] sense of place on campus focusing accessibility, placemaking, and conservation" (p. 14), and conservation is prioritized throughout the *Master Plan*, appearing not only extensively as a major topic of *Future Land Us*e sections but even as a section unto itself. This decision to include conservation in major university planning demonstrates an understanding of its numerous benefits in the form of ecosystem services, defined by the U.S. Environmental Protection Agency (2023) as "the benefits that humans receive from nature" and that "underpin almost every aspect of human well-being" (Overview section, para. 1), including clean air, clean and plentiful water, natural hazard mitigation, climate stabilization, recreation, culture, aesthetics, and biodiversity conservation.

The UWF Main Campus in Pensacola, Florida, is home to over one thousand acres of undeveloped natural landscape designated for long-term conservation by this extensive *Master Plan*, and it is described as two separate West and East regions. West Campus is the "746 undeveloped acres that lie west of Thompson Bayou" (UWF, 2022, p. 10). East Campus, also known as the Academic Core, "is where most development for the University has taken place" (UWF, 2022, p. 61), and 385 acres–about 40% of the total land–has been reserved for conservation in the current ten-year plan (UWF, 2022). "There are four basic habitats located on or near to the campus… [including] sandhill, hammock, swamp forest and marsh," the latter two of which are more limited and sensitive (UWF, 2022, p. 121). According to the UWF Michael I. Cousens Herbarium webpage, "the vascular plant flora of this campus consists of nearly 900 species, the largest such flora of any university campus in the eastern United States" (UWF,

n.d.-b, para. 3). Past species surveys have found the presence of the federally-designated threatened gulf sturgeon, the state-designated threatened gopher tortoise, and nine state species of special concern (UWF, 2022). Additionally, the Edward Ball Nature Trail is counted among the Great Florida Birding Trails (Fish and Wildlife Foundation of Florida, 2015).

As a higher education institution (HEI), UWF particularly experiences educational and scholarly benefits from this conserved natural land. Instructors of natural and biological sciences bring their students to forested areas of the campus to study course material in the field, and interdisciplinary events such as the Spring 2022 workshop titled "Thinking and Making in the Landscape: Possibilities for a Livable Future" utilize these natural spaces to engage students with local ecologies and histories (Gambel et al., 2022). Meanwhile, ongoing research is conducted by several UWF professors. Dr. Frank Gilliam (2023) studies the longleaf pine community and, throughout 2022, completed a Campus Ecosystem Study to "examine the effects of fire exclusion on longleaf pine in the unique urban interface of a university campus" (p. 1). Dr. Phillip Darby studies gopher tortoises and has, in the past, partnered with the Gulf Breeze Zoo in efforts to understand and raise awareness of the species' presence on the campus (McKeon, 2019). Conservation of UWF's natural spaces not only allows the continuation of such activities but is, itself, an opportunity to expand and experiment with new scholarly directions and experiences.

## Thesis Description

To effectively implement conservation on this campus, it is vital to develop a conservation plan that devises specific program goals, organization of management, values, strategies, and projects. Fortunately, there are extensive resources available that can be used to inform and outline such a program. This project will address the above need by developing a proposed adaptive conservation management plan for the University of West Florida. All aspects

of this plan will be informed by diverse research methods, including reviewing literature, investigating other successful conservation programs, assessing the UWF community's current relationship with its natural spaces, and consulting experts across multiple relevant disciplines. Major program goals, values, strategies, and projects will draw from a synthesis of the UWF *Comprehensive Campus Master Plan 2021-2031*, best practice found in research, and assessed community needs. Through this process, this thesis will contribute to the *Master Plan* (UWF, 2022) Section 3.3: Future Land Use, Policy 2.1.3: "Establish an environmental stewardship program for the University to follow" (p. 175).

The tangible product of this work will be a detailed written proposal for the initiation, organization, and action of a UWF Conservation Program. The form and functions of this proposed Program will be determined throughout the research process. Based on preliminary research and the current status of conservation and land management on our campus, it is likely that the proposed plan will include discussion of establishing a formal entity tasked with Program management, development of specific conservation projects, strategies for maintaining community investment, and collaboration with other entities such as Escambia County and the Florida Fish and Wildlife Conservation Commission.

## Methods

The research conducted for this project will include diverse methodologies and topics in order to pursue the creation of a balanced, holistic approach in the Conservation Program plan. The results of this research will be synthesized and prioritized in conjunction with the priorities outlined in the UWF *Comprehensive Campus Master Plan 2021-2031* (2022) to ensure their relevance and value to the University in both the immediate and ongoing future. The individual research methodologies will be carried out as follows.

The literature review will encompass a broad scope, including articles and books on not only conservation program strategies but also on a collection of related terms and concepts. Sources will likely primarily consist of empirical research, case studies, guides for conservation and sustainability management, and other academic articles. Preliminary research has already revealed several particularly interesting relevant topics. Models for conservation management are found among discussions of Community-Based Forest Management (Menzies, 2007), application of the ecocity model to the HEI as "eco-campus" (Finlay, 2012), and green schools (Chan, 2015). Strategies for developing community investment are seen in empirical study of place-based citizen science outcomes (Haywood et al., 2016) and the application of a framework called the "Heartware-Software-Hardware Cyclic Platform Process" to an account of environmental restoration efforts at another HEI (Kadir et al., 2018). Recommendations for conservation education include critical pedagogy of place (Ajaps & Mbah, 2022), affective learning (Menon & Suresh, 2020; Haywood et al., 2016), and experiential learning (Chan, 2015; Sherry, 2022). These topics and many others which emerge alongside them will be valuable in a holistic synthesis of the many pieces which comprise a dynamic Conservation Program.

Existing successful conservation programs will be investigated in three stages, and special attention will be paid to those programs that exist as part of higher education institutions. The first stage of investigation will be the exploration of program webpages to gain an overview of the organization. Second, any available formal documentation will be read and analyzed to identify the program's specific methods and their context. Finally, program leaders will be contacted and interviews requested. Three programs of interest have already been identified. First, the University of South Florida (USF) Environmental and Conservation Outreach, Research, and Education (ECORE) system "brings the [USF] Botanical Gardens, Forest

Preserve, and GeoPark under one leadership team to better serve faculty, student, and community needs" (USF, n.d., Overview section, para. 1). The ECORE system offers an organizational model, while the USF Forest Preserve may offer even more specific examples of forest conservation practices. The University of Florida (UF) Conservation Area Land Management (CALM) Plan "documents the existing conditions of the campus conservation areas while supplying added recommendations for future enhancement" and "plays a significant role in implementing and updating the Conservation Element of the University's Campus Master Plan" (UF Office of Sustainability, n.d., para. 1). Finally, the University of Central Florida (UCF) demonstrates extensive conservation management, with techniques "[including] prescribed fire, invasive species management, restoration, and species conservation and management," and resources such as the Conservation Section of the University's Master Plan, their Conservation Map, and information on monitoring, conservation land, conservation easements, and restoration are made publicly available on their Landscape and Natural Resources site (University of Central Florida, n.d., para. 1). These and other programs will be subjected to the investigatory process described above so that they can be utilized as models for the creation of our own successful Conservation Program.

The community's current relationship with the natural spaces of UWF will be assessed through involvement in EVR 4039 *Community Engagement Through Environmental Science*. According to the Course Description, students in the course will "collaborate with a community partner on a project designed to address a particular community issue… [allowing] students to reflect on the connections between their course lessons, real-world experience, and community needs" (UWF, n.d.-a, Course EVR 4039). In Spring 2024, the course project will focus on assessing how community members currently utilize and interact with natural spaces on the

UWF Main campus. Surveys have been identified as a method for this research. Other research methods found in literature review, such as the mapping tool by PPGIS called "MyDynamicForest" (Korpilo et al., 2018), may be utilized. The resulting data will be used to inform the Conservation Program Plan, especially regarding efforts to facilitate further sustainable human presence in UWF's natural spaces.

Experts from multiple relevant disciplines will be consulted throughout the planning process. In fact, valuable expertise is found among current UWF faculty members. Dr. Frank Gilliam, for example, is a well-published plant ecologist whose recent work has included extensive study of the UWF Main Campus longleaf pine community. These publications provide not only ecological data but also useful findings on the conserved land's history (Gilliam, 2023). By conducting research on UWF's conserved lands, professors such as Dr. Gilliam develop invaluable, location-specific insight that must be considered when building the Conservation Program Plan. Other faculty members who do not currently conduct directly-related research will be consulted, too. Although much of this plan will focus on contributions from fields such as environmental science and biology, it can only be truly comprehensive if it integrates multiple disciplines–applying Business expertise to organization and budget, Psychology to facilitating meaningful human-environment interactions, History to the pursuit of environmental justice, and more. Ultimately, it is hoped that this campus-wide networking effort may also unveil opportunities for the birth of other interdisciplinary research projects, which exist as one of UWF's greatest strengths.

## Objectives

- Establish the current state of conservation and land management at the University of West Florida as a baseline.

- Write a proposed plan for a UWF Conservation Program that addresses its initiation, organization, and actions.
- Build a multidisciplinary network of experts among UWF faculty and staff, along with community members to be consulted and involved in conservation endeavors.
- Synthesize the results of multiple research methods to uncover tools that serve conservation efforts at UWF.

## References

Ajaps, S. & Forh Mbah, M. (2022). Towards a critical pedagogy of place for environmental conservation. *Environmental Education Research, 28*(4), 508-523. https://doi.org/10.1080/13504622.2022.2050889

Chan, T.C. (2015). *Marketing the green school: Form, function, and the future*. Information Science Reference. https://doi.org/10.4018/978-1-4666-6312-1

Finlay, J. & Massey, J. (2012). Eco-campus: Applying the ecocity model to develop green university and college campuses. *International Journal of Sustainable in Higher Education, 13*(2), 150-165. https://doi.org/10.1108/14676371211211836

Fish and Wildlife Foundation of Florida. (2015). *University of West Florida: Edward Ball Nature Trail.* Great Florida Birding and Wildlife Trail. https://floridabirdingtrail.com/

Gambel, C., Asmuth, T., Wells, J., Dougherty, J., Lebrun, Y., White, B., Sexton, R., McDaniel, S., Stark, L., Coatney, K., TaraBori, B., Williams, B., Miller, K., Chaimowitz, S., Rahn, J., Kearney, C., Dorman, W., Schriever, S., Muir, D., … & West, O. (2022). Thinking and making in the landscape: Possibilities for a livable future. *Event Program of the University of West Florida 2022 Student Scholars Symposium and Faculty Research Showcase*, 4-5. https://uwf.edu/media/university-of-west-florida/academic-affairs/departments/our/symposium/our-symposium-program-2022.pdf

Gilliam, F. (2023). Chronic exclusion of fire in longleaf pine stands of an urban interface: The University of West Florida campus ecosystem study. *Forests, 14*(6), 1125. https://doi.org/10.3390/f14061125

Haywood, B., Parrish, J., & Dolliver, J. (2016). Place-based and data-rich citizen science as a precursor for conservation action. *Conservation Biology, 30*(3), 476-486. https://doi.org/10.1111/cobi.12702

Korpilo, S., Virtanen, T., Saukkonen, T., & Lehävirta, S. (2018). More than A to B: Understanding and managing visitor spatial behavior in urban forests using public participation GIS. *Journal of Environmental Management, 207*, 124-133. https://doi.org/10.1016/j.jenvman.2017.11.020

McKeon, J. (2019, December 12). *Zoo Grant raises awareness about gopher tortoises.* WUWF Public Media. https://www.wuwf.org/local-news/2019-12-12/zoo-grant-raises-awareness-about-gopher-tortoises

Menon, & Suresh, M. (2020). Synergizing education, research, campus operations, and community engagements towards sustainability in higher education: a literature review. International Journal of Sustainability in Higher Education, 21(5), 1015–1051. https://doi.org/10.1108/IJSHE-03-2020-0089

Menzies, N. (2007). *Our forest, your ecosystem, their timber: Communities, conservation, and the state in community-based forest management.* Columbia University Press. https://doi.org/10.7312/menz13692

Mohamad, Z., Kadir, S., Nasaruddin, A., Sakai, N., Mohamed Zuki, F., Hussein, H., Sulaiman, A., & Mohd Salleh, M. (2018). Heartware as a driver for campus sustainability: Insights from an action-oriented exploratory case study. *Journal of Cleaner Production, 196*, 1086-1096. https://doi.org/10.1016/j.jclepro.2018.06.111

Sherry, C. (2022). Learning from the dirt: Initiating university food gardens as a cross-disciplinary tertiary teaching tool. *Australian Journal of Outdoor Education, 25*(2), 199-217. https://doi.org/10.1007/s42322-022-00100-6

UF Office of Sustainability. (n.d.). *Conservation areas on campus.* University of Florida. https://sustainable.ufl.edu/campus-initiatives/land/calm/

University of South Florida. (n.d.). *ECORE system.* https://www.usf.edu/arts-sciences/research-scholarship/other-research-facilities/ecore.aspx

University of Central Florida. (n.d.). *Conservation.* https://www.green.ucf.edu/natural-resources/conservation/

University of West Florida. (2022, November 20). *Comprehensive campus master plan 2021-2031.* https://uwf-cmp.webflow.io/

University of West Florida. (n.d.-a). *EVR: Environmental studies courses.* https://catalog.uwf.edu/courseinformation/courses/evr/

University of West Florida. (n.d.-b). *Michael I. Cousens Herbarium.* https://uwf.edu/centers/environmental-diagnostics-and-bioremediation/resources/michael-i-cousens-herbarium/

U.S. Environmental Protection Agency. (2023, August 8). *Ecosystem services - Enviroatlas.* https://www.epa.gov/enviroatlas/ecosystem-services-enviroatlas-1