FLENH

Florida Environment & Natural History

BUSINESS & IMPLEMENTATION PLAN

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Created: April 13, 2020

Last modified: June 21, 2021

UNIVERSITY of
SOUTH FLORIDA
Libraries

I.   EXECUTIVE SUMMARY

The University of South Florida Libraries' Florida Environment and Natural History (FLENH) initiative positions USF as a leader among U.S. academic institutions by establishing a central repository ("nest") for environmental and natural history data and providing sustainable institutional support for the ingest, creation, and distribution of archival resources centered on the impacts to and effects on Florida's natural environment. With personnel and resources earmarked for this strategic direction, FLENH promises significant benefits and returns for the USF community. Specifically, FLENH situates the library—and its parent institution—at the nexus of both interdisciplinary and transdisciplinary engagement with research materials that inform the past, present, and future of the State of Florida and that encourage and support innovative study, use, and interpretation of environmental and natural history resources.

As a strategic initiative, FLENH will:

1. Establish a dedicated team of experts to connect researchers with curated resources that support academic and non-academic pedagogical and research efforts across disciplines
2. Gather, digitize, and contextualize raw research data centered on Florida's environmental and natural history for use by scholarly and non-scholarly communities.
3. Contribute to, advance knowledge of, and facilitate discovery of Florida's environment and natural history by immersing team members and user communities in academic and non-academic discourse at the intersection of libraries, special collections, science, and humanities.

The FLENH initiative advances the 2019-2020 USF Libraries' Strategic Goal, meets the current strategic priorities of the Florida Board of Governors, and aligns with the 2019-2021 Shared Objectives of the Association of Research Libraries.

The total budget required to fund the project for three (3) years is $1,006,315, of which 20% subsidizes personnel needed to establish and sustain FLENH collections and the FLENH repository. Personnel costs reflect a strong commitment to professional expertise and specialization among team members who will be well-positioned to initiate, develop, and sustain the FLENH initiative with minimal oversight and influence.

II.   STRATEGIC CONTEXT

Establishing the FLENH meta-collection advances internal, institutional, state, and national strategic directions by placing the USF Libraries at the center of significant global research areas that cross scientific and humanities disciplines and provide scholars with a unique combination of open-access resources and dedicated experts.

A. GLOBAL CONTEXT

In 2006, former U.S. Vice President Al Gore's documentary film, An Inconvenient Truth, explored the "planetary emergency" of climate change—then more commonly referred to as global warming—and steps humankind could take to mitigate its effects. In the film, Gore claimed that "the will to act is a renewable resource," which suggested that individuals could make concerted efforts to reduce their individual impact and subsequently generate significant and demonstrable environmental changes to improve the environment. Gore's efforts reignited a long-simmering discourse on environmental science that had been gaining traction in scientific communities for over 50 years, even as world leaders remained slow to action.

Roughly 10 years after Gore's somewhat controversial campaign, researchers from the Earth Institute Fellows Program, Columbia University, and the Yale Project on Climate Change Communication indicated that while over 75 percent of Americans were then familiar with climate change, only 50-60 percent viewed it as a serious threat (Lee, Markowitz, et al. 2015). The article pointed to a mixture of education and communication access as the top causes of awareness.

By 2018, Swedish activist Greta Thunberg had renewed global warming discussions by positioning the climate crisis as an "existential crisis" for all humankind but particularly those of younger generations. Through staunch commitment, communication, and visibility, Thunberg has reminded and effectively demonstrated to the world how important and necessary a sustained focus on the natural environment is for the interconnected health and wellbeing of all living things.

The USF Libraries' FLENH initiative will help to promote knowledge and awareness through the unique combination of open-access resources and a team of dedicated experts who are committed to developing and sustaining the infrastructure, collections, and professional connections needed to catalyze this initiative. Because climate change, pollution, and the loss of wildlife and habitats to human development have become the most decisive and pressing issues on the planet, environmental concerns define our present era and have deeply influenced both public and academic landscapes. But, just as nothing on Earth survives alone, ecological subjects cannot be properly studied in isolation. For example, as the canary in the coal mine is the barometer for livable conditions underground, birds in general are sensitive indicators of the sustainability of human endeavors. Florida, which once served as the home or seasonal nest for countless avian species, became one of the first state branches of the National Audubon Society in response to the slaughter of millions of birds used to adorn the hats of fashionable women. Since then, recent reports have confirmed the death of almost a third of North American birds since 1970 as a direct result of urban and agricultural development and other changes to natural habitats. Ornithological research demonstrates that everything in nature must be studied in the context of its habitat and relation to other species. It only follows that to be the most effective to the largest

number of users, the ornithological materials in the USF Libraries Special Collections, which serve as the foundation for the FLENH collection, should not be offered in isolation but as part of a "nest" with other environmental and natural history resources.

B. INFORMATION CONTEXT

Before Gore and Thunberg brought environmentalism into the mainstream for contemporary audiences, earlier activists, scientists, and ecologists—such as nature writer Rachel Carson, whose 1962 Silent Spring detailed the effects of man-made pesticides on the natural world—were popular by exception. While scientists, field researchers, and related professionals wrote and published information in these fields, much of the unpublished research and grey literature from 1960s and 1970s— and through the present day—is inaccessible, whether through degradation, loss, or improper or inexistent documentation of extant materials. As such, roughly 50 years of raw research data, such as field notebooks, internal reports and correspondences, photographs and photographic negatives, statistics, and analyses, are "lost." As forerunners of the field begin retiring, it is imperative that their original data is collected, contextualized, and made available via open access for others to use in, with, or adjacent to their own research.

Having the ability to access both raw (original) and processed (published) data allows researchers to not only formulate their own conclusions, thereby contributing to more expansive interpretation of existing data and data sources, but to also support continuing work in these fields, thus keeping the research "alive" and allowing it to grow and develop just as the natural environment grows and develops.

Concurrent with existing open access publishing models, the USF Libraries are "becoming more deeply engaged in the creation and dissemination of knowledge and are becoming essential collaborators with other stakeholders in these activities" (Lougee 2002). While Special Collections and Digital Scholarship Services already share archival materials digitally, the FLENH Team will expand upon those activities by collecting and collating data into a single structured interface—a NEST: Natural History & Environmental Science Technologies—accessible by specialists and non-specialists alike.

The FLENH initiative demonstrates that USF Libraries is not only advancing the mission and goals of its parent institution, USF, but also of aspirant organizations, such as the Association of Research Libraries (ARL), which states its objective as "advanc[ing] an equitable and enduring research information environment that meets the needs of scholars now and in the future" (Association of Research Libraries 2019). As a strategic direction, Florida Environment and Natural History puts USF Libraries squarely among ARL member institutions' endeavors and aligns the Libraries with ARL's vision of "research libraries [becoming] more intimately involved in supporting the full life cycle and activity range of knowledge discovery, use, and preservation, as well as the curation and sharing of knowledge in diverse contexts of the university's mission and of society more broadly" (Association of Research Libraries 2019).

C. STATE-WIDE CONTEXT

At implementation, the FLENH initiative will contribute to meeting two of three strategic priorities outlined by the Florida Board of Governors (State University System of Florida Board of Governors 2011):

- Strengthen quality and reputation of academic programs and universities.
- Strengthen quality and reputation of scholarship, research, and innovation.

This strategic direction will strive to meet the Board of Governors' strategic priority three—strengthen quality and recognition of commitment to community and business engagement—within the first five (5) years of implementation.

The FLENH initiative is positioned to meet the Board of Governors' goals by: 1) supporting USF Libraries' efforts to enhance access to no-cost, quality information sources; 2) building the information infrastructure needed to increase institutional research capacity; and 3) increasing the institution's support for addressing Florida's environmental concerns from scientific and humanities perspectives.

Meeting Florida's higher education goals and objectives enhances USF's ability to address the impact of economic development on the natural environment by providing access to research materials that support conservation work and the protection of Florida's air, land, water, and native plant and animal species. Effectively addressing these issues depends on free and open access to quality environment and natural history research and data.

D. INSTITUTIONAL GOALS AND OBJECTIVES

As one of 56 public research universities classified as both a Doctoral University with "Highest Research Activity" and as a "Community Engaged" institution by the Carnegie Foundation for the Advancement of Teaching, USF identifies three key strategic research areas: data science, water, and research translation. The FLENH NEST directly supports these three areas as it aims to collect and collate open data from environment and natural history research that can advance myriad facets of human, animal, plant, and elemental conditions.

The FLENH NEST advances four of USF's five goals (University of South Florida 2020), including:

- To promote the lifelong success of well-educated, highly skilled, and adaptable alumnae/alumni who lead enriched lives, are engaged citizens, and thrive in a dynamic global market.
- To conduct high-impact research and innovation to advance frontiers of knowledge, solve global problems and improve lives.
- To be a major social and economic engine creating robust global, national, and regional partnerships to build a prosperous and sustainable future for our regional communities and the State of Florida.
- To provide a safe, inclusive, and vibrant community for learning, discovery, creative activities, and transformative experiences enabled through adaptive design of physical, social, and digital environments.

III.   PROJECT HISTORY AND CURRENT STATUS

Over the years, environmental science and natural history collections have occasionally found their way into Special Collections via acquisitions of monographs, serials, and other printed materials that document the ecological, environmental, and natural history of Florida. Since 2010, Special Collections has engaged in more deliberate efforts to acquire research collections with an environmental focus. The papers of George S. "Skip" Gandy, Audubon Florida, Hillsborough County's Environmental Land Acquisitions Protection Program, and Dr. John Ogden demonstrate Special Collections' concerted efforts to collect environmental and natural history research materials from across disciplines and ensure their accessibility and preservation for future research use.

In 2011, photographer George S. "Skip" Gandy donated a large collection of aerial and commercial prints that document roughly 60 years of natural and man-made environments in the Tampa Bay area. Although much of Gandy's collection is commercial in nature, significant portions provide evidence of unchecked urban development and the ecological and environmental consequences of such advancements.

Also in 2011, the Audubon's Everglades Science Center donated historic research record and the papers of groundbreaking ornithologist Robert Porter Allen, including warden reports dating back a century. Special Collections has since acquired papers from the Tampa area Audubon Coastal Island Sanctuaries, the Lake Okeechobee Sanctuaries, and Corkscrew Sanctuary. Two more Audubon stations have pledged their materials as well. Special Collections is now the largest repository of Florida Audubon materials in the state of Florida.

A $25,000 TECO grant to support the Tampa Bay Estuary Oral History Project (2014) and the acquisition of papers and oral histories from the Hillsborough County's Environmental Land Acquisitions Protection Program (2016) demonstrate Special Collections' sustained efforts to strategically develop a solid foundation of research materials centered on Florida's environment and natural history. Materials from both collections are available online as part of Digital Collections, and—in the case of ELAPP—as an ArcGIS StoryMaps exhibit also online.

More recently, in 2019, Special Collections finalized a donation agreement to accept the papers of Dr. John Ogden, USF Professor Emeritus and former Director of the Florida Institute of Oceanography. This collection promises to broaden our environmental collections into the fields of coral and marine science, with a particular emphasis on Florida and Caribbean reefs.

With these collections at the core, USF Libraries Dean Todd Chavez announced Florida Environment and Natural History as a strategic direction for the USF Libraries. The Tampa Library Special Collections created a flexible, draft Collection Development Policy in the spring of 2020. The Dean's Advisory Council convened shortly thereafter to discuss the initiative, possible donors, and potential audience. Special Collections staff continue working with existing (see Appendix) and incoming collections and developing connections to increase holdings and enhance access to environmental and natural history resources. In addition to developing holdings of archival and related materials, staff have created a new ENVR location code to facilitate identification and retrieval of all environmental and natural history resources in Special Collections. Staff have also begun evaluating materials in our Rare and Vault collections to uncover monographs and serials that have not, historically, been recognized for their contributions to the environmental and natural history canon.

IV.   PROJECT DESCRIPTION

The goal of the project is to develop an international presence and world-renowned collections of Florida's environmental and natural history resources and digitally share both raw and processed research data with user communities. This project aims to gather archival and related materials, including data sets, that can be re-purposed by researchers, scholars, and educators. The FLENH NEST will encourage active engagement with FLENH resources and personnel by providing access to research materials of inherent and enduring value and dedicated technology and staffing to ensure continuous, stable, and sustainable online availability of resources. The NEST establishes a core infrastructure within the Libraries that supports—and will be supported by—researchers, scholars, educators, enthusiasts, and related entities that come together in an iterative process of growing, learning, using, and disseminating FLENH resources and services.

The purpose of the FLENH metacollection is to advance environmental and natural history knowledge of Florida by:

- Facilitating access to and preservation and dissemination of published and unpublished research about Florida's environment and natural history.
- Establish networks among Florida's ecologists, environmentalists, scientists, historians, humanists, activists, and citizens.

To accomplish these goals, Special Collections' first priorities include:

- Identifying and hiring key personnel to lead FLENH efforts, as discussed in section VIII "Design Considerations" and outlined in section X "Organization and Staffing."
- Expanding and exhausting sources related to Audubon Florida and ornithology.
- Identifying data sets to use as FLENH NEST pilot projects.
- Creating workflows for the identification, scanning, transcription, and metadata of archival materials.
- Initially conducting local and statewide outreach to acquire research that complements existing holdings.
- Orienting oral history initiatives to support and enhance FLENH resources.

From there, the project will mine published and unpublished data from existing holdings. Members of the FLENH research community will be able to download, repurpose, and "mix and match" raw and processed data from previous studies for use and analysis in their own research. Existing FLENH collections, such as those donated by Audubon Florida, provide rich source material for both qualitative and quantitative research. Sample materials include:

- Published, unpublished, and prepublication research materials and reports (e.g., maps and field notes, bird counts, water levels, weather data, warden reports, and daily logs).
- Published material for general/public consumption, such as newsletters, periodicals, and presentations.
- Internal correspondence.
- Constituent feedback in the form of correspondence, questionnaires, and surveys.

Thus, successful project implementation will:

- Position identified personnel in key roles dedicated to the success of the FLENH metacollection.
- Create opportunities for acquiring, assembling, evaluating, contextualizing, and making available significant bodies of original FLENH research.
- Support data analysis, geospatial modeling, digital humanities, and different types and levels of both scientific and humanities research.
- Provide a process for ingesting, reviewing, and prioritizing data ingest.
- Complete development and launch of the FLENH NEST.

V.   RESEARCH PROBLEMS AND PROPOSED SOLUTIONS

The FLENH research community is faced with the challenge of obtaining, accessing, and preserving original research materials. The FLENH Team and FLENH NEST will work hand-in-hand to ensure access to high-quality, trusted resources and services for us by anyone seeking a better understanding of FLENH issues.

Populated in large part by data derived from physical archives maintained in Special Collections, the FLENH NEST will serve as a resource where people can both access and contribute to an evolving collection and also experience the value-added activities of the USF Libraries through applied metadata, preservation, and digitization techniques, oral histories, open access publishing, exhibits, and digital instruction.

A. RESEARCH PROBLEM 1: DETERMINING SCOPE

The FLENH Team will need to assess current holdings to determine collection scope. Because existing collections foster such diverse and global research the FLENH Team will need to determine what lies outside their immediate ability to preserve and provide appropriate access to resources.

- *Solution A-1*: Evaluate existing holdings and identify key research areas and gaps to establish core collection.
- *Solution A-2*: Investigate breadth and depth of FLENH research and education at USF and develop avenues for connection and collaboration.
- *Solution A-3*: Work with library faculty and staff engaged with the USF School of Geosciences to initiate and accomplish Solutions A-1 and A-2.

B. RESEARCH PROBLEM 2: DETERMINING FORMATS

Research and data collection in the environmental and natural sciences disciplines includes a mixture of paper, born-digital, audio-visual materials, and specimens. Specimens provide a unique challenge to USF Libraries Special Collections due to the high cost of equipment, physical site modifications, appropriate staffing, additional software hosting, research access space, and storage space.

- *Solution B-1*: Limit materials to paper-based, digitized, and born-digital records, thereby eliminating animal- and plant-based matter.
- *Solution B-2*: Establish reciprocal relationships with Fish and Wildlife, USF Herbarium, and related institutions for material loans and storage.

C. RESEARCH PROBLEM 3: PRIORITIZING DIGITIZATION AND INGEST

The FLENH Team will need to prioritize data ingest by focusing on core collections, such as Florida Audubon. Major considerations include finding priorities within collections, working with high page counts and non-traditional or proprietary data collection mediums, and creating a timeline for transcription work. The FLENH Team will need to account for how to prepare largely paper-based materials for digitization that allows for optical character resolution (OCR) and proper cataloging and processing:

- *Solution C-1:* Assess existing holdings and determine digitization priorities.
- *Solution C-2:* Establish guidelines and workflows for researcher donations of born-digital materials.
- *Solution C-3*: Obtain as much metadata as possible from researchers during or after the donation process.

VI. BROADER IMPACTS

Changes to the global environment mark an existential threat to our planet. The National Climate Assessment indicates that changes to our environment are occurring rapidly and are caused by humans (Melillo, Richmond, et. al. 2014). To capture the rapid change to Florida's air, land, and plant environments impacted by the influx of construction, pollution, and sea-level rise over the past 70 years, the FLENH NEST will support research through the collection of Florida-centric data and scholarship in the field. An array of consumers with widely differing objectives, backgrounds, and training require and demand environmental and natural history resources, including researchers, librarians, educators, students, interested public constituencies, and local, national, and international government policymakers.

A. GENERAL CONSIDERATIONS AND OVERVIEW:

Questions from the national Science Foundation's online guide, *Preparing Proposals*, help to frame expected outcomes and broader impacts of FLENH (https://www.nsf.gov/funding/preparing/).

How well does the activity advance discovery and understanding while promoting teaching, training, and learning?

The FLENH NEST will be freely available to both students and instructors of all types, with a content focus at the research level. The University has numerous formal and informal partnerships with other education groups, and this will provide known and potential partners with reliable and vetted information for teaching and research development.

How well does the proposed activity broaden the participation of underrepresented groups (e.g., gender, ethnicity, disability, geographic, etc.)?

By providing virtual information that is freely and publicly available, the FLENH NEST is inherently diverse in audience; there will be no limitations to acceptable use for any groups. In addition, the resources available [both USF Libraries-created and open access] will highlight and disseminate

materials for those with differing backgrounds and abilities by providing online experiences that can best replicate physical ones. These types of resources also provide an opportunity to those not as financially able to travel and interact with these sources in their physical location. The nature of the content (free and online) also helps to assure that no user will be denied access.

To what extent will it enhance the infrastructure for research and education, such as facilities, instrumentation, networks, and partnerships?

As noted above, the FLENH metacollection will allow USF and the USF Libraries to provide new and valuable content related to Florida environments to a known network of users at all levels. Marketing of this resource will also attract more users and, hopefully, more content to review and consider. In this way, the FLENH NEST will be a new and important facet in the development of the online information gateway for materials related to these subject areas. The FLENH Team will also use this to actively seek new partnerships and collaborators to further enhance this resource.

Will the results be disseminated broadly to enhance scientific and technological understanding?

Results and content will be disseminated, with regular updates and additions as necessary. The FLENH Team will welcome the input of other experts and scientists in the creation and inclusion of content and resources. As these new and existing resources serve a variety of academic levels, there will be other benefits for users with an informal "academic ladder" of information related to Florida environmental and natural history topics.

What may be the benefits of the proposed activity to society?

Common understanding and vision of the activities regarding the Florida environment, including its protection and study, is a primary goal and benefit the FLENH NEST. Users, both community and academic, will have free access to a central source for a variety of scientific, as well as economic and policy, information about Florida and its environmental study and condition. This shared view may inspire more contributions and use of the resource and its content.

The following sections highlight specific roles and benefits for various types of users and FLENH Team members:

B. STAKEHOLDER RESPONSIBILITIES

1. *Scientists and Researchers*

   The FLENH strategic initiative advances Florida environmental and natural history research by providing the necessary infrastructure for direct and open access to research materials and research support. For scientists and researchers, this means the ability to actively engage with and apply raw and processed data to ongoing research projects as well as the option to contribute their own research materials during and after data collection.

2. *Educators and Students*

Environmental and natural history education are conducted at all learning levels as part of general and core curricula. Professors, teachers, and students will be able to access and utilize key resources and services that help develop their understanding of historic and contemporary issues in Florida environment and natural history and encourage further study and engagement for the betterment of our society.

3. *Informal Environment and Natural History Community*

An active and ambitious community of activists, enthusiasts, and other relevant parties contribute to available research and data opportunities by creating and compiling resources, evaluating content, and using environmental and natural history materials to facilitate advocacy efforts and decision making, thereby allowing the integration of FLENH into everyday actions and activities.

VII. DESIGN CONSIDERATIONS

A. TECHNOLOGY

FLENH NEST development will be outsourced to a firm to allow for quick completion by a team of designers. The NEST will take the form of a standards-compliant, dynamically generated interface providing a central access hub to the USF Libraries' Environment and Natural History collections. The NEST will host unique open access collections in the form of newly acquired data sets of both born-digital and digitized physical materials, as well as links to materials hosted on other USF platforms including ArchivesSpace, Digital Collections, and Scholar Commons.

To complement the data rich and geographically focused materials, the NEST will emphasize GIS, XML, and SQL metadata to support scientific research. Under the direction of the FLENH Lead and Operations Manager, the FLENH Team will work with an outside firm to develop an interface with functions similar to the Gulf of Mexico Research Initiative Information and Data Cooperative (GRIIDC) database project. GRIIDC's webpage is open source, and their code is publicly available to serve as a model for the final product. To complement metadata-heavy materials, the web interface will also be enriched with visuals and exhibit material to help make the materials accessible to a wide range of possible users.

FLENH NEST developers will create a web interface that employs widely used standards supporting linking and previewing of multiple formats hosted on other USF platforms (e.g. digital objects, journals, monographs, media) and platform-hosted full-text content (e.g., data, text, streaming audio, and video). Modeling off the data features of GRIID-C, by integrating the data server ERDDAP, the interface will allow users to download the various open and proprietary data file types used in different fields.

The FLENH NEST will be developed in a way that allows the FLENH Team flexibility in the types of material and in the ability to manipulate the page content and user interface as needed to add in new materials. The primary host site for the project will reside at the University of South Florida Libraries

with support from Amazon Web Services. Once the interface is created, it will be maintained by a collaborative team of designated FLENH Team members and other library personnel as needed, under the guidance of the FLENH Operations Manager. Weekly back-ups of the entire database will be integrated as part of the workflow for the FLENH Operations Manager.

B. METADATA

The presentation of descriptive and technical metadata in the FLENH interface will be the unifying component to allow USF Libraries to bridge their environment and natural history collections together under the FLENH umbrella. System functionality will support the harvest of records from the archival management system, Scholar Commons, and SobekCM to allow users to access metadata in one place.

An administrative module accessed by registration will facilitate remote and internal bulk upload of newly acquired resources and also allow users to contribute individual item records. Filters to restrict searches by format, language, date, theme, and geographic descriptor will be employed.

In addition, any GIS data will follow the ArcGIS metadata standards for describing and identifying geospatial resources. Content will be widely available to the global community and can be linked to initiatives like the EPA's Environmental Dataset Gateway or GRIID-C. Access will be further promoted via metadata uploads to OCLC WorldCat for inclusion. In future developments, the NEST will support metadata harvesting using the OAI-PMH plug-in (Open Archive Initiative, version 2.0) to extend access points and build partnerships across the scientific and academic landscape. In coordination with this plan, the FLENH interface will also be registered as a data provider, allowing reciprocal exchange.

The FLENH Team will consult with the design firm to ensure future presentation, exchange, and formatting of content are supported by a wide variety of recognized web languages, services, and standards.

C. BORN-DIGITAL DONATIONS AND CONTRIBUTIONS

In the interest of leveraging the expertise of donors or contributors (hereafter referred to as contributors), the process of integrating digital data sets will proceed on three levels. In the first step in the process, contributors who plan for the contribution of digital data sets will provide their files along with basic descriptive and administrative metadata. Contributors will be able to e-sign their donation forms and provide metadata remotely.

The second level of collection building involves FLENH personnel assigned to evaluate incoming contributions for accuracy, relevancy, and creative control rights. In communication with the contributor, additional metadata may be added to provide more accurate descriptions of the materials and to place the data into conversation with the rest of the collection through the addition of relevant keywords. Once a contribution is "approved," the metadata and any associated digital files are assimilated into an SQL database prepared by the developers.

In level three of the process, digital data sets are ingested into the interface where administrative, technical, and descriptive metadata are refined to manage document access, retrieval, and archiving.

File types are variable but may include Microsoft Word, PDF, JPG, GIF, XLS, and other file types needed to serve various open access and proprietary content formats.

VIII.   USER CONSIDERATIONS

A.   TERMS, SERVICES, AND COPYRIGHT CONSIDERATIONS

Users may access the FLENH NEST online without restriction, other than general copyright and fair use standards. Although registration and authentication requirements will not be required due to the open access platform, users will be expected to comply with standard terms and conditions of use. Terms and conditions added to the platform will mirror existing regulations used by other USF Libraries platforms, including those derived by BePress and USF's Scholar Commons repository https://www.bepress.com/reference_guide_dc/safeguarding-content-digital-commons/

Regarding copyright, language will make use of USF Libraries' site information on Copyright and Fair Use (https://guides.lib.usf.edu/copyright).

Open access to FLENH NEST content allows users to view, download, save, and print material for personal use, pursuant to the above and to other general guidelines. Additional information is available on the USF Libraries' Copyright and Fair Use Guide:

The Fair Use Doctrine (Section 107 of U.S. Copyright law) is a part of the Copyright Act of 1976 and is based on a history of judicial decisions that recognized that some unauthorized use of copyrighted materials were "fair uses."

Section 107 contains a list of the various purposes for which the reproduction of a particular work may be considered fair, such as criticism, comment, news reporting, teaching, scholarship, and research. It also sets out four factors to be considered in determining whether or not a particular use is fair:

- *The purpose and character of the use, including whether such use is of commercial nature or is for nonprofit educational purposes.*
- *The nature of the copyrighted work.*
- *The amount and substantiality of the portion used in relation to the copyrighted work as a whole.*
- *The effect of the use upon the potential market for, or value of, the copyrighted work.*

B.   USER SUPPORT AND PRIVACY

Although the project planners do not anticipate requirements for user training or support beyond needs best addressed via an FAQ, email contact information for the FLENH Lead and Operations Manager will be incorporated into the system's architecture.

The site will also track aggregated use statistics including overall site traffic, individual page traffic, item downloads, numbers of visits per users, and a profile of searches and search terms used for the page.

The FLENH Team will work with the developers of the platform to institute policies that will protect users and their data, although some information may be pulled for statistics and site support including IP addresses of users, pages visited, dates and times of visits, referring pages, and browser type.

The FLENH Team will use this information to help diagnose site errors and to create a broad (and anonymous) demographic profile of our user base and to help improve the administration of the site and its continuous improvement.

IX.   MARKETING CONSIDERATIONS

Efforts to grow and sustain FLENH collections as a strategic direction of USF Libraries will employ traditional and non-traditional marketing and promotion.

A. INTERNET DISSEMINATION

The FLENH NEST will serve as a website for FLENH Team services and a central hub for collections access. Linking all FLENH collections across one interface allows for central promotion of one tool that directs users to the FLENH Team's digital collections database, as well as links to finding aids for physical holdings, GIS projects, and research housed in the USF Libraries Scholar Commons.

Through its home in Special Collections, the FLENH Team will share and promote collections through Special Collections' social media channels, as well as through USF Libraries channels. Collections digitized and hosted in Digital Collections or Scholar Commons can also be promoted through LIB News and the Digital Scholarship Services blog, *Digital Dialogs*.

B. MEETINGS

Full-time members of the FLENH Team will be active in conference circles. Team members should attend and present at professional environmental and natural history meetings and conferences, possibly including the American Society for Environmental History, National Council for Science and the Environment, American Ornithological Society, The Florida Bay and Adjacent Marine Systems Science Conference, and the Greater Everglades Ecosystem Restoration Science Conference. Additional engagement at library and related conferences will include the American Library Association, the Association of College and Research Libraries, the Society of American Archivists, and appropriate regional organizations. This presence will help members earn positions on national leadership organizations and committees and enhance the presence and visibility of USF Libraries.

C. PUBLICATIONS

The FLENH Lead will maintain an active research agenda, leading to publications in medium- to high-impact scholarly journals in their respective field(s) of specialization. The Lead and other FLENH Team members will be encouraged to use Special Collections FLENH resources as the basis for their research. Publication venues can include Nature, Ecology, The Journal of Environmental Sciences, Journal of Academic Librarianship, American Archivist, Provenance, and other relevant journals related to their

academic specialization. Announcements and news releases regarding the NEST will be forwarded to interested agencies and distribution lists and placed in various professional journals whose foci closely tie to the FLENH holdings including, but not limited to, the Journal of Geophysical Research, Journal of Physical Oceanography, Journal of Ornithology, and Journal of Avian Biology.

D. BRANDING AND PUBLIC PROGRAMMING

1. *Branding*

In collaboration with the USF Libraries Communications & Marketing Office, the FLENH Team will brand all tools promotional materials to comply with university standards.

2. *Public Programming*

To promote ongoing engagement with the collections, the FLENH Team will host monthly or bi-monthly "ENH Snack Sessions" where different elements of the collections will be highlighted in behind-the-scenes events. Each session will be planned and led by a FLENH Team member or donor, allowing for more effective promotion and advertising. Directed invites to particular departments will also enhance interdisciplinary engagement with Special Collections to promote the use of the materials by scholars in fields across the humanities and the sciences. Possible topics will include introductions to new acquisitions, insider perspectives on how the FLENH Team processes new collections, highlighted case studies from patron and librarian research, tutorials, and contributor talks.

As a fundraiser and promotional event, the FLENH Team will collaborate with the USF Libraries Office of Development to host donor appreciation events to mark the official launch of the NEST and establish annual acknowledgements of past and current contributors. The full launch should take place once all three full-time members are on board. The first event should highlight community impact of the collection by taking place in a location that promotes environment and natural history causes or one that has demonstrated active support of the FLENH initiative. Contributors, relevant faculty, and selected students will be invited for initial and future events.

X. ORGANIZATION & STAFFING

A baseline staffing model presupposes 3-4 full-time staff dedicated to strategic and daily operations centered on building, growing, and sustaining Florida Environment and Natural History as a strategic direction. Staff will be supported by 1-2 part-time employees, such as student assistants and interns, who will conduct trainee-, novice-, and proficient-level responsibilities designed to develop professional skill sets and support the strategic direction of FLENH.

The staffing model mirrors existing and ideal organizational structures within research libraries, with the major difference being lines of responsibility. In this model, the FLENH Team reports through the Special Collections department, with selected personnel potentially sharing lines of responsibility with Digital Scholarship Services.

A. FLENH TEAM (FIGURES 1 AND 2)

The FLENH Team will consist of 1-3 full-time permanent faculty, staff, and administrative personnel reporting to the Head of Special collections. The Team asserts responsibility for managing and developing resources to enhance and support FLENH research and education, advancing collaboration and connections among FLENH NEST contributors and users, and disseminating academic and non-academic information and research about FLENH collections.

New personnel requirements include the following:

FLENH Team Lead (1.0 FTE)
$72,500-$74,000

Operations Manager (1.0 FTE)
$50,000

Collections Manager (1.0 FTE)
$35,000-40,000

Database Manager (1.0 FTE)
$35,000-40,000

Student Assistants and Interns
(0.5 FTE)
$10,000

Figure 1: FLENH Team Organization

FLENH Team Member	Role	Responsibilities	Requirements	Recommendations
Lead	Faculty (full-time)	FLENH leadership and Team management; Collection building and outreach; Research engagement and dissemination; Curriculum and course development	Ph.D. in Environmetal Science or related field + MLIS	Ph.D. with pending MLIS; MLIS with 2nd Master's degree in Environmental Science or related field
Coordinator of Library Operations	Administrative (full-time)	FLENH support staff management; Public services support; Curriculum development support; Marketing and public programming; Digitization projects coordinator	Ph.D. or Master's degree	Bachelor's degree; Project Management certification (PMP)
Collections Manager	Staff (full-time)	Cataloguing and metadata; Archival and digital collections processing; Exhibit design and development; Public services support; Curriculum support	Associate, Bachelor's, or Master's degree	Certified Archivist (CA)
Database Manager	Staff (full-time)	Database development support; Database management; Metadata; Digital collections processing; Content management; GIS; Digital preservation	Associate, Bachelor's, or Master's degree	Certified Solutions Architect (AWS); Certified Data Professional (CDP)
Student Assistants / Interns	Temporary Staff (part-time)	Collections processing and description support; Digitization support; Research support; Exhibit support	USF Bachelor's or Master's in progress	—

B. OTHER RESPONSIBILITIES

FLENH Team members will actively collaborate with USF Libraries personnel in Research and Instruction, Digital Scholarship Services, Collections & Discovery, Development, and Communications & Marketing, across all campuses, to successfully advance the mission, goals, and objectives of the FLENH initiative, Special Collections, and the USF Libraries.

XI. IMPLEMENTATION PLAN

The FLENH strategic initiative is set to undergo development from summer 2020 through summer 2022. A timeline of major benchmarks is indicated on the table below (Figure 3).

Following the formal launch of the program, during the first quarter of 2022, the FLENH Team will reflect on the impact of implementation programming by:

- Conducting a thorough report of all patron requests for materials, including physical, born-digital, and digitized holdings.
- Assessing the effectiveness of public programming efforts through attendance and web traffic.

- Conducting an updated literature review and evaluation of the field to forge a new development plan to consistently grow the collections in a direction that supports student and faculty needs.
- Evaluating existing workflows to ascertain measures for improved efficiencies and sustainability, including processes for consistent metadata clean-up and transcription.

Figure 3: Implementation Plan Chart

	2020		2021				2022			
	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Budget										
Brainstorming	●━	●								
Questions and Planning	━	━	●							
Fundraising	━	━	━	━	━	━	━	━	━	●
Spending plans and maintenance		━	━	━	━	━	━	━	━	●
Staffing										
Hire Lead Position				━	●					
Hire Operations Manager					━	●				
Hire Collections Manager						━	●			
Hire Additional Permenent Staff							━	●		
Hire Students							━	●		
Evaulate Collections										
Perform Collections Evals					━	━	●			
Prepare and Submit Report and Plan						━	●			
Build Database and Website										
Data Transcription for Digitization							●			
Design Branding						━	●			
Draft Proposal and Hire Firm							●			
Metadata Preparation						━	━	●		
Database Development								━	●	
User Testing										●
Build Collections										
Submit Yearly Budget Plans					━	━	━	━	━	●
Aquire Materials and Build Relationships					━	━	━	━	━	●
Process Collections					━	━	━	━	●	
Launch Programming										
Planning									━	●
Website Launch Event										●
Bi-Weekly Events Launch										●
Establish Long Term Plans and Workflow										
Establish Annual Goals										●
Prepare Maintenance Budget									━	●
Submit Start Up Report										●

XII.   RISK ANALYSIS

New strategic directions are not without risk. Identifying immediate challenges to implementation and sustainability will facilitate mitigation of problems that could impede FLENH Team and NEST success.

Risk	0-1 Year	1-2 Year	2-3 Year	Preventative Measures
USF Administration support	Low	Low	High	Apply evidence-based measures of success
Outsourcing: Web development and enhancements	Medium	Low	Low	Work with etablished University/Libraries vendors; Secure long-term commitment to ensure product consistency
Low or unexpectedly high contributor interest	Medium	Medium	Low	Establish strong relationships with USF Libraries Advancement and Digital Scholarship Services; Effective marketing, promotion, communication, and outreach; Effective web tool (NEST) for digital ingest, search, and retrieval
Low or unexpectedly high community interest	Medium	Medium	Low	Establish strong relationships with teaching and research faculty; Establish annual priorities for success; Effective marketing, Effective marketing, promotion, communication, and outreach; Effective web tool (NEST) for digital ingest, search, and retrieval
Operating budget	Medium	Medium	Medium	Develop programmatic sufficiency through grants, endowments, and other means of fiscal support; Apply accurate accounting for professional development, travel, purchase of resources, and
NEST: Natural History and Environmental Science Technologies	High	Low	Low	Strategic development, enhancement, and maintenance of web portal to ensure ingest, access, search, and retrieval of unique content
Mission creep	High	High	High	Establish clear objectives, mission, and goals for FLENH Team; implement quarterly/annual assessment measures and benchmarks

XIII.   BUDGET

The sustained growth of FLENH as a strategic direction requires financial budgeting for the onboarding of 3-4 full time employees, 1-2 student employees, collections acquisitions processing and storage, outsourcing of the web interface development, and associated maintenance costs.

The table below outlines the first 2.5 years of start-up costs, beginning in Quarter 3 of Fiscal Year 2020. Additional budgeting will be needed to ensure stable and continuous support of this plan.

Line Items	FY2020	FY2021	FY2022
Personnel Requirements, 4 FTE • Lead, FLENH • Operations Manager • Collections Manager • Database Administrator *Assumes hiring staff at first quartile level, faculty at minimum. Assumes 3% annual increase.*	$204,000	$210, 120	$216, 424
Benefit Costs (0.26)	$53,040	$54,631	$56, 270
Student Assistants, 2 (0.5 FTE) • Collections Processing • Digitization Support *Assumes $0.25 annual increase.*	$10, 400	$10,660	$10,920
Personnel Start-Up (4 FTE)	$25,000	-	-
Website Development	$50,000	$25,000	$15,000
Website Upkeep, Archiving, and Enhancement	$15,000	$15,000	$15,000
UX Design and Assessment	$750	$750	$750
Project Assessment	$1000	$1000	$1000
Collections Development	$5,000	$5,000	$7,500
Supply and Storage Budget	$2,500	$2,500	$2,500
ANNUAL TOTALS	$356,290	$324,661	$325,364

IMPLEMENTATION

TOTAL $1,006,315

XI.   CONCLUSION

The FLENH initiative strategically addresses the sustained acquisition, availability, and preservation of unique research materials that effectively document Florida's changing environmental landscape and provide opportunities for academic and non-academic scholarship and pedagogy. Establishing a dedicated FLENH team demonstrates the USF Libraries' commitment to the success and sustainability of this initiative. The FLENH Nest provides the mechanisms for ensuring accessibility to relevant collections. Combined, the FLENH Team and the FLENH NEST foster community engagement, support student success, and provide opportunities for enhanced faculty and staff visibility through research and teaching while increasing the global reach of the USF Libraries.

XIV.   REFERENCES CITED

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APPENDIX

Current Assets

- Audubon Florida Everglades Science Center Research Papers
- Audubon Florida Records
- Audubon Florida Tavernier Research Papers
- Audubon Florida's Coastal Island Sanctuary Collection
- C-Image Data
- Dr. Garald Gordon Parker Collection
- Environmental Lands Acquisition and Protection Program Collection
- Environmental Lands Acquisition and Protection Program Oral History Project
- FLENH portal
- Florida Audubon Society Slide Collections
- Florida Citrus Oral History Project
- Frank M. Dunstan Slide Collection
- Harry Robinson Bird Migration Studies, Florida
- Lorida Audubon Collection
- Oculina Bank Oral History Project
- Pasco County Sinkhole
- Related political papers: Jan K. Platt Papers, Sam Gibbons Collection
- Robert Porter Allen Collection
- Roy Robin Lewis Papers
- Skip Gandy Commercial and Aerial Photography Collection
- Special Collections Digital Exhibitions
- Tampa Bay Area Study Group Project
- The Tampa Bay Estuary Oral History Project
- West Central Florida Land Use Oral History Project
- Zellwood Bird Reports