



Nassau County Conservation Lands Acquisition and Management Manual and Conservation Plan

Approved:
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Introduction

The following document was created by North Florida Land Trust (NFLT), a 501(c) non-profit operating in Nassau County to preserve and conserve the county's natural, historic, and working lands resources. NFLT was retained by the county to bring their experience in the identification and acquisition of conservation resources to assist in the creation of their own Conservation Lands Acquisition and Management program, known in short, as the CLAM. NFLT brought their experience to bear in the realms of strategic conservation planning, to develop for the county a conservation plan which would help them identify, rank, and assess lands for acquisition and management. The product of that work is the Conservation Plan and the CLAM Resource Rankings. In addition, they were asked to produce a manual of operations for the administration and management of the CLAM program, which is available in the form of the CLAM Manual, and supplementary documents to that manual are the attached calculator and nomination form. We were also asked as natural resource professionals to review the County's inventory of natural resources and the existing regulatory tools within the county's control, mostly planning and zoning tools, to see how well the county's resources are currently protected so as to contrast that with a land acquisition program. The product of that work is attached as the Document Review and Natural Resource Inventory.

Nassau County is at this moment, working to be proactive in the conservation of their natural resources. They are currently behind the state's average for counties in terms of natural resource protections, having only preserved 7% of their landmass, as compared to a statewide average of 29%. Nassau County is also facing new and significant development threats, having quickly gone from being a rural county with a bustling beach community, they are now turning into an exurban and suburban growth area for Metro Jacksonville. However, they have a bounty of healthy natural resources, bounded by the St. Marys and Nassau Rivers, with scenic and unique barrier island resources and boundless miles of forestland. We are certain that if they maintain that pro-activity, and initiated the programs described herein, that they can ensure a sustainable county with a wealth of natural resources for years to come.

We thank the county for the opportunity to help them describe their conservation future.



Marc Hudson
Director of Strategic Conservation
North Florida Land Trust

Goals of the Nassau CLAM

The following summarizes the collected goals that have been expressed by Nassau County commissioners, staff, and the general public in the process of developing this conservation plan. Their input was gathered via interview and surveys of those groups. The goals have been described in two tiers, primary and secondary. Primary goals were identified in interviews and surveys as either overwhelmingly supported or repetitiously mentioned. Secondary Goals were still mentioned or selected at a magnitude great enough for consideration but at a lesser level of support.

Primary Goals:

1. Water Issues

Water Issues, as a whole, were provided the highest emphasis by all those polled in the surveys. The following are the primary goals on addressing water issues within the county:

1.1 Water Quality: The preservation of Nassau County's high quality waters, free of pollutants, healthily maintained for wildlife and recreationalists alike.

1.2 Flooding and Storm Surge: The mitigation of the negative impacts of flooding and storm surge by preserving that green infrastructure which is important to the county's resiliency.

1.3 Sea Level Rise Adaptation: To facilitate adaptation to changing conditions for Nassau County's Natural Resources.

2. Species and Habitat Protection

Species and Habitat Protection was of second highest emphasis by the public in the survey. The following are the primary goals on addressing species and habitat protection within the county:

2.1 Rare and Declining Habitats: To preserve those habitats most at risk from loss within Nassau County.

2.2 Species Protections: To ensure the preservation of Nassau County's most threatened species.

2.3 Wildlife Corridors: That all Nassau County species have room to roam in a manner that allows them to thrive within the County.

3. Outdoor Recreation and Quality of Life

Outdoor Recreation and Quality of Life was of the third highest emphasis by the public in the survey. The following are the primary goals on addressing outdoor recreation and quality of life within the county:

3.1 Rural Lifestyles: That currently rural areas of the County can maintain rural lifestyles through the normal practice of passive, outdoor recreational activities such as hiking, biking, hunting, fishing, boating, kayaking, equestrian activities and more.

3.2 Access to Conservation Lands: The County will provide equivalent access to conservation lands in all parts of the County, and endeavor to increase this access by co-locating those conservation lands with a county-wide trail and blueways network.

3.3 Connecting Conservation: The County will build off those existing showcase conservation areas and future conservation acquisitions to build a network of conservation lands across the County.

Secondary Goals:

4. Working Lands

Working Lands Preservation, or the preservation of farms, ranches, and timberlands, was emphasized by all participants but at an order of magnitude less than other categories of resource protection. Working lands preservation particularly resonated with those working lands which commit to a higher standard of sustainability than the minimum for their natural resources. As such, the following secondary goals are the goals for working lands preservation within the County:

4.1 Sustainable Forestry: To conserve those timberlands exhibiting the highest degree of economic and environmental sustainability.

4.2 Existing Farms and Ranchlands: To preserve those legacy and multi-generational farms and ranchlands within the County.

4.3 Conservation Compromise: By working with farmers, ranchers, and foresters to ensure the preservation of the County's water, habitat, and outdoor recreational opportunities where appropriate on private lands.

5. Value for Money

There are not enough dollars available for Nassau County to conserve all its natural resources on its own. In interviews and conversations with County Commissioners, staff, and subject matter experts, an emphasis on "Value for Money" or "Bang for the Buck," was repeatedly emphasized as a necessary reality of the program. As such, the following secondary goals are for the fiscally responsible and transparent management of the program:

5.1 Value for Money: The County will operate a program that balances protection of the highest quality natural resources with the transparent and sound fiscal management of public funds, to identify those lands which have a combination of the best resources and the best value attainable.

5.2 Partnerships: To partner with County municipalities, non-profits, state and federal agencies for technical expertise, funding, and partnered purchases to maximize the potential of conservation spending inside of Nassau County.

5.3 Conservation Easements: To use conservation easements appropriately where natural resources are best protected under private lands management or where the use of a conservation easement provides a better value to the County.

Regulatory Solutions

In interviews, Nassau County staff discussed efforts to broaden programs within the county's regulatory purview to modernize and update environmental protections County-wide. In keeping with the County's goal to achieve value for money, the goal is to avoid spending funding on lands otherwise protected by regulation. Therefore, the following is the secondary goal regarding regulatory overlap:

Regulatory Overlap: To prioritize the preservation of those resources otherwise unprotected by state, local or federal regulations.

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Glossary of Terms

Capitalized terms are intended as specific references to terminology or descriptions within the document.

CLAM – The CLAM is the Conservation Lands Acquisition and Management Program, the program of acquiring and managing lands in Nassau County, executed by Nassau County government, for which this manual exists.

Manual or CLAM Manual – The Manual is this document, which intends to describe the rules and principles under which the CLAM program operates.

Staff – Staff refers to those Nassau County staff members, or designated contractors and consultants, that are responsible for the execution of the activities in this Manual.

Committee, or CLAM Committee – The Committee refers to the Conservation Lands Acquisition and Management Committee, a commissioner appointed committee under Nassau County charged with reviewing and recommending to the Commissioners all the activities under the CLAM.

Commission, or BoCC – The Commission refers to the Nassau County Board of County Commissioners.

Conservation Plan – The Conservation Plan refers to the Nassau County Conservation Plan, attached to this document, which aggregates, weighs and maps, according to public and subject matter expert opinions, all the natural resources within the county.

County - Nassau County, Florida.

CLAM Resource Rankings – The CLAM Resource Rankings is the ultimate product of the Conservation Plan, showing the relative position and weighted value, according to input of the public and subject matter experts, of all the natural resources within the county, and is used to rank properties nominated for acquisition under the CLAM.

Conservation Easement – A conservation easement is a real property interest that runs with the land, is perpetual, and is established through agreement between the landowner and a government or land trust, by which a landowner agrees to restrict development on their land and stop, reduce or increase certain management practices according to the natural resource needs on the property, or perform other actions to achieve conservation purposes.

Fee Simple Acquisition – A fee simple acquisition refers to an acquisition of real property pursuant to which the acquiring entity, and its heirs, obtains full and irrevocable ownership of the lands and improvements.

Property – Property refers to any such land area being nominated, ranked, or considered for acquisition or under management, within the CLAM.

Priority Group – The Priority Group is the top fifteen ranked properties for which staff are encouraged to negotiate under the CLAM.

Eligible Group – The eligible group is the list of the next ten ranked properties which meet the qualifying goals of the CLAM, but which cannot be considered for purchase until properties under the Priority Group have been purchased, allowing them to increase rank and be added to the Priority Group.

Nominators – Nominators are members of the public, agencies, non-profits, or other entities which have nominated a property for acquisition under the CLAM.

Management Plan – A Management Plan is the primary administrative and managerial document for lands acquired under the CLAM program, dictating land management activities, improvements, and providing budgetary information for the Commission.

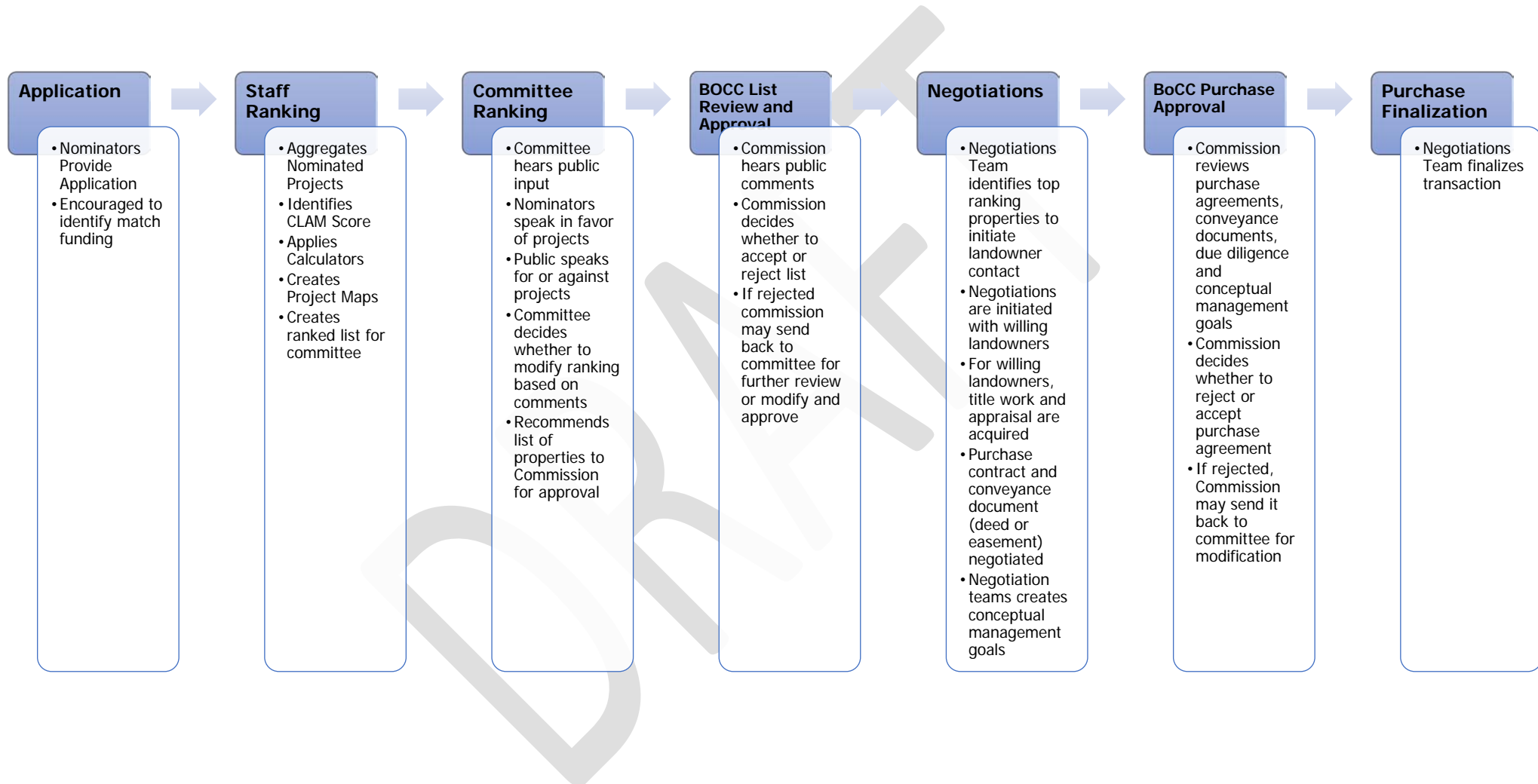
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Role of the Conservation Plan in the CLAM

The Nassau County Conservation Plan is the essential guidance document for the selection of lands acquired under the CLAM, and the CLAM Resource rankings are the tool by which Nassau County staff will directly rank properties for acquisition, and the standard by which the Committee and the Commission will approve those rankings. However, the Conservation Plan is also intended to be used in broader contexts and can and should be the basis for the county's efforts to attract partners in funding and acquiring conservation lands within the county. It is, in its essence, a map of the county's most essential resources as ranked by the county and a team of subject matter experts. That awareness of the county's natural resources and how the public values them provides a unique connection to its natural resources that few counties achieve.

The Conservation Plan was created with the input of the County Commission, the county planning staff, a team of subject matter experts, and over 300 participating members of the public and was finalized in the summer of 2020. It should be readdressed at least every 10 years, or as needed when it becomes obvious that the values of the county have changed, and as suggested by the CLAM Committee.

Nomination, Application, Approval and Purchase Process Chart



Nomination and Approval Process

Conservation Land Acquisition and Management Committee

The acquisition of conservation land requires skills and oversight not typical to the usual committee or staffing structures present in county government. Therefore, it is desirable to have a committee to deal with the unique requirements of a conservation lands program. Generally, the committee shall handle four tasks related to the county's conservation lands acquisition program:

1. **Ranking of Nominated Properties:** County staff will apply the methodology and associated calculators for ranking nominated properties set forth in the Conservation Plan. However, as the GIS data used is not always perfect, and because there may be factors influencing the decision on a property that were not part of the initial scope of the conservation plan, there may be reasons to adjust the ranking beyond those provided by the conservation plan. The job of the committee is to accept those rankings as provided by staff, and then hear from the public and subject matter experts if certain properties are underweighted or overweighted in the rankings and modify accordingly. They then recommend that list to the Board of County Commissioners.
2. **Recommendation of Potential Acquisitions:** Once a list of properties has been approved, staff will pursue the acquisition of those properties. Once property owners have been contacted and a purchase contract agreed to by the parties, it will then go to the CLAM Committee for review. The role of the committee is not to evaluate the real estate sufficiency of the contract, but rather to make sure the agreement as designed meets the goals of the CLAM program. If the Committee is satisfied the acquisition meets the goals, they recommend the project to the BoCC.
3. **Review of Management Plans:** After a property is acquired, it must have a management plan so the county can budget for whatever costs may come with the management of the property, and so the public may understand how the property is to be used. The committee will review the staff prepared management plan and ensure that the use meets the goals of the CLAM program, and if so, recommend the management plan to the BoCC. If there is a management agreement for a property, the CLAM reviews and recommends that agreement to the BoCC.
4. **Reviewing the monitoring and enforcement of Conservation Easements:** If the county decides to acquire conservation easements as part of the program, the County will need to monitor those conservation easements at least annually to ensure they are not being violated. The Committee will hear an annual report prepared by staff as to whether monitoring has been completed and the easements are in compliance. The committee may also be used as an expert committee for the Staff and BoCC on an as-needed basis, according to their needs.

It should be noted that the committee is an advisory body and has **no final approval authority over any aspect of the CLAM program**. Its role is simply to review the programmatic details of the CLAM Program and make recommendations to the Commission as a

committee of expert advisors. The commission maintains authority to make all final decisions on the execution of the CLAM program itself.

Forming the CLAM Committee

Nassau County staff shall put out a call for applications for the CLAM committee as seats become available. Candidates at a minimum should have skills, expertise or demonstrable experience that relate to the acquisition of conservation lands, either in:

- natural resource management and biology
- agriculture and forestry
- community planning
- environmental engineering or civil engineering where their work has been in stormwater or green infrastructure projects
- environmental regulations, land use law, or commercial real estate in so far that it has dealt in vacant, rural lands

The ideal candidates will have experience in at least two of the above categories, or ten years of experience in at least one. To the extent possible candidates should be selected to represent a diverse geography within the county as well, with a target of one nominee per commission district, though demographics within the county may make this requirement unfeasible. Staff is encouraged to reach out to members of the community who have the requisite skills and encourage them to apply. There shall be five seats available on the committee. After the applications have been received, staff will review the applicants and provide the list of applications to the commissioners, along with staff's recommendation as to those most qualified to serve on the Committee. Committee members shall have four-year terms (except for the inaugural committee), with no limit on the number of terms. To create staggered terms, the first committee shall have two seats with a two-year term with the other three seats having normal term times. Term renewals must be confirmed by the Commission,

The CLAM Committee will nominate, from amongst its own group, a chairperson to head up the proceedings of the committee. The Committee may adopt rules and procedures for the conduct of its meetings, which meetings shall be open to the public and subject to the state open meetings and public records laws. The agenda for committee meetings will be developed by staff, in consultation with the chair. The committee may, but is not required to, nominate three additional members to join the committee in a strictly advisory, non-voting role. These three additional positions are not mandatory to be filled and should be reserved for critical partners which may be fundamental to the execution of the CLAM program. Examples for these kinds of partners may be a regional conservation agency, such as the water management district, which is jointly participating in the acquisition of conservation lands with the County, or the Florida Forest Service if they are a participating management partner with the County. In either example, the input of that partner may be critical to the committee's decision as to whether they should recommend the acquisition of a project. The CLAM should meet at a minimum six times per year or more frequently if requested by the Committee, the BoCC, or by staff in concert with the chair. Meetings may be waived if there are no items for an agenda, with the approval of the chair.

Nominating Properties for the CLAM

Nassau County staff may accept nominations for the acquisition of conservation lands on a rolling basis throughout the year. The County shall accept nominations of properties for potential acquisition by the County through the CLAM Program from any person or organization, including the County, nonprofit organizations, and local, regional, state, or federal governmental entities. The committee will rank properties minimally once a year, with the potential for a second ranking meeting if the number of nominations or their significance warrants a second meeting, as determined by the staff in concert with the chair. However, all nominated properties which meet the minimum qualifications for the program must be ranked by the committee at least once annually. To the extent feasible, that annual ranking meeting should be held at a consistent time each year so as to facilitate nomination planning by the public, acquisition partners, and to create predictability for potential willing sellers and have its date confirmed four months in advance.

While nomination of a property only requires tax parcel information and the contact information of the person nominating a property, the nomination form and the ranking are structured so as to encourage the nominators to think pro-actively about what makes a good purchase for the county's conservation lands. While a property may have quality natural resources on it, it may also contain resources that are a detriment or deterrent to the County acquiring the property. These factors are considered when ranking properties for acquisition; therefore, if a nominator wants to be successful in their nomination, they should consider the following:

- **Purchase Area Boundaries** – Nominators may choose to nominate the entirety of a tax parcel or multiple tax parcels for the program. However, properties are assessed as the average score for all the natural resources on the property, not the highest valued resources on the property. By way of example, while a one-hundred acre property may have twenty acres of critical resources on the property, if the other eighty acres are of a marginal natural resource value, then purchasing the entire property may not be of great value to the County. Similarly, there may be houses and structures on a property which are financially burdensome to the county to maintain or remove and which are not additive to the conservation value of the property. Nominators are encouraged to nominate properties utilizing boundaries that take into account the optimal natural resource value and least liability for the County.
- **Landowner Participation** – While properties may be nominated without landowner participation, landowner participation is obviously required to acquire a property, and landowner participation in the nomination will be considered for a property's ranking. Therefore, nominators are encouraged to have landowners participate in the nomination process by having them sign the nomination form.
- **Bargain Sales and Match Funding** – The county does not have adequate funding to acquire all the valued and necessary natural resources in the county; therefore, it must seek to extend and leverage available funding to the greatest extent possible. Properties that come with match funding, expressed as either a dollar or percentage of the total purchase price, will get higher considerations in the ranking. Similarly, if a landowner wants to achieve a higher rank, they can agree to donate a portion of their property's

value to the county, expressed as a percentage of the assessed value as determined by the Property Appraiser or as a total cash amount.

- **Legal and Physical Access** – Access is important from a property management standpoint and to provide recreational opportunities for the public. Therefore, for properties that don't have a clear manner of access, or if a significant portion of the property has legal access, but lacks physical access because of some impassable barrier such as a river, stream or large wetland, with no legal means of access from the other side, it will affect the property negatively in the rankings.
- **Significant Liabilities** – There is also the need to consider the potential for significant liabilities to be incurred by the county if a property acquired contains environmental hazards such as historic toxic spills, significant numbers of, or significantly sized structures, or other things that would expose the County to risk. Properties with these liabilities will receive negative scores in the rankings.
- **Conservation Easements** – Conservation Easements are a great tool for the county to maximize value in preserving natural resources.. It is also a great tool to preserve natural resources on Properties that are otherwise not for sale. Conservation easements average about 40-60% of the total acquisition cost of a property, and therefore property's proposed as conservation easements may achieve a better ranking for that value. However, they often contain a lesser degree of public access and may receive a negative ranking because of it. Nominators should be aware that Properties, for which a conservation easement proposed, need to represent a very good value for the benefits of the cost savings to outweigh the lack of public access.

Staff shall publicly make available the CLAM Resource Scores, which are the basis for ranking properties. Ideally, that information will be provided as an interactive map, either on the county's planning page, or as a layer on the county property appraiser's interactive web map, and should be applied at a level of resolution adequate for the public to compare resource scores on a property by property basis. The CLAM Resource Rankings are the basis for the property rankings, so the publishing of this tool is necessary for the public to understand how well properties they nominate will potentially rank within the program, and to make decisions as to whether to propose a different property boundary other than the tax parcel boundary, so as to focus on the highest value resources.

Members of the public must nominate properties for acquisition, using the CLAM Nomination form, which is attached to the Manual. All nominations shall be provided to the staff at least two months in advance of the annual ranking meeting so that staff has time to rank the properties. Applications admitted after the two month cut-off may be accepted but may not be included in that year's ranking.

Ranking Properties for the CLAM

Once all the nominations have been received, staff shall aggregate those nominations and provisionally rank them. Staff will use the CLAM Resource Rankings and the Ranking Calculators to come up with the individually nominated property's scores for ranking. Staff will do so by taking the CLAM Resource Ranking, and averaging them across the property, to come up with an average resource score for the property. They will then take that resource score and apply the ranking calculator to the property, and using aerial inspection, ensure it has no obvious or visible liabilities, access issues, or other scoring considerations, as well as use the property tax assessed value to determine the property's relative value as compared to its resource significance. The final provisional score will be created from that analysis, and a ranked list of properties will be created from repeating this analysis on all relevant properties. The properties with the lowest scores shall be the highest-ranking priorities for acquisition.

Staff will then group the properties in the following groupings for consideration of the Committee.

1. **Priority Group:** The priority group represents the fifteen highest ranking nominated properties. Upon approval, these properties are the ones that staff are directed to actively pursue for acquisition. Within the priority group, there is no prioritization for staff to necessarily pursue the number #1 ranked property prior to the #2 ranked property. This is to ensure that staff has adequate flexibility in the negotiation of conservation lands, and not be "held hostage" by the number #1 ranked property in negotiations.
2. **Eligible Group:** The Eligible Group represents the next ten highest scoring nominated properties. For these properties there is no active directive to staff to negotiate for purchase, however, as Priority Group properties are acquired, properties on the Eligible Group may move on to the Priority Group, and then become eligible for purchase.
3. **The Non-Eligible Group:** These are all properties which did not rank highly enough to qualify for the Priority Group or the Eligible Group and are not candidates for acquisition at this time.

Staff must prepare the rankings of the properties for committee. The ranked list will provide the name of the property, the acreage, whether it was proposed as a purchase or a conservation easement, its provisionally ranked score, and an empty slot for committee members to propose re-ranking after hearing from staff and the public. Staff shall also prepare packets for all the Properties on the Priority Group and Eligible Group lists. At a minimum, the packets shall include:

1. The complete nomination form as provided to the County.
2. The full and complete ranking form as administered by staff.
3. An aerial map showing the boundaries of the property.
4. A map showing the CLAM Resource Scores of the property.
5. Other information as requested by the Committee, so long as that information is evenly gathered across all nominated properties.

Once this information is provided to the committee for review, their job is to assess the rankings and ensure the properties align with the core goals of the CLAM, and hear from staff

and the public whether there are outside considerations that may not have been included in the CLAM Resource Scores or the Ranking Process. The program uses the CLAM Resource Scores, as Nassau County staff does not have the capacity or the expertise to individually survey every applicant's property and quantitatively compare them to the other nominated properties. However, the Geographic Information Systems (GIS) data is not perfect, as it is not possible to simultaneously document, nor maintain up to date records of all the natural resource changes year to year in an area the size of the county. Thus, while the GIS data represents the best available information to document the county's natural resources, there will be flaws. Staff, nominators, and the public will have the opportunity at this meeting to advocate for individual properties and explain why it may deserve a higher or lower ranking.

At the inaugural ranking committee meeting, after the initial opening, staff will present the provisional rankings to the committee, as well as review the mapped boundaries of the nominated properties. A brief review will be conducted that explains property ranking in terms of high or low scores in the four categories of 1) water issues, 2) habitat and species, 3) working lands and outdoor recreation and quality of life, 4) cost of acquisition, or other considerations within the ranking calculator. After staff has presented the top 25 properties, there will be an opportunity for staff, nominators, and the public to speak about each property. Nominators are STRONGLY encouraged to speak for their projects.

Committee members will submit their individual rankings to staff, including any properties that are proposed to be moved from one group to another. Staff will aggregate the rankings and present them to the committee for votes. After any amendments have been made, the committee will then vote to recommend the final list to the BoCC.

The inaugural committee meeting will be quite long, as committee members work to populate the list. However, unacquired properties on the lists that are not proposed for acquisition will remain on the list from year to year until they are acquired or removed, and subsequent ranking meetings will be less time-consuming.

Removal of Properties from the Priority and Eligible Groups

At any time, any property owner may request their property be removed from the Priority or Eligible groups. They may do so by submitting their request in a written communication to staff. If staff in good faith attempts to negotiate the purchase of a property and is unable to come to an agreement with the property owner, that property may also be struck from the list. In either situation, the property owner or nominator will have to wait one year, or forgo one application cycle for ranking, before they nominate the property again. If a property is removed from the list for an unsuccessful negotiation, staff may use any facts discovered during the negotiations process for that property when applying the calculations to the property for the provisional rankings going forward.

Acquisition of Conservation Lands

Upon approval of the priority group list by the BoCC, Staff shall be empowered to negotiate the acquisition of the properties. The negotiations have the potential to be highly complex and customized to the property and property owner. There may also be matching funding partners who will be a party to the negotiations. For those reasons, there is no one correct way to conduct the negotiations. However, due to Florida statutory requirements, commitments to transparency and good faith negotiations, and rules for good negotiations, the following is required:

Due Diligence – In the process of acquiring properties, staff must obtain the following:

- Title Insurance – For any property for which it is proposed the County will acquire a real property interest, staff shall obtain a title commitment prior to contract and title insurance while under contract from an appropriately certified title agency. Staff shall review the commitment requirements to ensure that the county and/or the property owner can provide all documentation required within that section. They will also review the exemptions to ensure first that no exemption within the title commitment threatens the county's unencumbered ownership of the property in the future. Staff must also review the exemptions to ensure that no encumbrances, or rights titled to third parties, if used, would significantly harm the natural resources on the property or the public's ability to enjoy the property, if not a conservation easement. A copy of the title commitment must be furnished to the appraiser prior to completion of the appraisal.
- Conservation Easements – if the County is seeking to acquire a conservation easement, the conservation easement must be negotiated prior to the appraisal, as the appraiser must have a copy of the conservation easement to appraise it. In the crafting of conservation easements, they must be structured so as to provide benefits in terms of the primary goals of the CLAM. For instance, conservation easements may provide accommodations for water resources protection or species and habitat protection in excess of regulatory requirements and agricultural best management practices.
- Appraisal – Prior to the County entering into a contract for purchase of property, in accordance with Section 125.355, Florida Statutes, Staff must obtain at least one and possibly two Uniform Standards of Professional Appraising Practices (USPAP) certified appraisals of the property, free of any hypothetical conditions. Hypothetical conditions is a technical term, which is defined under USPAP as, "a **condition**, directly related to a specific assignment, which is contrary to what is known by the **appraiser** to exist on the effective date of the assignment results, but is used for the purpose of analysis..." The appraisal standard of a USPAP is a minimum standard, and if the county is acquiring in partnership with or using the funds of a state or federal agency they will likely have to do either the federal government's Uniform Appraisal Standards for Federal Land Acquisitions, or the State's supplementary appraisal standards. The County

should also prioritize the use of appraisers who have a record of doing market assessments in Nassau County and of property's like the one being appraised.

- For properties with value in excess of \$500,000 two appraisals are required, in accordance with Section 125.355, Florida Statutes. This statute states "... the governing body shall obtain at least one appraisal by an appraiser approved pursuant to s. [253.025](#) for each purchase in an amount of not more than \$500,000. For each purchase in an amount in excess of \$500,000, the governing body shall obtain at least two appraisals by appraisers approved pursuant to s. [253.025](#). If the agreed purchase price exceeds the average appraised price of the two appraisals, the governing body is required to approve the purchase by an extraordinary vote (greater than a simple majority). The governing body may, by ordinary vote, exempt a purchase in an amount of \$100,000 or less from the requirement for an appraisal."
- Phase 1 Environmental Due Diligence – a "Phase 1" is a study of a property by a qualified environmental professional wherein they review permits, historic title and land use and users, along with site inspection to determine if there is a likelihood of environmentally hazardous conditions such as toxic chemicals, historic spills and more. The significance of a Phase 1 is that a buyer receives some legal protection against the liability of having to clean up unknown environmental contaminants on the property. Based on circumstances, Staff must do a Phase 1 prior to or during the contract period. If there is a reason to believe that contamination may exist, Staff may decide to do a Phase 1 before expending funds on other forms of due diligence, before the contract period. In most cases, it may be more sensible and financially prudent to wait until the property is under contract and execute the Phase 1 under a contingency that the County can cancel the contract if hazardous materials are found. In some cases, the Phase 1 contractor may find reasonable evidence hazardous materials may exist on the property and suggest soil and/or water sampling to confirm. It will be up to Staff to determine whether the continued exploration of the issue will justify continuing with the project.
- Surveys – there are a number of different reasons the County may wish to perform a boundary survey: if it is a requirement to achieve a full title insurance policy; to better understand where the property boundaries are; to legally subdivide a tract which has not been subdivided; to correct issues of trespass; to precisely locate structures or certain resources, etc. However, based on the property and circumstances, surveys can be prohibitively expensive. Surveys are typically conducted during the contract period. Therefore, staff should, if they deem a survey too expensive, request a survey waiver from the committee and commissioners when requesting approval of a contract for purchase. Otherwise, full or partial boundary surveys shall be conducted during the contract period.
- Baseline Documentation Reports – Baseline Documentation Reports (BDRs) are technical support documents for conservation easements needed to enforce the conservation easement. BDRs document the natural resources the County is seeking to protect, as well as the general baseline condition of the property at

the time the conservation easement is executed. This is necessary information if a conservation easement is violated so as to prove the violation and require remediation to an expected condition. For conservation easement purchases, the creation of a BDR is mandated during the purchase contract period.

Good Recordkeeping

- Nassau County staff shall keep permanent records of all due diligence, contract, and deed documents associated with the purchase of the property, as well as a record of communications on each property acquired. If outside grant funding or donations are used in the acquisition, the grant contract or gift restrictions shall also be maintained. This is to facilitate transparency and ensure that future land managers know what legal restrictions may have been applied to the land, and to assist in the legal defense if property ownership rights are challenged.

Confidentiality and Written Offers

- In accordance with Section 125.355, Florida Statutes:

In any case in which a county, pursuant to the provisions of this section, seeks to acquire by purchase any real property for a public purpose, every appraisal, offer, or counteroffer must be in writing. Such appraisals, offers, and counteroffers shall not be available for public disclosure or inspection and are exempt from the provisions of s. 119.07(1) until an option contract is executed or, if no option contract is executed, until 30 days before a contract or agreement for purchase is considered for approval by the board of county commissioners. If a contract or agreement for purchase is not submitted to the board of county commissioners for approval, the exemption from s. 119.07(1) will expire 30 days after the termination of negotiations. The county shall maintain complete and accurate records of every such appraisal, offer, and counteroffer. For the purposes of this section, the term "option contract" means a proposed agreement by the county to purchase a piece of property, subject to the approval of the local governing body at a public meeting after 30 days' public notice. The county will not be under any obligation to exercise the option unless the option contract is approved by the governing body at the public hearing specified in this section.

Next, an acquisition agreement containing an offer and other relevant terms will be prepared and agreed to between the property owner and county manager. The timelines and closing requirements of any funding partners, if any, must be considered in drafting of the acquisition agreement. Once a contract is finalized, the contract must be presented to the Commission with the following:

- the acquisition or option contract; and
- a conceptual use plan. The conceptual use plan need not be more than a one or two page document that gives a concise summary of the resources to be protected on the property, how the proposed acquisition of the property serves to protect those resources, and a short list of the potential recreational

opportunities on the property, and if they could potentially conflict with the resource protection, what steps will be necessary to ensure compatible use.

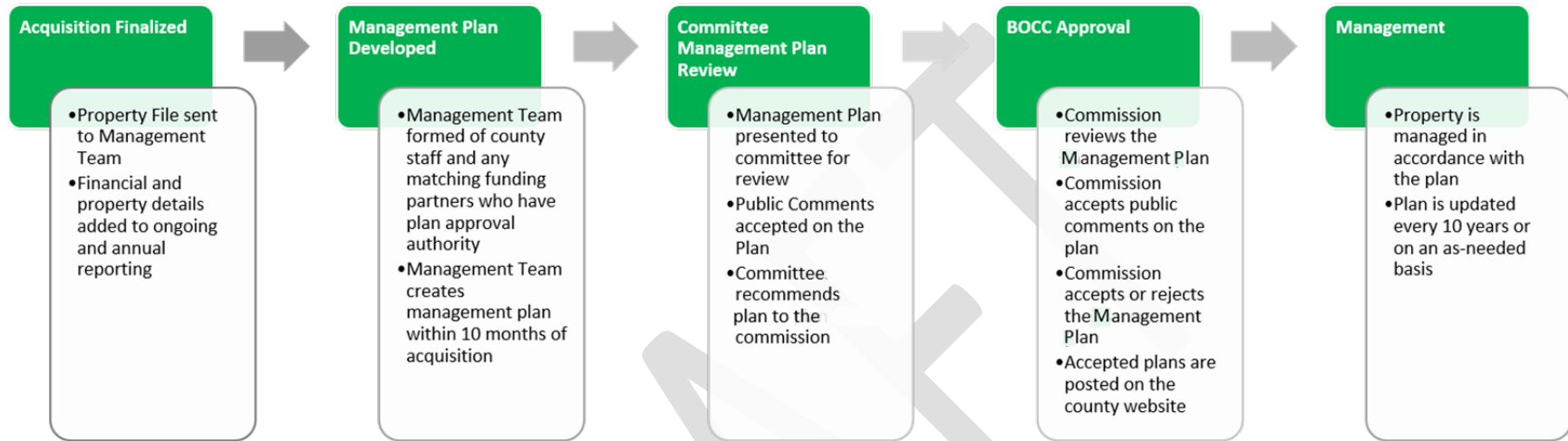
- An aerial map displaying the boundaries of the property.

Staff shall present the property report to the Commission and include in that presentation any relevant points of concern found in the due diligence process related to the protection of the natural resources. After due public notice, the Commission will then take public comment on the acquisition and after discussion, recommend or not recommend acquisition of the property to the BoCC.

If the BoCC approves the acquisition of the property, staff will complete the acquisition process, subject to the satisfactory completion of all due diligence requirements.

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Management Process Chart



Management Plans

The development and implementation of Management Plans for lands acquired through the CLAM program is a critical component of the conservation process. Management Plans are long-term plans related to the administration and management of conservation property, for both ensuring consistency in management as well as reassuring the public that the property will be managed in a responsible manner. They provide a foundation for determining a property management budget and detail financial needs the County will have in improving and managing the property. They are also a requirement of most match funding sources.

Staff shall produce a management plan within one year of acquisition of conservation land, unless that land has been added to existing conservation lands, in which case they must amend the existing management plan for inclusion of the newly acquired property. All management plans shall be prepared by a duly qualified forester, natural resource professional, and/or landscape architect. At a minimum, management plans shall include the following.

- A narrative description of the natural and cultural resources on the property in general, as well as how those natural resources interact with the environments within Nassau County generally.
- A narrative description of the recreational activities planned for the property, how such activities will impact natural or cultural resources, and if there is the potential for resource impacts, how the county plans to mitigate such impacts.
- An aerial map of the property boundaries.
- A stand map, delineating the habitat and timber stands on the property.
- A description of how each of the stands will be effectively managed to maximize resource potential.
- A recreational resources map, indicating the location or planned location of all existing and planned recreational resources.
- A 10-year projected budget for the costs of management and recreational resource development on the property. It is important to note the Management Plan budget is not an obligatory budget for the County but is intended to help to develop the overall County budget.
- A location map showing the general location of the property within the County.
- An optimum boundaries map, indicating if acquisition of adjacent properties is critical for the management of natural, cultural, and recreational resources on the property, and how.
- A hydrological map, showing the location of all surface waters and wetlands on the property.
- An existing structures map, documenting the location of existing improvements at acquisition, including buildings, roads and other improvements, and photo documentation of those improvements if necessary, to convey their condition and therefor help to estimate improvement costs within the budget.
- Any other photos, maps, or narratives necessary to accurately determine resources to be managed.

Depending on the complexity of the plan and the level of public interest in the property, a public workshop may be held prior to the implementation of a management plan. Once staff has prepared the management plan, it shall be presented to the committee for approval. The committee will hear public comment on the plan, and then vote to either recommend or not recommend to the commission, or suggest amendments to the management plan. If recommended by the committee, it will then be sent to the commission for approval. Management plans should be for ten years but can be amended on an as-needed basis as conditions change.

Management Partnerships

In some cases, state agencies such as the Florida Forest Service Florida Fish and Wildlife Conservation Commission or non-profit entities such as land trusts may partner with the County in the management of acquired conservation lands, either in full or in part. However, if there is not a well-structured agreement detailing management terms, the management partnership can entail significant liabilities to both parties. In such cases, the county should create a management agreement with that partnering management entity. The management agreement shall contain, at a minimum, the following provisions.

- A scope detailing the full responsibilities of the parties for each of the management activities as detailed in the management plan. If the management partner intends to create their own management plan, the management agreement shall provide that the management partner shall be required to provide their management plan for review by the committee and approval of the BoCC within a year of the execution of the management agreement, prior to the commencement of management activities.
- A list of the partner's management objectives.
- An explanation of how the partner's management objectives meet the primary goals of the CLAM.
- Provisions for revenue sharing from potentially profitable management activities, such as timber harvesting, access fees, or leasing to appropriate commissaries.
- Provisions dealing with the acceptable use of subcontractors for management activities.
- Qualifications and experience of the managers.
- Insurance and indemnity requirements for both parties.
- A lease or contract agreement between the parties giving legal force to the management agreement.

The management agreement shall be provided to the committee for review and a presentation of the terms made by the staff. Public comment will be accepted, the committee will discuss the agreement, then choose as to whether to recommend it to the Commission.

Conservation Easement Monitoring and Violation Resolution

If the County acquires conservation easements, it must ensure that property owners abide by the easement terms and conditions. Therefore, the county shall monitor all conservation easements by conducting in-person staff visits at least annually. These visits are not only essential to enforcing the conservation easements but provide an opportunity for the County to reconnect with property owners and review any existing or potential issues or challenges related to the property and the terms of the conservation easement reducing the likelihood of

violations in the future. If a staff person discovers a violation of a conservation easement, they shall take the following steps.

- Fully document the violation with photographs and GPS waypoints.
- Prepare a report for the review of their immediate supervisor, the county manager, and the county attorney, providing evidence and a narrative explanation for why they believe the conservation easement has been violated.
- If it is determined that a violation has occurred, Staff must classify the violation into one of two following categories.
 - Minor violations: minor violations are those that have not caused significant or lasting harm to the resources on the property or the goals of the CLAM.
 - Major violations: major violations are those that have caused significant or lasting harm to the resources on the property or the goals of the CLAM, or a minor violation for which the property owner disagrees that a violation has occurred and/or will not agree to a remedial action plan.

If Staff agrees that a minor violation has occurred, the county attorney will prepare a certified letter for the property owner, detailing why the County believes a violation has occurred, and provide signature blocks under which the property owner indicates their agreement or disagreement that a violation has occurred and their willingness to participate in a remedial action plan. After receipt, the landowner shall have a maximum of thirty days to respond to the letter, though they are encouraged to communicate with Staff as to why a violation is believed to have occurred and what a remedial action plan may entail. If the property owner agrees to participate in the remedial action plan, Staff will prepare a plan for how the property owner can correct the violation and timelines under which to do so. One or more follow-up inspections will be conducted after the remedial action plan has been executed to ensure compliance.

If a violation is classified as a major violation, or a minor violation where the landowner is unwilling to participate in the correction of the minor violation, then the county attorney and manager shall devise a legal strategy for how to best enforce compliance with the conservation easement and correction of the harm done to the resource and the CLAM program. Staff will then present the strategy to the Commission for approval.

Due to the sensitive and potentially litigious manner of conservation easement violations, it is not recommended that these violations be put in front of a public committee of volunteers, such as the CLAM committee. However, the committee may be asked to give advice on remedial action plans, as an expert committee, according to the needs of staff and the Commission.

Transparency and Reporting

To ensure public confidence in the CLAM program and to allow the public, staff, and the BoCC to regularly assess the success of the CLAM, it is important that regular reporting occur.

Therefore, it is recommended that the County post and provide the following information and reports in easily accessible and appropriate places on the county website.

- An interactive web map of the CLAM Resource Rankings map.
- An annual report detailing the purchases made under the program in the previous year. This report should include the names of properties, acreages, county funds spent,

matching funds spent, how the property meets the goals of the CLAM, the location of the property, and remaining funds in the program. It should also include a summary of the total past successes of the program.

- An interactive web map of all the properties acquired under the program, recreational opportunities available and where they may be accessed by the public.
- A copy of this manual, the county conservation plan, and the enabling legislation controlling it.
- Copies of the nomination and ranking forms.
- A copy of the priority group, and eligible group lists, and a static map of their locations.
- A schedule of CLAM Meetings for the upcoming year.

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Appendices



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Appendix A: Nassau County Conservation Plan

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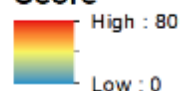


CLAM Resource Rankings

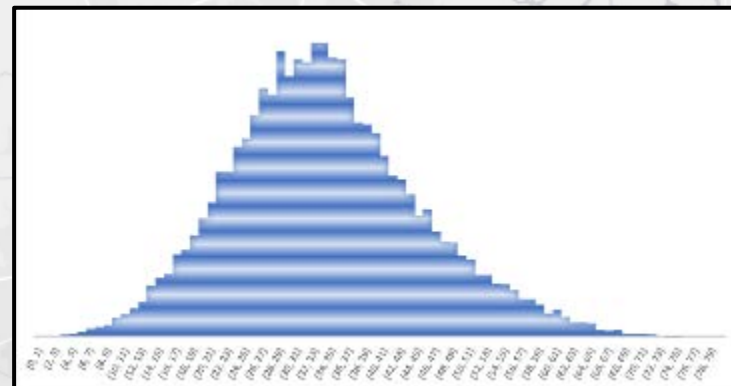
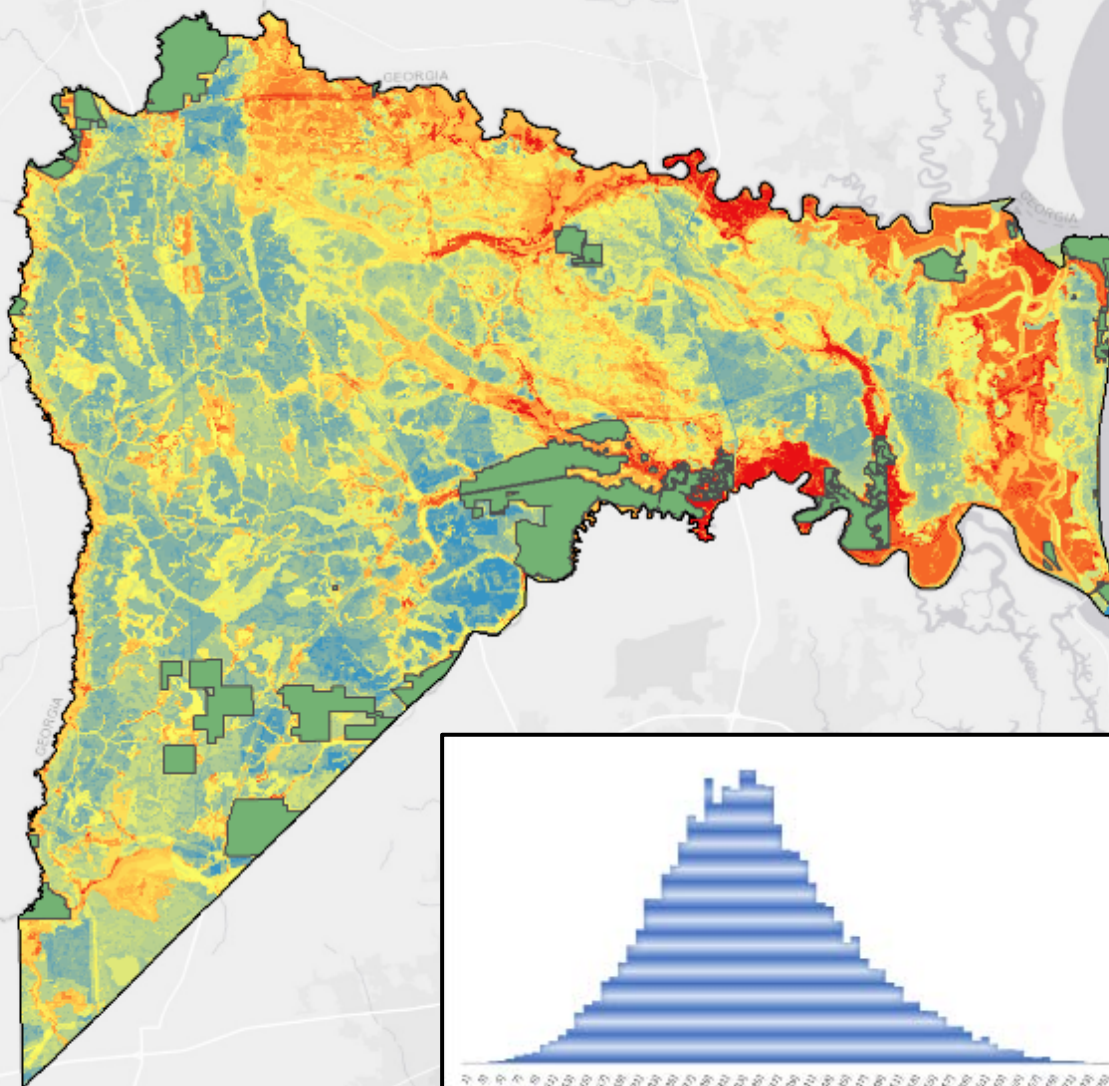
-  Nassau County
-  Conservation Lands

CLAM Resource Rankings

Score



This map displays a final ranking of the natural resources within Nassau County, weighted according to the combined public and subject matter expert's input. While 100 points were possible, the highest achieved score was 80 points for any given resource. The histogram (right) displays the distribution of those scores by occurrence across the county. While 80 was the maximum achieved score, 67 points is the functional maximum in identifying top 1% of highest ranked resources.



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What is a Strategic Conservation Plan?

A strategic conservation plan is any sort of document, tool or map that helps an entity identify, prioritize, and pursue natural and cultural resources for conservation. In this case, Nassau County needs a tool for use by Nassau County staff and the public to identify which lands should be acquired for a conservation purpose. Nassau County currently has a low percentage of overall conservation lands, with only 7% of the county in conservation, far less than needed to ensure a healthy environment for the future and less than the average for most counties in Florida. The County is also fiscally constrained, so hiring staff to identify and vet properties is unlikely at this point. Therefore, a system of professionally vetted resource inventories can be used to identify areas of significant resource concern had to be developed. In addition, the County needs a tool to allow it to weigh and consider each resource concern at the magnitude that the resource impacted the County. Finally, the County wanted a plan that was transparent in its creation and which allowed for public input.

To serve these needs, a GIS (Geographic Information Systems)-based plan was formulated. GIS refers to a software program that allows the user to create, analyze, and manipulate geographic information, known as data layers. These data layers are, in and of themselves, maps of different resources, which can be displayed as they overlap and interact, and where different statistical and analytical processes can be applied to data layers to better understand a landscape filled with multiple interacting resources. In consultation with Staff, 19 different data layers were selected for consideration, representing a number of different potential conservation resource concerns. All the data layers were produced by, or derived from, data layers that were produced by major universities and state and federal conservation agencies. The different data layers all relate to one of the four most common considerations for acquiring conservation land and fall into the following categories: Water Issues, Habitat and Species Protection, Working Lands, and Outdoor Recreation and Quality of Life.

Though GIS-based processes are rare in county conservation programs, they are common tools used by a variety of state and federal programs when ranking lands for acquisition. The process is similar to how the State of Florida determines which properties to acquire under Florida Forever, though the data layers and input process differ somewhat. GIS-based decision making tools are best implemented over county-sized and larger geographies where resources are limited in discovering and assessing lands for conservation.

The specific data layers are all presented in map form in the attached Mapbook.

Finally, to ensure transparency and fair input, a three-level input process was developed, starting with the county commission, then subject matter experts, then input from the public. These three levels of input were decided upon because any long-term and successful publicly run conservation program has three elements. They are described as follows.

- Politically Practical – political practicality in this case is an acknowledgement that the program must follow the rules of good governance generally, applicable state and federal law, and be workable within the constraints of the local political environment. This can refer to restrictions created by an outside and higher authority, such as the State of Florida or federal government, regarding the administration of such a program.

It can also refer to more practical considerations and community ethics, such as fiscal responsibility or transparency. Finally, elected officials will be responsible for making decisions about the outcomes of any conservation program, and therefore the program must be responsible to those officials and meet expectations for excellence in programming to be defensible to the community at large.

- Scientifically Valid – ultimately, any conservation program executed will be for the purpose of ensuring a healthy natural and human community. Therefore, each of the resources targeted for the program must be vetted by experts to ensure the program adequately serves the community.
- Publicly Supported – Finally, the program must be supported by the public at large to be successful. Therefore, the plan must reflect the public's interests in conservation generally, so long as those interests are scientifically valid and politically achievable.

Given their importance to the success of the CLAM program, the following sections expound upon each of the three aforementioned benchmarks.

How to use this Plan

The Nassau County Conservation Plan is first and foremost to be used in support of the Conservation Lands Acquisition and Management (CLAM) program, as described in the Nassau County Conservation Lands Acquisition and Management Manual. The final output of this plan is the CLAM Resource Rankings, which condenses all of the data layers considered into a singular map, showing the priority of those concentrated resources as prioritized by the public, subject matter experts and the county commission. The CLAM Resource Rankings are the tool the county will use to assess properties for potential acquisition as conservation properties.

However, this plan should be used for more than simply ranking properties. The County has already indicated an interest in working with other conservation partners to assist in funding conservation acquisitions and in the implementation of other conservation programs. In developing these relationships, the conservation plan provides a clear vision of Nassau County's priorities and conservation values.

Finally, it may be that in the development of other conservation programs or community planning documents and initiatives, this plan and the CLAM Resource Rankings will be helpful in informing the County where areas of sensitive resource concern exist.

Politically Practical

The success of any county-run conservation program rests on its ability to be acceptable and executable in an evolving political environment over time. This is not to say that the goals of the program should be driven by political necessity, but that politics often creates "guardrails" which define the range of political practicality. Ultimately, decisions to execute on different elements of the conservation program are up to elected commissioners, who are answerable to a diversity of interests across the county. The Nassau County Commission was interviewed to determine what commissioner expectations are for the program going forward.

Overall, commissioners were open-minded to considering a wide variety of properties and conservation goals, and the broader focus of the majority of the commissioners was more on the execution and values they felt should be fundamental to the program. Those values are

detailed in the attached commissioner interviews and inclusive to the public feedback, included in the goals of the CLAM.

Generally, the commissioners expected the following outcomes.

- A professional, transparent process, where quality conservation resources could be acquired at costs that represented value for money.
- The program should not be driven by anti-growth considerations, which was not a denial of the potential threat of development to resources, but an affirmation that properties still consist of a high-quality resources.
- Recreational opportunities should be available—since the public was paying for the land acquired, they also should have the opportunity to enjoy it.
- The program will protect the county's water quality and assist with issues of flooding and storm surge.
- The program will create safe havens for wildlife and wildlife corridors for their safe movement across the County.
- In rural parts of the County, the program can be used to maintain the outdoor recreational aspect of a rural lifestyle and the scenic nature of rural areas.
- The program should be constructed in a way that attracts funding partnerships.
- If working lands were being preserved, those working lands must make accommodations for the preservation of natural resources on their land.

These values were incorporated into the goals and the structure of the Conservation Lands Acquisition Management Program. Commissioners were also asked to rank, in a High/Medium/Low significance format, the data layers for the conservation plan. Commissioner rankings were used to determine if any of the data layers were unacceptable for incorporation into the Conservation Plan and to track whether Commissioner perspectives matched subject matter expert and the public's input into the program. Ultimately, only one data layer was rejected by a majority of the Commission, a "restorable lands" layer, which would prioritize degraded natural resources that could be restored, prioritized by the ease of restoration. Ultimately, it was rejected because that restoration is expensive and currently outside of the skills the county currently possesses, and at this early point in the program, there is a wide availability of resource areas not in need of restoration.

The following matrix documents Commissioner input on those data layers:

	Commissioners							
Questions	Ford	Taylor	Edwards	Leeper	Bell	Average	Average Value	Frequency
Water								
Significance of Water Issues	2	2	3	3	2	2.4	Med. High	(3)2s, (2) 3s
Preserve Existing Water Quality	3	3	3	3	3	3	High	(5) 3s
Storm Surge	3	3	2	3	2	2.6	Med. High	(2)2s, (3) 3s
Avoiding Development on Sensitive Land/Water Interface	2	3	2	3	3	2.6	Med. High	(2)2s, (3) 3s
Avoiding Sea Level Rise Impacts	1	3	2	2	1	1.8	Medium	(2)1s, (2)2s, (1) 3s
Habitat and Species								
Rare and Unique Habitats	2	2	3	2	3	2.4	Med. High	(3)2s, (2) 3s
Restoreable Lands	1	3	1	2	1	1.6	Med. Low	(3)1s, (1) 2s, (1)3s
Gopher Tortoise Habitat	3	3	3	3	3	3	High	(5)3s
Habitat Most Impacted by Development	2	3	2	2	3	2.4	Med. High	(3)2s, (2) 3s
Wildlife Corridor Network	1	2	3	3	3	2.4	Med. High	(1)1s, (1)2s, (3)3s
Working Lands								
Sustainable Forestry	3	3	3	3	3	3	High	(5)3s
Highest Production Timberlands	3	3	3	3	1	2.6	Med. High	(1)1s, (4)3s
High Productivity Farm Soils	3	3	2	3	1	2.4	Med. High	(1)1s, (1)2s, (3)3s
Existing Farms and Ranches	3	3	2	3	2	2.6	Med. High	(2)2s, (3) 3s
Rec. & Quality of Life								
Serve High Population Densities	2	3	3	3	3	2.8	High	(1)2s, (4)3s
Buffer/Add to Existing Lands	3	2	2	3	2	2.4	Med. High	(3)2s, (2)s
Areas Underserved for Parks	3	3	3	3	3	3	High	(5)3s
Connectivity for Blueways and Trails	3	2	3	3	3	2.8	High	(1)2s, (4)3s

Key	1	Low
	2	Medium
	3	High

Scientifically Valid

As the next part of the process, a team of subject matter experts was convened to help the County make decisions as to the type of conservation resources that should be focused on in the execution of the CLAM program. Due to the COVID-19 pandemic, in-person meetings were canceled in favor of an online webinar format. In that webinar, experts were provided an inventory of Nassau County's natural resources, and each individual data layer was reviewed and explained for the group. The experts were asked to vote on which of those data layers were of the greatest significance to protecting Nassau County's conservation resources and whether any other data layers should be included for consideration. A dot-matrix voting approach was used using an online surveying process that could be done live during the webinar. Subject matter experts were asked to vote five times on the resource categories and then the data layers within each resource category. In each case, there were four to five options, with the experts being allowed to vote twice. The experts could apply both their votes to one choice and alternatively not use their votes at all. Experts were also asked if there were other data layers that should be considered. No other data layers were nominated.

When asked to rank the significance of the different resource categories, they voted in the following manner.

<u>Resource Category</u>	<u>Percent Votes For</u>
Water Issues	44%
Habitat and Species Protection	27%
Working Lands	19%
Outdoor Recreation and Quality of Life	10%

Within the category of Water Issues, the subject matter experts ranked the data layers provided in the following manner:

<u>Data Layer</u>	<u>Percent Votes For</u>
Surface Water Buffering	18%
Storm Surge and Flooding	45%
Sea Level Rise Adaptation	37%
Aquifer Recharge Areas	0%

Within the category of Habitat and Species Protection, the subject matter experts ranked the data layers provided in the following manner:

<u>Data Layer</u>	<u>Percent Votes For</u>
Priority Natural Communities	28%
Strategic Habitat Conservation	24%
Most Threatened Habitats	11%
Wildlife Corridors	32%

Gopher Tortoise Suitability	5%
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Within the category of working lands, the subject matter experts ranked the data layers in the following manner:

<u>Data Layer</u>	<u>Percent Votes For</u>
Sustainable Forestry	55%
High Productivity Timberlands	6%
Prime and Significant Farmland Soils	25%
Existing Farms and Ranchlands	14%

Within the category of outdoor recreation and quality of life, the subject matter experts ranked the data layers in the following manner:

<u>Data Layer</u>	<u>Percent Votes For</u>
Service Area Density	10%
Underserved Areas for Parks	19%
Adjacent to Parks	29%
Proximity to Trails and Blueways	40%
Historic Resource Preservation	2%

Public Support

In May 2020 a survey of the Nassau County public was performed. Due to the Covid-19 Pandemic, an electronic survey process was employed. In this case, a webinar was provided similar to the subject matter experts' webinar which inventoried the Nassau County resources and described each of the data layers for the public. During the live webinar and afterwards, attendees were encouraged to submit written questions about the presentation and the program. Those questions were recorded and used to develop a Frequently Asked Questions list for placement on the County's website, along with a recorded copy of the webinar and a link to an online survey which polled the public about each of the resource categories and data layers. As with the survey of subject matter experts, each member of the public was allowed two votes that could be applied to each question. E-mails and zip codes were requested from each of the survey respondents to ensure they were Nassau County residents.

A total of 300 County residents participated in the survey.

When asked to rank the significance of the different resource categories, participants voted for the following:

<u>Resource Category</u>	<u>Percent Votes For</u>
Water Issues	36%
Habitat and Species Protection	31%
Outdoor Recreation and Quality of Life	21%
Working Lands	10%

Within the category of Water Issues, participants ranked the data layers provided in the following manner:

<u>Data Layer</u>	<u>Percent Votes For</u>
Surface Water Buffering	24%
Storm Surge and Flooding	29%
Sea Level Rise Adaptation	21%
Aquifer Recharge Areas	26%

Within the category of Habitat and Species Protection, participants ranked the data layers provided in the following manner:

<u>Data Layer</u>	<u>Percent Votes For</u>
Priority Natural Communities	10%
Strategic Habitat Conservation	23%
Most Threatened Habitats	32%
Wildlife Corridors	26%
Gopher Tortoise Suitability	9%

Within the category of Working Lands, participants ranked the data layers in the following manner:

<u>Data Layer</u>	<u>Percent Votes For</u>
Sustainable Forestry	40%
High Productivity Timberlands	7%
Prime and Significant Farmland Soils	20%
Existing Farms and Ranchlands	33%

Within the category of Outdoor Recreation and Quality of Life, the subject matter experts ranked the data layers in the following manner:

<u>Data Layer</u>	<u>Percent Votes For</u>
Service Area Density	21%
Underserved Areas for Parks	22%
Adjacent to Parks	15%
Proximity to Trails and Blueways	24%
Historic Resource Preservation	18%

GIS Development of the Conservation Plan

Reconciliation of Subject Matter Expert and Public Surveys

Once the subject matter expert and public surveys were completed, the next step was to turn the survey results into weighting for each of the data layers for integration within GIS. The results of the survey were discussed with County staff to determine if there were any major areas of disagreement and how such should be interpreted.

The results of the public and expert surveys were in general agreement on many issues. Where there were minor disagreements in the final survey results, a “split the difference” approach was taken, where the difference in the public and subject matter results were simply averaged.

There were a few exceptions where the results significantly diverged and excess interpretation had to be taken used.

First, in the ranking of the resource categories, there was a complete divergence in the prioritization of working lands and outdoor recreation and quality of life categories, with the experts preferring working lands preservation and the public preferring outdoor recreational opportunities and quality of life. Given the significance of the recreational opportunities and the expectation of compromise on resource protection on working lands in the Commissioner interviews, it was decided to go with the public’s prioritization. Based on Commissioner guidance and the public’s response, working lands can and should still be part of the program, but should still be selected based on their natural resource quality and willingness to compromise for the conservation of those resources.

Second, the experts and the public widely diverged on the significance of aquifer recharge areas within the County. In reviewing the science behind recharge areas in the County with the staff, it was determined that while there are areas in the County where rainfall contributes to the Floridan aquifer -- the primary drinking water source in the County -- that contribution is quite small. Of an average of 52 inches of rainfall a year, some portions of the County contribute up to 4 inches of that water to the Floridan Aquifer every year, however, other places in Florida may contribute up to 40 inches of rainfall to the same aquifer. It was decided that if the County wishes to participate in the conservation of drinking water, working with the Water Management Districts and the Water Supply Planning Partnerships to preserve those recharge areas in other parts of the state would be more efficient. The Aquifer Recharge Areas data layer was determined scientifically invalid and removed.

Third, within the Species and Habitat Protection category, the public and subject matter experts diverged on whether to prioritize the Priority Natural Communities data layer, which prioritizes those habitats at greatest risk of loss in the state, and the Most Threatened Habitats data layer, which prioritizes the habitats at greatest risk of loss in the County, with the public favoring those resources at risk on a county-wide basis, and the experts on a statewide basis. However, when reviewing the data layers in depth, it was revealed that with some small exceptions, the habitats at greatest risk in the County are similar to those at risk across the state, and recognizing that, the decision was still made to simply “split the difference” with the votes.

Finally, the Historic Resources Layer was voted upon, but the actual data layer is still under development by a consultant hired by the County. Though not completed at the time of writing, it will be added to the final CLAM Resource Rankings when available.

Scoring the Data Layers

Upon reconciliation of the public and expert surveys, the reconciled vote percentages were then converted into scores for the data layers. This process starts with the voting on the resource categories, which determines the total number of points the combined data layers can achieve in each category. As a comparable analogy, imagine taking a test with 100 points possible, broken into four sections, with each section having multiple questions. On the test, each section is worth different amounts of points overall, maybe 10, 40, 20 and 20 points respectively, with the questions under each section totaling to amount of points in each section. In this case, the resource categories are like the test sections, with the individual data layers like the questions.

Converting the reconciled public and expert votes into scores then looks like the following:

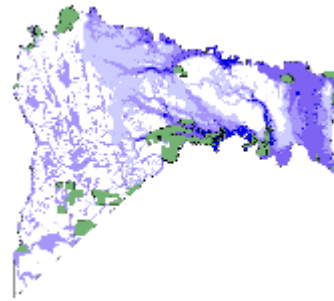
<u>Resource Category</u>	<u>Resource Category Score Total</u>	<u>Data Layer</u>	<u>Data Layer Score</u>
<i>Water Issues</i>	<i>40 points</i>		
		Surface Water Buffering	7 points
		Sea Level Rise Adaptation	15 points
		Storm Surge and Flooding	18 points
<i>Species and Habitat Protection</i>	<i>29 points</i>		
		Priority Natural Communities	6 points
		Strategic Habitat Conservation	7 points
		Most Threatened Habitats	6 points
		Gopher Tortoise Suitability	3 points
		Wildlife Corridors	7 points
<i>Working Lands</i>	<i>11 points</i>		
		Sustainable Forestry	5 points
		Significant Farmland Soils	2 points
		High Productivity Timberlands	1 point
		Existing Farms and Ranches	3 points
<i>Outdoor Recreation and Quality of Life</i>	<i>20 points</i>		
		Service Area Density	3 points
		Underserved Areas for Parks	4 points
		Adjacent to Parks	5 points
		Proximity to Trails and Blueways	7 points
		Historic Resources	1 point
<i>Total</i>	<i>100 points</i>		<i>100 points</i>

These points are then applied directly to the different data layers to weight and score them. Some of the data layers are priority indexes, which map different resources but have an internal

priority within the data layer. For example, the Storm Surge and Flooding Data Layer prioritizes things on a 1 to 5 priority level, giving higher priority to area more likely to flood and lower to those which can flood but at a lesser likelihood. As the Storm Surge and Flooding data layer is worth 18 points, the highest priority is provided all 18 points, the next highest 14 points, then 11, 6 and 2 points respectively, based on the level of prioritization. A graphic explaining the GIS process for applying the scores to the data layers is provided here:

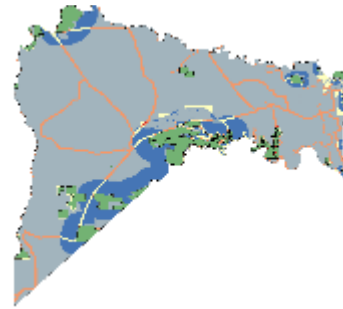
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- Water Issues
40 points
- Surface Water Buffering - 7 points
 - Flooding and Storm Surge - 18 points
 - Sea Level Rise Adaptation - 15 points



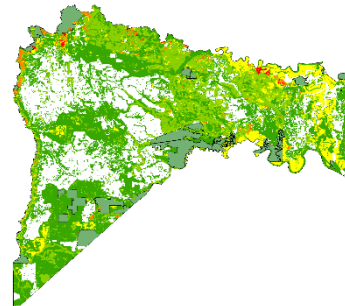
Water Issues Map – 40 points

- Outdoor Recreation, Quality of Life
20 points
- Service Area Density - 3 points
 - Underserved Areas for Parks - 4 points
 - Adjacent to Parks - 5 points
 - Proximity to Trails - 7 points
 - Historic Resources - 1 point



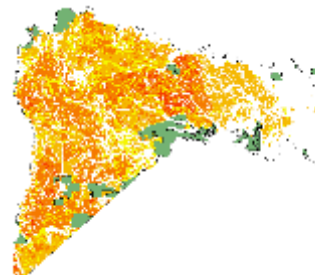
Outdoor Recreation and Quality of Life Map – 20 points

- Species and Habitat Protection
29 points
- Priority Natural Communities - 6 points
 - Strategic Habitat Conservation - 7 points
 - Most Threatened Habitats - 6 points
 - Gopher Tortoise Suitability - 3 points
 - Wildlife Corridors - 7 points

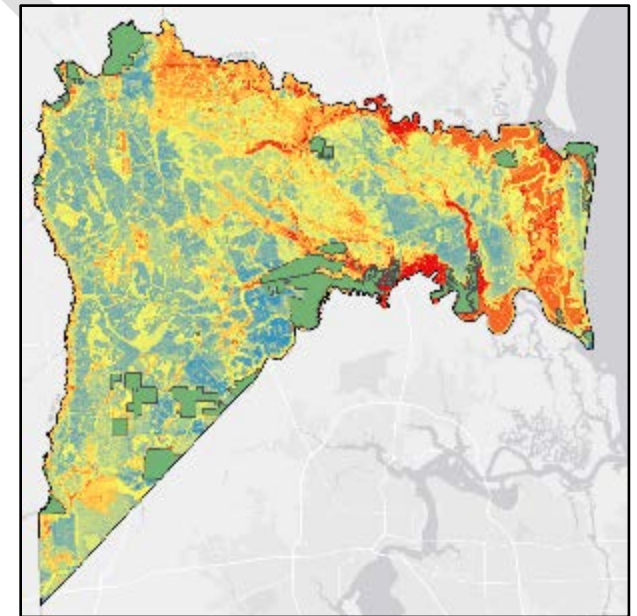


Species and Habitat Protection Map – 29 points

- Working Lands
11 points
- Sustainable Forestry - 5 points
 - Significant Farmland Soils - 2 points
 - High Productivity Timber - 1 point
 - Existing Farms and Ranches - 3 points



Working Lands Map – 11 points



CLAM Resource Rankings – 100 points

Finalization of the Conservation Plan

After the GIS process was completed, a meeting was held with staff to test whether the final map product, the CLAM Resource Rankings, was supported by natural observances. A sampling of several “test properties” were then selected to be ranked and scored using the CLAM Resource Rankings and the ranking process and calculators described in the CLAM Manual. Those test properties were known quantities to the staff, and the testing was intended to ensure that a number of well-known potential conservation acquisitions reflected their understanding of the general significance of these properties. After scoring the test properties using the CLAM Resource Rankings and applying the calculators, staff was generally satisfied with the results of that process and the CLAM Resource Rankings Map was finalized.

Several things should be noted about the ongoing utility of this plan and the data layers used to build it. First, GIS data layers are not foolproof, and are typically based on professionally observed data and/or models of where resources are predicted to be. Professional natural resource biologists and geologists have not surveyed every inch of Nassau County. That is why the role of an expert committee and public input in the nomination of lands is so critical to capture any missed information and ensure appropriate vetting of potential properties for acquisition. Additionally, the data layers are improved by the agencies that produced them over time, typically every five to ten years, so they should be periodically checked and if significant updates in the data are available, an update to the data layers used for the resource rankings map should be performed. Finally, the interests of the public, experts, and the commission may change over time. The final resource rankings map is supported by a modifiable database, so that rankings and scores may be changed over time after subsequent workshops. Those workshops should be done if there is any clear shift in the County's priorities, or at least every ten years.

Appendix B: CLAM Resource Rankings

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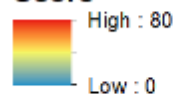


CLAM Resource Rankings

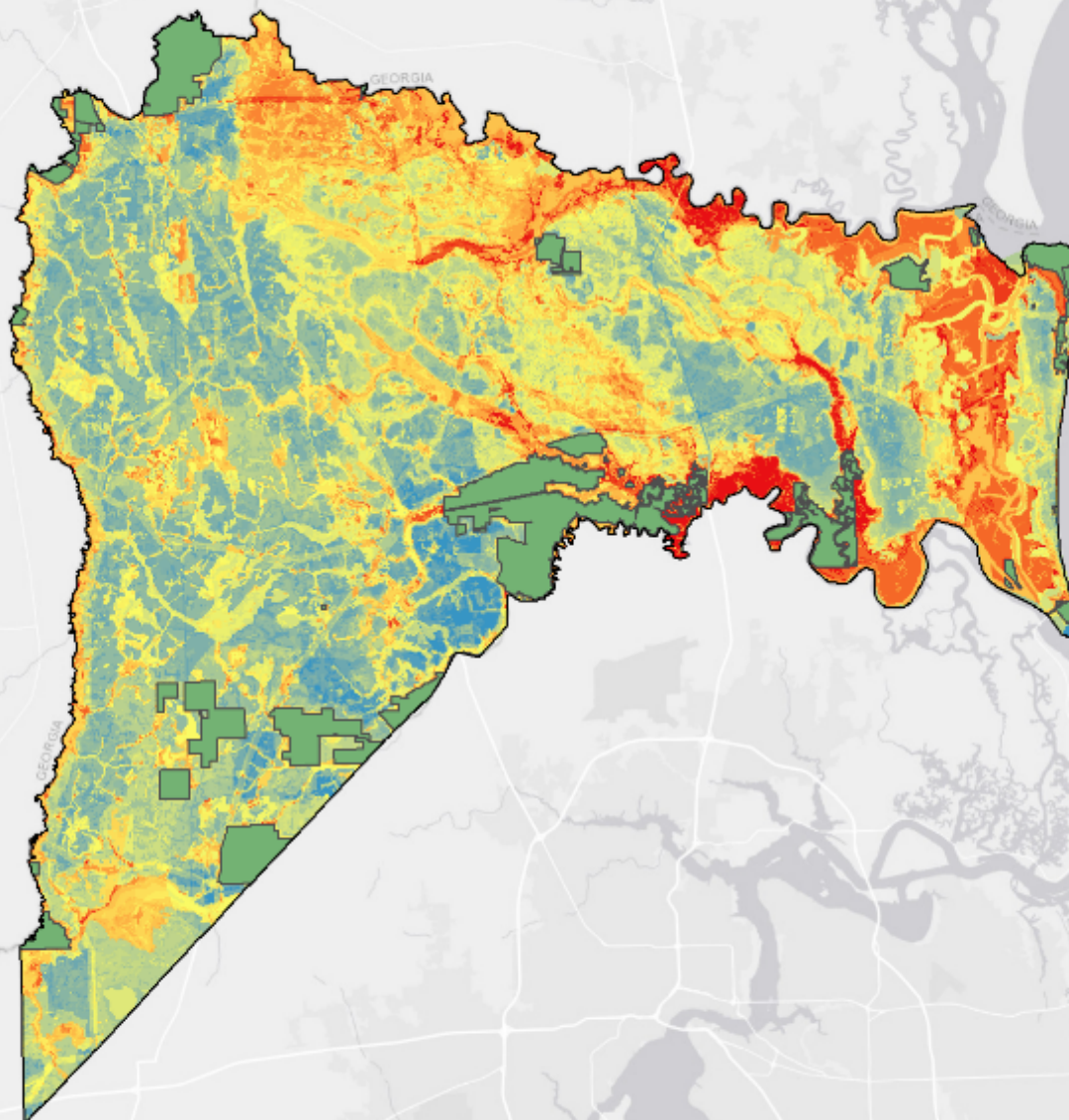
- Nassau County
- Conservation Lands

CLAM Resource Rankings

Score



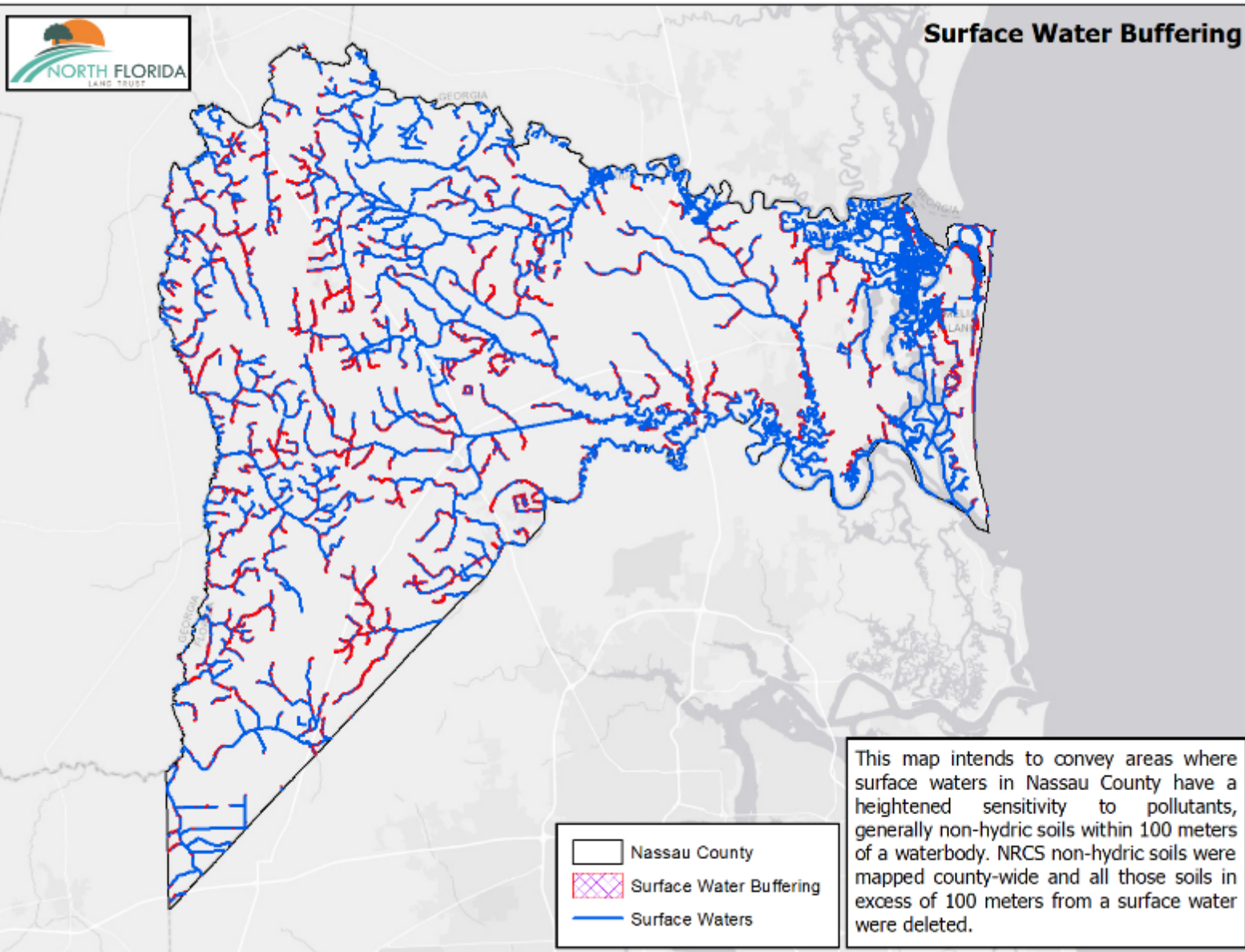
This map displays a final ranking of the natural resources within Nassau County, weighted according to the combined public and subject matter expert's input. While 100 points were possible, the highest achieved score was 80 points for any given resource. The histogram (right) displays the distribution of those scores by occurrence across the county. While 80 was the maximum achieved score, 67 points is the functional maximum in identifying top 1% of highest ranked resources.



Esri, HERE, Garmin, (c) OpenStreetMap contributors, and the GIS user community

Appendix C: Mapbook of Data Layers

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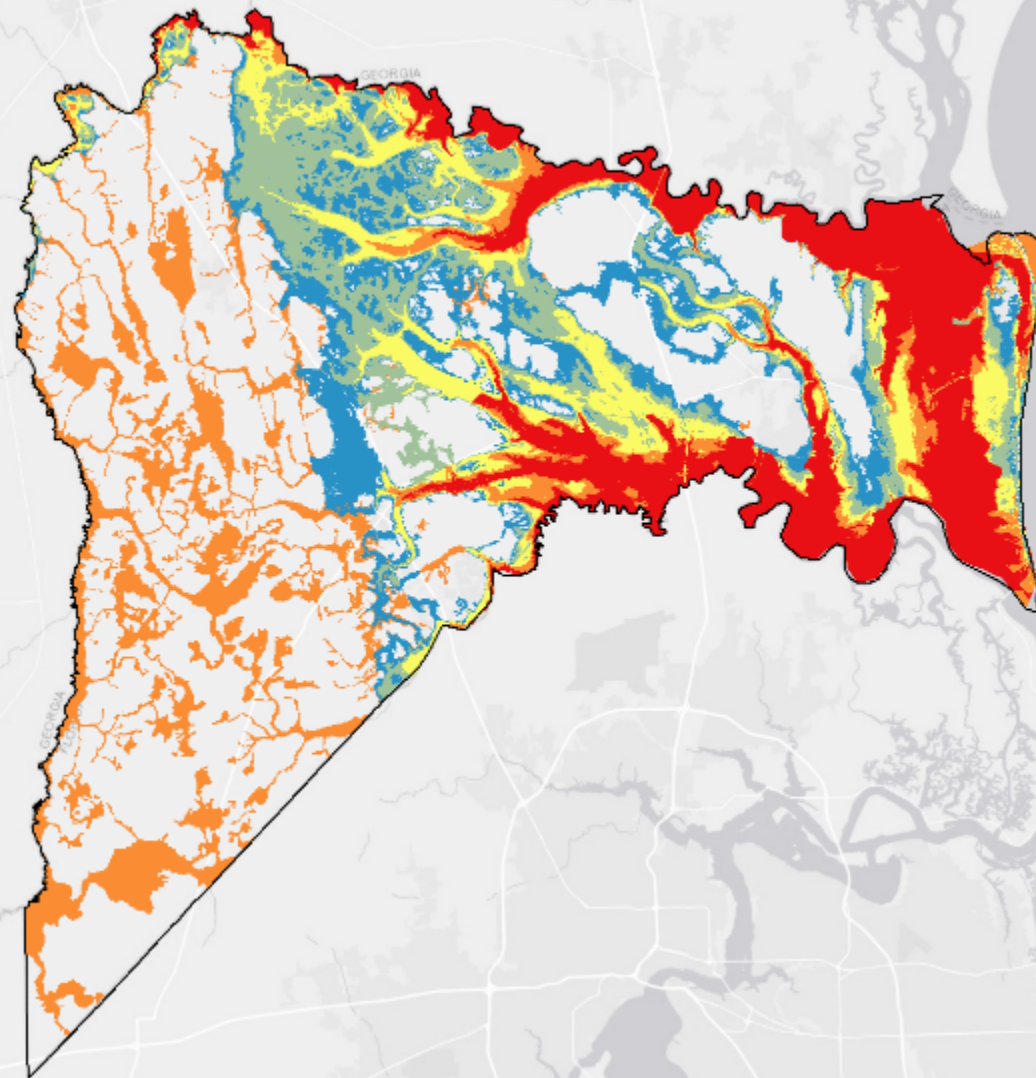
Storm Surge and Flooding

Nassau County

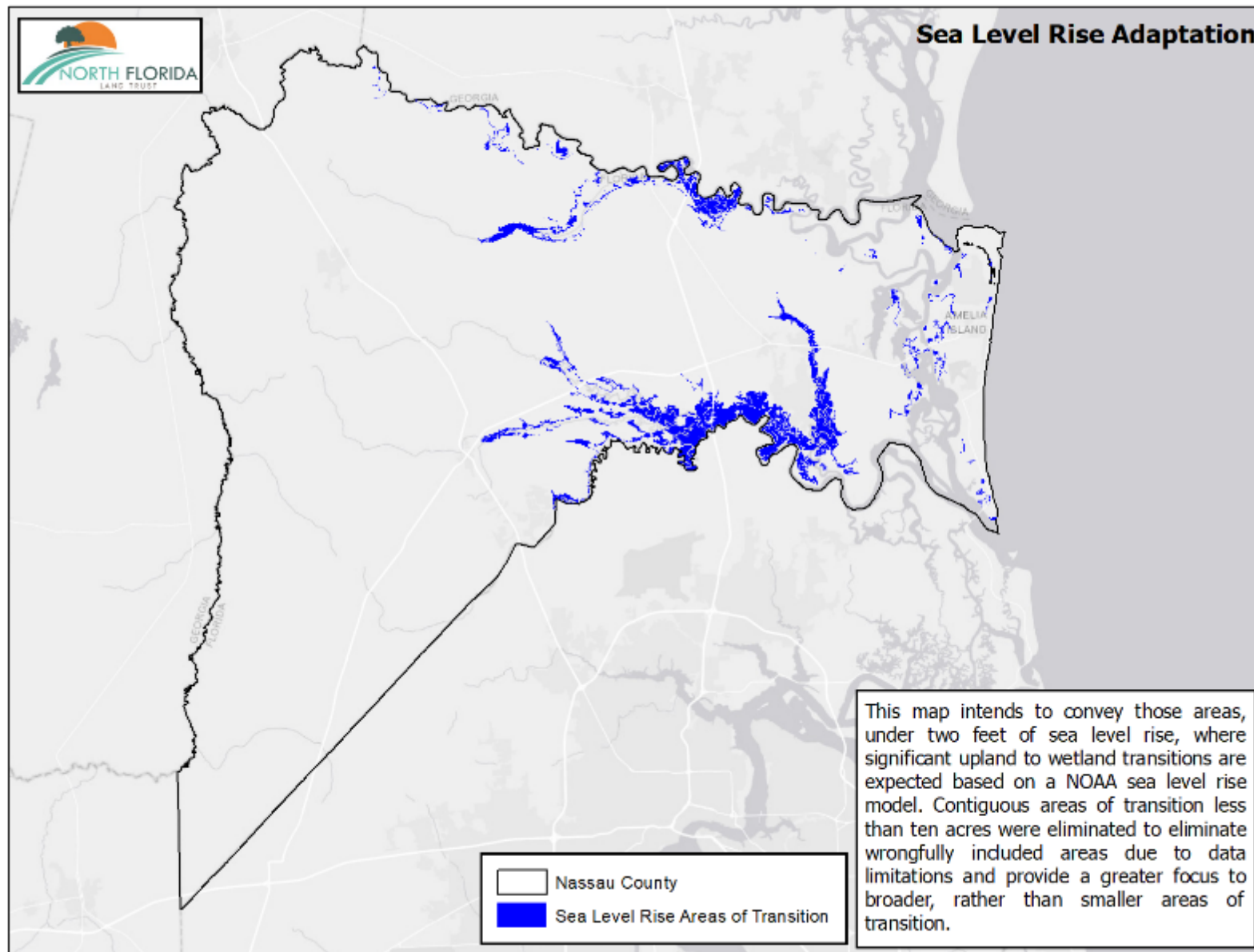
Priority

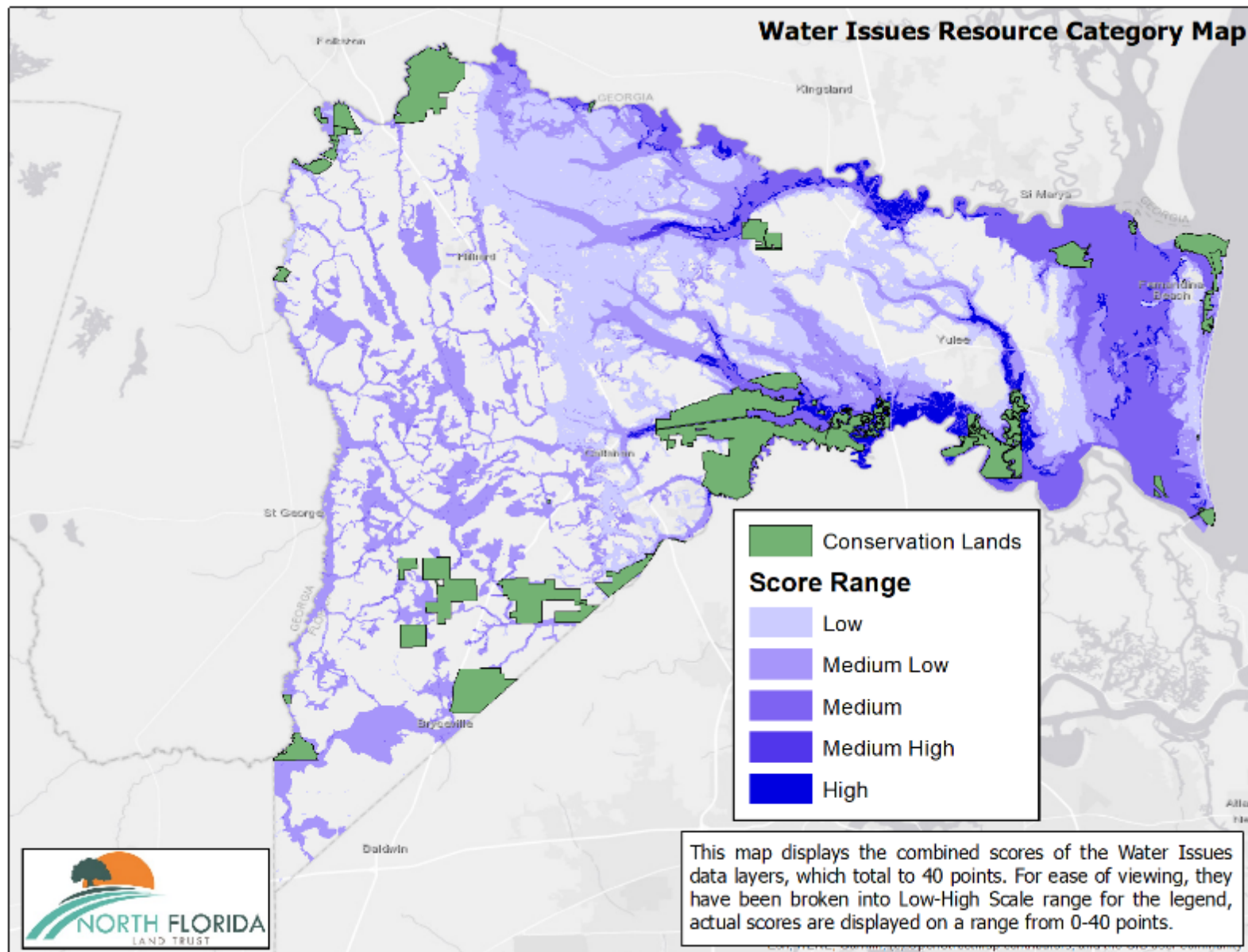
- 5 - Low
- 4
- 3
- 2
- 1 - High

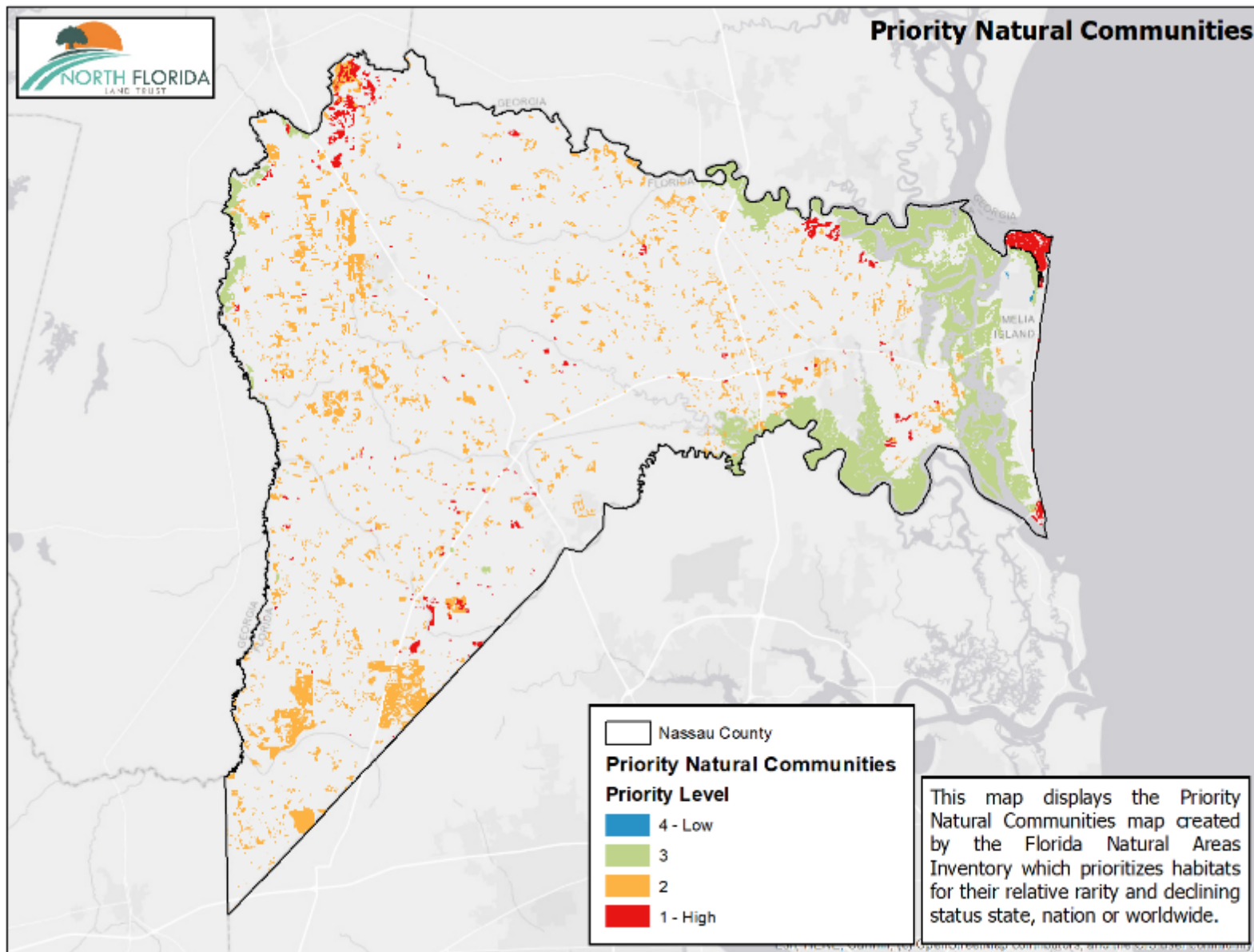
This map intends to convey those areas within the Flood and Storm Surge Zones, as identified in the FEMA Flood Zone Maps and NE Florida Regional Council's Storm Surge Mapping. Categorization was based on storm surge categories, where areas at risk in a Category 1 hurricane are Priority 1, and each hurricane storm surge zone that corresponds to its prioritization from there on out. Non Storm Surge related Flood Zones were given a Priority 2 designation.

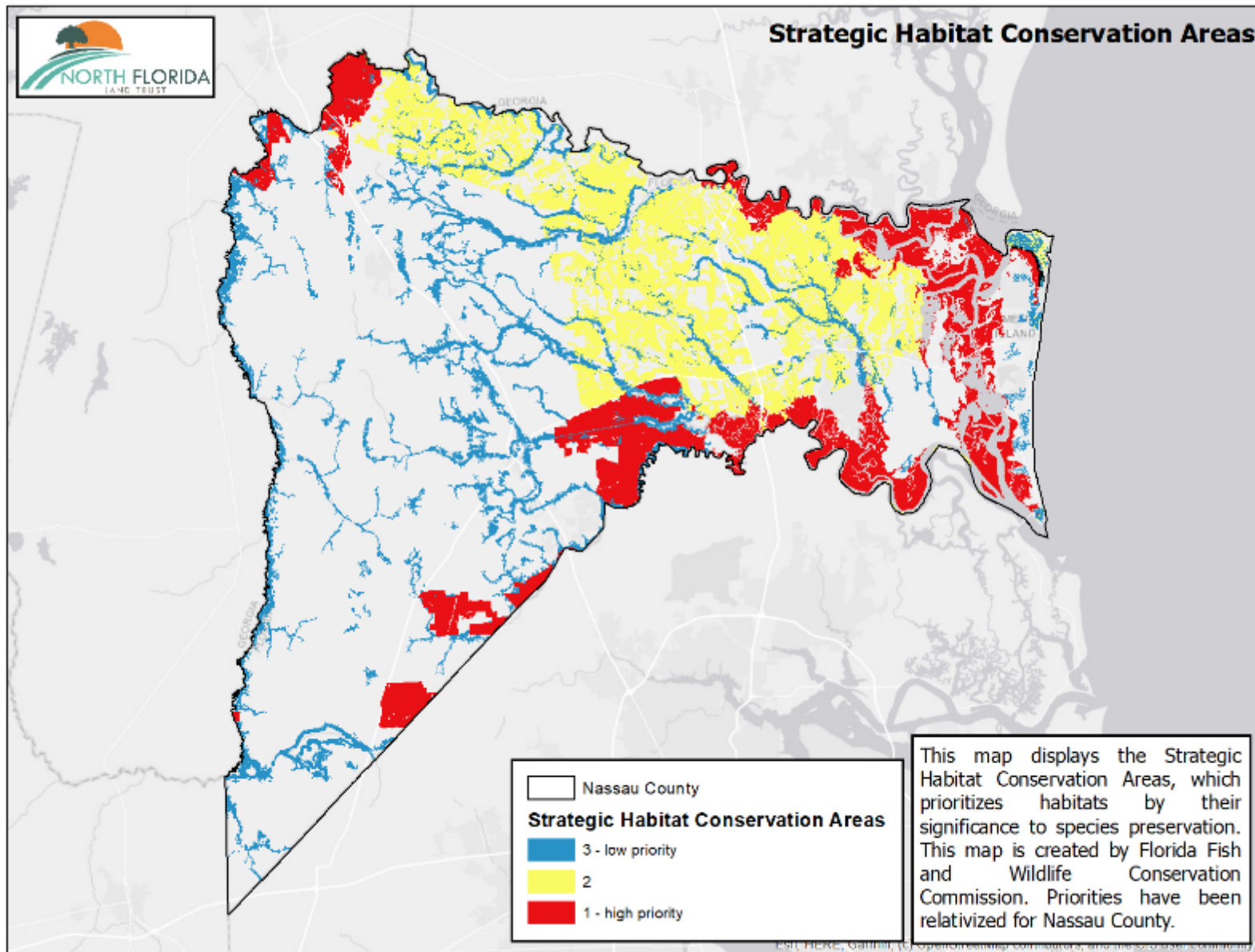


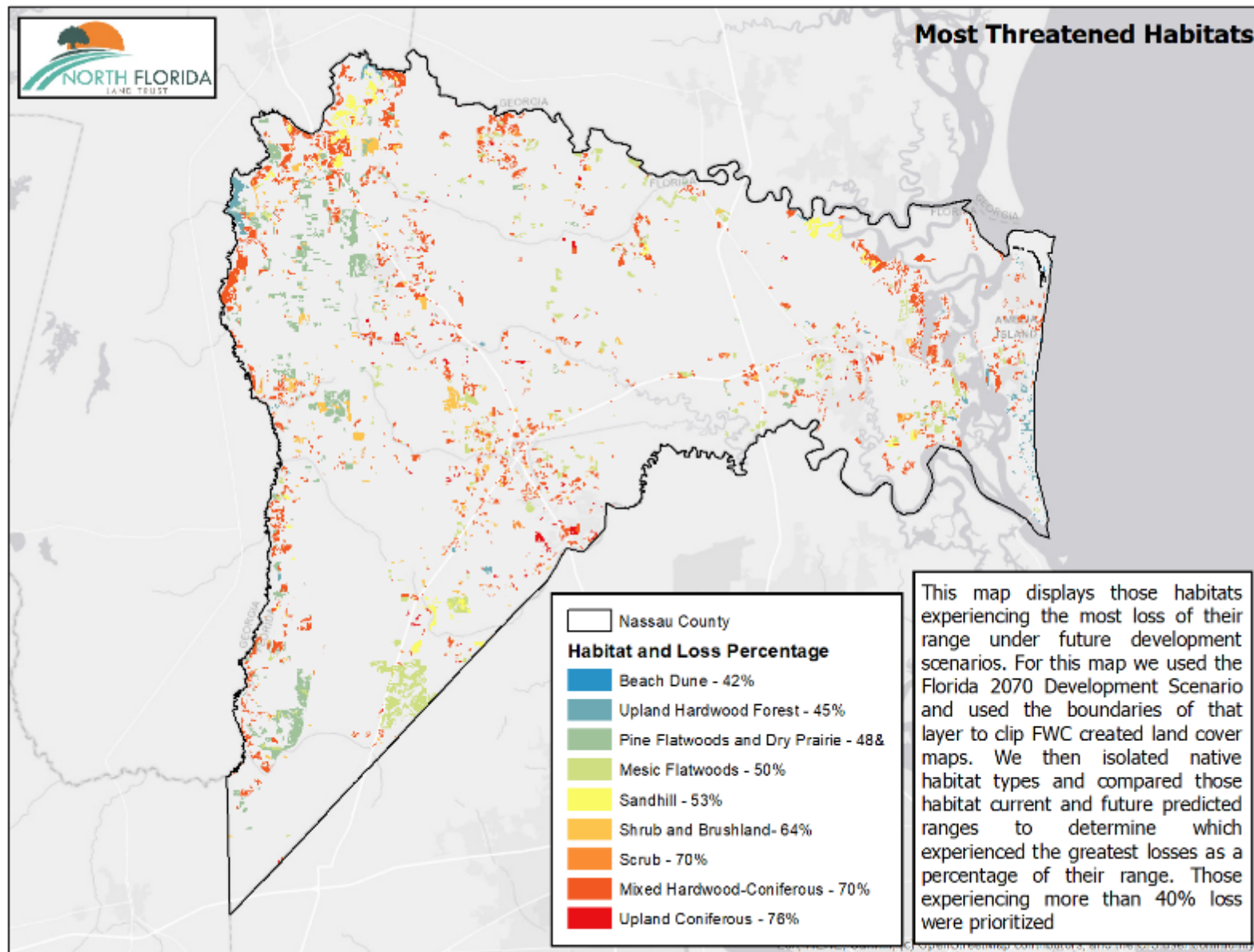
Esri, HERE, Garmin, (c) OpenStreetMap contributors, and the GIS user community

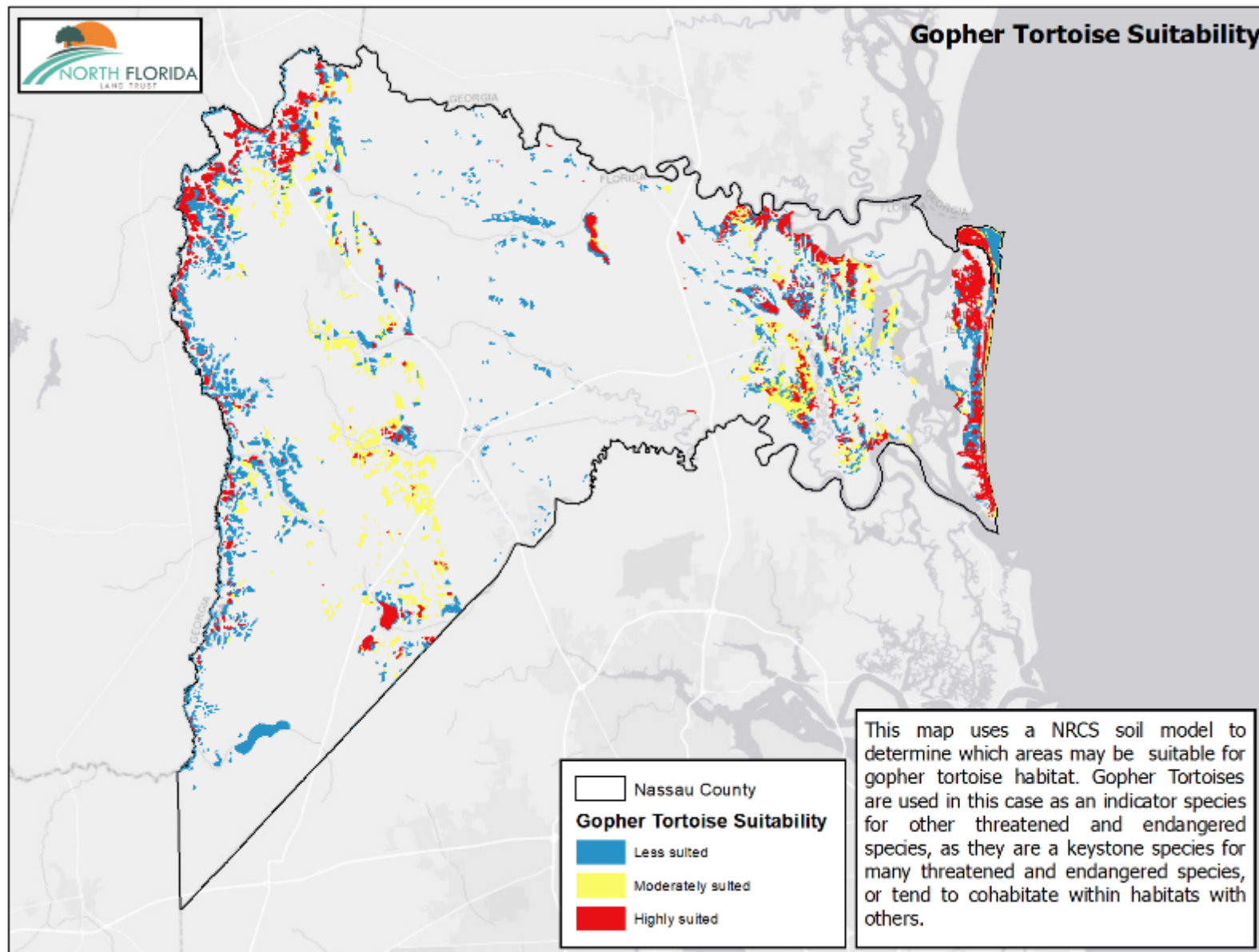


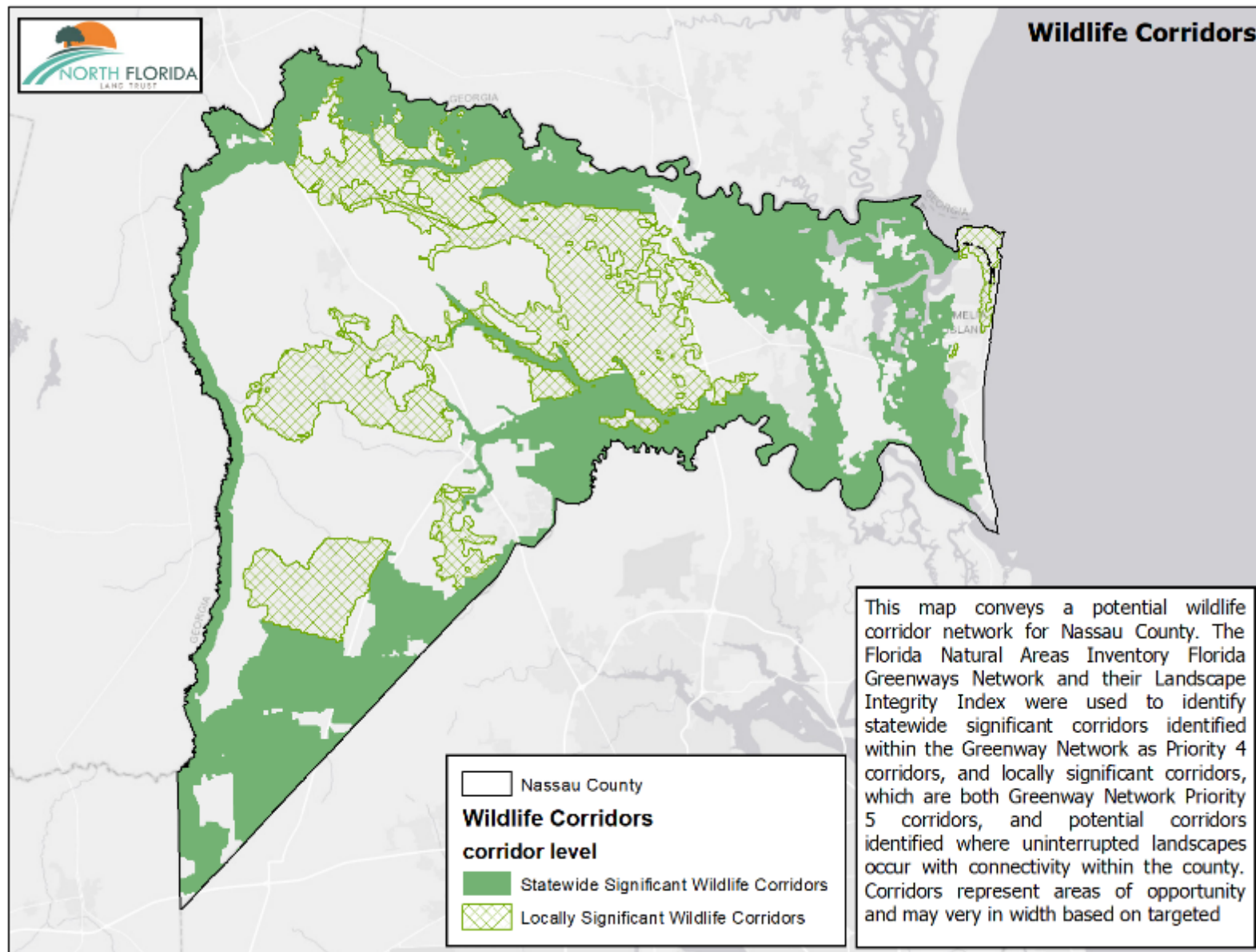


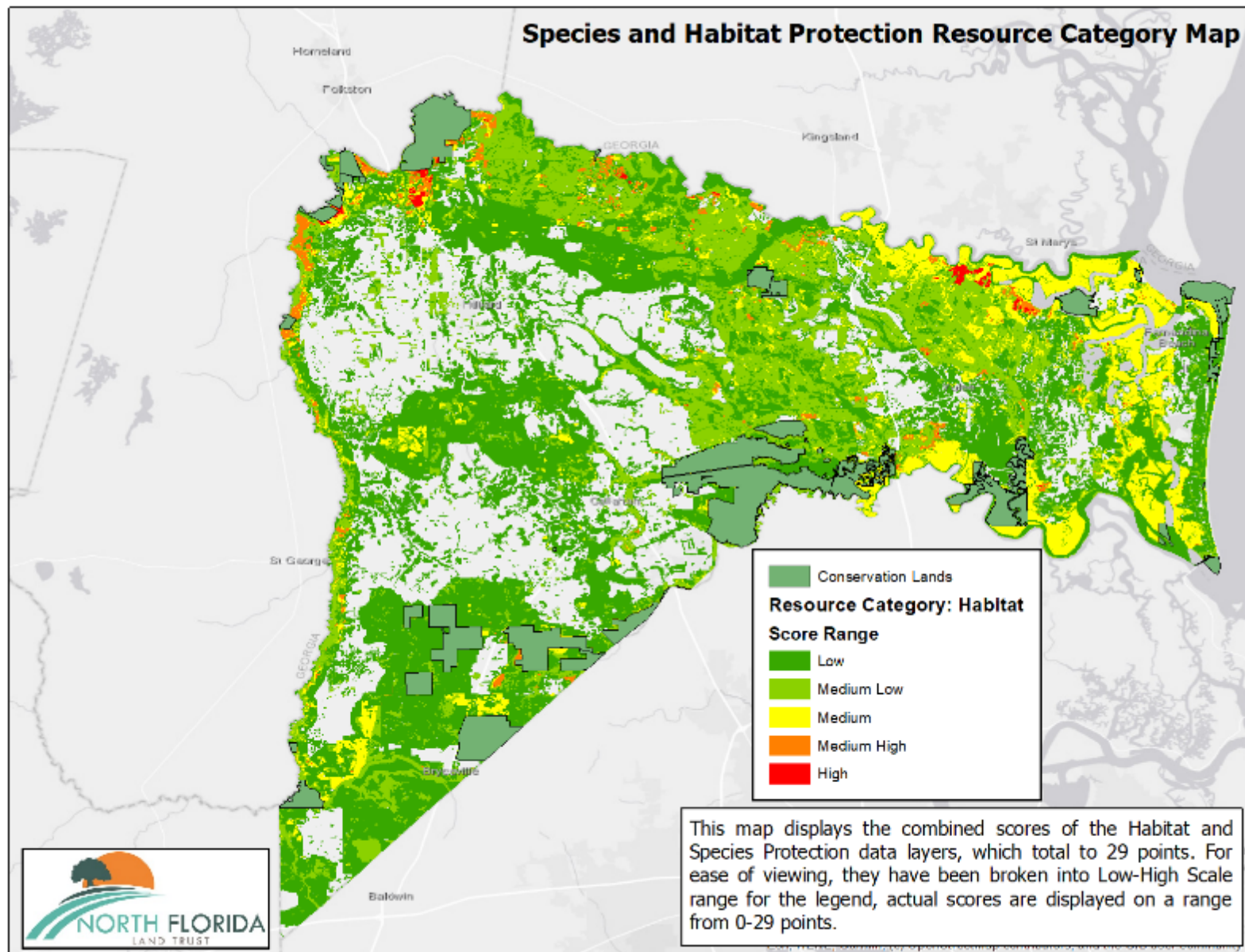


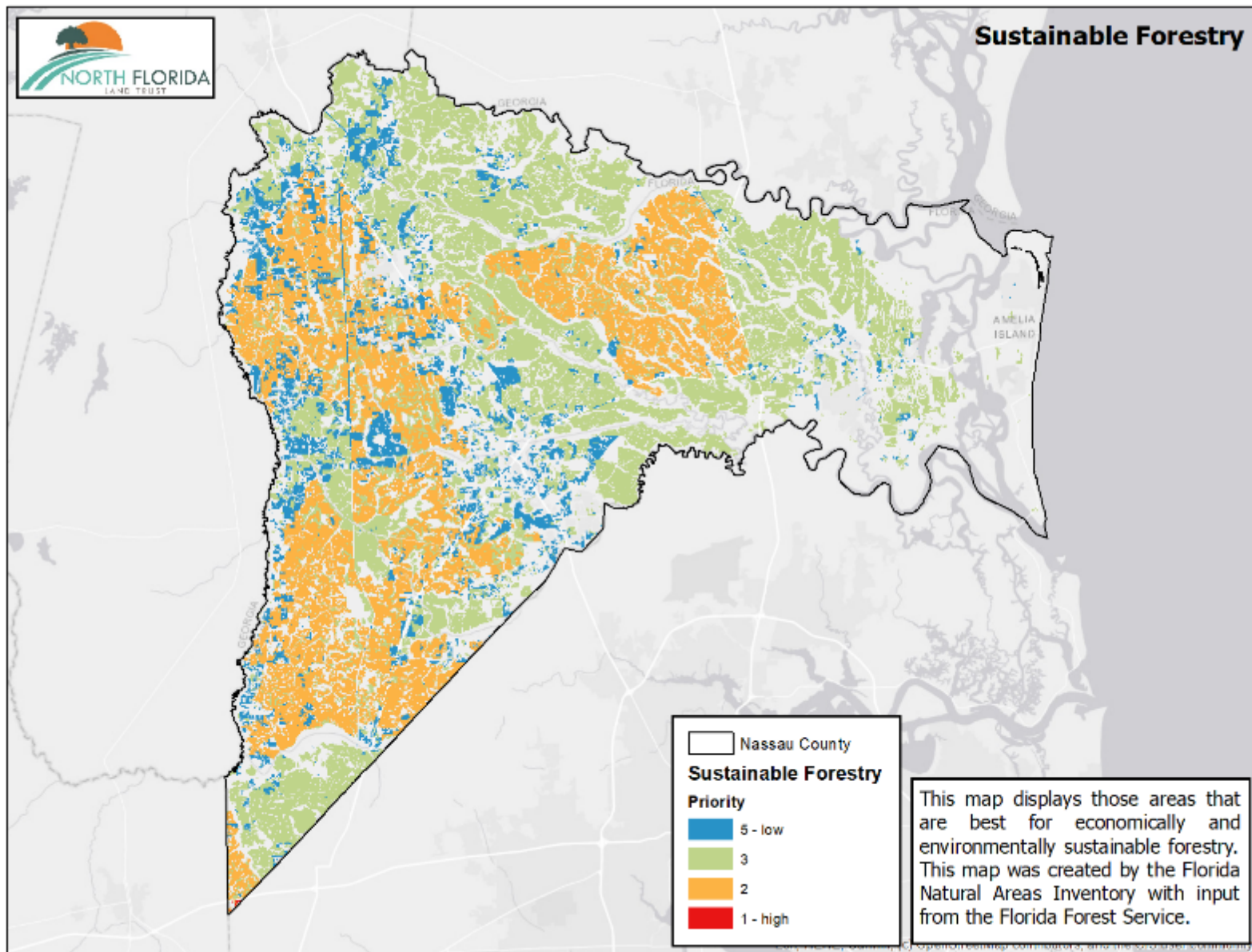


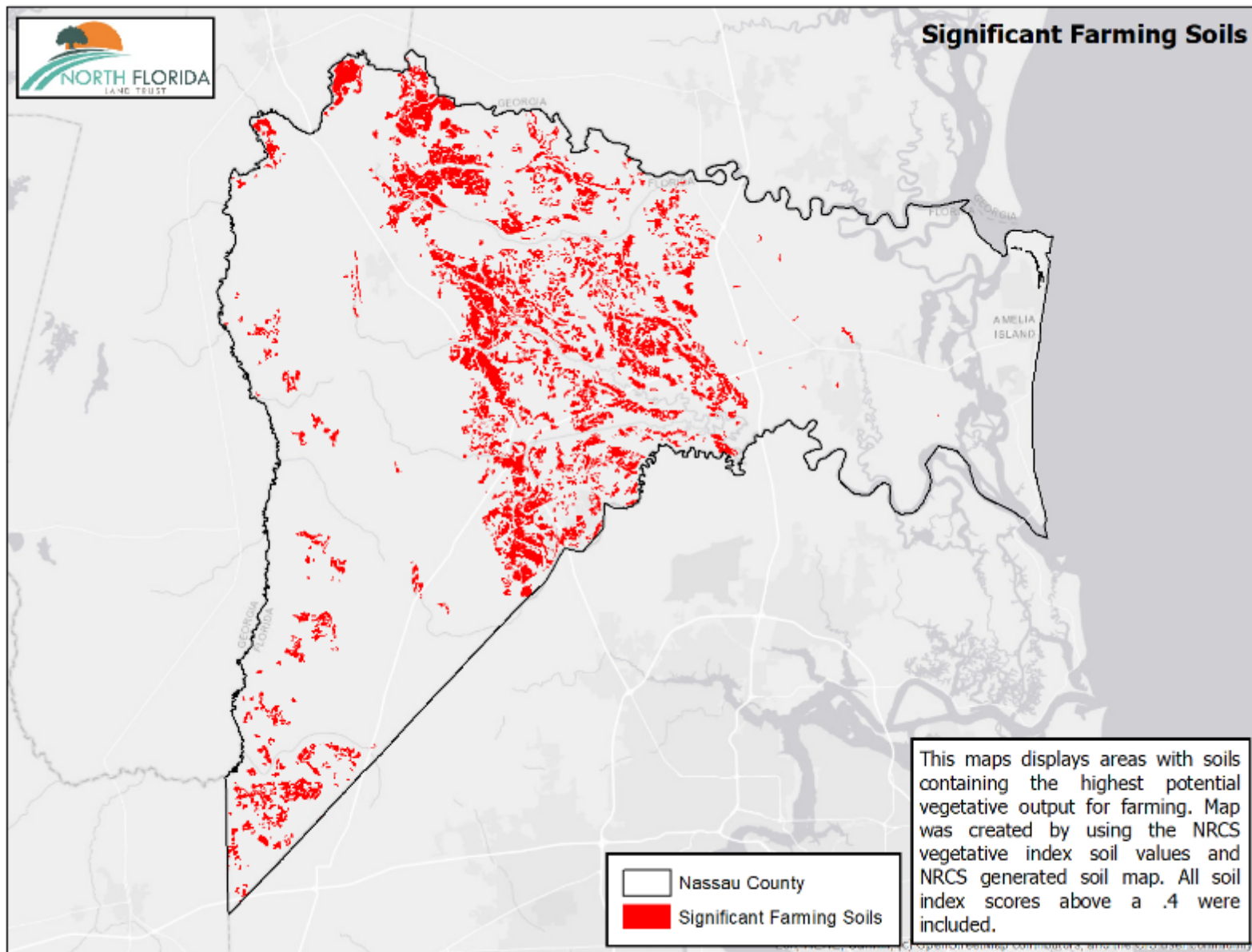


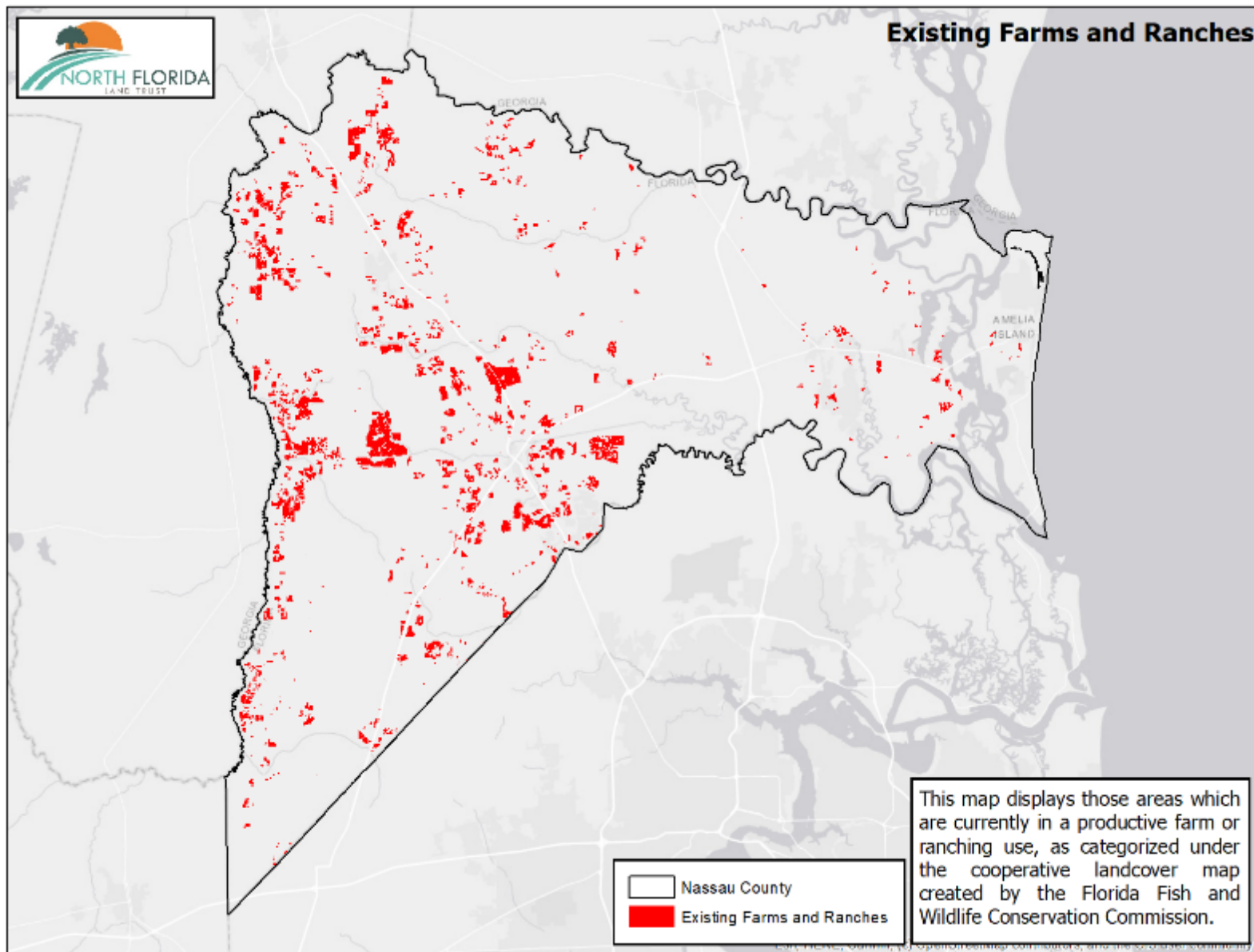


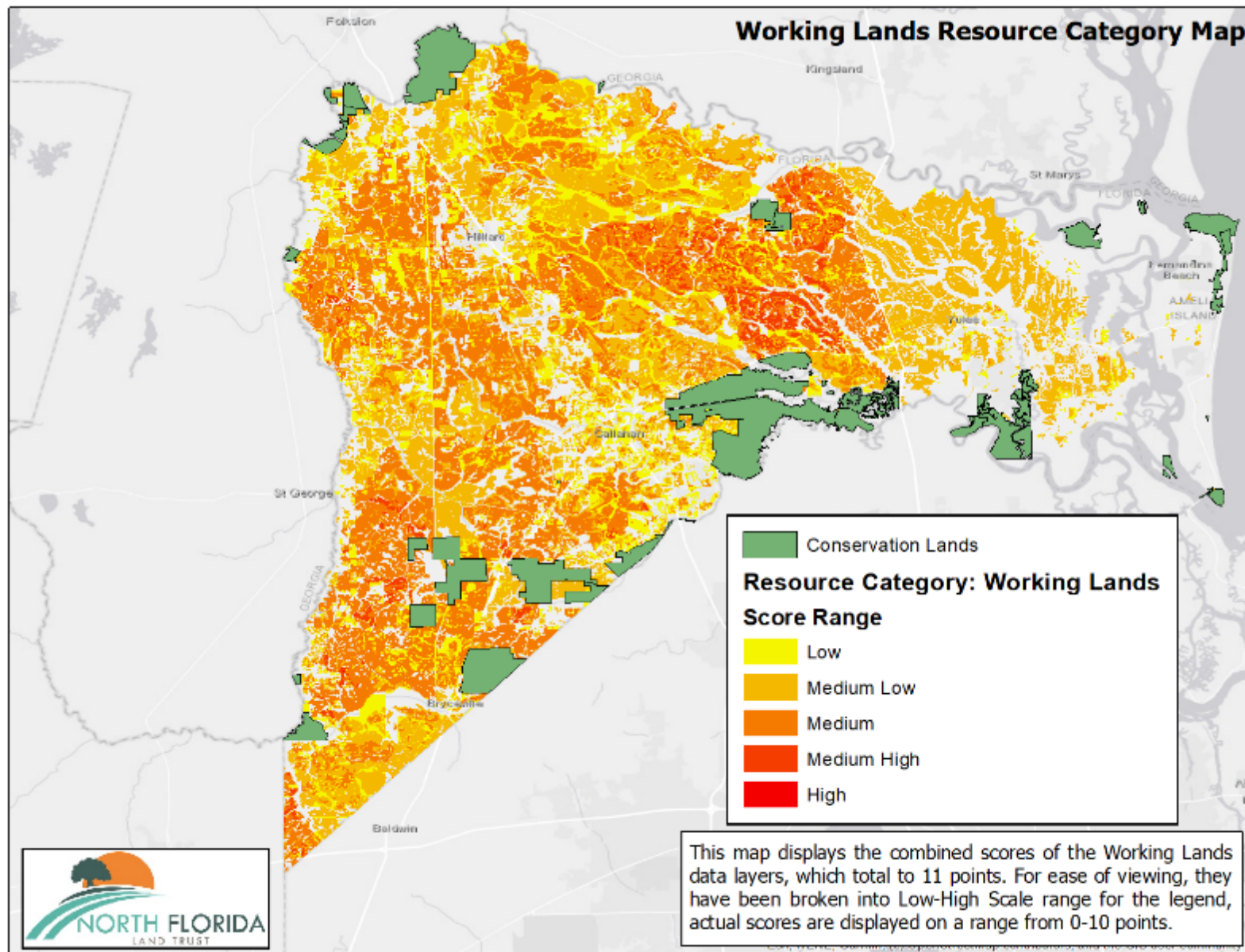


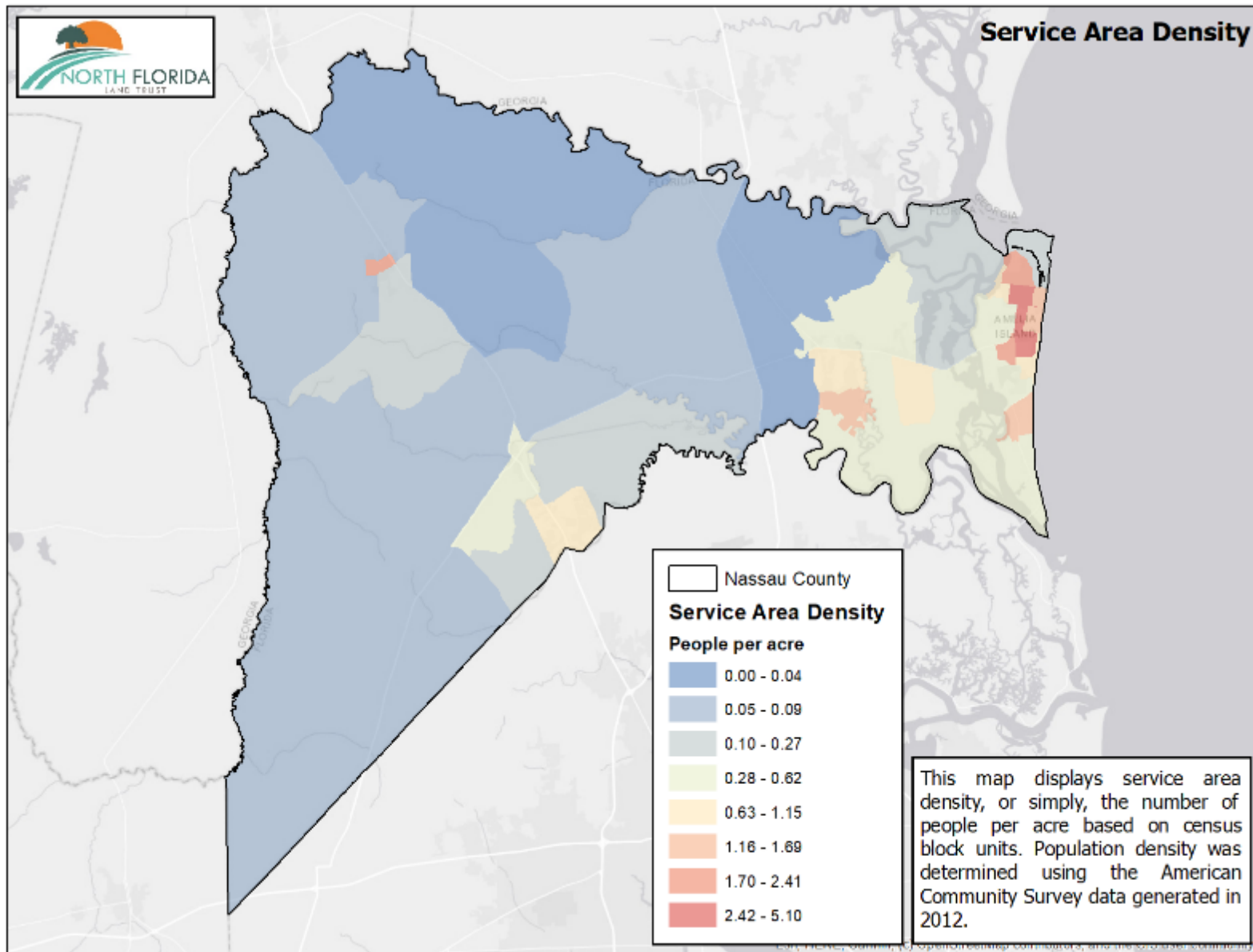


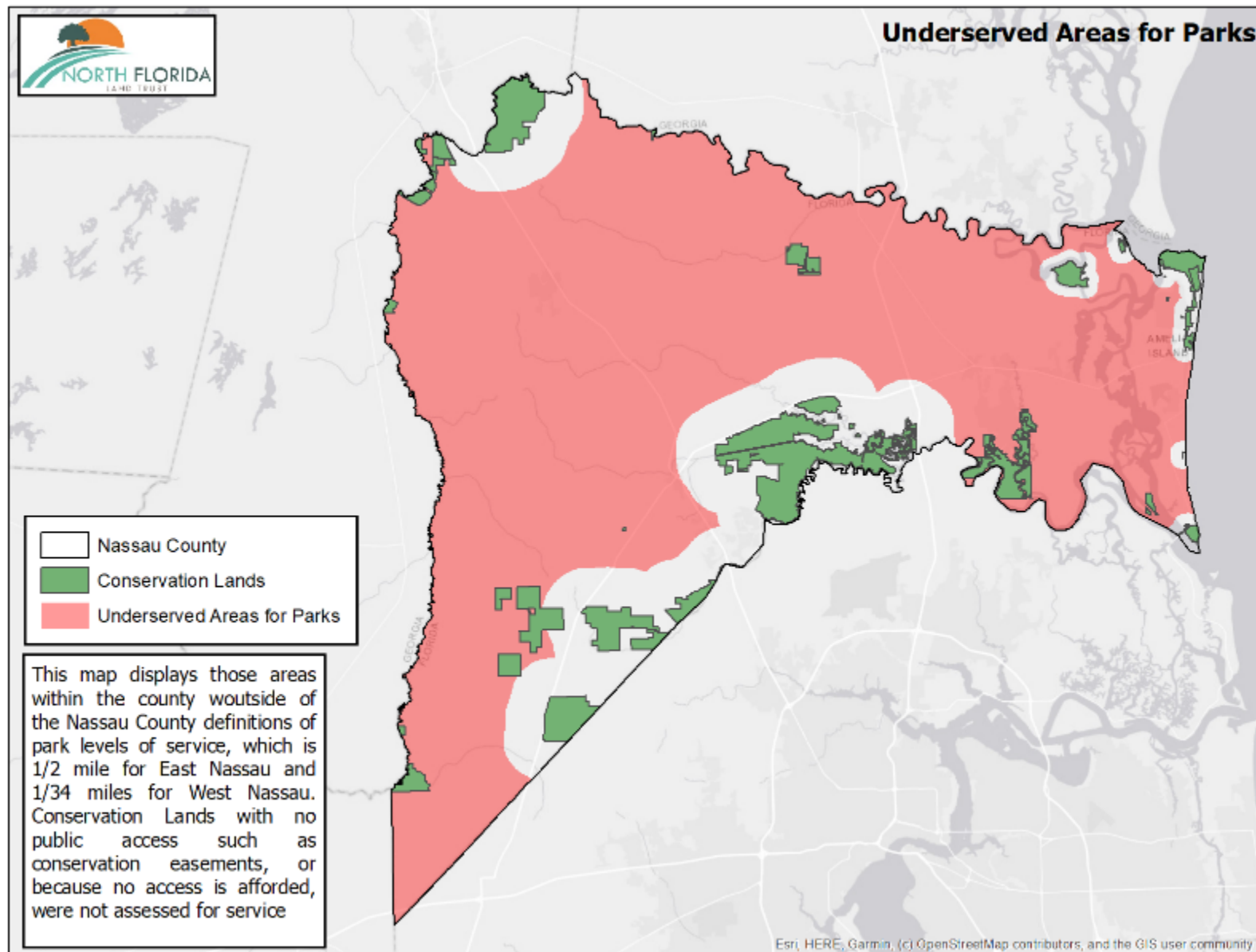


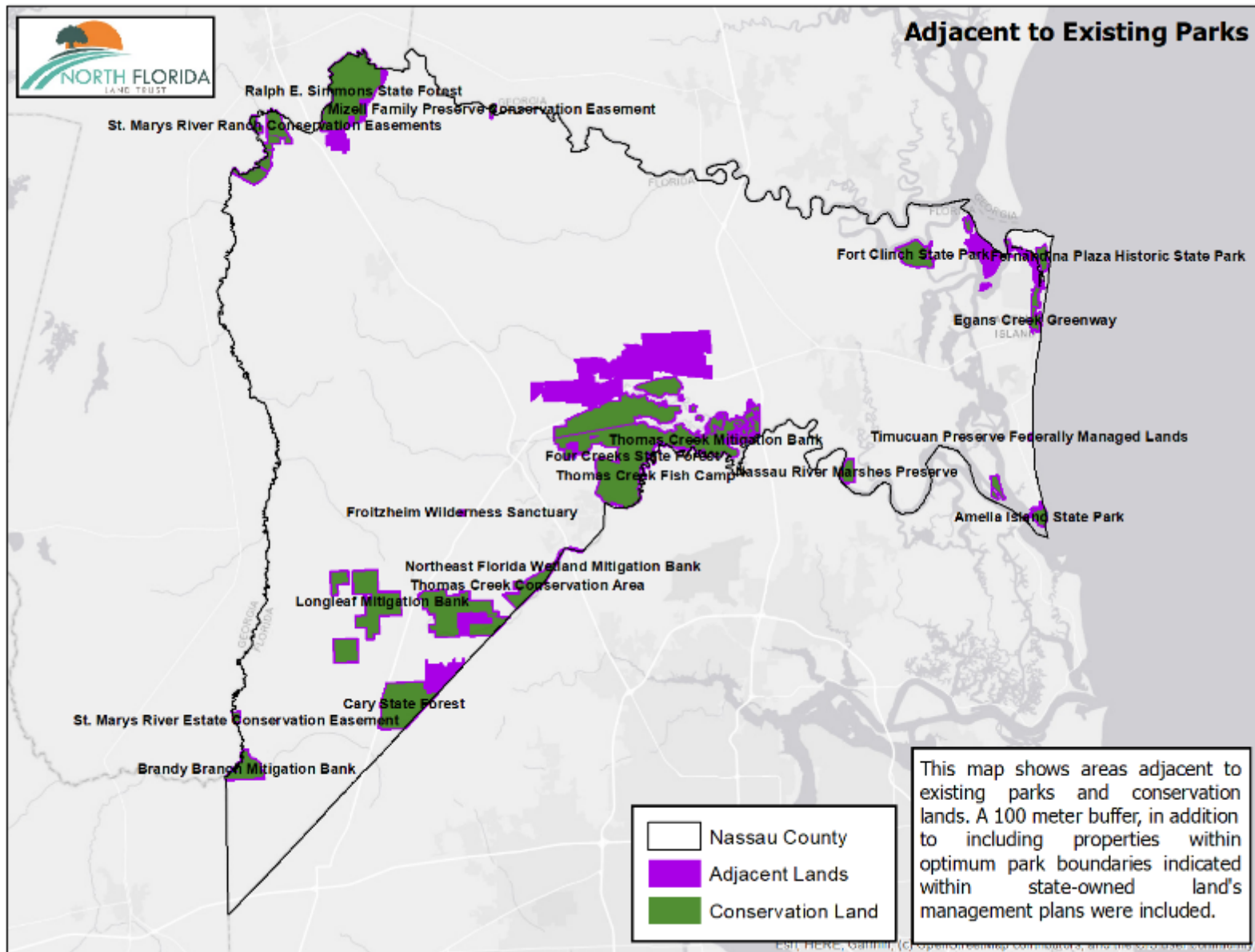


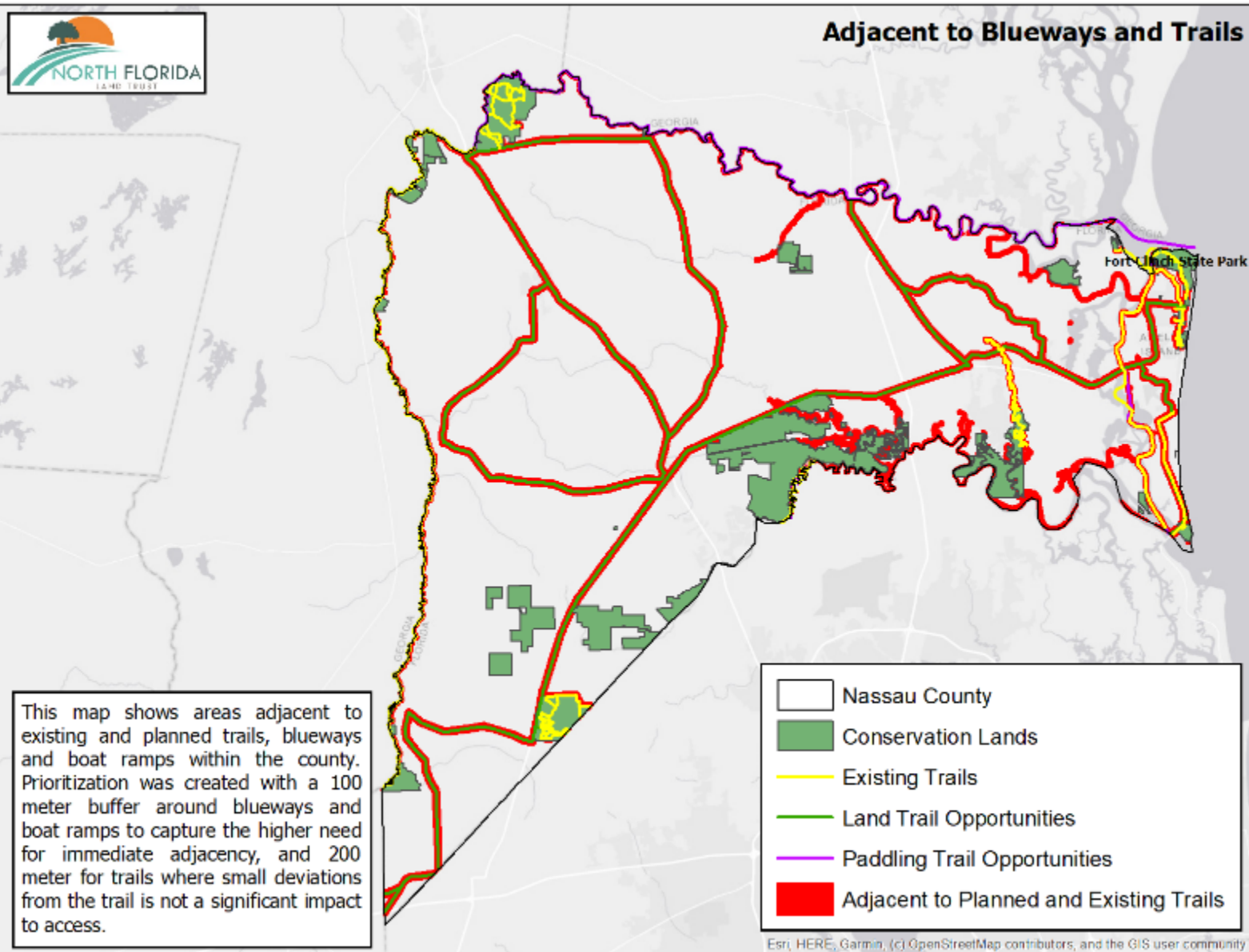


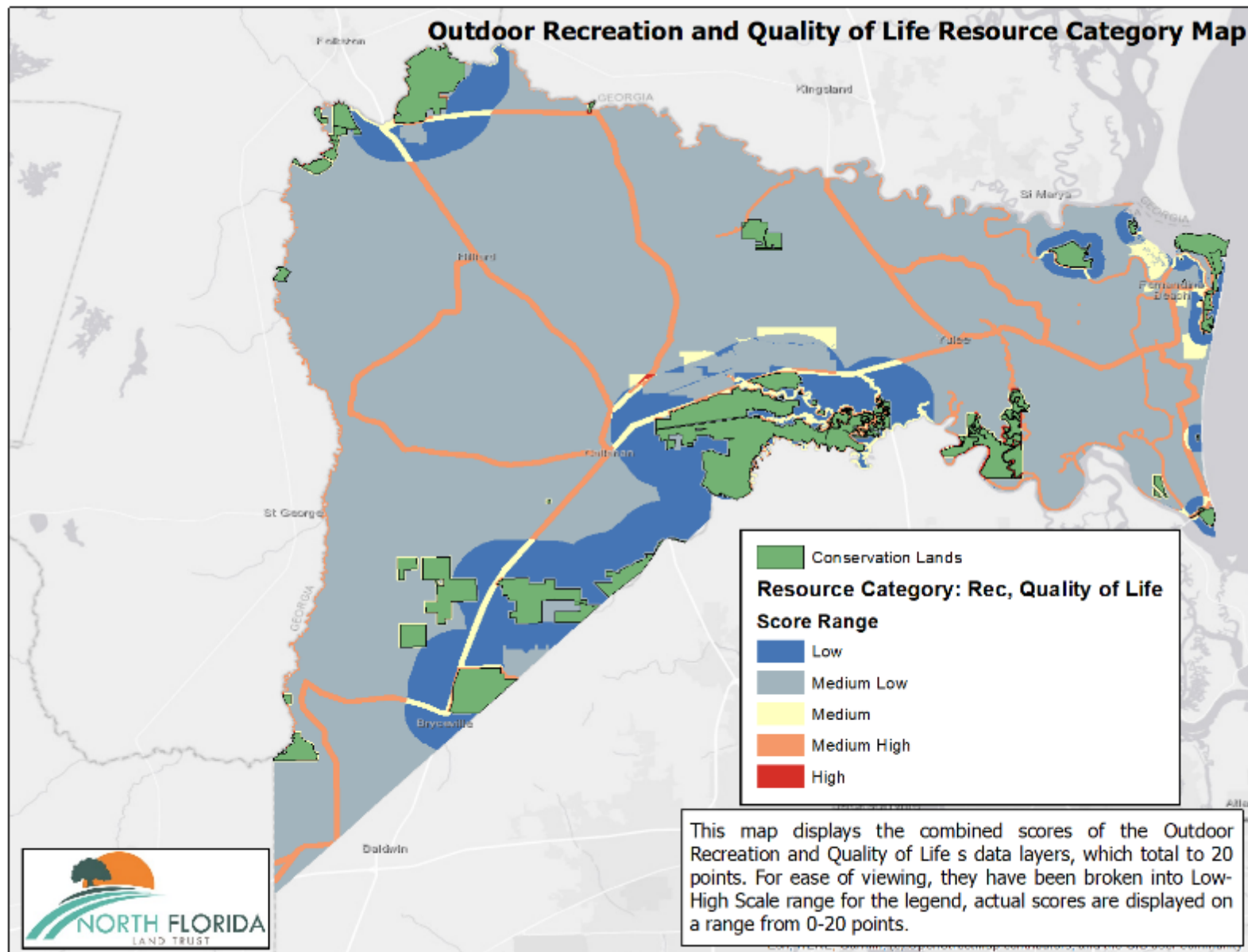




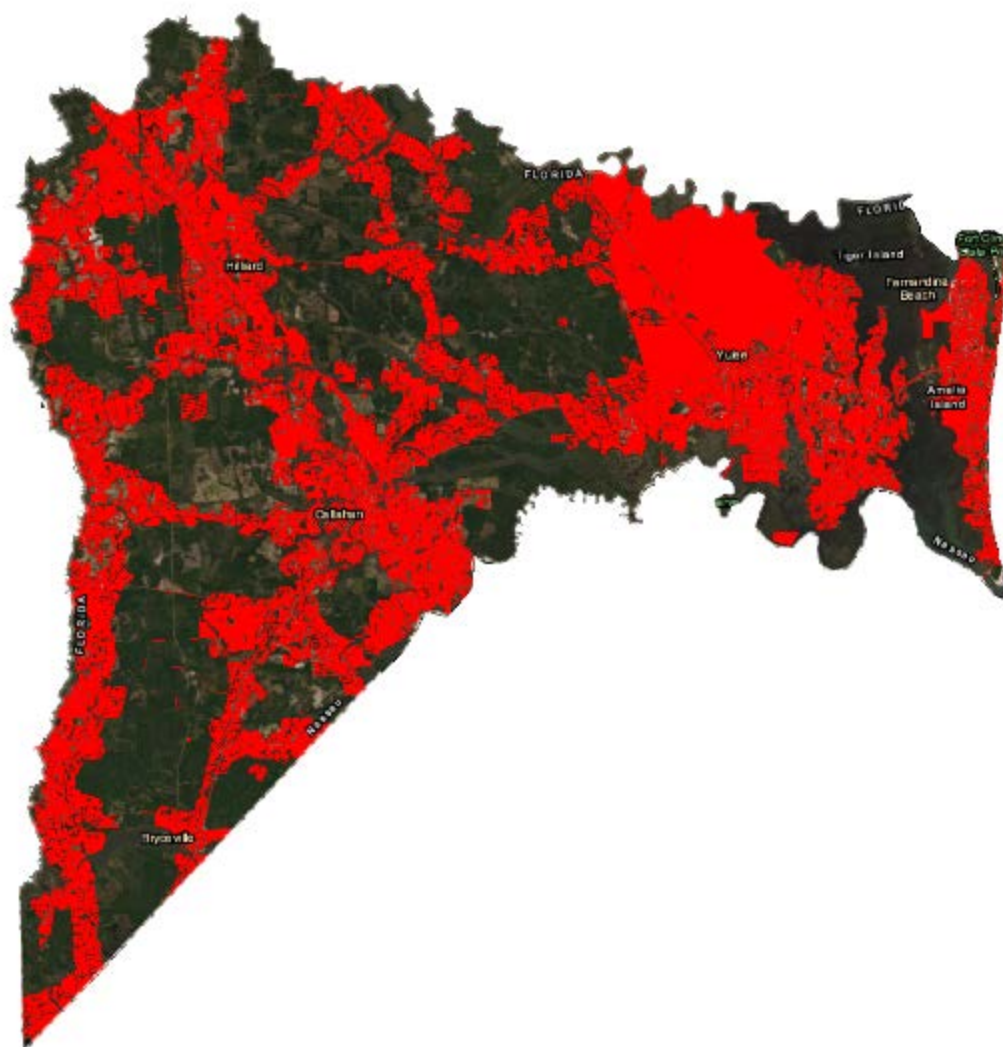








Appendix D: Document Review and Natural Resource Inventory



Marc Hudson
Director of Strategic Conservation
North Florida Land Trust
March 31, 2020
Prepared for Nassau County Government



Introduction

The map graphic on the cover of this document was generated by the Florida 2070 project, executed by the University of Florida Geoplan Center. On this map, the areas in red are the areas predicted to be developed by 2070, without further intervention in the acquisition of additional conservation lands or sound development practices. North Florida Land Trust has been retained by Nassau County to assist in identifying those lands which should be acquired for conservation going forward, to mitigate the anticipated impact of future development and ensure the County provides the same recreational and experiences provided by other County governments. Nassau County is currently behind the trend for conservation, being in the bottom ten counties in the state of Florida for conserved acres, and is in need of updates and revisions to its land development regulations.

The following is a technical document created to help guide the conservation planning process for Nassau County going forward. In order to effectively do so, there must be uniformity of understanding of what resources exist that the County may seek to conserve, how to ensure the sustainability of such resources, the established goals of County for preserving its resources, and the established strategies of the County already to meet some of those goals so as not to duplicate efforts. This document seeks to lay out that information with the intent of creating a well-informed strategic conservation plan.

In the strategic planning process, North Florida Land Trust worked with commissioners, County staff, subject matter experts, and the public to assess what the community values in terms of conservation resources, and the relative importance of those values as compared to each other. The County does not have the resources, nor is it their desire to acquire every piece of potential conservation land available. Instead, they need to be strategic in the application of those resources towards conserving those lands that provide them with the most rewards according to their value system. This document is the first step in applying that strategy.

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Summary of Stated Goals

Over the last decade, Nassau County conducted several workshops and planning processes, which resulted in the development of multiple goals and objectives related to the conservation of natural resources in the County. The following summarizes those goals where they are relevant to a potential land conservation program, under the framework of water resources, species and habitat, working lands and recreation and quality of life. North Florida Land Trust performed a review of associated County documents to edify what specifically may be of importance in creating a criterion for land acquisition. Specific quotes from each document are included, with a compounded summary of key words from each section. North Florida Land Trust reviewed the County Comprehensive Plan, Nassau County Vision Plan 2032, and the Western Nassau Heritage Preservation Book, for establishing broad-based goals for conservation within the County. A series of other documents were reviewed, specifically those planning documents associated with Multi-Use Districts such as the Eastern Nassau Community Planning Area, William Burgess Overlay District, and found they were either overly specific in their regionality for use as a County-wide goal or redundant to the other documents.

It should also be noted that the goals identified are not an exhaustive list of conservation goals in those plans but were limited to those goals which were specific to, or may be specifically impacted by, a land conservation program, as compared to other potential regulatory tools.

Water Resources Goals

Nassau County Comprehensive Plan

- OBJECTIVE CS.01: The County will ensure that it has adequate water supplies, of a quality sufficient for its intended use to meet existing and projected future demands.
- OBJECTIVE CS.05: Throughout the planning period, water quality relating to the impacts of point and non-point pollution sources to surface waters within the County will be maintained or improved.
- OBJECTIVE CEV.06: The County shall maintain or improve the environmental quality of the estuarine systems of the St. Marys and Nassau Rivers.

Nassau County Vision Plan 2032

- Promote increased “limited activity” setbacks from water bodies including rivers, lakes, streams, and creeks.
- Coordinate efforts with communities countywide to establish a strategy for protecting and conserving the water supply and resources for competing uses.

Western Nassau Heritage Preservation Vision Book

- Map wetland and floodplain in Western Nassau for potential greenway corridor plans.
- Utilize County's Vulnerability Assessment in reviewing land development policy.
- Nassau County will increase its Community Rating System (CRS) score to provide higher discounts on flood insurance for residents in Western Nassau (and all the County).
- Explore purchase of vulnerable or repeat risk properties for recreation or open space
- Protect groundwater recharge areas.
- Map groundwater recharge areas and all wellheads in Western Nassau.

KEY VALUES:
WATER SUPPLY
WATER QUALITY
ST. MARY'S RIVER
NASSAU RIVER
SETBACKS
WETLANDS
FLOODPLAINS
FLOODING
VULNERABILITY
RECHARGE

- Ensure rivers, streams, and creeks are safe for recreation and fishing.
- Protect water bodies including rivers, lakes, streams and creeks.
- By 2045, Western Nassau will be proactively managing floodplain risks and ensuring residents and property are safe from flooding.

Species and Habitat

Nassau County Comprehensive Plan

- OBJECTIVE CS.02: The County shall protect natural communities and ecological systems that provide important natural functions for maintenance of environmental quality and wildlife habitats.
- OBJECTIVE CS.06: The County shall conserve, appropriately use and protect fisheries, wildlife, wildlife habitat, marine habitat, and native plant communities in a healthy environment and for the enjoyment of future generations.
- OBJECTIVE CS.03 : The County shall seek to preserve and expand its “green infrastructure” by creating and protecting a network of waterways, wetlands, woodlands, wildlife habitats, greenways, and other natural areas which sustain clean air, water, and natural resources: provide for a sustainable economy; provide recreational opportunities and enrich the quality of life for County residents and visitors.
- OBJECTIVE CEV.01: The County shall protect and conserve the remaining coastal barrier dunes and establish construction standards to minimize the impact of man-made structures on the dunes and beaches.
- OBJECTIVE CEV.02: The County shall support the restoration of altered beaches or dune systems.
- OBJECTIVE CEV.03: The County will cooperate with federal and state agencies in the protection, enhancement, and restoration of the environmental quality of the coastal area.
- OBJECTIVE CEV.04: Dredging and filling in the coastal areas shall be discouraged.
- OBJECTIVE CEV.05: The County shall implement the following policies to minimize the impact of new development on coastal wetlands, living marine resources, coastal barriers, wildlife habitat and historic/archaeological resources.

KEY VALUES:
WILDLIFE HABITAT
GREEN
INFRASTRUCTURE
GREENWAYS
CORRIDORS
COASTAL
RESOURCES
WETLANDS
TREES
ENDANGERED
SPECIES

Nassau County Vision Plan 2032

- Promote the maintenance and development of wildlife corridors through adjoining residential and non-residential areas including infrastructure expansion or rebuilding projects.
- Protect trees by establishing a tree protection ordinance for all development activities and offer incentives to agriculture and silviculture operations that use best management practices to preserve and ensure the regeneration of forested areas.
- Encourage resource preservation by establishing standards in the land development regulations that allow transfers of residential densities for residential developments and

increased floor area ratios for non-residential developments in residential areas that meet established resource protection standards.

Western Nassau Heritage Preservation Vision Book

- Integrate the Vulnerability Assessment into greenway and wildlife habitat corridor planning efforts.
- Identify and map sensitive natural resources and create resource protection master plan.
- Adopt open space requirements for new development based on protection of natural resources.
- Create official greenways map that utilizes natural areas, floodplain, wetland buffers and require protection of greenways in new developments.
- Preserve wildlife habitat and connect wildlife corridors throughout Western Nassau with the State Forests in order to minimize habitat fragmentation.
- Identify and map wildlife habitat, especially for threatened and endangered species, and incorporate into Comprehensive Plan strategy regarding Conservation and Habitat Network.
- Prioritize protection of wildlife corridors, especially between State Forests and private/public conservation properties
- Encourage landowners to explore voluntary conservation options, including but not limited to, using conservation easements for land protection or establishing gopher tortoise mitigation sites, wetland mitigation banks, or conservation cemeteries.
- Require preservation of natural areas and open space in future development.
- Incentivize voluntary retention of native tree canopy and natural underbrush.
- Require percentage of natural areas (undisturbed open space) in new developments.

Working Lands

Nassau County Comprehensive Plan

- OBJECTIVE CS.09: The County will ensure that soil and water resources for agriculture and silviculture will be conserved and managed.

Nassau County Vision Plan 2032

- Establish community meetings between local government agencies, landowners, and state and federal agricultural agencies to promote sustainable agriculture in Nassau County.

Western Nassau Heritage Preservation Vision Book

- Proactively preserve rural and agricultural sense of place in Western Nassau.
- Update the Comprehensive Plan and Land Development Code to maximize preservation of open space and natural features, maintenance of dark skies, and rural nature of Western Nassau.
- Explore rural lands stewardship program for the County or similar options to enable rural lands stay in agriculture.
- Partner with state agencies and other organizations to explore local, state, and federal options to protect working lands, such as easements.

KEY VALUES:
AGRICULTURAL
SOILS
SUSTAINABLE
AGRICULTURE
FORESTRY
SENSE OF PLACE
STEWARDSHIP
CONSERVATION
EASEMENTS

Recreation and Quality of Life

Nassau County Comprehensive Plan

- OBJECTIVE CS.12: The County will coordinate with the Department of State, Division of Historical Resources to protect historic and archaeological resources within the County.
- OBJECTIVE WDU.01: The County will maintain, improve, and increase public beach access through acquisition and other land use controls.
- OBJECTIVE WDU.02: The County will give priority to compatible water dependent uses over other land uses to maximize the beneficial use of coastal natural resources.
- OBJECTIVE ROS.03: The County shall ensure the provision of open space as required in the County's Comprehensive Plan.
- OBJECTIVE ROS.04: The County shall support and encourage appropriate and effective participation and partnership with non-governmental organizations in meeting Level of Service for parks and recreational facilities.

KEY VALUES:

*HISTORY
ARCHEOLOGY
BEACH ACCESS
WATER ACCESS
OPEN SPACE
CONNECTIVITY
TRAILS
FISHING
HUNTING
HORSEBACK
RIDING*

Nassau County Vision Plan 2032

- On an ongoing basis, coordinate with willing seller landowners, non-profit recreation, and conservation land groups to set aside land for conservation or public open space.
- Coordinate public and private efforts to ensure continuance of the vital tourism industry and identify opportunities to create a sustainable eco-tourism segment of the economy that takes advantage of the County's abundance of natural resource areas, such as the St. Marys River
- Incorporate natural areas and features into development plans, parks and recreation areas, nonresidential development, and infrastructure projects.
- Identify the existing outdoor recreation, open space and natural areas of local and regional significance and, using the Vision 2032 Plan and other data sources, develop a recreation and conservation master plan – a plan for an inter-connected network of these features – for incorporation into the Comprehensive Plan.
- Begin a review and, as necessary update the land development regulations to require the dedication of multi-use trails and walkways for all developments or strips of land for a corridor of space for linkages between developments and land use activities.
- Improve access to waterways through the acquisition of land and construction of additional boat ramp parks with a mix of outdoor recreational facilities using grant funding and impact fees.

Western Nassau Heritage Preservation Vision Book

- Protect existing public access to waterways in Western Nassau.
- Ensure existing boat ramps in Western Nassau are maintained and identify any expansion opportunities.
- Preserve and expand opportunities for public access to waterways in Western Nassau.
- Incorporate passive recreation opportunities into the land acquisition and conservation program, including but not limited to fishing, hunting, and horseback riding.

- Identify future opportunities for public access to waterways.
- As part of land conservation program, acquire land around the St. Marys River for regional recreational access.

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Natural Resources in Review

The following is a summary of the major natural resources in Nassau County. As a consistent theme for planning going forward in the process, the natural resources are broken down into four categories: water resources, species and habitat, working lands, and recreation and quality of life. The first two categories are specific to natural resource types that are targetable for conservation, while the second two are specific to land uses that are significant to conservation programs. The information provided is intended to best summarize those resources, existing land uses, and potential.

Water Resources

Watersheds

The **St. Marys River** flows between northeastern Florida and southeastern Georgia, forming the border between these two states. The river originates in the Okefenokee Swamp in Georgia and flows out to its mouth on the Atlantic coastline of Florida near Fernandina Beach, Florida. The St. Marys River is a largely undeveloped blackwater river with a rich history that is used mainly for recreational and ecological activities. The banks of the River are used primarily by timber and forestry operations, various conservation and recreational areas, and some scattered large developments and low-density residential areas. The St. Marys River has exceptional ecological significance due to its unique blackwater character, an abundance of plant and animal species (including 35 threatened or endangered plant and animal species, 52 species of fish, six endangered marine animal species, and over 50 animal species considered rare and of special concern in Florida and Georgia), and multiple distinct ecological systems as the river moves from the Okefenokee Swamp to its mouth. The St. Marys has a number of small tributary streams which feed it from Nassau County, mostly blackwater streams, the largest of which is Brandy Branch.

The **Nassau River** is the longest undredged natural channel river in all of Florida. It is an essential part of the Timucuan Ecological and Historic Preserve, managed by the National Park Service, and the Nassau-St. Johns River Marshes Aquatic Preserve, managed by the State Aquatic Preserves. It is considered one of the most untouched natural watersheds in Florida, and nearly the entirety of its estuarine marsh system falls under the protection of the state or natural parks, or state aquatic preserves. The river is remarkable for having the largest tidal range in all of Florida and some of the strongest currents and tides. The mouth of the Nassau River has what is considered to be a rare ecological asset, as the coastal resource areas on the southern tip of Amelia Island, the northern tips of Black Hammock, Big and Little Talbot Island, are all undeveloped with the exception of Black Hammock Island, which maintains a rural character. This has made the mouth of the Nassau River a rare healthy coastal ecosystem asset in a relatively developed region of the state. The Nassau River has several tributary streams in Nassau County, and is formed from the junction of four streams that meet in Four Creeks State Forest. The largest tributary is Lofton Creek, which feeds into the river near Nassauville.

The **Amelia River** is the estuarine coastal river that separates the mainland of Nassau County from Amelia Island. It is also, in its length, the Intracoastal Waterway, an artificially created transportation canal that connects a series of estuarine waterways, running the length of the state's Atlantic seaboard. The Amelia River connects the Nassau River Sound at the Duval

County border to the St. Marys River Sound at the Georgia border. It is estuarine in the entirety of its course and bordered by salt marsh and occasional natural and manmade spoil islands, the largest of which is Amelia Island. The Amelia River has several secondary channels and estuarine tributaries, such as Bells River, Kingsley Creek and Egans Creek.

Water Issues

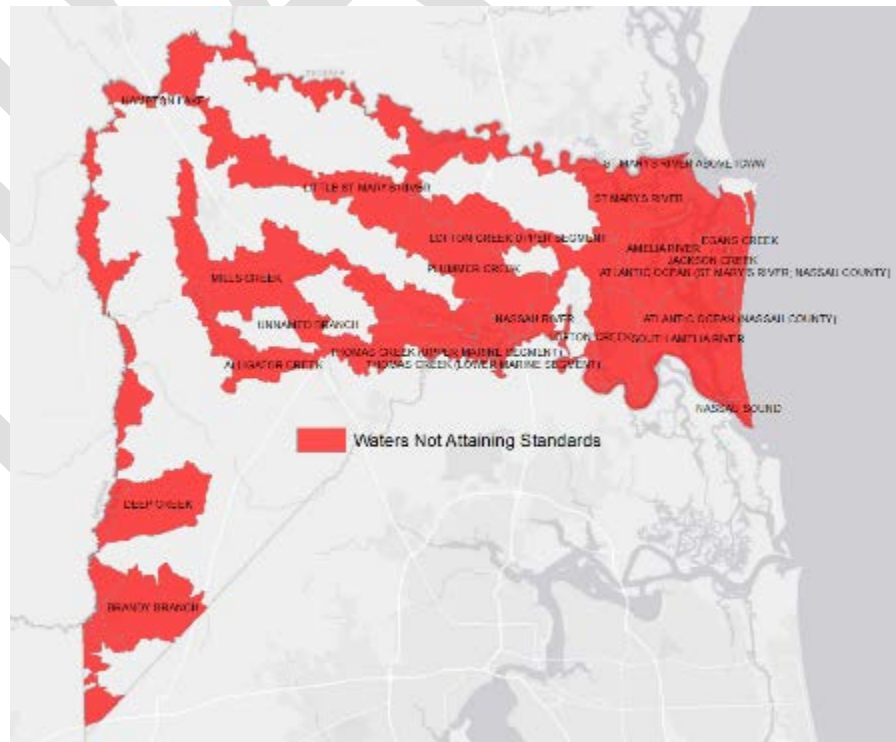
Nassau County has seventeen waterbodies-not-attaining-standards within the County, which have been listed as such because they fail to attain one or multiple water quality standards according to that water body's classification for use. Every watershed in the state is classified according to its use, in one of five surface water classifications, in order from the most sensitive to the least sensitive to pollution:

- Class 1. Potable Water Supplies
- Class 2. Shellfish Propagation and Harvesting
- Class 3. Fish Consumption, Recreation and a Well-Balance Population of Fish and Wildlife
 - Limited. Fish Consumption; Recreation or Limited Recreation; and/or Propagation and Maintenance of a Limited Population of Fish and Wildlife and Agricultural Water Supplies.

All Nassau County waterbodies are Class 3, where water quality standards are established to a standard for recreational use, and the maintenance of healthy fish and wildlife populations, with the exception of the Nassau Sound, which is a Class 2 watershed, for its potential use for recreational shellfish harvesting.

Impaired waterbodies in Nassau County fall into one of six categories.

Bacteria – Impairments for bacteria indicate that ongoing water sampling has found potentially harmful bacteria counts in numbers higher than is considered safe. Most commonly these are fecal coliform or enterococci, two bacteria common in human waste. The most common causes of these bacteria in waterbodies are failing septic tanks, leaking or failing sewer systems, and occasionally, agricultural run-off.



The following waterbodies are listed for bacterial impairments: *Deep Creek, Mills Creek, Nassau River, St. Marys River, and an unnamed branch of the Nassau River in Callahan.*

Biology: An impairment for biology is assigned because of the absence of plants or animals that should be present in the waterbody, particularly macroinvertebrate species which create the basis of most waterbodies' biology. In Nassau County, both the *St. Marys River and Brandy Branch Creek* are impaired for biology.

Dissolved Oxygen: This impairment refers to unacceptably low levels of dissolved oxygen in the waterbody, necessary for fish and other wildlife's respiration. Most commonly this is caused by an algae bloom, which causes an explosion in aerobic bacteria when it dies consuming available oxygen. It can also be caused by general organic decay in the waterbody and by waterbodies that have become too warm or slow-moving, where warming is caused by direct discharge of warm water from human sources or the removal of tree canopy in the watershed. In Nassau County, the following waterbodies have a dissolved oxygen impairment: *Brandy Branch, Hampton Lake, Little St. Marys River, Lofton Creek, Mills Creek, Plummer Creek, and an unnamed branch of the Nassau River* in Callahan.

Mercury in Fish Tissue: Mercury in Fish impairments refers to methylmercury, often found in fish tissue, which is bioaccumulated in fish as it becomes present in the food chain. Most often, that mercury is caused by air stack emissions from coal-fired power plants or other industries, current or historic, which end up in waterbodies. These emissions may be local, or sometimes from sources miles or even states away. It can, however, be included from water run-off sources, particularly industrial sources. This is the most common impairment in Nassau County, with the following waterbodies impaired: *Amelia River, Egans Creek, Jackson Creek, Lofton Creek, Nassau River, Nassau Sound, Plummer Creek, South Amelia River, St. Marys River, and Thomas Creek.*

Metals: Impairments for metal can refer to unsafe levels of any potentially toxic metal, however, in Nassau County refers only to lead. Most lead exceedances are from industrial processes, usually historic, or the unsafe storage of different lead bearing chemicals or materials. In Nassau County, the *St. Marys River and Brandy Branch* currently have exceedances for lead.

Nutrients: Impairments for nutrients refer to an excess of those chemical nutrients significant to the growth of plant and algae life, primarily nitrogen and phosphorous. Both nutrients are naturally present in waterbodies, however, excessive amounts can cause algae blooms, which can be toxic and crowd out native plant life, which ultimately can result in low-dissolved oxygen levels and fish kills. Excessive nitrogen primarily come from fertilizers, either urban (from lawns and landscaping), or agricultural. Nutrient excesses can also be caused by failing septic tank or sewer systems. In Nassau County, *Brandy Branch* has an excess of Nitrogen, while *Brandy Branch and Alligator Creek* have excesses of Phosphorous.

Land Conservation Solutions for Water Quality Impairments

Of the above listed water quality issues, land conservation is an adequate tool for fixing and/or avoiding further complications for bacteria, nutrients, biology and dissolved oxygen. Mercury in fish tissue and metals are better dealt with through the regulation of polluting industries and involve different tools in a County's toolbox, if not state and/or federal regulatory solutions.

Land conservation can be used to preserve riparian buffers and wetlands that provide a vital service in terms of dealing with impairments. Wetlands and riparian (or river-adjacent) habitats

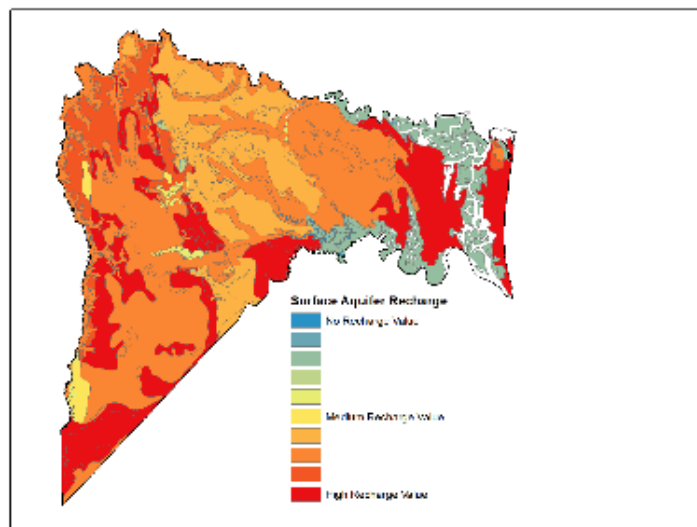
can intercept nutrients, harmful bacteria, and other harmful pollutants. In the case of nutrients, wetland plants use those nutrients before they reach the waterway or are buried in wetland sediments. Bacteria leaching in local water tables from septic systems or leaking sewers can be avoided by effectively distancing them from waterbodies by preserving those land adjacent to the waterbodies. As distance from the pollution source increases, the number of bacteria that are transported through the surface aquifer to the waterbody decreases, being effective at distances of 200 ft. or more. Additionally, protecting headwater areas for tributary streams is generally more effective for protecting stream health, as pollutants introduced in the headwater impact the whole waterbody, where impacts near the mouth have a short duration in the waterbody and cause fewer issues.

Dissolved oxygen, which is partly a nutrient issue (as increased nutrients create more algae blooms, and as a result lower oxygen), is also a function of water supply and shade. As water temperature increases, dissolved oxygen decreases, so preserving canopy and other forms of vegetative shade on waterbodies is useful in this regard. Artificially lower water levels in waterbodies also cause them to warm up more easily. Wetlands are great water regulators, absorbing water during floods and releasing that water during times of drought. Thus, wetland preservation is important. Additionally, excess impervious surfaces (pavement) near waterbodies intercept rainfall that would have absorbed into the ground and percolated into waterbodies at a groundwater temperature (72 degrees), and instead collects that water in stormwater ponds at a significantly higher temperature and releases it directly into waterbodies. Using conservation land to buffer these waterbodies is important in regulating water temperature, as well as preserving smaller wetland areas on tributary and branch streams, where stormwater run-off can be directed rather than directly into surface waterbodies, giving wetlands an opportunity to filter and lower the temperature of the water.

Biological function of the waterbodies can be impacted by a confusing series of all the factors listed above, as well as fish and wildlife management issues generally, and managing for nutrients, bacteria and dissolved oxygen will often significantly increase biological function. However, many aquatic and semi-aquatic species of plants and animals have life cycles that include upland habitats adjacent to waterbodies and wetlands which are often unprotected, thus threatening the species' ability to survive. Preserving some associated upland habitats adjacent to wetlands and waterbodies is important to retaining a waterbody's biological function.

Summarized Strategies:

- Preserving riparian buffers
- Preserving wetlands
- Preserve tree shade over tributaries

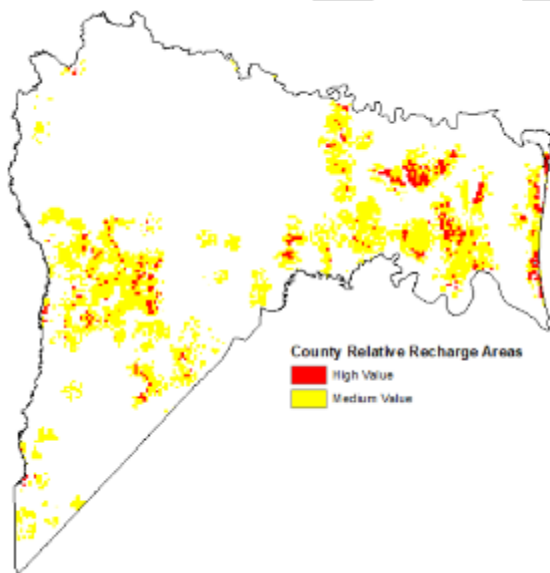


Areas in red contribute significant amounts of rainfall to Nassau County's surficial aquifer, which is significant to the maintenance of wetland habitats and may be used for agricultural and rural residential water supply.

- Preserve headwaters

Water Quantity

The other significant aspect of water issues is water quantity, or the availability of water for human and natural systems use. Municipal water supply in Nassau County is largely provided by deep wells tapping into the Floridan Aquifer. As Nassau County is mostly separated from that aquifer by a sub-terranean clay layer, surface water in the County has little interaction with the Floridan Aquifer, with some small exceptions. Some areas in western Nassau contribute up to 4 inches per year of rainfall to the Floridan. However, this should be compared to regions west of Nassau County within the state, which may contribute 40 inches or more of rainfall annually to the aquifer. It is possible, but not specifically known, that there are a number of residential and agricultural wells in rural areas of the County that are tapping surface aquifer sources, which directly interact with the surface of the County. The surface aquifer, which is much shallower in depth and volume than the Floridan aquifer, has the potential to be significantly impacted by changes in land use. Surface pollutants can be rapidly transmitted through that aquifer to either well or surface waterbodies. Too much impervious surface captures water otherwise intended for that aquifer and can lower the overall level of the aquifer. To many wells, for everything from rural residences, agriculture, or in urban areas, irrigation wells, can overdraw the local aquifer supply and cause oceanic saltwater to invade the aquifer, making well-water brackish and killing wetlands. A wide variety of wetlands, particularly isolated wetlands and seep streams are often reliant on the local aquifer. The transmission of pollutants or saltwater can harm those wetlands, and the lowering of aquifer levels can wipe them out entirely.



This map is a weighted map showing areas of the county providing recharge to the Floridan aquifer, or the surficial aquifer when it is used for water supply purposes.

Nassau County.

Summarized Strategies:

- Protect recharge areas

Land Conservation Solutions for Water Quantity

Land Conservation can assist in water quantity by preserving areas where, because of the kind of soils, elevation, and the land use, more water percolates into the local aquifer than other areas through a process known as aquifer recharge. This will not only help protect the aquifer, but for municipalities and water works, doing so will help them avoid minimum flows and levels (MFLs), a state regulatory tool intended to ensure that water is not being overused in any natural aquatic system to the point of the habitat in that system degrading. If MFLs are instituted, water users must go through the process of proving their water use will not harm the natural system, and if it will, may have to institute expensive water conservation programs. There are currently no MFLs in

Flooding, Storm Surge, and Sea Level Rise

Flooding, storm surge, and sea level rise all fall into a category known as water regulation, or how natural ecosystems work to regulate the amount of water in natural systems at any time. The same flooding, storm surge, and sea level rise that is harmful to our human habitats can often be harmful to our natural habitats, and those habitats have devised ways to reduce or regulate the damage that those events may cause. In the case of flooding, both upland and wetland habitats can absorb water during peak rainfall, reducing flood levels, and storing it in the soil to be used during periods of drought. Plants that live on the edge of rivers and streams have also evolved deep and sturdy roots systems so that they can survive these floods, simultaneously stopping significant erosion. Coastal habitats, such as marsh, dune, river and swamp systems evolved to take on and reduce the impacts of storm surge, slowing down the energy of that storm surge. These habitats can protect millions of dollars of human property in one storm alone. Sea level rise is a problem for which many of our natural habitats have no specific adaptation. While a number of wetland habitats have some ability to adapt to long-term rising water levels—swamp forests and marsh are known to be able to capture up to a half-inch a year of additional sediment with their roots to increase the elevation of their habitat—they can be overwhelmed, resulting in a loss of the associated flooding and storm surge protection benefits.

Land Conservation Solutions for Flooding, Storm Surge and Sea Level Rise

Like many other recommendations for water quality, protection of wetland areas is important to receive water regulation benefits. However, it is possible to overwhelm these wetland systems even when preserved, so the preservation of adjacent upland habitats is important. Though these upland habitats don't store water for drought periods in the same way wetlands do, they are capable of absorbing significant amounts of rainwater during floods. Additionally, under sea level rise, many wetland habitats, such as marshes and swamp forests, which can only survive in a couple of inches to a couple of feet of water, need areas to retreat upwards in elevation as sea levels rise. Therefore, preservation of adjacent upland habitats is critical.

Summarized Strategies

- Preserve wetlands
- Preserve adequate upland buffers for the backflow of rainfall and flood water
- Preserve adequate upland buffers around sea level rise impacted wetlands to allow for wetland retreat
- Preserve floodplain areas

Nassau County Land Cover Descriptions

Nassau has a wonderful diversity of natural areas and working lands. Looking at the Florida Fish and Wildlife Conservation Commission's Cooperative Landcover Map, there are 55 kinds of native habitat cover, and 24 different forms of rural working lands uses within the County. Of the 424,638 acres of land uses identified in the cooperative landcover map, 45% is dedicated to agriculture and forestry, 43% are natural areas, and 12% to developed or urban land uses.

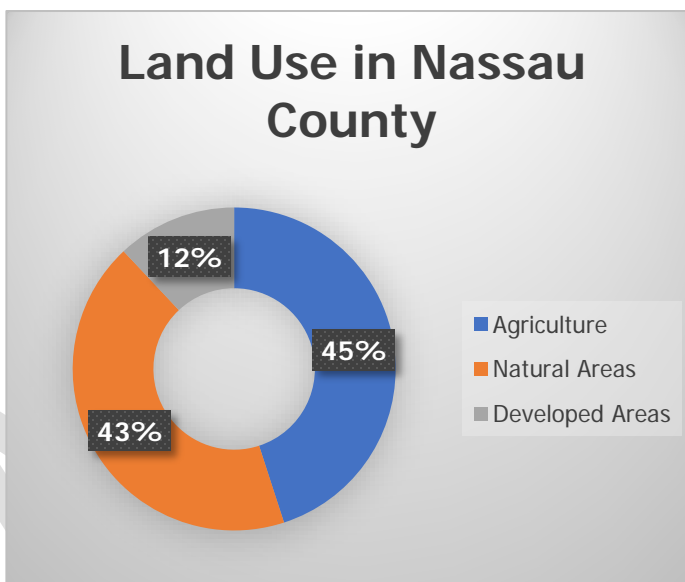
Amongst its working land uses, the majority is in productive forestry, which represents 163,349 acres of land. More than 83% of working lands acreage within the County is defined as coniferous plantations, tree plantations, or recent clear-cuts. While this acreage is being used for some kind of productive forestry, all of it provides some level of habitat function, ranging

from poor to very good, depending on the style of forest management. As large portions of this acreage are owned by industrial timberland owners, quality of habitat under industrial timberland is generally poor to moderate, as compared to those timberlands under private ownership managed for hunting or aesthetics, where the habitat qualities can be quite high. 9% of the working lands acreages are dedicated to cattle pasture and livestock related uses. 6% is dedicated to rural residential uses, or open yard space, small woodlots or barn and other agricultural structures. The remaining 2% is given to row crops, nurseries, sod farms, and other non-livestock related farming purposes.

A significant portion of the County is currently in natural habitat areas, which represents 186,125 acres.

However, the majority or 78% of the native habitat cover are wetlands, the largest being swamp forests at 54% of the total habitat area, followed by marsh and open water habitats such as rivers and streams at 23% of the total habitat area. Of the upland habitat areas, 9% are pine dominated non-wetland habitats, which are associated with a great number of threatened and endangered species and indicated of prescribed fire management. 8% of the habitat area

are mixed pine-hardwood forests, which are a native habitat, but can also be indicative of areas where prescribed fire may have been excluded from an otherwise pine-dominated ecosystem, allowing hardwoods to encroach on these habitats. The remaining 5% are a variety of habitat areas, falling into no specific category and are, for the most part, fractional portions of the acreage. Of particular interest may be what is known as Priority Natural Communities, which are under-protected and rare habitat areas, which have been ranked as critically imperiled, imperiled, or rare by the Florida Natural Areas Inventory, and assessed for their quality based on likely impacts from adjacent land uses. In Nassau County those habitats are Coastal Uplands, Scrub, Seepage Slope, Sandhill Upland Lake, Sandhill, Pine Flatwoods, Upland Pine, Upland Hardwood Forest or Coastal Wetlands. Of that inventory, there are approximately 4,000 acres of imperiled or critically imperiled habitat areas of likely high quality, and an additional 26,000 acres of critically imperiled, imperiled, or rare habitats of high or medium quality.



Endangered, Threatened and Rare Species

The association between habitat and species is undeniable. Still, it is largely species and not habitats that are protected by law, what the public identify with, and can cause the most regulatory hurdles for county governments. While there's a wide diversity of plant and animal species within the County, we have focused on those species with official protected status under the Federal Endangered Species Act, the Florida Endangered and Threatened Species Act, and other statutory protections. These



Yellow Fringeless Orchid. Photo credit – US Forest Service

species fall under three categories with the State and Federal government: Endangered – which means it is at risk of going extinct in all or most of its historic range; Threatened – which means it is at risk of going extinct in all or most of its historic range within the foreseeable future; and Candidate Species for the Federal system, or Species of Special Concern for the state system, where there is adequate evidence the species could go extinct in the future if certain actions are not taken towards their protection. Nassau County has the following confirmed Threatened, Endangered, Candidate and Special Species of Concern:

Plants: little brown jug, southern milkweed, purple honeycomb-head, many-flowered grass-pink, large rosebud orchid, ciliate-leaf tickseed, Florida toothache grass, hartwrightia, yellow fringeless orchid, giant orchid, nightflowering wild petunia, yellow sunnybell, silver buckthorn, Florida merrybells and variable-leaf crownbeard

Reptiles: loggerhead sea turtle, green sea turtle, leatherback sea turtle, eastern indigo snake, gopher tortoise, pine snake.

Birds: Piping Plover, Worthington's Marsh Wren, Little Blue Heron, American Oystercatcher, Wood Stork, Black Skimmer, Least Tern

Fish: Atlantic Sturgeon

Mammals: West Indian Manatee

Land Conservation Solutions for Species and Habitat Protection

Land Conservation is often the foremost concern when addressing species and habitat conservation, as declining habitat, both in amount and quality, is the number one cause of species decline. In the case of Nassau County, the majority of those indicated species are associated either with coastal ecosystems, primarily beach, marsh, dune, and coastal strand habitats, and longleaf pine-sandhill ecosystems. Protection of a number of coastal species, particularly marine turtles and coastal nesting birds, is generally a more regulatory process as the bulk of the retained habitat is already publicly owned beach and dune, and the greater

concern are from conflicting public uses such as beach driving, unleashed pets on beaches, light pollution, and more. However, not all the coastal dune and strand habitat are preserved in Nassau County, with some distinct areas of these habitat areas still in private ownership, which, highly dependent on species context, can convey significant species benefits. Many coastal nesting birds can also make use of estuarine resources, taking advantage of less common, but generally less impacted, estuarine beaches, oyster rakes, and marsh islands.

The remaining species concerns are generally associated with upland and pineland habitats. As the County develops, these habitats are most likely to be reduced, as both native forests and timberlands are the most common land cover in the County, and are the least regulatorily restricted as compared to wetlands and coastal habitats. Native upland pine habitats, such as sandhill, pine flatwoods, scrub, and xeric hammocks cover approximately 27,000 acres or 5% of the County as is, but the size, distribution and connectivity of these key habitat areas is critical to their ability to be useful to threatened and endangered species. There is significant opportunity to expand the coverages and ranges of these habitats, however. Historically, native upland pine habitats would have been the dominant land cover across the County. However, the land they occupy was typically ideal for plantation forestry, and so more than 163,000 acres of timberlands largely occupy former native upland pine habitat areas. As the timber industry in Florida is dominated by the use of native pine trees, restoration of these sites if they were acquired for conservation, is relatively simple as compared to restoration of other habitats, from other potential land uses.

- Preserve critically declining coastal habitats
- Preserve pine-dominated habitat areas, particularly non-wetland pine-dominated habitats such as sandhill and upland flatwoods

Working Lands

“Working Lands” are typically defined as those land areas managed for an economically productive and extractive, but resource-sustainable land use, where the key distinction is the sustainability, or potential sustainability of the enterprise. Mining, by way of example, would not qualify as being sustainable under this definition, as the resource being extracted is not or cannot be replaced, whereas the soil used for most agricultural pursuits can be managed in a sustainable manner. In Nassau County, working lands usages are the plurality land use, with forestry making up most of that use. Forestry in Florida is generally described as a wide variety of potential management styles for upland pine and wetland cypress forests that are grown for their economic potential. Upland pine forests can describe an industrial pine plantation, planted with pine trees at their maximum density to maximize pulp and other timber products production, or it can refer to fairly low-density pine forests, much resembling native pine forests, managed for lesser pulp productivity, but greater hunting and aesthetic values. While there are some planted cypress stands for harvesting, most of the cypress harvesting consists of the harvest of naturally regenerating cypress forests, where the intensity of use describes the intensity of harvesting, both in frequency and degree. The forestry industry in Florida predominantly consists of native species of trees, primarily slash and loblolly pine, with longleaf and sand pine as contributing species as well. Nassau County is uniquely situated to maintain a healthy forestry industry, if it is able to maintain a land base of forestry, with two large pulp mills, chip, mulch and lumber mills located inside the County and within the market range of a total of 22 mills within the state of Florida, according to the Florida Forest Service.

Approximately 4% of the County is dedicated to cattle pasture or other livestock related agricultural land uses. Fruit and vegetable, sod, citrus, nut farming, and nurseries make for an extremely small percentage of the land coverage of the County, about 1%, but another 4% is classified as open rural land uses, which could be conversely, areas of hay pasture, or large yards, indeterminable from aerial images. This accounts for approximately 9% of the land base of the County being used for non-forestry related agricultural products, which is reinforced by the Florida Agricultural Census, which reports 10% of the County's lands being used for farming. As of 2017, there are 373 farms recorded by the USDA in Nassau County, with 220 of them being cattle operations. Based on the 2017 statistics, most farms appear to smallholdings and/or hobby farms. By way of example, the 8 registered hog farms had a total inventory of 144 hogs, the average orchard is 3 acres in size, and on average, net farm incomes are -\$8,180 per farm. Information from the USDA is expressed in averages, and significant farming operations can be masked by the averages, but this generally supports the farms being small hobby farms and not by themselves economically sustainable. This isn't surprising, as the County is on the fringe of the large Jacksonville Metropolitan Area, and those looking for agricultural lifestyles within commuter distances from primary income sources in Jacksonville would come to Nassau County.

Land Conservation Solutions for Working Lands

When discussing conservation solutions for working lands, conservation easements are the most widely used tool. While there are successful models for publicly or non-profit owned farms and silvicultural operations, they are generally only done for demonstrative, or historic preservation purposes. Very rarely are the operated solely for farm production. Conservation easements allow the easement holder to protect the property from being developed or otherwise having its land use converted to something non-agricultural, while the property is still owned and operated by a private entity. Doing so reaches the easement holder's goal of maintaining the farm, while minimizing operational cost usually to a couple of hundred dollars per year. The benefits can be profound to the farm owner as well, as they usually get a large cash infusion to reinvest in the farm, and typically the easement has only minor impacts on farm operations, if any. However, if the goal is the continuity of a working lands industry, farms must be sustainable. Standards for the natural resources (soil quality), years in production, and size are all reasonable evaluations for whether the working lands industry the County is seeking to preserve is actually sustainable, and therefore likely to remain a working land going forward.

With forest lands, public models of operation for a working lands purpose have been successful where doing so preserves the land base for the industry and associated industries such as mills, but not necessarily the private foresters themselves. In fact, managerial partnerships with the state forest service may be an advantageous way to preserve the land base of forestry while diminishing the County's responsibilities for management.

As agricultural producers can also contribute to environmental problems in the County, most often with water quality or habitat preservation, the conservation easement is also a good tool to come to compromise with producers. At a minimum, most conservation easement programs require the producer have a management plan and follow state-mandated best management practices to ensure the property is managed in a sustainable fashion. Some easement programs will ask for compromises from farmers in the nature of farm irrigation, preservation of wetlands from agriculture, or fertilizer usage. On timberland properties, they may require preservation of native forestland or the restoration of native forestland over a portion of the property. The

more compromises asked of the producer, the higher the payment for the conservation easement generally.

Finally, conservation easements are different in their consideration than land acquisitions. With a straightforward acquisition, the County is obtaining all the rights that come with the property. With easements, only certain rights are acquired, so, while a working land property may have excellent opportunities for wetland protection, if the conservation easement doesn't protect those wetlands, then pursuing the property may be moot. Conservation easement properties should be assessed both on their natural resources and the protections afforded within the easement.

Summarized Strategies:

- Protect working lands with conservation easements requiring best management practices
- Preserve working lands with the highest quality soils, a record of successful operation and which is of an adequate size to ensure economic sustainability of the working lands industry
- Partner with the state forest service for the management of large, County-owned working forests
- Ensure conservation easements on working lands reflect all or most of the goals the County in protecting conservation resources, while still allowing the working lands operation to thrive

Nassau County Protected Areas, Blueways and Trails

The next portion of this document intends to document what kinds of resources exist, in the way of preserved lands and what they provide in terms of natural resource protections, and opportunities for the creation of passive outdoor recreation, specifically, blueways and trails. This is not a facility-based analysis, merely an analysis of what the land base of the existing preserved areas provides.

Nassau County Protected Areas

According to the Florida Natural Areas Inventory, the following conservation lands exist in Nassau County. Conservation lands are distinct in this case from county and city-operated parks, which may exist entirely for recreational purposes, or at least which may have no long-term protections against conversion to a non-conservation use.

<u>Name</u>	<u>Managing Entity</u>	<u>Acres</u>
Ralph E. Simmons State Forest	FL Dept. of Agriculture and Consumer Services, Florida Forest Service	3626
St. Marys River Estate Conservation Easement	The Nature Conservancy	69
Egans Creek Greenway	City of Fernandina Beach	318
Froitzheim Wilderness Sanctuary	Florida Audubon Society, Inc.	10
George Crady Bridge Fishing Pier State Park	FL Dept. of Environmental Protection, Div. of Recreation and Parks	10
Cary State Forest	FL Dept. of Agriculture and Consumer Services, Florida Forest Service	5061
Thomas Creek Conservation Area	St. Johns River Water Management District	861

St. Marys River Ranch Conservation Easements	The Nature Conservancy	1298
Four Creeks State Forest	FL Dept. of Agriculture and Consumer Services, Florida Forest Service	10620
Longleaf Mitigation Bank	Mitigation Development Services, LLC	3032
Thomas Creek Mitigation Bank	Florida Mitigation Providers, LLC	595
Northeast Florida Wetland Mitigation Bank	Allen Land Group, Inc.	11
Fernandina Plaza Historic State Park	FL Dept. of Environmental Protection, Div. of Recreation and Parks	1
Brandy Branch Mitigation Bank	Brandy Branch Forest, LLC	733
Fort Clinch State Park	FL Dept. of Environmental Protection, Div. of Recreation and Parks	1080
Amelia Island State Park	FL Dept. of Environmental Protection, Div. of Recreation and Parks	226
Timucuan Preserve Federally Managed Lands	US Dept. of the Interior, National Park Service	9
Nassau River Marshes Preserve	North Florida Land Trust	468
Mizell Family Preserve	Nassau County	39
NFLT Conservation Easements	North Florida Land Trust	1055
	Total Acreage	29,122

Of the 29,122 acres of preserved land in Nassau County, 6,676 acres, or 24%, of the existing conservation lands are private conservation lands which have no requirement to be open to the public or are private conservation easements which also have no public access requirements. The largest proportion of the publicly owned and accessible acreage are state forest lands, at 67% or 19,307 acres, a further 5% are state parks with 1,317 acres, Water Management District Conservation Lands with 861 acres at 3%, and Nassau County and City of Fernandina Beach Lands at 1%. White Oak Conservation Area creates a distinct question in this form of analysis, because at more than 17,000 acres, it could increase the preserved lands acreage by a further 60%, but there is not, at this point any time, any permanent legal restriction which ensures its conservation.

Existing Land Use and Habitat Preservation

Before setting out to preserve new lands, it is worthwhile to ask what types of habitat areas are already being significantly preserved by the existing system of conservation lands and which are being terribly underserved. However, before proceeding it is important to note the distinction between whether the entirety of a habitat in its current extent has been preserved, as compared to its total potential extent, where large portions of that habitat's historic coverage may have been converted into an agricultural use, and may be restorable. We are, for this analysis, only looking at current extent.

The habitat and land cover types that are currently significantly preserved by the existing conservation lands are:

TYPE	PERCENT OF HABITAT PRESERVED
Coastal Grassland	100%
Freshwater Tidal Marsh	100%

Baygall	100%
Basin Swamp	100%
Coastal Strand	100%
Dome Swamp	100%
Mesic Hammock	100%
Xeric Hammock	99%
Coastal Interdunal Swale	99%
Hydric Hammock	98%
Floodplain Swamp	95%
Maritime Hammock	80%
Sand Beach (Dry)	67%
Wet Flatwoods	57%

Most of the habitat coverages that are significantly preserved are either coastal habitat types where most of its historic extent has been destroyed already except in conservation areas, or relatively rare or unique habitats that incidentally, or intentionally, only occurred within those conservation areas.

The following table describes the habitat coverages that have received the least protection from the current system of conservation lands:

TYPE	PERCENT PRESERVED
Utilities	10%
Upland Hardwood Forest	10%
Mixed Wetland Hardwoods	9%
River Floodplain Lake/Swamp Lake	9%
Tree Plantations	8%
Cypress/Hardwood Swamps	8%
Bay Swamp	7%
Salt Marsh	7%
Rural Open Forested	7%
Wet Prairie	6%
Coniferous Plantations	6%
Cypress	5%
Mixed Scrub-Shrub Wetland	5%
Mixed Hardwood-Coniferous	4%
Other Wetland Forested Mixed	4%
Marshes	4%
Wet Coniferous Plantation	3%
Hydric Pine Flatwoods	3%
Improved Pasture	2%
Natural Rivers and Streams	2%
Rural Open	2%
Isolated Freshwater Marsh	1%

Pine Flatwoods and Dry Prairie	1%
Shrub and Brushland	1%
Blackwater Stream	1%
Riverine	1%
Floodplain Marsh	0%
Field Crops	0%
Upland Coniferous	0%

This form of analysis lends itself to several interesting observations. Some of the low percentages of protected areas result because even though existing conservation areas are already heavily made up of that habitat or land use type, they are so extensive within the County the coverage is minimal. Good examples in this case are coniferous habitats or tree plantations. Even though the state forest areas are largely covered by these land use types, they are a small percentage of the working forest lands within the County. This can be said of working forestry associated landcover types, wetland forest types, and salt marshes. Other non-forestry related working lands uses associated with cattle and farming are underrepresented because there has never been a significant effort towards conservation easements on working lands in Nassau County, with those easements being held by the Nature Conservancy and North Florida Land Trust primarily being habitat and forestry focused. Some ecologically significant habitat types are extremely underrepresented in preservation efforts so far, such as Bay Swamps, Wet Prairie, Cypress, Scrub-Shrub Wetlands, Pine Flatwoods, and miles of river frontage. Finally, this form of analysis lends itself to other interesting observations, such as that 10% of the existing utility footprint within the County, which can be generally summarized as transmission facilities, is on conservation land, displaying a long-term preference to site such facilities on large, unbroken tracts of land that conservation areas typically represent.

Finally, there are surprisingly few undeveloped landcover types that have moderate percentages of their land coverages preserved:

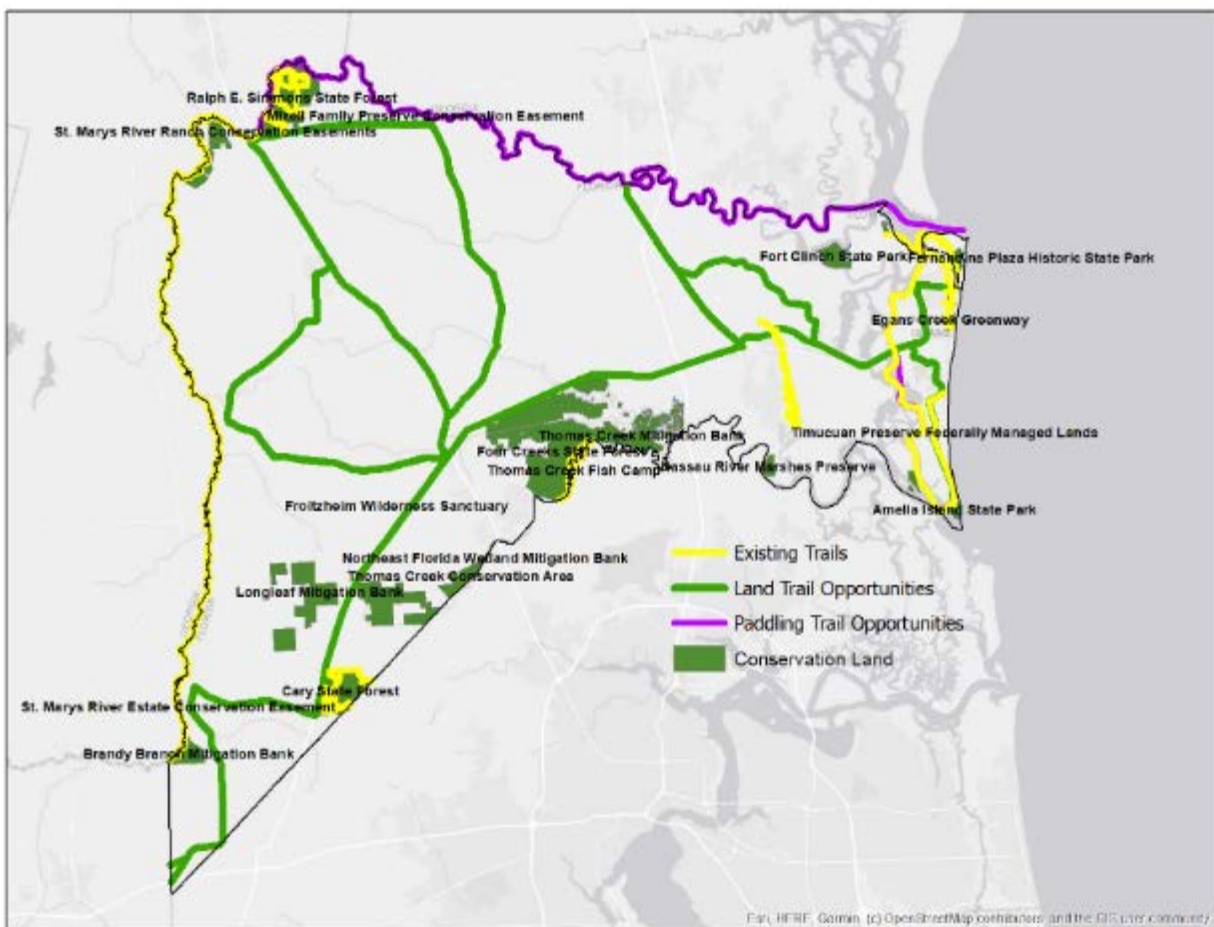
TYPE	PERCENT PRESERVED
Sandhill	32%
Mesic Flatwoods	24%
Bare Soil/Clear Cut	14%
Beach Dune	14%
Natural Lakes and Ponds	12%

The geography of Nassau County does not lend itself to the natural formation of significant open water lakes and ponds, and so a single purchase was enough to claim preservation of 12% of that coverage type. Clear-cuts are, by their nature, ephemeral, and always limited in extent because rotational timber management only allows for so much clearcutting to be occurring at one time. Large beach dunes have been preserved at Ft. Clinch and Amelia Island State Park, but most of that land cover exists in planned communities and individual residences and may not be able to be further preserved. Finally, Sandhills and Mesic Flatwoods are critical habitat types for species protection which were largely wiped out for commercial forestry within the County, and their preserved percentages more reflect their having been restored from pine plantations on state forestry lands and not having been preserved from a virgin state.

Existing Nassau County Trails and Trail Opportunities

The Florida Department of Environmental Protection's Office of Greenways and Trails has documented the following existing public recreational trails across Nassau County.

TRAIL NAME	TYPE	MILEAGE
Amelia island state park trail	Equestrian	0.2
Cary state forest trail	Equestrian	6
Cary state forest trail	Hiking	2.8
Cary state forest trail	Hiking	0.7
East coast greenway - duval county corridor	Multi-use	0.6
East coast greenway - nassau county corridor	Multi-use	5.9
Egans creek greenway trail	Multi-use	4.1
Egans creek trail	Paddling	2.6
Florida circumnavigational paddling trail	Paddling	1.6
Fort clinch state park trail	Biking	5.1
Fort clinch state park trail	Hiking	1.1
Fort clinch state park trail	Paddling	2.1
Lofton creek trail	Paddling	1
Ralph e simmons memorial state forest trail	Multi-use	1.3
Saint marys river state trail	Paddling	5.3
Upper thomas creek trail	Paddling	6.9
Cary state forest trail	Equestrian	0.6
Cary state forest trail	EQUESTRIAN	0
Cary state forest trail	EQUESTRIAN	3.7
	EQUESTRIAN TOTAL	10.5
	HIKING TOTAL	4.6
	MULTI-USE TOTAL	11.9
	PADDLING TOTAL	14.2
	BIKING TOTAL	5.1
	TOTAL TRAIL	51.6



Nassau County's 51 miles of trails ranks it as 6th out of 7 Northeast Florida Counties, ahead of Baker County (25 miles), but less than Flagler County (101 miles), Clay County (155 miles), St. Johns (162 miles), Duval (242 miles), and Putnam County (362 miles). Trail Opportunity is more than just a matter of mileage, but also location, as location identifies whether they are universally accessible trail systems, as well as the availability of amenities. The Office of Greenways and Trails also maintains a list of identified trail opportunities in each County, for paddling, multi-use, hiking, and other opportunities, nominated with County assistance and tracked by the state for state funding purposes. Though many of these trails are planned for the right-of-ways of existing roadways and not reliant on conservation land per-se, the need for trailheads and having conservation lands and parks as destination amenities and stopping points is a significant benefit to a multi-use trail network. The currently proposed network of trails will add significantly to trails potential within Nassau County; if completed, it would add an additional 269.9 miles of trails. Such a trail system would be 321.51 miles in length, making the County 2nd in available trails for the region. Further, this number does not include internal trail systems, which depending on the size and scale of conservation lands acquired could add dozens if not hundreds of miles of usable trails.

<u>TRAIL OPPORTUNITY</u>	<u>MILEAGE</u>
East Coast Greenway - Nassau County Corridor	5.7
East Coast Greenway - Duval County Corridor	0.6
Jacksonville Baldwin Corridor	1.9

State Road 121 Rail Trail Corridor	0.0
East Coast Greenway to Georgia Trail Corridor	5.1
East Coast Greenway to Georgia Trail Corridor	5.0
Amelia Island Parkway Path	2.4
Crandall Parkway Trail	9.2
Trans Nassau Trail Corridor	28.8
Jacksonville Baldwin Rail Trail Northern Extension Corridor	13.4
Jacksonville Baldwin Rail Trail Northern Extension Corridor	0.0
State Road 121 Rail Trail Corridor	1.1
Jacksonville Baldwin Corridor	0.1
Northwest Nassau to Georgia Corridor	61.9
Amelia Island Parkway Path	0.9
East Coast Greenway to Georgia Trail Corridor	12.2
East Coast Greenway to Georgia Trail Corridor	0.5
Cecil Trail to Cary S.F.	1.5
US 90	0.8
St. Marys River State Paddling Trail	97.3
Thomas Creek Paddling Trail	6.6
FLCircumnavigational Saltwater Paddling Trail	14.8
Total Trail Opportunities	269.9

Land Conservation Solutions for Recreational Areas and Trails

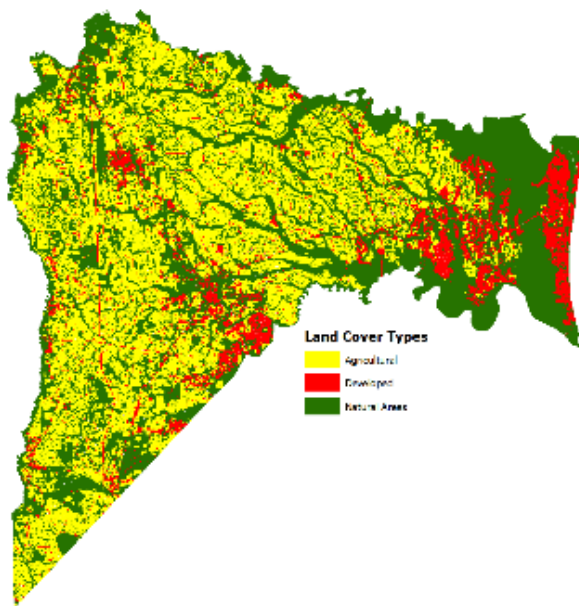
Land Conservation seems to be an obvious solution for recreational areas and trails, and while generally speaking, increasing the land base for outdoor recreation will provide more opportunities, careful planning is necessary to ensure those opportunities are equally provided to all the citizens of the County. Looking at the regional and statewide prospective, Nassau County is significantly behind in the providing those opportunities to their citizens, to a significant degree. The County is last in preserved acres in the region, and second to last in terms of usable trails. While the County has some destination parks, such as Ft. Clinch, the majority of the existing conserved lands acreage is in state forests, which provide ample recreational opportunities but little in the way of improved facilities, such as campgrounds, educational centers, and rental boat and kayak facilities which broadens the spectrum of access to the disabled, the old, and the young.

However, there is significant opportunity for improvement of all of the above-described concerns. The County should identify those areas that are significantly underserved in their access to parks, both in terms of linear distance to access, as well as population served. The County should also look at providing a diversity of experiences, both in recreational opportunities, but also experientially. A system of substantially similar parks and conservation areas will provide complete equality in experiences for all citizens of the County, while simultaneously ensuring that most of those parks are visited only once. Parks and Trails should be acquired and constructed in a way that captures the diversity of habitats, histories, and recreational opportunities the County has to offer. Longer multi-use trail systems that connect the County should provide for destinations and roadside amenities to increase usership. Targeted acquisitions along navigable waterways to increase blueway and paddling usage

would provide recreational users the ability to travel significant distances in the mostly natural settings.

Summarized Strategies

- Determine levels of service for outdoor, passive recreational spaces which outline the diversity of recreational and educational opportunities the County would like to provide, including trail usership, hunting, fishing, educational centers, boating, paddling, wildlife viewing, and camping
- Target acquisitions along primary, county-wide trail networks and paddling trails to create destinations and mid-trail amenities, as well as trailheads, kayak launches and primitive camping sites
- Target acquisitions to areas significantly underserved for parks and recreational lands, both as a function of distances and population served



Review of Existing Conservation Tools

As an aspect of the study, it is important to be aware not just of what resources are potentially available for protection, but which are protected in part, or in full, by existing regulations, laws, and/or ordinances. The purpose of the following sections is to provide a short summary review of those protections so that they may be contrasted with the real estate based conservation tools contemplated in this document. Ideally, regulatory programs and land conservation can operate in tangent, sustaining natural resource

quality using different tools, appropriate for different places. The intent is to explain those existing tools impact, and assess their adequacy to see if any gaps may be filled using conservation programs.

Existing Nassau County Natural Resource Protection Tools

Land Use Development Code

The first tool of any local government are the land use development codes that regulate which properties may be developed and how. Nassau County has incorporated a number of natural resource protections and protections intended to protect rural land uses into their code. Below is a short summary of the protections.

Review of Tree and Canopy Protections

The County has existing tree protections for new development sites on Amelia Island. These tree protections imply some protections for naturally forested properties in that there is a requirement for the maintenance of certain minimum caliper inch diameters on properties during development and trees harvested during construction need to be replaced to meet those minimum standards. While these protections imply certain costs to development that may be an impediment to conversion of natural areas, tree replacement and mitigation is common for development across Florida and is generally considered a normal cost of business. Though trees must be replaced with native canopy trees, it is not a significant habitat conservation tool, as there's no requirement that the compensation of trees reflect those lost in the course of development, and will tend to favor trees favored for aesthetics and ease of maintenance, and not for their habitat benefitting purposes. Understory is also not an accounted for loss in the program. These restrictions are also not applicable to any agricultural or silvicultural properties, where harvest of tree biomass is the purpose of the land use, or where tree harvesting coincides with traditional rural land uses.

The current protections for canopy are just that, canopy protection tools, in that they are primarily written to preserve to the extent possible, mature canopy trees within areas of new

development and within existing developed areas specifically on Amelia Island. The benefits of such a policy are not inconsiderable in they provide mitigation for urban heat island impacts, protect the aesthetics of the island, and have other benefits by way of air quality, stormwater retention and some nominal habitat benefits. The greater portion of the benefits are targeted towards the preservation of large, specimen trees, as they generally provide the greater aesthetic and shade value, and because replacing those same values with newly planted trees may take decades. However, there are downsides to taking a broadly uniform protection to large diameter trees, as no trees are alike. First, in terms of habitat, it will tend to prefer a uniformity of oaks, and other broadleaf deciduous trees that can attain greater trunk diameters. Native pine trees and a host of other species do not generally obtain equal girths, and therefore are likely to be disadvantaged in developing areas, but may be important towards the maintenance of native species that are desirable in an urban/suburban interface.

Treating large-diameter trees equally may also be simply favoring trees nearer to the natural end of their lives. Certain species such as live oaks, longleaf pine and bald cypress, have no known natural lifespan, however, other similar species such as laurel oak, water oak, and slash pine, generally have shorter life spans of no more than 120 years. Therefore, preferentially preserving a 3-foot diameter laurel oak, when comparatively eliminating a 2-foot diameter live oak, might result in having to replace the laurel oak within a decade, while the live oak could have provided ongoing canopy benefits for centuries. A crediting system is possible, where desirable trees in terms of total ecosystem services, lifespan, and diversity, are more favored in the crediting of caliper inches, and less desirable trees by those metrics are credited less should be considered if the County wishes to expand their approach to tree canopy protection. By way of example, a developer could be credited an additional 1/10 of a caliper inch for every desirable species preserved up to a certain percentage of the total requirement, or receive only 9/10 of a caliper inch for undesirable species preservation over a certain percentage of the total requirement. This all while requiring a certain minimum of caliper inches on the property.

Nassau County's tree canopy ordinances, at this time still in development with the County, also allow for tree mitigation off-site, either via a crediting program, or direct payment system on publicly owned, or private conservation easement lands. The problem with tree mitigation, especially on an area as finite in landmass as Amelia Island, is that the program starts losing value as soon as it is implemented, because the ability to replace lost trees is functionally a zero-sum game, as the land is finite. Upon initiation, there are typically greater amounts of unforested publicly owned or conservation easement land, but as they are planted with trees via the mitigation program, the availability of that land diminishes and becomes costlier to plant. Available land can be exhausted fairly quickly with development, and therefore tree removal may continue, with the only available projects being the replacement of aging public and right-of-way trees. In a rapidly growing county, tree removal will outpace the needs of tree replacement.

We recommend the County utilize a goals-based approach, by determining the level of canopy coverage desired, the associated level of ecosystem services desired for those trees, and utilizing scenarios to determine whether, if the available developable land is developed, they achieve the desired canopy coverage and level of service. If not, the County should make use of tree mitigation funds, or those funds in tangent with land acquisition funds, to acquire developable forested areas to mitigate some of the impacts of tree loss. We also encourage a comprehensive urban tree inventory for the purpose of determining what the total opportunities

for new plantings of trees on public land, as well as what the likely tree replacement needs are likely to be for the foreseeable future. If the County is to proceed with a tree mitigation fund, we also recommend it create a set fee schedule for tree planting on a caliper inch basis. Doing so is likely to increase participation in the program, as a set fee gives developers certainty of cost, provides greater transparency and certainty to the public, and even allows for the creation of private or public tree mitigation “banks.”

Tree mitigation banks are sometimes implemented by private non-profit or municipal entities as a way of using tree mitigation fees to affect reforestation and land preservation at the same time. They use the bulk-buying and economy of scale benefits of doing larger reforestation projects over more typically expensive right-of-way tree planting projects. By way of example, if the mitigation fee is \$100/caliper inch, a typical 2-caliper inch street tree, inclusive of the cost of planting, watering and maintenance will likely use all \$200 of the associated fee. However, the economics of reforesting a 25-acre former cattle pasture is quite different. In this instance, containerized seedlings are more commonly used, which may only cost \$40/caliper inch, including probable mortality, cost of planting and maintenance. The difference in cost, or \$60/caliper inch, would be used as a financing mechanism for the purchase and preservation of the property. Assuming reforestation at 300 seedlings per acre, and each seedling being accounted at 1/8 of a caliper inch, this leaves \$2,400 an acre, or \$60,000/acre towards financing the preservation of the property. This strategy may not be appropriate for Amelia Island due to a lack of multi-acre reforestation opportunities, but may be worthy of consideration if, going forward, the County broadens its tree canopy and mitigation ordinances to the rest of the County.

Supplementary Conservation Strategies for Tree and Canopy Protection

- Ensure conservation lands are managed for tree diversity in both species and age class to maximize habitat and ecosystem service values
- Consider formalizing tree mitigation fee schedules and allowing for tree mitigation banks as a way of bringing supplementary conservation lands funding.
- Establish desired canopy coverages for urban and urbanizing areas, determine whether those coverages will be maintained in the face of development trends, and acquire forested conservation lands in those areas if canopy coverage is unlikely to be maintained.
- Expand the tree ordinance to create incentives for increased diversity of tree species being maintained, and disincentivizing species that are less desirable due to shorter lifespans and higher maintenance requirements.

Review of Wetland and Upland Buffers

In all development across Nassau County, a 25-foot average wetland buffer must exist between any contiguous, non-isolated wetland areas and adjacent development. Where unavoidable reductions of the buffer must happen, that reduction must be compensated with a wider buffer elsewhere, and at no time may the buffer be less than 15-feet. In analyzing the benefits and sufficiency of these buffers, we must look at their purpose, which is generally to assist in water quality, quantity, flood regulation, and habitat quality. For water quality purposes, the justification of an upland buffer is to assist in pollution reduction, where the plants in the buffer stabilize the soils, reducing erosion, and capture nutrient, pesticide and herbicide run-off, which can be extremely harmful in reaching a water body. Many wetlands are also extremely water-

table dependent, where a drop in the local water table from lack of recharge due to impervious surfaces adjacent to the wetland harm the wetland. For flood regulation, rapid-moving run-off from impervious surfaces or lawns can overwhelm a wetland's ability to absorb that water and mitigate for flooding, where the buffer may slow that flow. Finally, upland buffers are intended to provide upland adjacent habitat for wetland species, which may have portions of their lifecycle in associated upland areas.

Water Quality: At 25 feet in width, Nassau County's vegetated buffer requirements are at the bare minimum of commonly applied and scientifically valid buffers. Vegetated buffers have been studied significantly for their water quality benefits in terms of sediment, pesticide, nitrogen, phosphate and temperature pollution. While studies have found buffers 25 feet wide to be effective for the interception and treatment of most of those pollutants, perfect or near perfect conditions had to exist for it to be truly effective. Furthermore, an EPA meta-study found that width was only a minor determining factor in determining effectiveness, and that soil type and the form of vegetation to be far more important in determining efficacy. Pollutants are transported to the waterbody via both surface and subsurface flows. Even with a significant vegetated buffer, surface flows are often inefficiently treated by vegetated buffers, so to the extent possible buffers should be designed in a manner that maximize subsurface flows. Pollutants directed to subsurface flows are significantly treated by either the uptake of nutrients by roots or the action of anaerobic bacteria in organic soils. Tree roots are effective at capturing nutrients, but grass and shrub roots are more effective at trapping sediment and slowing and redirecting surface waters to the subsurface. Meanwhile, significant amounts of nutrients are digested by anaerobic bacteria which exist in large numbers in heavily organic, hydric soils, but less so in well-drained mineral soils. A 25-foot buffer of mixed trees and grass on organic, hydric soils, may be effective in removing 75% or more of pollutants. However, a grass buffer on well-drained soils may need 200 feet to achieve the same effectiveness. Finally, for management of temperature, 50-foot buffers are generally recommended for major rivers and lakes, with 50% shading off the waterbody for tributary streams.

Nassau County has regions where a 25-foot buffer is likely to be effective, however where well-drained sandy soils proliferate, 25 feet is likely inadequate to achieve significant nutrient removal. Forested and mixed forest and grassland land covers dominate in Nassau County. The County should consider studying their major watersheds to determine dominant soil types in each watershed and whether it needs to increase buffer widths. One way of increasing efficiency of buffers within a smaller footprint is using a mixed buffer type, which allows the water to percolate through a grass filter strip first, then a forested buffer. Alternatively, the County may seek to offset minimized buffers in some places by engaging in significant watershed protection projects elsewhere. For example, headwater protection areas, to ensure minimal or no pollution inputs to sensitive headwater areas where pollution impacts might otherwise have a magnifying in the watershed.

For the St. Marys River, a unique setback of 100 feet has been established for the placement of septic tanks. The primary pollutants from a septic tank are bacteria and nitrogen. In isolation, a 100-foot buffer should be effective for the of both forms of pollution reaching the St. Marys, however, as the number of septic tanks increase, the effectiveness of this buffer decreases. The magnitude of the decrease is determined by soil type. Recent studies on the St. Johns River have shown that setbacks of 200 feet may be necessary in high to medium density residential developments with septic tanks.

Water Quantity and Flood Regulation: A literature review of similar ordinances and relevant science showed that a minimum buffer of 50 feet is necessary to protect wetlands from low water conditions during Florida's normal drought season as well as to manage subsurface backflows into the wetland, allowing them to absorb excess stormwaters. However, a 25-foot buffer can be effective if measures are sought to reduce or minimize impervious surfaces within the additional 25-foot buffer areas. Aquifer Recharge protection areas will further supplement wetland water supply during drought periods, particularly in areas significant to surficial aquifer recharge important to wetland groundwater areas where restrictions on impervious surfacing can be applied. Finally, to preserve wetland ability to buffer storm surge and flooding where sea level rise is predicted in the short to mid-term, widened buffer strips are important to facilitate wetland retreat to higher elevations where the buffer width may be variable based on slope and topography.

Habitat: Buffer requirements for habitat vary from a minimum of 50 feet to a maximum of 375 feet depending on species identified for conservation. The only real way to determine adequacy for habitat provisioning within riparian buffers is to assess what species are dependent on riparian and wetland upland buffer areas and to implement a series of buffer widths depending on species needs and targets for their recovery and maintenance within the County. Alternatively, by acquiring significant conservation lands along wetland and riparian courses of a diversity of potential habitat types, the County may be able to meet all or some of the habitat needs while monitoring species numbers and success to determine continuing needs going forward.

Supplementary Conservation Strategies for Wetland and Upland Buffers

- Acquire conservation lands in areas of well-drained mineral soils where a 25-foot buffer is unlikely to be effective for ensuring pollution removal
- Acquire wetlands and headwater tributary areas to ensure high water qualities, supplementing the riparian buffers for water quality.
- Protect surficial aquifer recharge areas.
- Identify areas of unfragmented adjacent upland habitat to wetlands and riparian areas that can be set aside for species that require habitats with significant consistent habitat areas next to aquatic resource areas.

Review of Beach Dune and Coastal Habitat Protections

In recognition of the coastal dunes and strand systems significant to the protection of the island system from storms, and vital significance to threatened birds and beach nesting marine life, the County has put in place significant protections, making their approvals secondary to state and federal permit review requirements for those habitats, particularly related to the protection of Coastal Construction Control Line, and the state's design standards for developing within coastal strand environments. Developers may not excavate into the primary or secondary dune, and those structures allowed on the dune must be appropriately reviewed and engineered to maintain dune integrity. Shoreline hardening is not allowed unless significant shoreline hardening already exists in the immediate area. Light Pollution ordinances also seek to benefit nesting marine turtles. Cutting of native dune, strand, and maritime hammock vegetation is kept to a minimum to ensure they will continue stabilizing those habitats.

The County is taking adequate steps to ensure the geomorphological integrity of the beach and dune system are maintained to protect residents from the effects of storms and beach nesting marine turtles are protected. Subsequent protections are often hard to affect with land conservation alone as Florida beaches tend to be high-traffic, high-recreational use areas, where species and habitats are often impacted even when they are formally conserved. Beach-driving, unleashed pets, trespassing into dune, and high densities of dune walkers all create significant impacts to dune habitat and threatened and endangered birds. Most impacted are coastal nesting and migratory birds, which rely on relatively undisturbed beaches both to produce offspring and to take breaks during long migratory routes. Maintaining protected areas for their use is an issue of patrol and enforcement which can be difficult unless ensconced in larger protected dune areas. Because of the significant attraction to the beaches, opportunities for the acquisition of larger dune and strand areas are few and far between. Significance can be relative, and preserves upwards of five acres in size may be significant to the purposes of these species.

Opportunities are greater within the estuarine system. As large portions of the estuarine systems in Nassau County are aquatic preserves, Nassau County has implemented state guidelines for development adjacent to Outstanding Florida Waterways, requiring greater vegetated buffers, septic tank setbacks, and more near these waterbodies. Additionally, protections against shoreline hardening are significant to the preservation of saltwater marshes, where shoreline hardening can increase wave energy and the erosion of the marsh and cuts off their line of retreat under sea level rise. Finally, a policy discouraging dredging and filling of the marsh and wetlands within the County is probably the most significant protection of this environment.

While acquisition of coastal wetlands is often frowned upon as a waste of funding, as they are so heavily protected, we nonetheless advocate for acquisition, when possible. While it is true that coastal wetlands cannot be directly developed, they can be directly impacted by docks and erosion from boat wakes and increased channel energies from dredging projects. While this level of impact as a whole is significantly less than the potential for upland properties, marshes tend to be such high performers in terms of fisheries, carbon sequestration, storm surge buffering, pollution control, and more. While simultaneously being very cheap to acquire, they represent a good return-on-investment for coastal communities. If the marshes do begin to degrade, the County may not be able to access and restore the marsh unless it owns it, which is a significant consideration considering all the benefits they provide.

In areas that are extremely vulnerable to storm surge or which have been previously flooded, we encourage the County to consider a rolling conservation easement program. The concept behind a rolling conservation easement is that property owners sacrifice the ability to rebuild structures when and if they are significantly impacted by a storm, or if the coastal hazard line, mean high water line, or coastal construction line is moved landwards. Rather than having to negotiate the purchase of a repeatedly flooded property, the County can plan ahead in areas that are high risks. When the structures are impacted by a storm, or one of the above-mentioned lines is moved landward, they lose the right to reconstruct or expand the structures. This will facilitate sea level rise adaptation and open developed areas for habitat restoration that were previously developed.

Supplementary Conservation Strategies for Beach Dune and Coastal Habitat Protections

- Identify areas of beach, beach dune, coastal strand, and maritime hammock forest of five acres or more to consider for preservation.
- Identify estuarine marsh areas for preservation, particularly those in areas of heightened vulnerability or where they may be significant to adaptation for sea level rise.
- Consider a rolling conservation easement program in areas where repeat historic flooding, or a predicted vulnerability to future flooding and surge, has been or will be a problem for coastal habitat restorations.

State and Federal Resource Protections

The following details protections afforded to natural resources within the County by state and federal regulatory programs. These programs, while not directly controllable by the County are consistent in implementation, providing consistent resource protections that can be predicted, in terms of supplementing resource protections with a conservation lands acquisition program.

Wetland Regulations

In Florida, wetlands are generally protected under the Environmental Resource Permit program, which is jointly administered by the Florida Department of Environmental Protection, the U.S. Army Corp of Engineers, and the Water Management Districts, from impacts resulting from the dredging or filling of those wetlands. This joint permit allows applicants to apply for activities near or in wetlands that may be harmful to the function of those wetlands, where the minimization and mitigation of those impacts is determined by the state and federal law.

Though there are broad similarities in what the state and federal regulatory guidance is trying to achieve, there are some key differences. Federal regulatory programs only apply to “Waters of the United States,” which are navigable waters or waters significantly connected to navigable waters. They do not protect isolated wetlands (not connected to navigable waters) or any areas of upland. State regulatory guidance is more expansive in its protections, including isolated wetlands, and uplands where the alterations of surface sheetflows across those uplands may alter the function of those adjacent wetlands. Both programs protect wetlands but use different processes to determine what are wetlands and what are not. Both programs also measure impact to wetlands, and compensating mitigation for those impacts, not as a pure function of acreage, but what’s known as wetland function. Wetland function is a measurement of the general quality of the wetland, from high to low quality, and the level of ecosystem services the wetland provides. However, both programs measure wetland function differently.

State and Federal programs are similar in requiring that wetland impacts first be avoided and to the extent possible, minimized. When impacts to wetlands are unavoidable, they require what is known as wetland mitigation. Wetland mitigation is achieved by either restoring historically filled or drained wetlands, enhancing wetlands that are not functioning optimally, or preserving wetland areas. There are a variety of different kinds of wetland mitigation, known as on-site, off-site, wetland mitigation banking, regional off-site mitigation areas, and in-lieu fee mitigation. The significant difference being when the permittee is responsible for mitigation, or when there is an agreement between permittee and a third-party to provide wetland mitigation. Permittee responsible mitigation often entails the developer offsetting their impact on-site, where they simply preserve, restore, or enhance wetlands on the property they are impacting. They may also sometimes go offsite, directly restoring, enhancing or preserving wetlands on a nearby property. The far most common form of wetland mitigation, and regulatorily the most preferred

form, is wetland mitigation banking. In this case, third parties restore, enhance, and preserve wetlands and are provided wetland mitigation credits, which they can sell to other parties who are impacting wetlands. These wetland mitigation banks are generally preferred by both developers and the regulatory agencies, because rather than having the developer try and offset their impact, professionals in wetland restoration are in charge whose profits are predicated on quality wetland protection. Wetland Mitigation should be initiated in the same watershed or basin in which the impact occurred and should be offset with wetlands of a similar kind as to the kind impacted. However, if, for example, a wetland mitigation bank does not exist within the basin of impact, or those banks are not restoring the same kind of wetlands as those impacted, the regulatory agencies can allow offsets in different basins or with different kinds of wetlands.

Counties are generally not included in the state and federal regulatory process except in rare circumstances. But a county should be aware of the potential local downsides in the management of these programs to a county's wetland protection program. First, impacts have to be offset in basins, and not necessarily in set political boundaries. That means impacts within the Nassau River basin can be offset in Duval County, and impacts within the St. Marys River could be theoretically offset in Baker County. Private mitigation banks are set up solely to maximize the amount of wetland restoration possible and are not accessible to the public. In fact, mitigation banks are often set up in a way that disincentivizes public access or many recreational activities on the property, even after the mitigation bank is closed. While private mitigation banks have methods of ensuring their continual care and maintenance into the future, permittee-responsible mitigation often has no manner of ensuring upkeep of the health of the wetland, and as they are often within the confines of a developed area, will decline. As isolated wetlands are not protected by the federal regulatory program, they are cheaper to impact, as only state wetland mitigation credits are needed. This may make isolated wetlands more vulnerable to impacts.

If the County wishes to see wetland mitigation within the County, it should first look to offset their own impacts within the County. A simple measure is to change bid rules for construction contracts that will give a higher level of consideration to mitigation banks within the County. More significantly many counties will acquire lands for their own wetland mitigation within the County. In doing so, they can use capital expenditure funding to acquire conservation land where the County has prioritized it, extending land acquisition funding. Being in control of the design of the mitigation may also allow for the inclusion of some public recreational use as well.

Supplementary Conservation Strategies for Wetland Regulations

- The County should consider changing its bid rules to considering wetland mitigation banks within the County, when acquiring wetland mitigation
- The County should consider initiating its own wetland mitigation bank, as an investment against future County wetland impacts which will ensure mitigation within the County and provide some passive recreational opportunities to the public
- Consider potential incentives or disincentives for the protection of, or for the impact to, isolated wetlands

Water Quality Protections

Some aspects of water quality protections have been detailed previously in the document. However, both the state and federal government protect the water quality of surface waters in

the same state in complimentary programs. Surface waters are regularly tested across the state, and those waters that have pollutants in excess of what's considered safe are listed as "impaired" waters, or "waters-not-attaining-standards." Once a waterbody is determined to be not attaining standards, it is put on a schedule to create what's known as a "total maximum daily load," or a measurement of how much pollutant the waterbody can accept without exceeding the standards. Once a maximum amount of pollution is determined, permitted polluters are analyzed for the amount of pollution they contribute to the waterbody, and the polluters are told to reduce their pollution to certain extents so that all pollution as a whole is reduced to the point that the watershed can get out from underneath its impairment.

The program only deals with point-source pollutions, or direct discharges into the waterbody, most commonly wastewater, stormwater, or major industries. Non-point source pollution, or the general run-off of pollutants from agriculture and residential use directly into the waterways, is not regulated. As wastewater and stormwater are major contributing point-sources to most waterways and permits for the operation of stormwater and wastewater systems are usually held by county and city governments, the burden of those pollution reductions most heavily falls on local government. Currently, though there are seventeen waters-not-attaining-standards within the County, they are lesser impacted waterways on a statewide basis, and thus no total maximum daily load studies have been done within the County. However, it is in the County's financial interest to ensure no new waterways fall below standards or that the currently impaired waterways do not get worse. Toward this end, it is recommended that the County enact that the water quality protection measures referenced within this document.

Supplementary Conservation Strategies for Wetland Regulations

- Preserve wetlands
- Preserve tributary headwaters
- Preserve wetland and river adjacent areas with well-drained mineral soils
- Preserve floodplains
- Negotiate for mandated best management practices in all working lands easements at minimum, if not increase water quality benefitting restrictions in those easements

Water Quantity Protections

There also exists complimentary state and federal protections for water quantity in natural waterbodies. The process is very similar to the programs for water quality, wherein major waterbodies which appear to be declining in function due to lowered water levels are studied in what is known as a "minimum flows and levels"(MFLs) study, which determines how much water a waterbody needs to allow for habitat and other functions of the waterbody to exist. They then identify the cause as to why the waterbody has a lowered water level and recommend solutions and suggest water use reductions. Currently, there are no waterbodies with an MFL in Nassau County. However, as residential and agriculture tend to be the greatest water users, if an MFL were to be designated, the impact would largely fall on municipal water suppliers and the agricultural industry. Therefore, it is beneficial for the County to be proactive in avoiding MFLs. It can do so by incorporating the strategies described in this document to protect water quantity and aquifer recharge.

Supplementary Strategies for Water Quantity Protection

- Protect Recharge Areas

Endangered Species Protections

As previously described, there are both state and federal protections for threatened and endangered species. While the occurrence of a threatened and endangered species may create a number of potential restrictions on land use activities, they generally will not restrict the development of a property, unless that property contains essential habitat for the existence of that species. These are nesting, breeding, or essential foraging areas. The nature of what this entails is different on a species by species basis. If a threatened or endangered species is directly harmed, or an essential habitat area for that species is harmed, it is described as a "taking," which will require further compensatory mitigation for that species, ranging from land conservation requirements, species relocation measures, or additional regulations benefitting the species. In Nassau County, the species that entail the greatest necessity in terms of regulation and potential species mitigation are marine turtles, coastal nesting birds, wading birds, and gopher tortoises. In the case of marine turtles and coastal nesting birds, their coastal nesting habitats are essential for maintenance of the species. For wading birds, rookery sites are similarly necessary for protection. In the case of marine turtles and coastal nesting and wading birds, their needs are relatively unique and difficult to replace or restore in other areas. Where those sites can be acquired, the County should pursue those habitats. However, much of their maintenance is regulatory. The County and the City of Fernandina Beach are currently engaging in a Habitat Conservation Plan with the U.S. Fish and Wildlife Service, that intends to offset impacts from beach maintenance, driving, and other beach based recreational uses. The County and the City should incorporate any land conservation recommendations that come from that document in their conservation plan. Gopher Tortoises, which are broadly distributed across the County, must be protected from harm and relocated to acceptable sites which have been permanently preserved for their continued existence on that site. These areas are called gopher tortoise recipient sites, of which many are located around the state. The state-operated program for these sites prioritizes the protection of the species within the state, and not within Nassau County, so gopher tortoises may be relocated anywhere in the state. Many regional tortoises are currently relocated to the panhandle. If the County is interested in preserving gopher tortoises within the County, establishing a County-owned recipient site for offsetting County construction impacts to tortoises would be beneficial. Such sites can often be compatibly managed with the County's outdoor recreational goals.

Supplementary Strategies for Threatened and Endangered Species

- Incorporate any recommendations for land conservation resulting from the in-process Habitat Conservation Plan in future land acquisition efforts
- Preserve essential nesting, loafing and rookery sites for marine turtles, coastal nesting and wading birds
- Establish a County-operated gopher tortoise recipient site to provide for gopher tortoise relocation needs within the County

Appendix E: Nomination Form

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CLAM (Proposed) Program Ranking Sheet

The following is a sample ranking sheet demonstrating the appropriate process for the staff ranking of potential CLAM acquisition properties. Procedural steps are described below, along with a sample completed ranking sheet.

Step 1: CLAM Score

- GIS Instructions: Take all properties submitted for nomination and create a shapefile of the tax parcels of all properties that are submitted. If application boundaries are not tax parcel boundaries, create a shapefile of the proposed boundaries.
- Merge all shapefiles to create a merged shapefile of all applicant properties.
- Apply the zonal statistics tool in ArcGIS to the CLAM Resource Rankings raster file, with zone defined as the merged shapefile boundaries.
- A new raster should be created which applies a new property score to all of the applicant properties. That is the CLAM Score for all properties.

Step 2: Management Adjustments

- Using the worksheet on the next page, take the CLAM score, applying those modifications reflecting the value and management adjustments.
- Known Management Obstacles: Known Management Obstacles are those things that can be observed from satellite imagery or may be otherwise known because of historic work with the property. The reviewer should be looking for the following kinds of potential management obstacles. Discounts are worth 10 points.
 - Known or potential environmental hazards – Large storage tanks, electrical transformers, multiple large vehicle parking, clear industrial uses
 - Excessive Impervious Surfaces – If paved surfaces exceed 2% of the surface area
 - Third-Party Trespass – Visually observable trash dumping, driveways and/or fencing which clearly and obviously trespass onto the property, etc.
 - Limited Access – There is no obvious legal access to a public-right-of-way or where more than 50% of the property is separated by a surface water body or wetland.
 - Unmanageable property boundaries or shape.
- Existing Regulatory Protections: As a value assessment, the county wishes to maximize spending power by not over-emphasizing substantially regulatorily protected areas, which are primarily wetland areas. If application property is obviously, or significantly covered by wetlands, identify all non-isolated wetlands (Wetlands connected to other wetlands, on the property or not), select, and clip to boundary. If total wetland acreage exceeds 50%, apply discount of 10 points. This should be specific to only non-isolated wetlands, as isolated wetlands are significantly less protected under wetland regulations.
- Existing Structures: If property tax information indicates there is a residence on land smaller than 10 acres, more than one residence on lands greater than 10 acres, or has non-agricultural related commercial or industrially zoned buildings, then apply a 5 point discount.
- Landowner Participation: If the landowner has not participated in the application by signing off on the nomination form, apply a 5-point discount.

Step 3: Value Adjustments

- Using the Calculator on the following page, apply the value adjustments necessary to modify the score to represent value for money calculations represented and finalize the scoring.
- Unencumbered Purchase: First provide the property tax appraised justified value of the land, prior to any exemptions.
- Conservation Easement Value Reconciliations: If the nomination form was for a conservation easement, apply the conservation easement adjustments. Because the real conservation easement value is unknowable at this point, we use approximations. Properties in urban areas have more development value, and therefore easements are more expensive. For this, use an approximation of 60% conservation easement value adjustment for applicant properties East of I-95 or within a city or municipal boundary. For those West of I-95 outside of a municipal boundary, apply a 40% conservation Easement Value Adjustment. Formula is Unencumbered Purchase Value*Conservation Easement Value Adjustment.
- Matching Funds and Bargain Sale Reconciliation: For either fee purchases or conservation easements, it's possible to further reduce the county's cost of acquisition with either match funding, provided by a partner, grant or other outside funding source, or if the property owner is willing to further reduce the value of the property by donating a portion of the value. Reduce the purchase price further by the match or proposed donation amount.
- Apply all the value reductions, and divide it by the property acreage, and finally the CLAM Score, to get the final, reconciled property score. That score represents dollars per resource ranking points.

Step 4: Final Staff Ranking

- Take all property scores and order them by lowest score first. Provide them in a ranked sheet that shows the property name, nominator, score, whether they are an easement or fee acquisition and other details the Committee may wish to see on the ranking list. The top 15 scoring properties must be grouped together in a Priority Group, with the next ten in the eligible group. Those not making the top 25 must have their scores retained for recordkeeping purposes, but do not have to be provided on the ranking list.

CLAM Property Score Calculator

Property Name: John, Doe Acres: 100 Type: CE__ Fee__

Score Modifiers	Instructions	Score
CLAM Score (100 points possible)	Take proposed property boundary (tax parcel or as otherwise proposed) and apply the zonal statistics tool to the CLAM Resources Raster Layer	XX points
Known Management Obstacles? (-10 points possible)	Environmental Hazards, Excessive Impervious Surfaces, Third-Party Trespass, Limited Access, etc. If so, apply discount.	-X points
Existing Regulatory Protections? (-10 points possible)	More than 50% of property is in non-isolated wetlands or is otherwise significantly protected by environmental regulations. If so, apply discount.	-X points
Existing Structures (-5 points possible)	Does it have more than one residence, a residence on lands smaller than 10 acres, or non-agricultural commercial or industrial buildings? If so, apply discount.	-X points
Landowner Participation (-5 points possible)	Has the landowner signed off on the application? If not, apply discount.	-X points
Total Score	Sum CLAM Score with other modifiers	XX points

Value Adjustment Calculator		
Unencumbered Purchase	If Fee acquisition use full justified value as provided by the property tax appraiser.	\$450,000
Conservation Easement Urban Value Reconciliation	Conservation Easement? If yes, and East of I-95 or within a municipal boundary apply 60% multiplier to just value.	\$60,000 (example, not applied)
Conservation Easement Rural Value Reconciliation	Conservation Easement? If yes, and West of I-95 and outside municipal boundaries apply 40% multiplier.	\$180,000
Match Funding and Bargain Sales Reconciliation	Create a % multiplier equal to any partner committed match funding or value deduction committed by the landowner, equal to the percentage of committed match or donating value offered. If it is a match or bargain sale of easement, add multiplier to the easement value.	50% partner match (50% multiple) = \$90,000 50% partner match on easement West of I-95. {(\$450,000*40%)*50%} = \$90,000.
Final Value	Value after all multipliers have been applied	\$90,000 (example)
Value Adjusted Score	Take the Final Value and divide by acreage and final property score	(\$90,000 / 100 / 49) = 18.3

Staff Comments on Ranking Decisions:

Appendix F: Nomination Form

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Nassau Conservation Lands Acquisition and Management

Nomination Form

Nomination Information (Required)

Property Name:		
Tax Parcel ID(s):		
Proposed Purchase Type: Conservation Easement: ____ or Full Fee Purchase: ____		
Is this within a city or town? If so, which? _____		Acres: _____
Nominator Name:	Phone Number:	E-mail:
Match Funding Available? Yes: ____ No: ____	Match Funding Amount: \$ _____	Match Funding Source:
If proposed boundaries are not the tax parcels, please attach a map with proposed boundaries indicated.		
Please attach an up to one (1) page explanation of why you think the property is an excellent addition to Nassau County Conservation Lands. Please include any other maps or images which support your argument up to a further three (3) pages.		

Landowner Information (Optional)

Landowner Name(s):	
Landowner Address:	
Landowner Phone #:	Landowner E-mail:
<p>The Nassau County Conservation Lands Acquisition and Management Program is a willing seller only program that solely deals with lands willingly sold by participating landowners. Lands will not be condemned, nor landowners improperly compelled to enroll themselves in the program. Landowners participating in the nomination process may get extra points in the property rankings.</p> <p>Is the Landowner participating in the nomination? Yes: ____ No: ____</p> <p>Landowner Signature: _____ Date: _____</p> <p>As the landowner are you willing to donate a portion of the value of the sale of a conservation easement or of your property? Landowners donating a portion of the value may be able to achieve significant income tax deductions for their gift. Landowners donating a portion of the value may also be able to increase their ranking.</p> <p>Are you willing to donate a portion of the property sale value?: Yes ____ or No ____</p> <p>What is the amount you are seeking in the sale? (Staff will compare that amount to the property tax appraised value): _____</p>	

Staff Only

Property Tax Appraised Value:	No. of Buildings:
No. of Residences	Property Use: _____ East or West of I-95?