

Shell Island Preserve

Addendum Land Management Plan

April 2023 - 2028

Managed by: Conservation Collier Program Collier County
Prepared by: Collier County Public Services Department
Parks and Recreation Division

Background: Collier County acquired the Shell Island Preserve in June 2005 using funds from the County's Conservation Collier Program, along with a donation from the Conservancy of Southwest Florida that paid the difference between the appraised value, which Conservation Collier paid, and the seller's asking price. The Conservation Collier Program was established in 2003 to acquire, preserve, restore, and maintain vital and significant threatened natural lands, forest, upland and wetland communities located in Collier County, for the benefit of present and future generations. This preserve is located directly adjacent to and surrounded on three sides by the Rookery Bay National Estuarine Research Reserve (RBNERR). This plan is intended to serve as an addendum to the RBNERR Management Plan dated December 2022. Once approved, this plan will be effective through 2028, at which time it will be updated.

Preserve Manager and Contact Information: The Preserve Manager for Shell Island Preserve is Sutton Maehr, a designated Collier County Environmental Specialist I, who may be contacted through electronic mail at sutton.maehr@colliercountyfl.gov or by phone at 239-252-2331.

Location and Site Description: The Shell Island Preserve (Property) is located within the urban boundary of Collier County in the southwest corner of Section 15, Township 51S, Range 26E, west of State Road (SR) 951, east of and surrounded on the north, west and south sides by RBNERR, folio number - 00741960001. See map attached as Exhibit A. Shell Island Road transects the southeast corner of the property. The 111.88-acre site contains mangrove forest, freshwater marsh, and salt marsh plant communities. An historic roadbed, County Road (CR) 848, cuts diagonally across the property. Except for the roadbed, which contains approximately 6.31 acres, the Property is entirely wetlands and is completely flooded during rainy season.

Easements, Concessions or Leases: A 100' Lee County Electric Cooperative easement exists along the western property line. A 60' Florida Department of Environmental Protection (DEP) perpetual, non-exclusive, ingress/egress easement exists along the portion of Shell Island Road that transects the preserve. This DEP easement includes the right to conduct hydrological restoration, place culverts, backfill ditches, and conduct road reconstruction for use by management and for access by the public. No other easements, concessions or leases currently exist over or within the site or are proposed for the future, unless they further conservation objectives, such as a conservation easement.

Structures: Structures present on the site at this time are limited to those associated with the Lee County Electric Cooperative easement and an unknown number of historic electricity poles that still may be present along the old CR 848 roadbed.

Regional Significance of Shell Island Preserve: To date, existing local, state, and federal agencies protect and manage approximately 68% (more than 886,970 acres) of Collier County. Included within that total are 110,000 acres owned, leased, and cooperatively managed by RBNERR, which itself surrounds the 111.88-acre Shell Island Preserve on its west, north and south sides. If the Shell Island Preserve had not been acquired for conservation, the previous owner planned to develop a condominium project on the fill remaining from the old roadbed. Placing a condominium project within wetlands surrounded by sensitive state lands would have put those lands at risk for undesirable impacts. In addition, this parcel provides a buffer for preserved lands at RBNERR from development impacts associated with SR 951 and the expanding urban fringe. On a resource level, the Preserve protects coastal marsh and mangrove forest, provides habitat for many listed and non-listed native bird species, and provides for the conveyance, storage and treatment for overland water flows entering Rookery Bay.

Cultural, Historical and Archeological Resource Protection:

The Shell Island Preserve is not within an area of historical and archaeological probability, although the old CR 848 roadbed may contain historical artifacts. The County will notify the Division of Historical Resources immediately if evidence is found to suggest any archaeological or historic resources are present at the site. If such properties are identified on-site, staff shall cordon off the area, and a professional survey and assessment shall be instituted. The archaeologist shall prepare a report outlining results of the assessments and issue recommendations to County staff about management of any sites discovered, per provisions of the Land Development Code Section 2.2.25. This report shall be sent to the Division of Historical Resources. The County shall cooperate fully with direction from the Division of Historical Resources on the protection and management of archaeological and historical resources. The management of these resources will comply with the provisions of Chapter 267, Florida Statutes, specifically Sections 267.061 2 (a) and (b). The collection of artifacts or the disturbance of archaeological and historic sites within the Shell Island Preserve will be prohibited unless prior authorization has been obtained from the Collier County Board of County Commissioners and the Department of State, Division of Historical Resources.

Management Plan Scope and goals: Conservation Collier's preserve-use classification system has designated the Shell Island Preserve as a Category 5 – a Resource Protection/Restoration preserve, described below:

Category 5 - Resource Protection/Restoration Use Preserve

- Provide no public access. Public access may not be feasible due to the lack of physical and legal access or where the land stewardship activities could create unsafe conditions for the public.
- No restrooms or marked trails will be offered.
- Staff will be present for periodic site inspections and at other times as necessary for the proper management of the preserve.

Within the scope of a Category 5 Resource Protection /Restoration Use Preserve, Conservation Collier seeks to coordinate with overall RBNERR Management Plan goals. Specifically, this

means to restore natural freshwater inflows, protect and restore natural ecological functions, protect listed species, manage for compatible public use, increase understandings of key ecological processes, enhance public awareness, promote community involvement, provide for safe work environment and establish cost effective management strategies (RBNERR Management Plan, December 2022). While overall goals will be coordinated with RBNERR as practicable, specific site management and public use will be directed by the Conservation Collier Preserve Manager, this addendum, and any future ordinance pertaining to Conservation Collier lands, all under the authority of the Board of County Commissioners.

Public Involvement: Conservation Collier recognizes the importance of public involvement and encourages involvement in preparation of land management plans. Conservation Collier is also committed to meeting the requirements of the Florida Sunshine Law, F.S. 286.011. Key steps in the development of this plan involved public meetings of the Conservation Collier Land Acquisition Advisory Committee, its Lands Evaluation and Management Subcommittee, and the Board of County Commissioners. Meetings were publicly noticed through posting on the Conservation Collier website (www.colliergov.net/ConservationCollier), publishing in various local news outlets and e-mailing to a broad recipient list. Staff also met with neighborhood associations and property managers of surrounding lands to gather input.

Acreage Breakdown:

General Vegetative Communities	Acreage
Wetlands (94%)- Mangrove, freshwater marsh, salt marsh and open water body	106.03
Uplands (6%) old roadbed	6.31
TOTAL	111.88

Natural Resources:

Topography, geomorphology, geology, hydrology, and climate for this property are included within the RBNERR Management Plan, December 2022 (Chapter 4).

Natural Communities: Three different plant communities are present at the site; however, they are not always distinct. Freshwater and saltwater species co-exist throughout the property. The old CR 848 roadbed, which transects the property, contains a mix of vegetation. In 2021, Conservation Collier contracted a preserve-wide plant survey. Scientific plant names and Native/Not-Native status is according to the Atlas of Florida Plants website as of August 2021. State status is from Florida Department of Agriculture and Consumer Services 2018 list. FNAI category is from Florida Natural Areas Inventory April 2019 list. FLEPPC category is from the Florida Exotic Pest Plant Council 2019 list. The Shell Island Preserve plant list is documented in the table below.

ScientificA4:G120	Common Names	Native	Not Native	State	FNAI	FLEPPC
<i>Acacia auriculiformis</i>	Earleaf acacia		√			I
<i>Acrostichum aureum</i>	Golden leather fern	N		T	S3	
<i>Ambrosia artemisiifolia</i>	Common ragweed	N				
<i>Ammannia coccinea</i>	Valley redstem, Scarlet ammannia	N				
<i>Andropogon glomeratus</i> var. <i>pumilus</i>	Bushy bluestem	N				
<i>Annona glabra</i>	Pond-apple	N				
<i>Aristida patula</i>	Tall threeawn	N				
<i>Avicennia germinans</i>	Black mangrove	N				
<i>Baccharis angustifolia</i>	Saltwater falsewillow	N				
<i>Baccharis glomeruliflora</i>	Saltbush	N				
<i>Bacopa monnieri</i>	Water hyssop, Herb-of-grace	N				
<i>Bidens alba</i>	Spanish-needles	N				
<i>Bothriochloa bladhii</i>	Australian beardgrass		√			
<i>Capraria biflora</i>	Goatweed	N				
<i>Cassythra filiformis</i>	Lovevine, Devil's gut	N				
<i>Casuarina glauca</i>	Suckering australian pine		√			I
<i>Centella asiatica</i>	Coinwort, Spadeleaf	N				
<i>Chamaecrista nictitans</i> var. <i>aspera</i>	Hairy sensitive-pea	N				
<i>Chiococca alba</i> (=C. <i>parvifolia</i>)	Pineland snowberry	N				
<i>Chrysobalanus icaco</i>	Coco plum	N				
<i>Cladium jamaicense</i>	Sawgrass	N				
<i>Conocarpus erectus</i>	Buttonwood	N				
<i>Conyza canadensis</i>	Canadian horseweed	N				
<i>Crinum americanum</i>	Swamp lily	N				
<i>Crotalaria rotundifolia</i>	Rabbitbells	N				
<i>Cyperus ligularis</i>	Swamp flatsedge	N				
<i>Dactyloctenium aegyptium</i>	Crow's-foot grass		√			II
<i>Dalbergia ecastaphyllum</i>	Coinvine	N				
<i>Desmodium tortuosum</i>	Dixie ticktrefoil		√			
<i>Digitaria ciliaris</i>	Southern crabgrass	N				
<i>Distichlis spicata</i>	Saltgrass	N				
<i>Echinochloa walteri</i>	Coast cockspur	N				
<i>Eleocharis cellulosa</i>	Gulf coast spikerush	N				
<i>Encyclia tampensis</i>	Florida butterfly orchid	N		C		
<i>Erigeron quercifolius</i>	Southern-fleabane, Oakleaf fleabane	N				

<i>Erythrina herbacea</i>	Coralbean, Cherokee bean	N				
<i>Eugenia axillaris</i>	White stopper	N				
<i>Eugenia foetida</i>	Spanish stopper	N				
<i>Euphorbia hypericifolia</i> (= <i>Chamaesyce hypericifolia</i>)	Eyebane, Graceful sandmat	N				
<i>Eustachys glauca</i>	Prairie fingergrass	N				
<i>Ficus aurea</i>	Strangler fig, Golden fig	N				
<i>Fimbristylis cymosa</i>	Hurricanegrass		√			
<i>Fimbristylis spadicea</i>	Marsh fimbry	N				
<i>Flaveria linearis</i>	Narrowleaf yellowtops	N				
<i>Forestiera segregata</i>	Florida swampprivet	N				
<i>Funastrum clausum</i> (= <i>Sarcostemma clausum</i>)	Whitevine, White twinevine	N				
<i>Galactia regularis</i>	Downy milkpea	N				
<i>Heliotropium angiospermum</i>	Scorpionstail	N				
<i>Hippocratea volubilis</i>	Medicine vine	N				
<i>Ilex cassine</i>	Dahoon holly, Dahoon	N				
<i>Ipomoea alba</i>	Moonflower; Tropical white morning-glory	N				
<i>Ipomoea indica</i>	Ocean-blue morning-glory	N				
<i>Ipomoea sagittata</i>	Glades morning-glory	N				
<i>Juncus marginatus</i>	Shore rush, Grassleaf rush	N				
<i>Juncus megacephalus</i>	Bighead rush	N				
<i>Juncus roemerianus</i>	Needle rush, Black rush	N				
<i>Kalanchoe pinnata</i>	Life plant, Cathedral bells		√			II
<i>Laguncularia racemosa</i>	White mangrove	N				
<i>Lespedeza</i> sp.	Lespedeza					
<i>Ludwigia peruviana</i>	Peruvian primrosewillow		√			I
<i>Lythrum alatum</i> var. <i>lanceolatum</i>	Winged loosestrife	N				
<i>Malvastrum corchorifolium</i>	False mallow	N				
<i>Melaleuca quinquenervia</i>	Punktree		√			I
<i>Melanthera nivea</i>	Snow squarestem	N				
<i>Melinis repens</i> (= <i>Rhynchelytrum repens</i>)	Rose Natalgrass		√			I
<i>Melothria pendula</i>	Creeping-cucumber	N				
<i>Mikania scandens</i>	Climbing hempweed, Climbing hempvine	N				
<i>Morella cerifera</i> (= <i>Myrica cerifera</i>)	Wax myrtle, Southern bayberry	N				
<i>Muhlenbergia capillaris</i>	Muhlygrass, Hairawnmuhly	N				
<i>Myrsine cubana</i> (= <i>Rapanea punctata</i>)	Myrsine, Colicwood	N				
<i>Nekemias arborea</i> (= <i>Ampelopsis arborea</i>)	Peppervine	N				

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<i>Nephrolepis biserrata</i>	Giant boston fern	N		T		
<i>Oeceoclades maculata</i>	African ground orchid, Monk orchid		√			
<i>Oenothera simulans</i> (=Gaura angustifolia)	Southern beeblossom	N				
<i>Oplismenus hirtellus</i>	Woodgrass, Basketgrass	N				
<i>Panicum repens</i>	Torpedo grass		√			I
<i>Panicum virgatum</i>	Switchgrass	N				
<i>Parthenocissus quinquefolia</i>	Virginia-creeper, Woodbine	N				
<i>Paspalum caespitosum</i>	Blue paspalum, Blue crowngrass	N				
<i>Paspalum distichum</i>	Knotgrass	N				
<i>Passiflora suberosa</i>	Corkstem passionflower	N				
<i>Persea borbonia</i>	Red bay	N				
<i>Phlebodium aureum</i>	Golden polypody	N				
<i>Piscidia piscipula</i>	Jamaican dogwood, Florida fishpoison tree	N				
<i>Pithecellobium unguis-cati</i>	Cat's-claw, Catclaw blackbead	N				
<i>Pleopeltis polypodioides</i>	Resurrection fern	N				
<i>Pluchea baccharis</i> (=P. rosea)	Rosy camphorweed	N				
<i>Pluchea carolinensis</i>	Cure-for-all		√			
<i>Plumbago zeylanica</i> (=P. scandens)	Doctorbush	N				
<i>Psychotria nervosa</i>	Wild coffee	N				
<i>Pteris vittata</i>	China brake		√			II
<i>Quercus virginiana</i>	Virginia live oak	N				
<i>Randia aculeata</i>	White indigoberry	N				
<i>Rhabdadenia biflora</i>	Rubbervine, Mangrovevine	N				
<i>Rhizophora mangle</i>	Red mangrove	N				
<i>Rhus copallinum</i>	Winged sumac	N				
<i>Rhynchosia minima</i>	Least snoutbean	N				
<i>Rhynchospora colorata</i>	Starrush whitetop	N				
<i>Ruppia maritima</i>	Wigeongrass	N				
<i>Sabal palmetto</i>	Cabbage palm	N				
<i>Sagittaria graminea</i>	Grassy arrowhead	N				
<i>Salicornia ambigua</i> (=S. perennis, S. virginica)	Perennial glasswort	N				
<i>Salicornia bigelovii</i>	Annual glasswort	N				
<i>Samolus ebracteatus</i>	Water pimpernel	N				
<i>Schinus terebinthifolia</i>	Brazilian pepper		√			I
<i>Serenoa repens</i>	Saw palmetto	N				
<i>Sesuvium portulacastrum</i>	Shoreline seapurslane	N				

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<i>Setaria parviflora</i> (=S. <i>geniculata</i>)	Knotroot foxtail, Yellow bristlegrass	N				
<i>Sida ulmifolia</i> (=S. <i>acuta</i>)	Common wireweed, Common fanpetals	N				
<i>Sideroxylon celastrinum</i>	Saffron plum, Bumelia	N				
<i>Smilax auriculata</i>	Earleaf greenbrier	N				
<i>Solanum donianum</i>	Mullein nightshade	N		T		
<i>Solidago sempervirens</i>	Seaside goldenrod	N				
<i>Spartina bakeri</i>	Sand cordgrass	N				
<i>Spermacoce remota</i> (=Spermacoce <i>assurgens</i>)	Woodland false buttonweed	N				
<i>Spermacoce verticillata</i>	Shrubby false buttonweed		√			II
<i>Stachytarpheta cayennensis</i> (=S. <i>utricifolia</i>)	Nettleleaf velvetberry		√			II
<i>Telmatoblechnum serrulatum</i> (=Blechnum <i>serrulatum</i>)	Swamp fern	N				
<i>Thelypteris kunthii</i>	Southern shield fern	N				
<i>Tillandsia balbisiana</i>	Reflexed wild-pine, Northern needleleaf	N		T		
<i>Tillandsia fasciculata</i>	Stiff-leaved wild-pine, Cardinal airplant	N		E		
<i>Tillandsia flexuosa</i>	Twisted airplant	N		T	S3	
<i>Tillandsia paucifolia</i>	Potbelly airplant	N				
<i>Tillandsia recurvata</i>	Ball-moss	N				
<i>Tillandsia setacea</i>	Thin-leaved wild-pine, Southern needleleaf	N				
<i>Tillandsia utriculata</i>	Giant wild-pine, Giant airplant	N		E		
<i>Toxicodendron radicans</i>	Eastern poison-ivy	N				
<i>Tripsacum dactyloides</i>	Fakahatcheegrass, Eastern gamagrass	N				
<i>Typha domingensis</i>	Southern cattail	N				
<i>Verbesina virginica</i>	Frostweed, White crownbeard	N				
<i>Vigna luteola</i>	Cow-pea, Hairypod cowpea	N				
<i>Vitis rotundifolia</i>	Muscadine grape	N				
<i>Vittaria lineata</i>	Shoestring fern	N				
<i>Ximenia americana</i>	Hog-plum, Tallowwood	N				
<i>Yucca aloifolia</i>	Spanish bayonet, Aloe yucca	N				
<i>Zanthoxylum fagara</i>	Wild lime	N				
Count						
136		118	17	8	2	12

State Codes: E=Endangered, T=Threatened

FNAI Codes: S1=critically imperiled; S2=imperiled because of rarity; S3=very rare in Florida or restricted range.

FLEPPC Codes: Category I = species has altered native plant communities; Category II = species with increasing abundance or frequency.

The following is a general description of native vegetation communities present as classified by Florida Land Use, Land Cover Classification System (FLUCCS):

FLUCCS 612 – Mangrove Forest – red mangroves (*Rhizophora mangle*), white mangroves (*Laguncularia racemosa*) and black mangroves (*Avicennia germinans*). Other associated species include buttonwood (*Conocarpus erectus*) and cabbage palm (*Sabal palmetto*).

FLUCCS 641 – Freshwater marsh - black rush (*Juncus roemerianus*), sawgrass (*Cladium jamaicense*), spikerush (*Eleocharis spp.*), spider lilies (*Hymenocallis sp.*), cattails (*Typha spp.*), White-top sedge (*Dichromena spp.*), buttonwood (*Conocarpus erectus*), wax myrtle (*Myrica cerifera*) and saltbush (*Baccharus halimifolia*)

FLUCCS 642 – Salt marsh – saltmeadow cordgrass (*Spartina patens*), sea purslane (*Sesuvium maritimum*), saltgrass (*Distichlis spicata*) and red mangrove (*Rhizophora mangle*)

The old roadbed contains wax myrtle (*Myrica cerifera*), saltbush (*Baccharus halimifolia*), buttonwood (*Conocarpus erectus*) and cabbage palm (*Sabal palmetto*).

Animal Species: Species present likely include large mammals traversing the property, including Florida panther (*Puma concolor coryi*), black bear (*Ursus americanus floridanus*), bobcat (*Lynx rufus*), and feral hog (*Sus scrofa*). Also present are a diverse assemblage of invertebrates, reptiles, and amphibians, wading birds and raptors including the bald eagle (*Haliaeetus leucocephalus*), osprey (*Pandion haliaetus*), roseate spoonbill (*Platalea ajaja*), and reddish egret (*Egretta rufescens*).

Listed Wildlife Species:

Conservation Collier staff have observed the following listed species on the Shell Island Preserve. A complete list of species that are present on adjoining RBNERR lands and potentially also present at the Preserve is included within the RBNERR December 2022 Management Plan (Appendix B.4.1). The Florida panther and Florida black bear are documented on adjoining RBNERR lands and likely travel through the Preserve. American crocodiles are present at the nearby Marco Island Airport and may also be present. This list includes rankings at the state and federal level as well as those of the Florida natural Areas Inventory (FNAI).

COMMON NAME	SCIENTIFIC NAME	FNAI*		STATUS**	
		State	Global	State	Federal
Birds					
wood stork	<i>Mycteria americana</i>	S2	G4	T	T
white ibis	<i>Eudocimus albus</i>	S4	G5	SSC	N
snowy egret	<i>Egretta thula</i>	S3	G5	SSC	N
tricolored heron	<i>Egretta tricolor</i>	S4	G5	SSC	N
little blue heron	<i>Egretta caerulea</i>	S4	G5	SSC	N
Reptiles					
American alligator	<i>Alligator mississippiensis</i>	S4	G5	SSC	SAT

*Descriptions of the FNAI Global element rankings are included within the RBNERR management Plan (Appendix B.4)

**State/Federal Status: N-Not Listed; T-Threatened; E-Endangered; CE-Commercially Exploited; SSC-Species of Special Concern; SAT-Similarity of Appearance Threat

Problem Species:

A list of some of the problem species found on surrounding RBNERR lands and their herbicide treatment rates is included within the 2022 Management Plan (Appendix B.8). Although not directly observed, some or all of these may also be present on Shell Island Preserve. Problem plant species observed by staff on the Preserve include Brazilian pepper (*Schinus terebinthifolia*), melaleuca (*Melaleuca quinquinerva*), lead tree (*Leuceana leucocephala*), earleaf acacia (*Acacia auriculiformis*), old-world climbing fern (*Lygodium microphyllum*), and Peruvian primrosewillow (*Ludwigia peruviana*).

Management Goals and Actions:

Goal 1: Protect and manage the native habitat.

Strategic Actions:

1. Treat and manage melaleuca, Brazilian pepper, and any other Florida Invasive Species Council I and II plants.
2. Seek partnering opportunities with RBNERR and the Conservancy of Southwest Florida for invasive plant management grant funding.
3. Apply prescribed fire and/or mechanical treatment as needed to restore native habitat.

Goal 2: Implement necessary hydrologic restoration

Strategic Actions:

1. Work with RBNERR to develop and implement projects to improve area hydrology.
2. Make the site available to students in university and post-secondary school science programs for hydrologic restoration research.
3. Evaluate other actions to improve hydrology if/when proposed based on estimated environmental benefits return and cost.

Goal 3: Facilitate and support research

Strategic Actions:

1. Contact universities, research institutions and schools to offer the site as an environmental laboratory, with particular emphasis on projects that will assist in hydrologic restoration.

Public Access:

Consistent with its classification as a Resource Protection/Restoration preserve within the preserve-use classification system and due to potential unsafe conditions for the public, no public access, marked trails or restrooms will be offered. A public ½-mile long boardwalk through similar habitat exists less than 1-mile west of the Preserve off Shell Island Road. Public access will be limited to research and education projects and staff will be present only periodically for site inspections and management purposes.

Research Partnership:

In conjunction with RBNERR, the Henderson Creek Sentinel Program was developed in 2018 to monitor changing vegetation in response to sea level change. They installed twelve surface elevation tables (SET), including one SET on Shell Island Preserve, to measure habitat-specific elevation change. These twelve SETs, along with SETs installed during the 1990s by the U.S. Geological Survey (USGS), are actively monitored by RBNERR in partnership with USGS and the National Park Service.

Operational Plan for the Shell Island Preserve:

This section provides management recommendations for operation of the Shell Island Preserve. It discusses maintenance and budgeting needs, possibilities for contracting the restoration activities, coordination, and other management issues. Management will consist primarily of annual maintenance for exotic plants and application of prescribed fire.

Initial exotic plant treatments have been successful in removing 95% of invasive plant infestations; however, re-sprouting of *Melaleuca* in marsh areas has been observed and Brazilian pepper continues to sprout along Shell Island Road, SR 951 and adjacent to the pond in the north-central portion of the Preserve. *Lygodium* spp. also continues to appear along Shell Island Road. At minimum, follow-up treatments will occur every 2 years during the dry season. Conservation Collier will work in coordination as much as possible with RBNERR to perform exotic plant treatments.

Conservation Collier will coordinate prescribed fire events with RBNERR, the Florida Forest Service (FFS), the Collier County Isle of Capri Fire and Rescue District and surrounding landowners when conducting prescribed burns. Please see the RBNERR 2022 Management Plan (Appendix B.6) for a full discussion of prescribed fire management and its application on RBNERR lands. A system of notifying surrounding landowners in advance of prescribed burns will be established (via email, phone trees, etc.) this system will be executed by the Preserve Manager before each prescribed fire. The Preserve Manager will also send out a news release to notify the newspaper, radio, and news channels in addition to informing the County Manager, County Commissioners and all local fire departments prior to any prescribed burns.

When burning, photo points will be taken at established locations, facing north (0 degrees), east (90 degrees), west (180 degrees) and south (270 degrees) pre-burn, 1-2 days post burn, 6 months post burn and annually until the next burn.

Estimated Annual Costs and Funding Sources:

Table 1: Estimated Annual Land Management Budget

Item	QTY	Cost	FY23	FY24	FY25	FY26	FY27	FY28
Exotic Removal *	112.34 ac	\$525 per ac.	\$11,000	\$11,000	\$11,000	\$11,000	\$11,000	\$11,000
Hydrologic Restoration **								***

*Per acre cost adjusted for inflation after FY23 – Treatments may not span the entire 112.34 acres. **Removal of portions or entirety of the old, raised roadbed (CR 848). Depending on results of any hydrologic studies, this is most likely to occur after 2020. *** To Be Determined.

Literature Cited:

Florida Natural Areas Inventory (FNAI) and Florida Department of Natural Resources (FDNR) 1990. Guide to the Natural Communities of Florida. Florida Natural Areas Inventory and Florida Department of Natural Resources.

Government-in-the-Sunshine Law, F.S. § 286.011. 1976.

Rookery Bay National Estuarine Research Reserve Management Plan, December 2022

Exhibit A. Map of Shell Island Preserve

