Dune Restoration and Creation Plan

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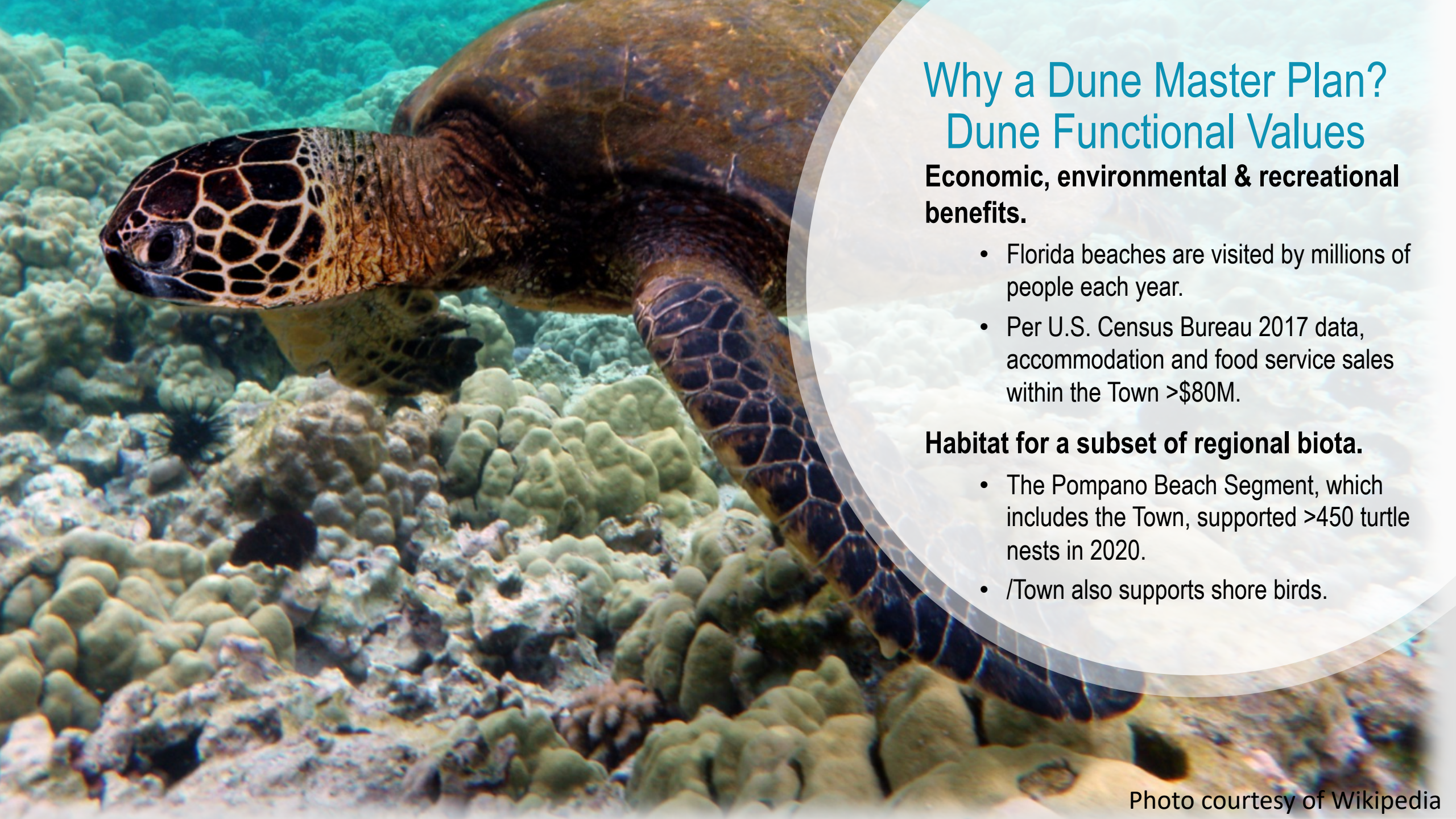
Produced For:

LAUDERDALE BY · THE · SEA

FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION



Why a Dune Master Plan?
Dune Functional Values

Economic, environmental & recreational benefits.

- Florida beaches are visited by millions of people each year.
- Per U.S. Census Bureau 2017 data, accommodation and food service sales within the Town >$80M.

Habitat for a subset of regional biota.

- The Pompano Beach Segment, which includes the Town, supported >450 turtle nests in 2020.
- /Town also supports shore birds.

Photo courtesy of Wikipedia

Dune Functional Values

Protect landward property from damage / flooding.

- Coastal storm protection.
- Minimize effect of sea level rise.
- Buffer erosion.

To provide this function, coastal dune volume must be maintained while allowing dune shape to conform to natural wind / water flow patterns.

Photo courtesy of FEMA / Mark Wolfe

Dune Management Zones

Categorization:

- Existing beach / dune conditions were evaluated based on site reconnaissance and aerial photography.
- Varying conditions of existing dune and adjacent upland uses were considered to establish management zones.
- Management Zones are based on:
  - Beach management goal / Town dune program for storm protection value.
  - Presence of dune vegetation
  - Habitat health
  - Riparian property ownership
- 3 Zones established: New Dune, Public Dunes, Existing Dunes

New Dune

List of Properties with No Dune

1398 S. Ocean Blvd – Malulani	1 Commercial Blvd – Aruba Beach Cafe
1530 S. Ocean Blvd – Ocean East	4300 El Mar Drive – Winter Colony
5450 N. Ocean Blvd – Atlantic Beach Villa	4220 El Mar Drive – Costa Del Sol
5400 N. Ocean Blvd – Sea Ranch Villas	4200 El Mar Drive – Sea Villa
4636 El Mar Drive - The Residence	

- Parcels with no vegetated dune adjacent to their properties.
- Riparian parcel is privately owned
- Work with property owners to integrate new dunes.

Management of New Dune

Dune be ≥ 20 feet wide.	Aligned toe with existing stable vegetation.	Vegetation mix a min. 5 species from Planting Palette.
Sea oats >50% of the contribution.	New dune events conducted November 1st and March 1st	Post-and-rope fence to be installed
Beach accesses kept to the minimum, at an angle	Newly planted vegetation shall be watered until established.	• Fill is not proposed as part of the new dunes

Public Dune

List of Public Properties Adjacent to the Beach

Beach Access Path adjacent to Cristelle	4600 El Mar Drive	Datura Avenue
Pine Avenue	El Prado	Hibiscus Avenue
Washingtonia Avenue	Commercial Blvd	Palm Avenue

- Ensure that beach access is maintained for residents and visitors.
- Ensure that emergency vehicle access is maintained where required.
- Ensure that dune vegetation provides protection to limit windblown sand and flood washout.

Management of Public Dune

- Post-and-rope fence to be installed
- Verify emergency access points meet width requirements
- Adjust access points at the street ends to be diagonal instead of perpendicular
- Trim excessively overgrown vegetation at access points to maintain 6’ clearance
- Limit the number of access points at the street ends
- Plant vegetation to close excess openings with a min. of 3 species from Planting Palette

Private Dune

- Dunes are typically healthy with a low occurrence of invasive species.
- Dunes will grow in height due to sand trapping by plant species.
- Post-and-rope is inconsistent throughout the Town.
- Dune crest height varies throughout.

Peak Dune Elevation

	FEMA Transect									
	#49	#50	#51	#52	#53	#54	#55	#56	#57	#58
Peak Dune Elevation (ft, NAVD88)	8.7	9.5	11.6	10.1	16.0	8.9	14.4	13.6	8.8	13.1

Management of Public Dune

Install post-and-rope barriers where absent.	Dune adjustments permissible once/5 yrs.	Recommend: min. 5’ wide dune crest and 20’ wide dune base.
Dune height may not be adjusted below +11.5 NAVD.	Height complaints to be evaluated to determine if modifications to the vegetation could provide a similar result.	Non-native species present should be removed; barren areas after invasive removal must be replanted from the Planting Palette.

Dune Vegetation Planting Palette

Plant Common Name	Plant Scientific Name	Dune Location	Plant Height	Type	Availability
Beach-elder	*Iva imbricata*	Fore	2-3 ft.	Shrub	Native Plant Nurseries
Bitter Panicgrass	*Panicum amarum*			Grass	
Buttonwood	*Conocarpus erectus*				
Cow Pea	*Vigna luteola*				
Gulf Croton	*Croton punctatus*				
Railroad Vine	*Ipomoea pes-caprae*	Incipient	3-9 in.	Vine	Widely available
Sea Lavender	*Tournefortia gnaphalodes*	Fore	3-6 ft.	Shrub	Native Plant Nurseries
Sea Oats	*Uniola paniculate*	Incipient, Fore	3-4 ft., 6 ft. flowering	Grass	Widely available
Seagrape	*Coccoloba uvifera*				
Seaside Spurge	*Euphorbia mesembryanthemifolia*				

Dune Vegetation Palette

Beach bean

Sea Oats

Railroad vine

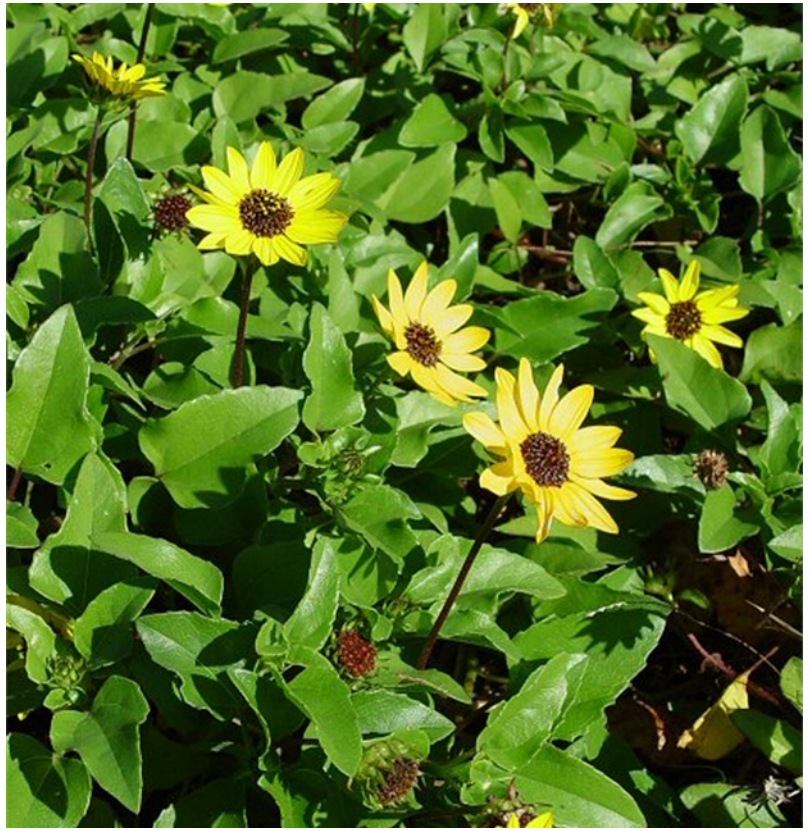
Dune Vegetation Palette

Beach elder

Cordgrass

Sea lavender

Dune Vegetation Palette



Dune Sunflower

Golden creeper

Spiderlily

Dune Vegetation: Non-Native Species

Dune Maintenance

- The following maintenance guidelines are recommended:
- Town staff to conduct semi-annual inspections to identify invasive species for removal
- Areas of invasive species will be identified and removed.
- If large barren areas are present after removal of invasive species, they should be replanted with species selected from the Planting Palette.
- Post-and-rope fences should be inspected, and repairs made where breaks are located
- Access points should be assessed to confirm that required clearance should be maintained.
- Dune height maintenance / reduction activities to be addressed on an as-needed basis at the request of the property owner.
- Town will conduct LiDAR surveys of the dune to assess existing heights.

Dune Maintenance: Irrigation

- Irrigation should be included only for those areas where new vegetation is proposed. Existing, established dunes should not be irrigated.
- Irrigation should be provided until new vegetation is established, which is typically 6 months. Frequency is recommended daily for first 2 weeks, every other day for the following 2 months, then weekly until established. Irrigation can be provided by the following two methods:
- A temporary irrigation system may be proposed for large areas of dune planting. Typical design is an on-grade, low-cost PVC pipe system, which can be removed once vegetation growth is established.
- For discrete areas of planting, manual irrigation utilizing a water truck is recommended.

Dune Maintenance: Regulatory

- Town may continue to apply for field permits for future activities, including planting and sand redistribution
- Town may want to explore establishing a Beachfront Management Agreement (BMA) with the State of Florida, under Section 403.0752, F.S.
- BMAs are adaptable and amendable (regularly reviewed / re-approved every 10 years). They typically include the following types of activities:
  - Beach/Dune Vehicular Access (Beach patrol, beach raking, waste management, wrack line management, etc.)
  - Property Management (lifeguard stands, signage, etc.)
  - Erosion control monitoring and management
  - Special event management and oversight
  - Natural resource management and restoration
  - Beach access management (Broadwalk, beach access points, ADA mobimats, etc.)

Dune Maintenance: Timing of Events

- Semi-annual inspection events of all dune areas with maintenance activities provided on an as-needed basis.
- Track the results of the initial (3-4) inspection events; re-evaluate inspection frequency based on those results.
- Large-scale projects requiring heavy equipment should be conducted between November 1st and February 28, outside of marine turtle nesting season.
- Recommended that planting projects be implemented close to March 1st in order to take advantage of South Florida's wet season.

Next Steps

- Prepare a short list of the riparian property owners requesting dune height modifications. Verify the current dune crest elevation for those properties to confirm eligibility
- Obtain quotes for annual or bi-annual beach topographic survey costs.
- Conduct further discussions with the FDEP to review Dune Restoration and Creation Plan and obtain their input.
- Conduct further discussions with Broward County to review Dune Restoration and Creation Plan and obtain their input.
- Evaluate development of a Beach Management Agreement with the State of Florida for holistic beach and dune management.
- Explore development of a “dune adoption” program that would allow upland properties owners the option to manage their adjacent dune to Town standards.

Thank you