

STOP #3: PORT ARANSAS NATURE PRESERVE AT CHARLIE'S PASTURE

In 2004 the City of Port Aransas allocated money to develop the Port Aransas Nature Preserve at Charlie's Pasture. The trail and boardwalk system opened in late December 2009. The Nature Preserve has several miles of boardwalk and trails that allow visitors to observe wetlands, upland areas, *tidal flats* and *algal mats* all while protecting these environments (**fig. 1**). We will walk on some of the trails to get a closer view of these environments and hopefully climb the observation tower to get a birds-eye view of the interplay between the environments.



Figure 1. Aerial view of Salt Island and trail system in the Port Aransas Nature Preserve. The exposed white area in the photo are wind tidal flats. Photo courtesy of Mark Young, Mark Creighton, and City of Port Aransas, http://www.cityofportaransas.org/nature_preserve.cfm.

As you are walking around the Preserve, look for areas without vegetation. These very low relief areas called **wind tidal flats** are only slightly higher in elevation than the mean high water level of the adjacent bay. The *wind tidal flats* or *tidal flats* are occasionally flooded with water when strong winds push high tide waters onto the flat. Because they are so low lying, they are also flooded during tropical storms or significant rainfall events.

Once the winds decrease or tropical storm has passed, the water that flooded the wind tidal flat will recede. Some water will remain on the flat and eventually evaporate leaving behind salt crystals. This leaves behind a high salinity surface. Due to the changing water levels on the wind tidal flat and the high salinity of surface it is very difficult for plants to survive. The surface of a mostly dry tidal flat is bare

Closely examine the surface of the dry tidal flat. **Is the surface sand and mud?** It could possibly be covered with a layer of algae called an **algal mat** (**fig. 2**). Algal mats develop on flats that are alternately emergent and submergent in fairly regular cycles. Algal mats commonly break up and peel when they dry (**fig. 2b**).

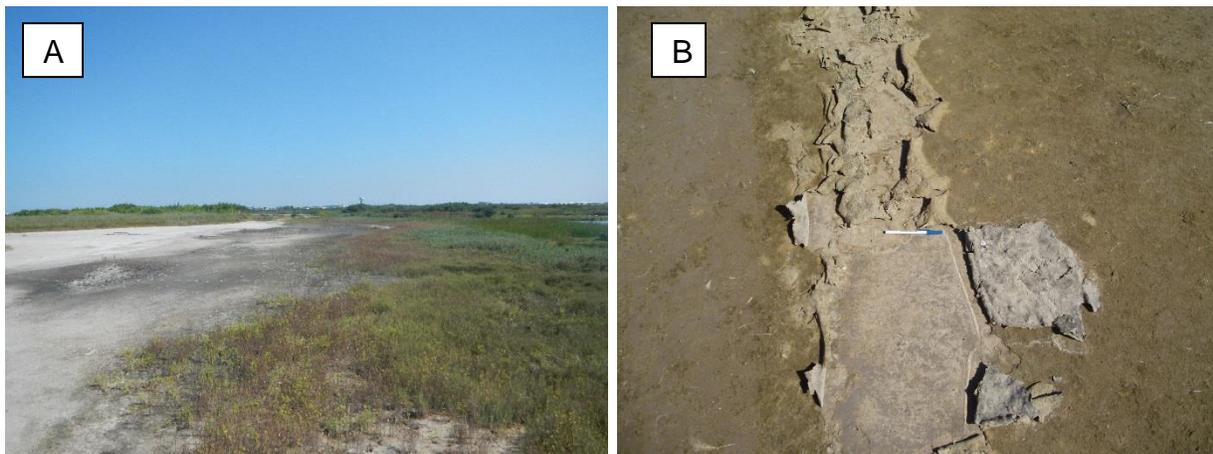


Figure 2. A. Tidal flats, algal mat, and salt marsh plants on Charlie's Pasture. The algal mats are the dark tinted area on the unvegetated flat. B. Peeling algal mat on a wind tidal flat in south Texas. The pen in the photo helps for determining size.

Do you recognize some of the salt marsh plants from the bay margin? Do you see mangroves (**fig. 3**)? What might that tell you about the salinity of water? You may also notice vegetation that looks like grasses and small shrubs. These upland areas are only a few centimeters of elevation higher than the salt marsh and wind tidal flats but high enough to not be flooded with salt water except during extreme high water events. Within the Nature Preserve, all of the land is very low lying. Only a few centimeters separate the different vegetation zones. The Nature Preserve's tidal flats and salt marsh provide feeding areas and important habitat for shorebirds and endangered and threatened species such as the piping plover.



Figure 3. Salt marsh and saline pond at Port Aransas Nature Preserve.