



Seawater Agriculture

# Shrimp and *Salicornia* (halophyte)



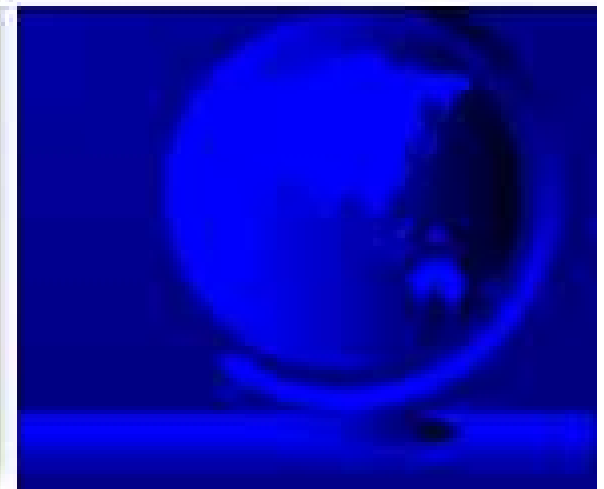
Shrimp fertilize saltwater



*Salicornia* grows on saltwater farm



*Salicornia* plants



## Coastal Salt Marsh Halophytes

*Spartina alterniflora* – Smooth Cordgrass





Spartina patens – Short Cordgrass



*S. Alterniflora*  
*S. maritima*



*S. townsendii* *S. anglica*





*Phragmites australis*

Common reed





*Distichlis palmeri*

NyPa, Palmers saltgrass



*Distichlis spicata*

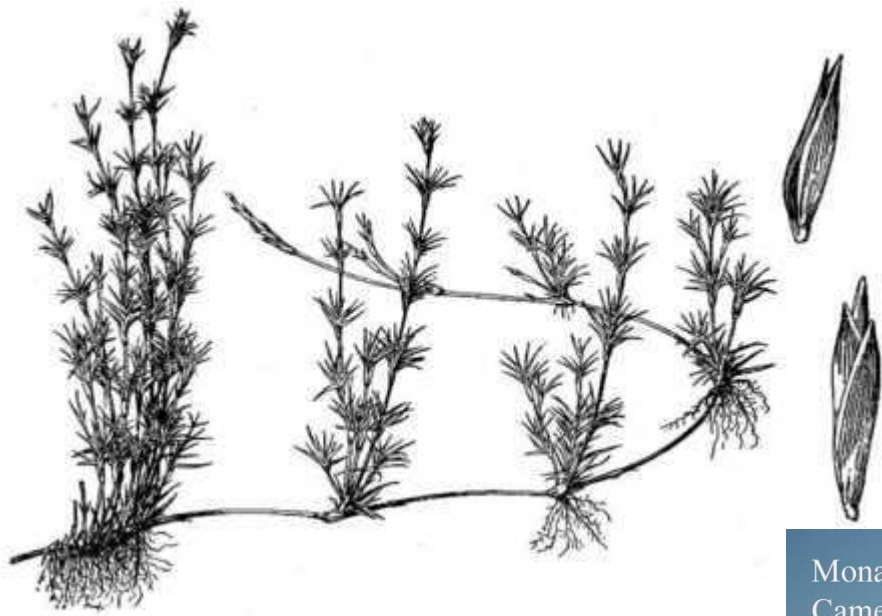
Saltgrass





*Sporobulus virginicus*





*Monanthochloe littoralis*

*Monanthochloe littoralis* habitat  
Cameron Parish  
Louisiana Natural Heritage Program





*Batis maritima*



*Suaeda esterpa*

Sea Blite



*S. maritima*



*Salicornia bigelovii* (annual)



*Salicornia europaea* (annual)

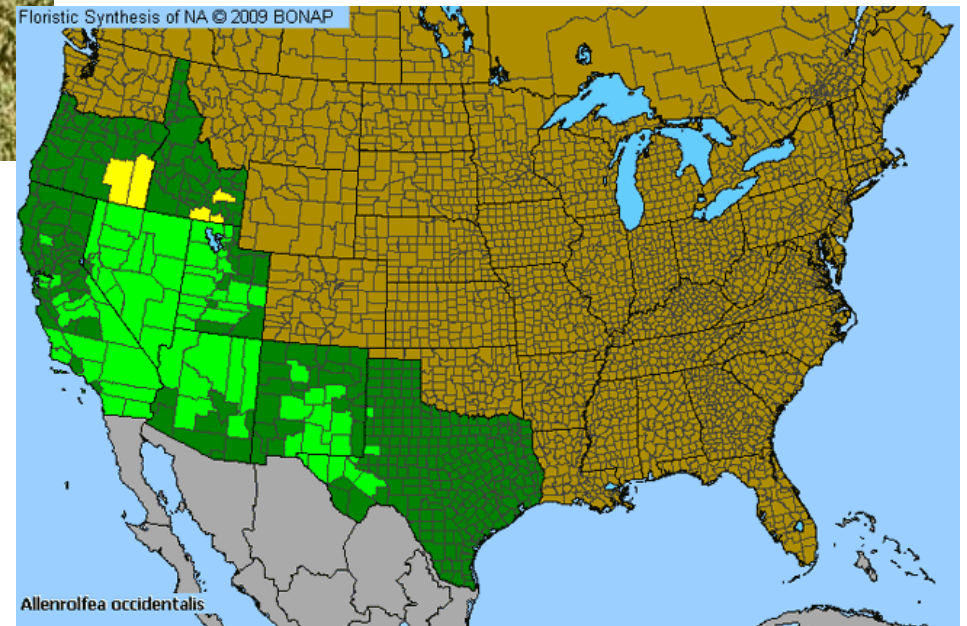


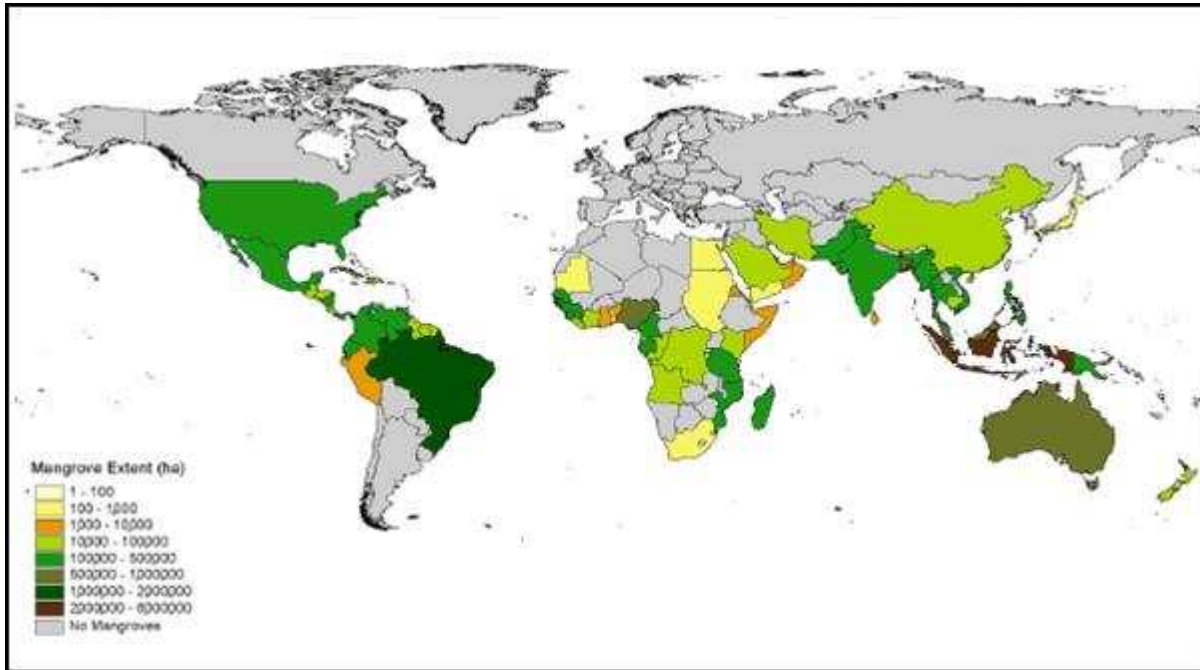
*Salicornia virginicus* (perennial)



*Allenrolfia occidentalis*

Iodine bush

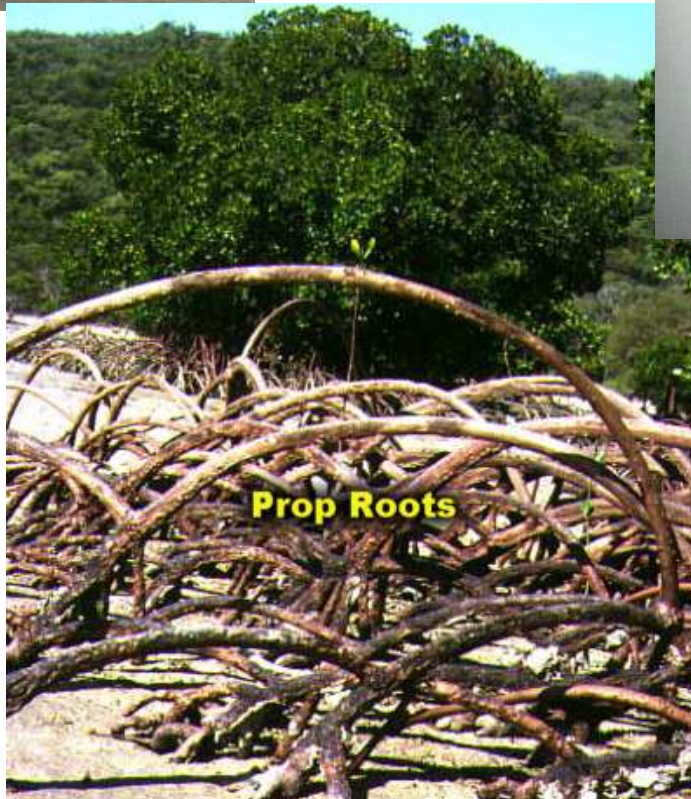






Rhizophora mangle

Red Mangrove

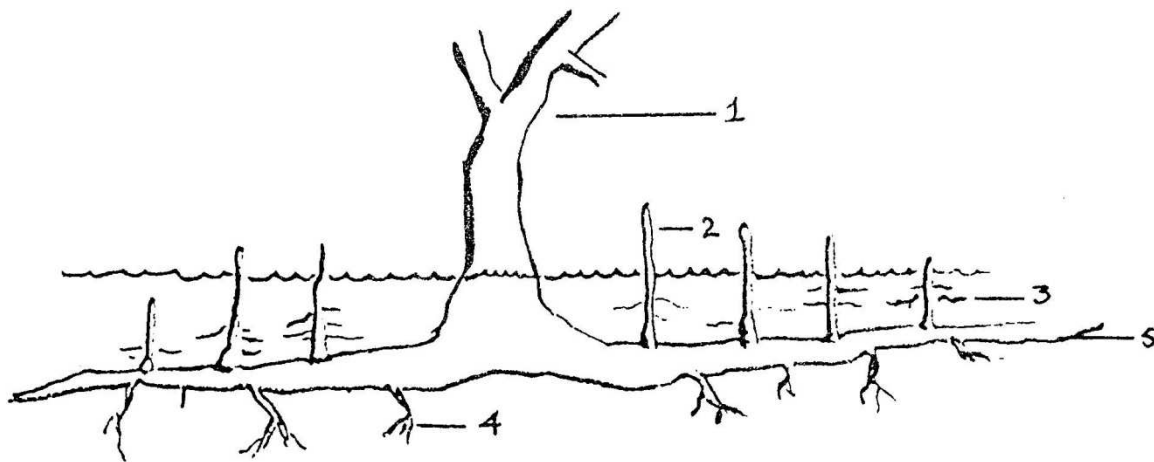




Courtesy EcoPort (<http://www.ecoport.org>); R.P. Ellis

*Avicennia marina*

Black Mangrove



Simplified diagram of the mature mangrove root system.

- |                    |                  |
|--------------------|------------------|
| 1. Main trunk      | 2. Pneumatophors |
| 3. Nutritive roots | 4. Support roots |
| 5. Cable roots     |                  |

Fig. 5





*Laguncularia racemosa* (White Mangrove)



*Copnocarpus erectus*

Button Mangrove





Nypa Palm *Nypa fruticans*



Sonneratia Mangrove Apple





Sunderbans, Bangladesh

Excursion sheet for mangrove excursion



Mussel  
© CLI



Small fish



Pelican



Blue swimmer crab



Mangrove



Seagrass



Phytoplankton



Prawn



Ibis



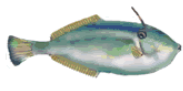
Shark



Blue swimmer



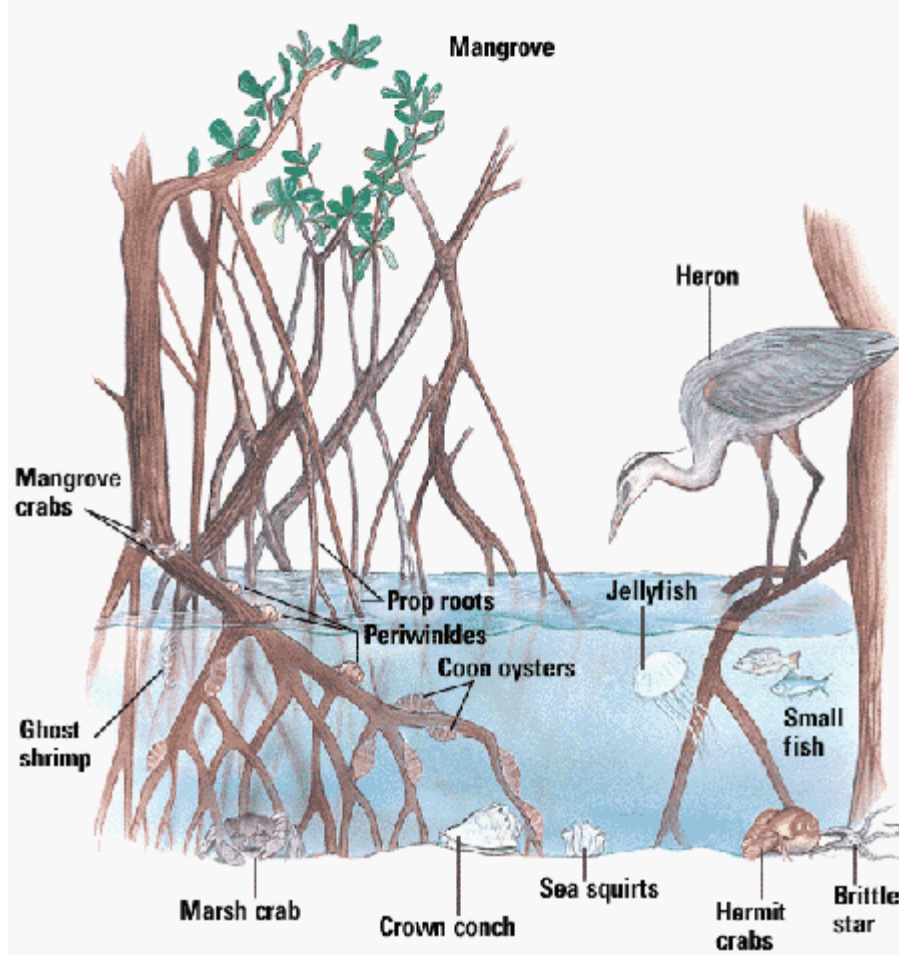
Whiting



Leatherjacket



Dragonfly





**January 6, 1987**



**November 15, 1999**







Desert and Riparian Halophytes – Southwestern U.S.



*Atriplex lentiformis* (Quailbush)

*Atriplex canescens* (Four Wing Saltbush)



1cm



*Tamarix ramosissima*  
Saltcedar

*Diorhabda elongata*  
Biocontrol beetle



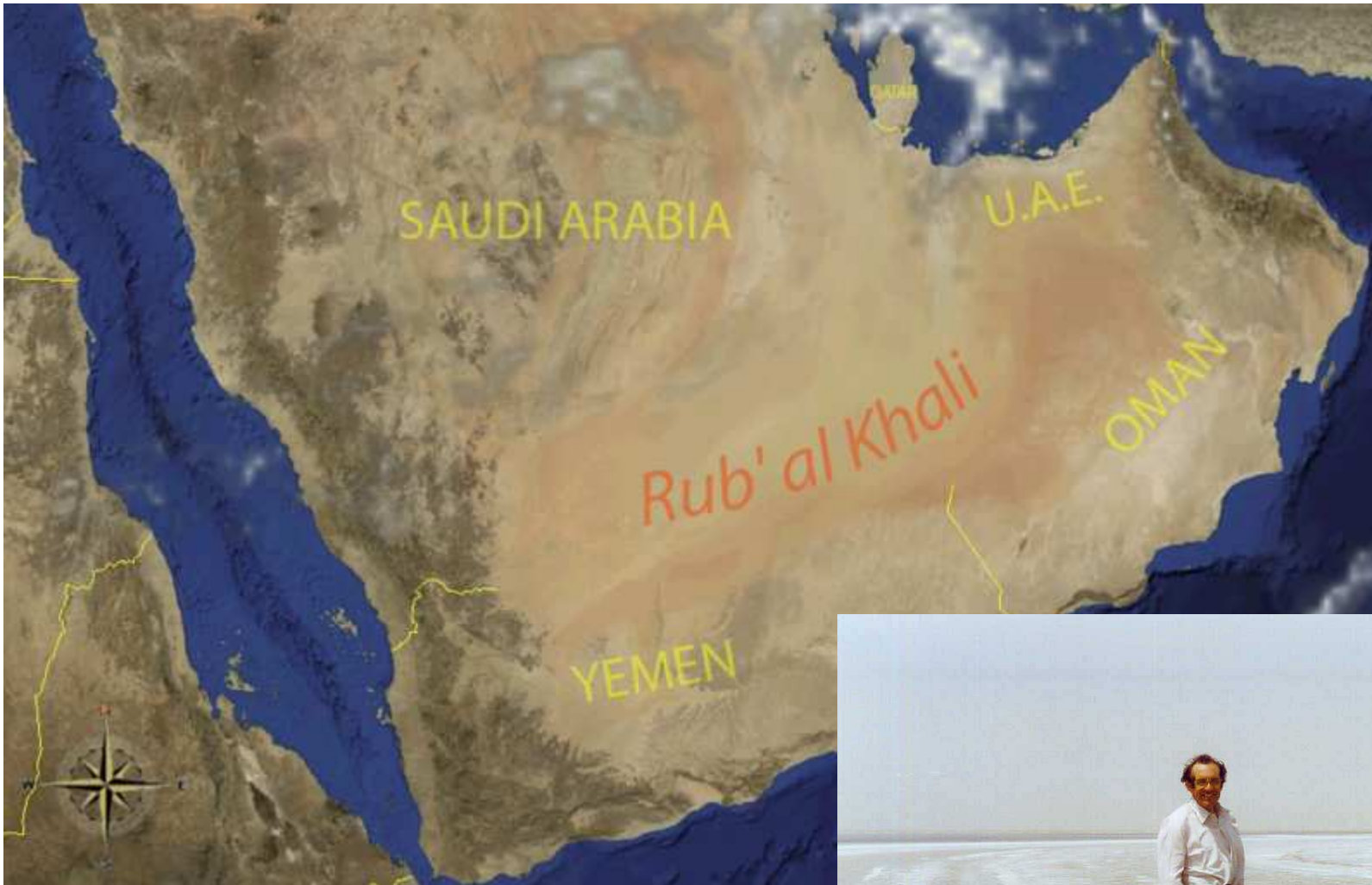
*Pluchea sericea* (Arrowweed)



*Atriplex halimus* (Mediterranean Saltbush)



Zygophyllum community



## Sabhkas – Arabian Salt Flats



A shallow pit, dug by Ian West, in the margins of a dried salt lake at Dukhan Sabkha, Qatar. Here, under a thin crust of halite, is brown muddy sand with white nodules of anydrite. The displacive nodules have been precipitated from interstitial brines saturated for calcium sulphate. Ian West & Tonya West (c) 2007.