

*Seaside Heritage Program Presents:*

# Managing Phragmites on Virginia's Eastern Shore:

*A Workshop for Landowners*



# Managing Phragmites on Virginia's Eastern Shore

- Natural History and Ecology of Phragmites
- Abundance and Distribution of Phragmites on the Seaside of Virginia's Eastern Shore
- Methods for Controlling Phragmites Invasions
- Sources of Assistance to Landowners

*Phragmites australis*

**Natural History & Ecology**



# Physical Characteristics (getting to know the enemy)

**Grass 2-6 m tall**

**Sturdy vertical stalks**

**Yellow-green to  
gray-green leaves**

**Worldwide  
distribution**



Photo by Larry Alain, USGS NRCS



**Tan to purplish “fluffy” seed head  
(July – September)**

# Extensive rhizome (underground stem) network



**Vertical shoots regenerate from rhizomes**

**Grows in tidal  
& non-tidal  
wetlands**

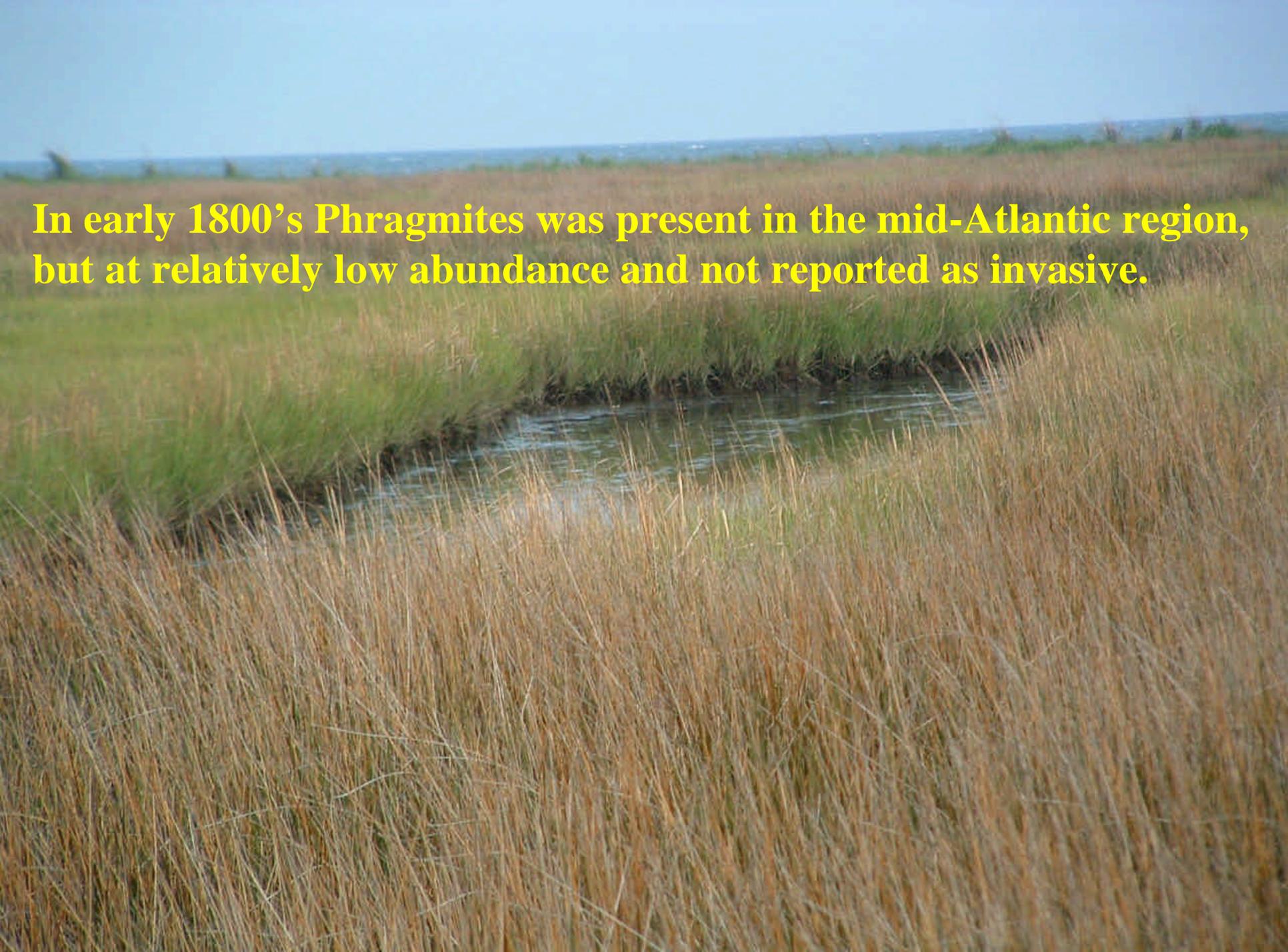
**Fresh, brackish,  
or salty conditions**

**Prefers  
brackish to fresh  
habitats**



# Phragmites on dredge spoil site





**In early 1800's Phragmites was present in the mid-Atlantic region, but at relatively low abundance and not reported as invasive.**

# What Happened?

- 1. Introduction of European strain**
- 2. New genetic strain**  
**(hybrid of native and introduced strain?)**
- 3. Natural changes in marsh stability**
- 4. Increased soil disturbance**
- 5. Mechanical spread**

# **Introduction of European strain is now considered to be the major explanation for recent rapid spread of Phragmites**

- **Strong competitor**
- **Rampant vegetative spread**
- **Rapid growth & maturity**
- **Superior physiological mechanisms**
- **Difficult to control / eradicate**
- **No / few natural predators**



**Remarkable rhizome biomass**

**Rapid rhizome growth after exposure to sunlight / air**



A photograph of a dense field of tall green grasses, likely a meadow or prairie. The grasses are vibrant green and appear to be growing rapidly. In the background, there are several thin, bare trees, suggesting a late autumn or winter setting. The overall scene is a natural, open landscape.

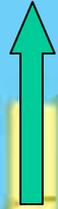
**Rapid, even shoot growth results in:**

- **Shading of competition**
- **Nutrient “hogging”**
- **Displacement of diverse native vegetation**

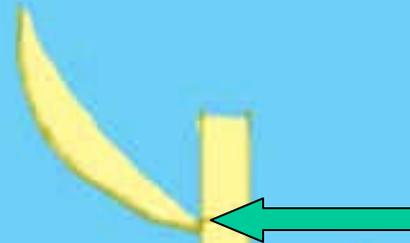


**Dense single-species stands**

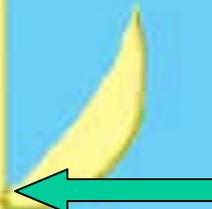
**Venting gases**



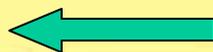
**Old, dead culm**



**Air enters via  
Leaf sheath stomata**

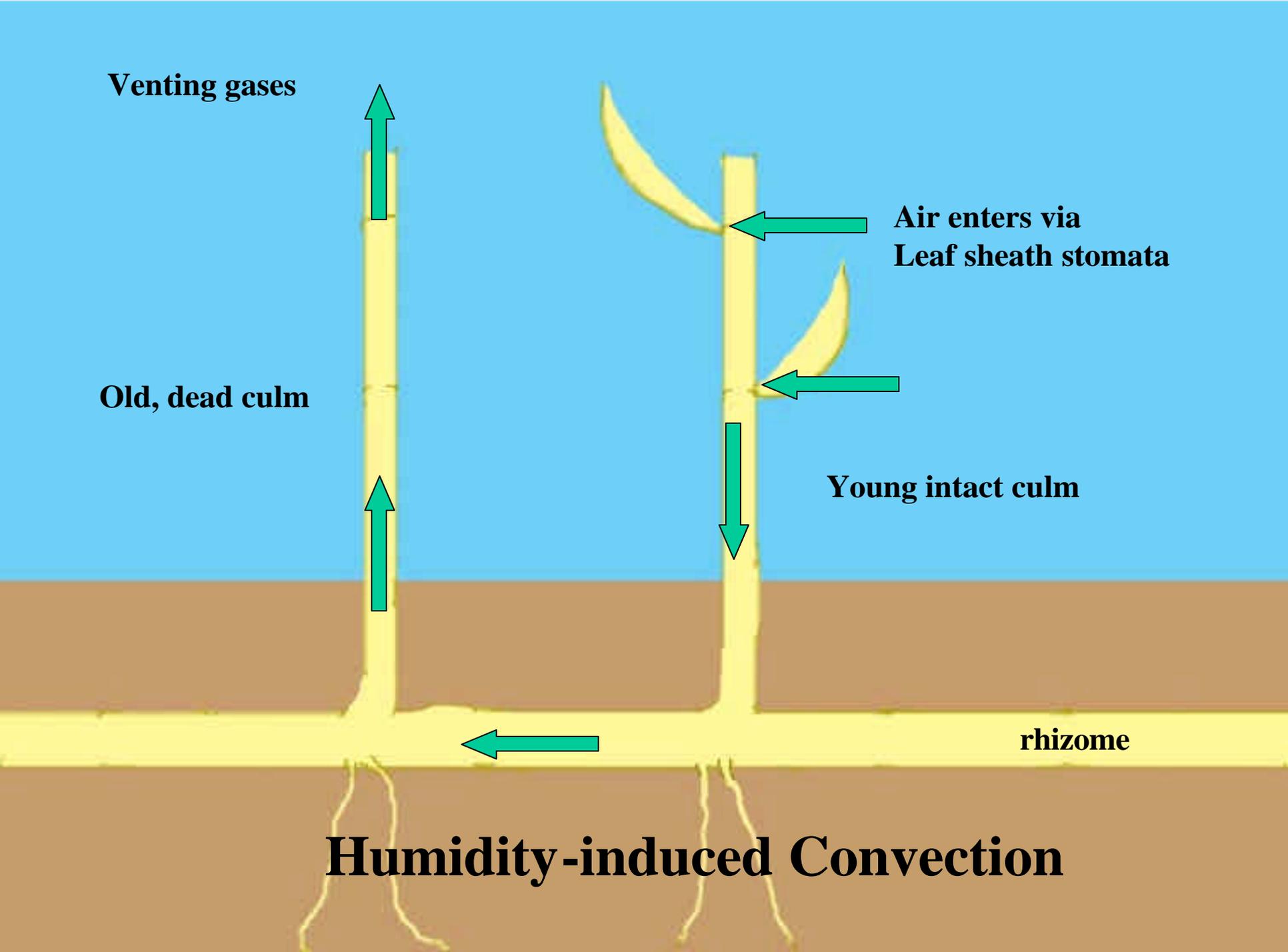


**Young intact culm**



**rhizome**

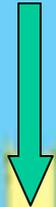
**Humidity-induced Convection**



**Wind blowing across dead, broken culms creates suction**



**Air enters via  
Short, broken culms**

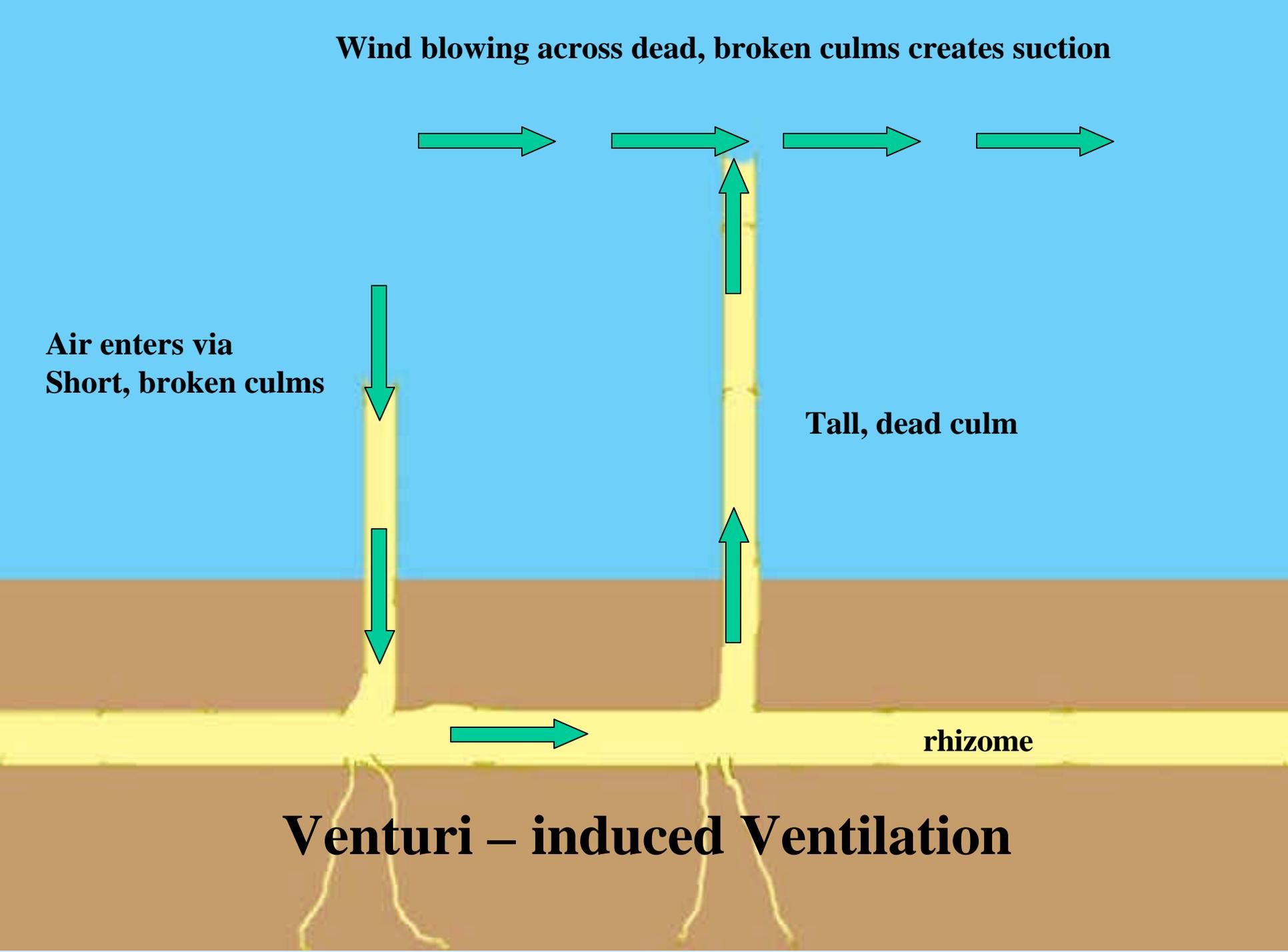


**Tall, dead culm**



**rhizome**

**Venturi – induced Ventilation**



**Disturbance (fire / wind) in marshes increases Phragmites spread**





**Phragmites colonizing a recently burned area**

**Rhizomes are dispersed by waves/current during strong coastal storms**



**Phragmites reproduces by both  
rhizome and seed dispersal**



# **Native or Introduced? Stem Characteristics**

## **Native**

**Red base**

**Smooth & shiny**

**Slightly crooked**

**Somewhat flexible**

**Lower stem density**

## **Introduced**

**Tan base**

**Rough & dull – ribbed**

**Straight**

**Rigid**

**High stem density**

# Native or Introduced?

## Native

- Leaves yellow-green
- Loosely wrapped leaf sheaths, drop off at senescence
  - Senescens mid – late September
    - Sparse flower head
- May prefer less salty, brackish to freshwater sites

For more information go to  
[www.invasiveplants.net/phragmites](http://www.invasiveplants.net/phragmites)