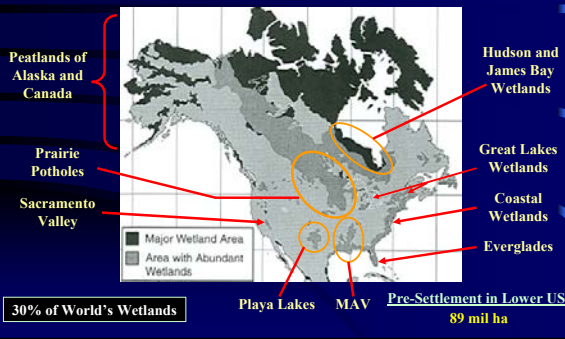


Wetland Losses and Human Impacts



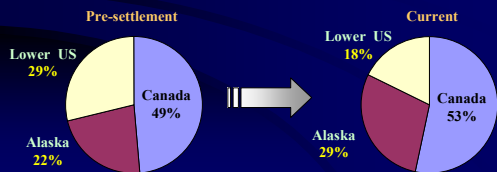
Matthew J. Gray
University of Tennessee

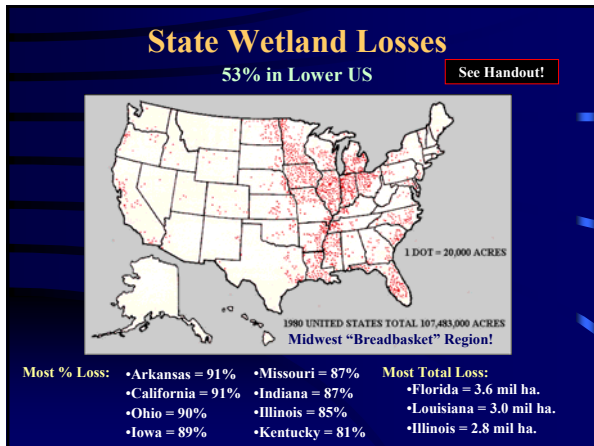
Distribution of North American Wetlands

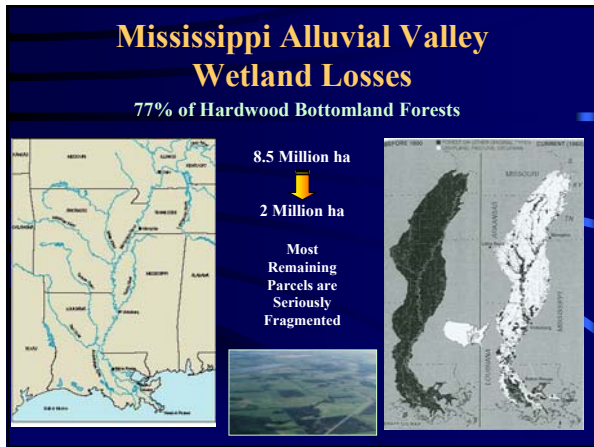


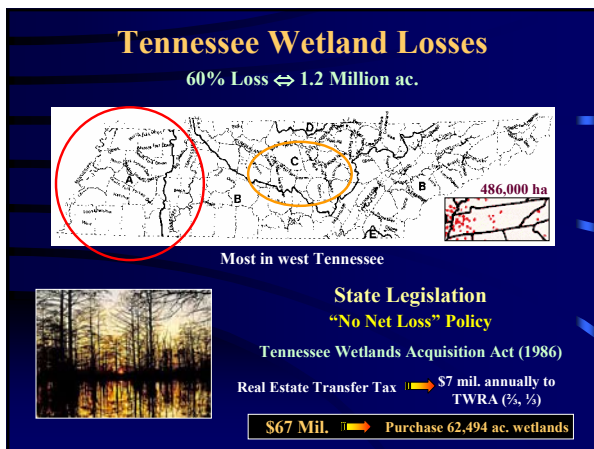
Current North American Wetland Estimates

United States:	•Lower 48 and Hawaii	=42 mil ha	(89 mil)
	•Alaska	=69 mil ha	53% Loss**
		=111 mil ha	
Canada:		=127 mil ha	Manitoba (22.5) Ontario (29.2)
		=238 mil ha	= 51.7 mil ha 41%









Current Rates of Wetland Loss

0.1% Loss per year ⇔ 47,000 ha


Early 1900s: 490,000 ha per year ⇔ 1.1% per year

1950-70s: 185,000 ha per year ⇔ 0.4% per year

1980s: 116,000 ha per year ⇔ 0.25% per year

1990s: 47,000 ha per year ⇔ 0.1% per year


Smoky Mountain National Park ≈ 211,000 ha



So, the equivalent to approximately 22% of Smoky Mountain National Park is being lost each year!

Each **4.5 years**, total wetland area equivalent to the park size is lost!

Human Influences on Wetlands




Draining Wetlands




#1 Loss of Wetlands
Mostly for Agricultural Use
Midwest & SE

Drainage Ditch,
Clay Tiles, Plastic Pipes

Pits & Pumps




Floating or PTO-driven Pumps

Effects?

Human Influences on Wetlands



Effects?

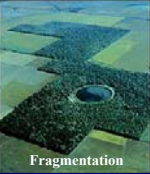


Deforestation


Agricultural Use
Especially in SE

Many Hardwood Bottomlands cut First for Timber







Fragmentation



Cotton, rice, soybeans



Human Influences on Wetlands

Levees and Channelization


•Prevent Overbank Flow



Flood Control Acts 1928-68

•Drain Adjacent Landscape Quickly









Flood Control—Ironic!
Navigation & Transportation

Effects?




Human Influences on Wetlands

Concrete Runoff



Filling Wetlands

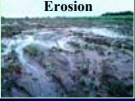
Primary Causes
Urban Development
Highway Construction




Secondary
Agricultural Runoff
Bank Destabilization


Sedimentation

Erosion






Effects?
 $\frac{1}{3}$ of World's Population on Coasts
95% CA



Human Influences on Wetlands


Effects?

Fertilizers, Pesticides




Water Pollution


Cattle




Discharges
•Chemical
•Temperature




Erosion



Before



After




Human Influences on Wetlands

World Peat Resources
1.9 Trillion Tons

- Russia (770 bT)
- Canada (510 bT)
- US (310 bT, 16%)

Peat Mining




Effects?

World Peat Mining

- 1) Finland
- 2) Ireland
- 3) Russia

"Non-renewable" Resource

Fuel



↓ 70%


Annual Production

Fuel= 16.8 mil tons
Hort= 6.9 mil tons

23.7 mil tons

United States
676,000 tons (Horticulture)

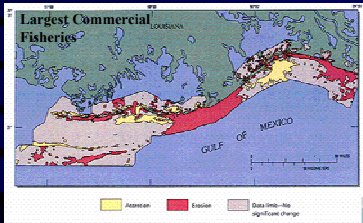
Horticulture



↑ 30%

Human Influences on Wetlands

Louisiana Coastal Erosion



Largest Commercial Fisheries

Atchafalaya Iberville Other

Dist. 1980-1990 significant change

40% of Coastal U.S. Marshes

Channelization of MS River

- Reduced Sedimentation → Barrier Islands
- Increased Saltwater Intrusion

Rising sea levels

<http://www.lacoast.gov/media/videos/index.htm>

34 sq miles per year ⇒ 1900 sq miles (Delaware)

•15-65 ft inward loss per year

At the current rate of loss, by 2050, 1/2 of coastal LA will have eroded into the Gulf of Mexico!

