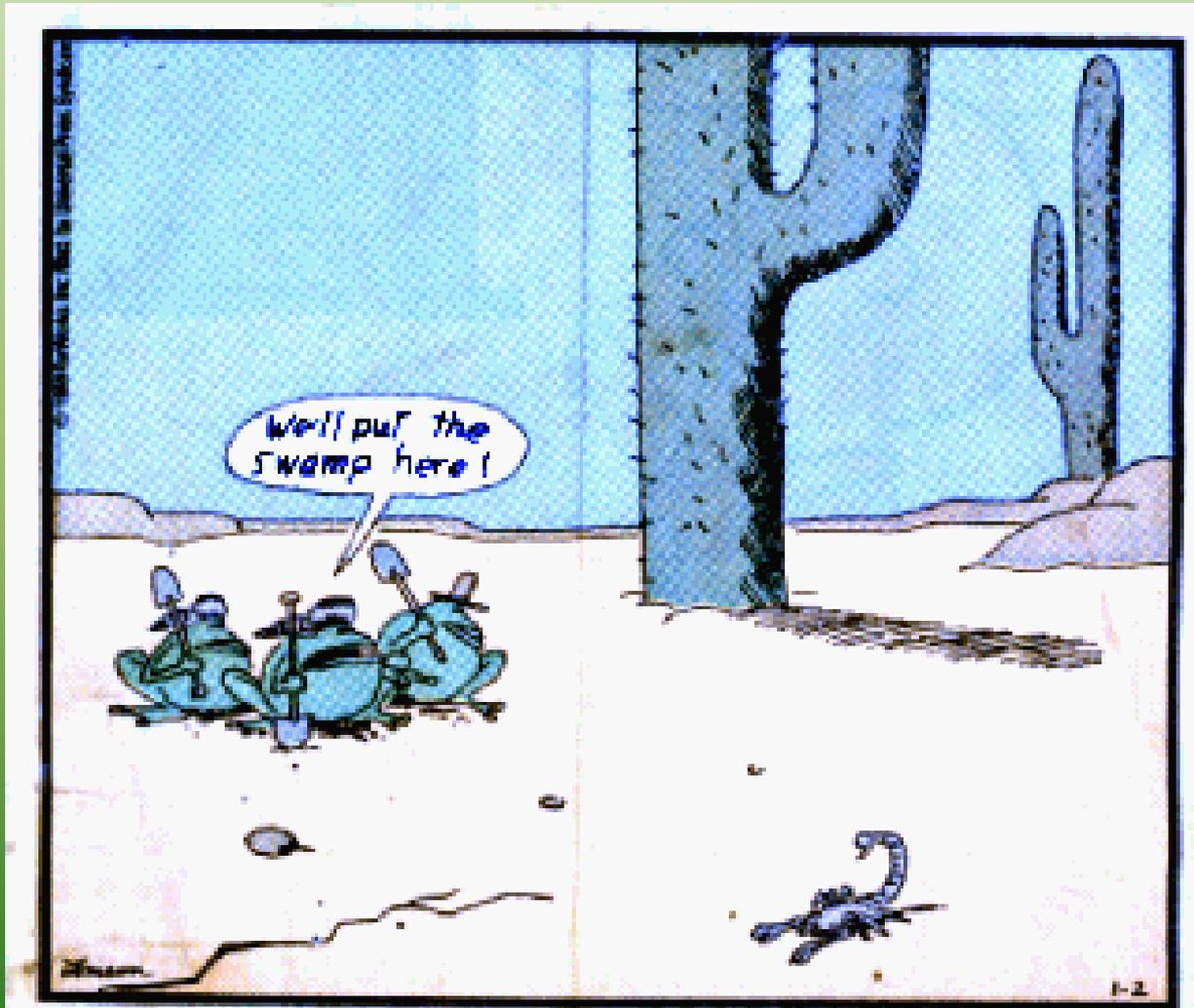
A photograph of a dense forest with a stream flowing through it. The water is clear and reflects the surrounding green trees and foliage. The sky is visible through the canopy, appearing bright blue. The overall scene is lush and vibrant, representing a natural wetland environment.

The Value of Wetlands to the Human Environment

Gary Goforth, P.E., Ph.D.

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Frog Pioneers

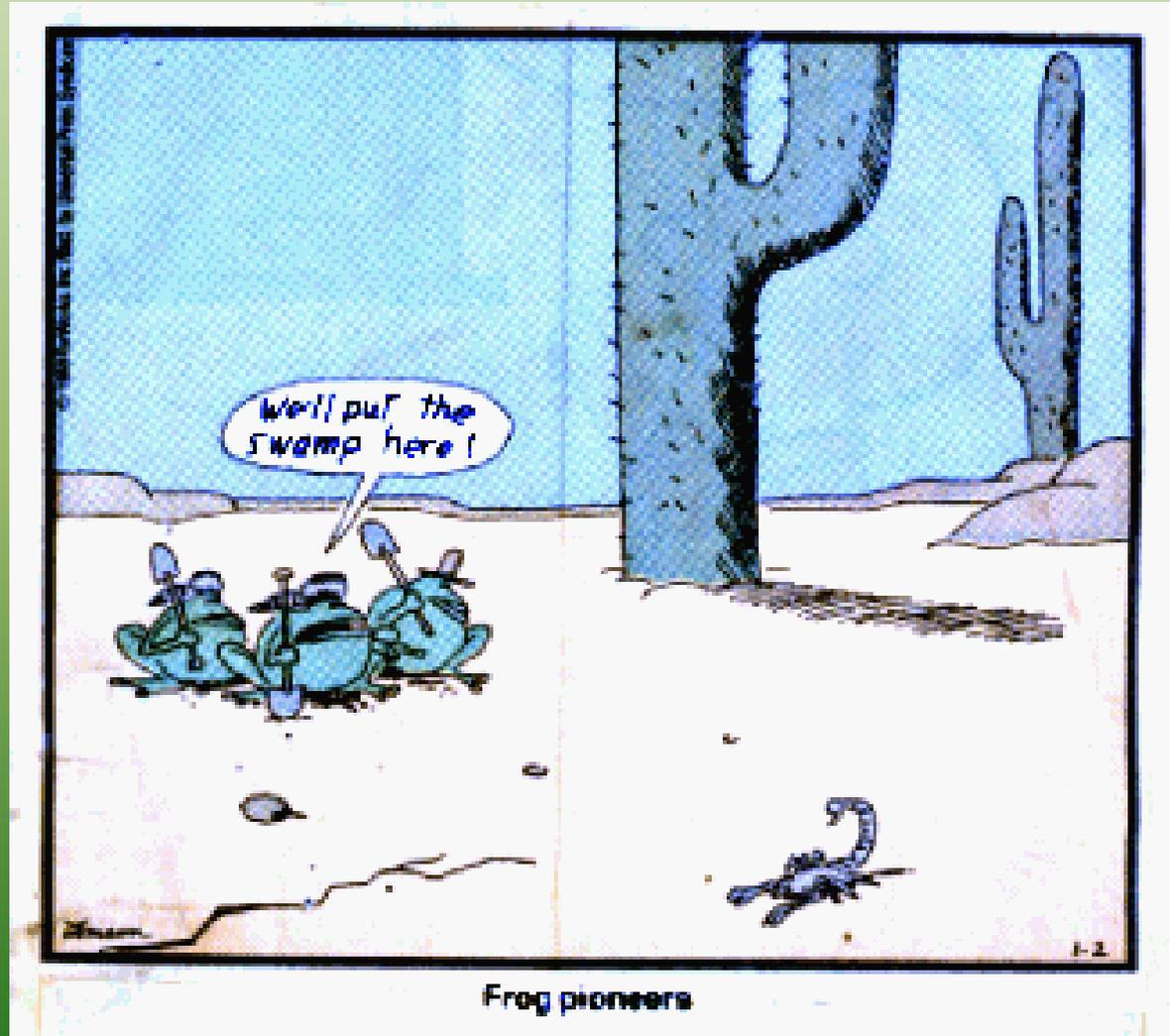


From Gary Larson

Frog pioneers

Frog Pioneers

One interpretation:
The pioneer frogs represent policies that allow destruction of wetlands under the misguided belief that equal functions and values can be established elsewhere.



From Gary Larson

Discussion Points

- Wetlands provide many valuable local services
- “Little” wetlands can be as valuable as larger wetlands when it comes to ecological functions and values
- Despite their value, wetlands continue to be converted to other land uses

Types of Wetlands

- Freshwater wetlands
 - Forested wetlands
 - Cypress domes, swamps and hydric pine flatwoods
 - Herbaceous wetlands
 - Wet prairies and marshes
 - Lakeshore and floodplain wetlands
- Coastal and estuarine wetlands
 - Mangroves
 - Saltmarshes

Loss of Wetlands

- Between 1780 and 1980
 - the U.S. lost more than 104 million acres – average loss of almost 10,000 acres each week.
 - the continental United States has lost 53% of its wetland acreage (Gulf Dead Zone)
 - Florida lost the most wetlands - 9.3 million acres (49%)
- Between 1985-1996 – Florida's conversion of wetlands continued: more than 260,000 acres of freshwater wetlands
 - Agriculture lands (175,000 acres)
 - Urban development (66,000 acres)



Ghost Orchid

Wetland Functions that Benefit Us

- Local flood protection
 - slows down velocity of stormwater flows
 - reduces erosion
 - reduces water depths during storm events
- Local shoreline protection
- Local water storage: a half acre wetland can store 0.5-0.75 million gallons of floodwater
 - sends it downstream at a slower rate
 - recharges local groundwater
- Local water quality Improvement
 - removes nutrients through biological activity
 - filters out sediment, toxic metals and bacteria
- Provides an environment for local bird watching, photography and painting
 - enjoyed by 50 million Americans : \$10 billion per year
- Essential for many of our local recreational activities, e.g., habitat for birds, fish
- Can be invaluable classrooms for many subjects, e.g., ecology, water, and art



Aesthetic Values

- Wetlands offer people a sense of both beauty and well-being
- It is comforting to spend time in and around these natural areas
- Property adjacent to wetlands often have higher value because of these aesthetic qualities

“Isolated” Wetlands are Not Isolated!

- “Little” wetlands, like larger wetlands, provide a variety of valuable functions
 - Not isolated hydrologically
 - Retain the ability to capture stormwater and pollution
 - Small wetlands are part of a healthy environmental mosaic – interconnected with other landscape features
 - Cumulative benefits accrue
-
- Little wetlands can be as valuable as larger wetlands when it comes to ecological functions and values



Degraded Wetlands Are Not Lost

- Impacted wetlands can generally be restored
 - Still retain their soils
 - Still retain their interaction with groundwater
 - Still retain a viable seed bank
- May require re-establishment of surface flow
 - Sometimes as simple as filling in drainage ditches
 - Martin County has done an outstanding job, e.g.,
 - Cypress Creek restoration
 - Kitching Creek Restoration
- Values can be restored as wetland is restored

Paradox

- If wetlands are so valuable in their natural state, why do they continue to be converted?
 - Often, wetland owners can't benefit economically
 - The ground water recharge and sediment trapping benefits can't be commercially exploited.
 - The wildlife that breed and inhabit the wetlands migrate, and are captured or enjoyed by others.
 - The flood protection benefits accrue to downstream populations.
 - For the owner of a wetland to benefit economically, he often has to alter it, convert it, and/or develop it.



That is why, despite their value, wetlands continue to be converted.

Summary

Wetlands provide many valuable local services, including flood protection, water supply, water quality improvement, and aesthetics.

“Little” wetlands can be as valuable as larger wetlands when it comes to ecological functions and values.

Despite their value, wetlands continue to be converted to other uses.