

A group of approximately ten people are standing in a lush, green riparian area. They are positioned in a line across the middle ground, looking towards the left side of the frame. The foreground is dominated by tall, green grasses and a narrow stream that flows from the bottom left towards the center. The background is filled with dense, green shrubs and trees, creating a sense of a natural, restored environment.

# Creeks and Communities

A Continuing Strategy for  
Accelerating Cooperative  
Riparian Restoration and  
Management

# Water – A World Wide Problem

Use has tripled since 1950

Severing of ecological connectivity

No more Water today than 100 million years ago

Loss of Continental Storage

# Solutions

- **Water Treaties**
- **Dams**
- **Conservation**
- **Water Productivity**
- **Environmental Reserves**
- **Education**

# Catchment Restoration

- **Luna Leopold – View of the River**
  - **US Water Budget**
  - **30” Average Precipitation**
  - **Debit 9” runoff**
    - **3” or 1/3 from overland flow**
    - **6” or 2/3 from groundwater**
  - **Debit 21” evaporation/transpiration**



# Opportunity

- **Decrease runoff**

**Increase Water Storage**

**Keep Water on the Land  
Longer**

# ? Riparian Health?



# **Pre-European Influence**

# **Fisheries and Wildlife Habitat**

- **Varies by species**
- **Varies by Site**









# **Native Species and Height of Vegetation**













# **Native Ungulates**









# **Inclusion of Humans and Their Lifestyles**





# Stream Function





**Bear Creek May 1977**





**6 years**

**Bear Creek May 1983**





**9 years**

**Bear Creek Aug 1986**





9.8 years

Bear Creek June 1987





**10 years**

**Bear Creek Aug 1987**





**11 years**

**Bear Creek Oct 1988**





**16 years**

**Bear Creek Aug 1993**





**18 years**

**Bear Creek Nov 1995**





**18.5 years**

**Bear Creek Feb 1996**





**18.7 years**

**Bear Creek April 1996**





**19 years**

**Bear Creek Oct 1996**





**20 years**

**Bear Creek Sept 1997**





**22.5 years**

**Bear Creek Dec. 2000**





**24 years**

**Bear Creek July 2001**





**25 years**

**Bear Creek July 2002**





**26 years**

**Bear Creek May 2003**





**27 years**

**Bear Creek March 2004**





**27 years**

**Bear Creek May 2004**





**27 years**

**Bear Creek May 2004**





**27 years**

**Bear Creek May 2004**





**27 years**

**Bear Creek July 2004**





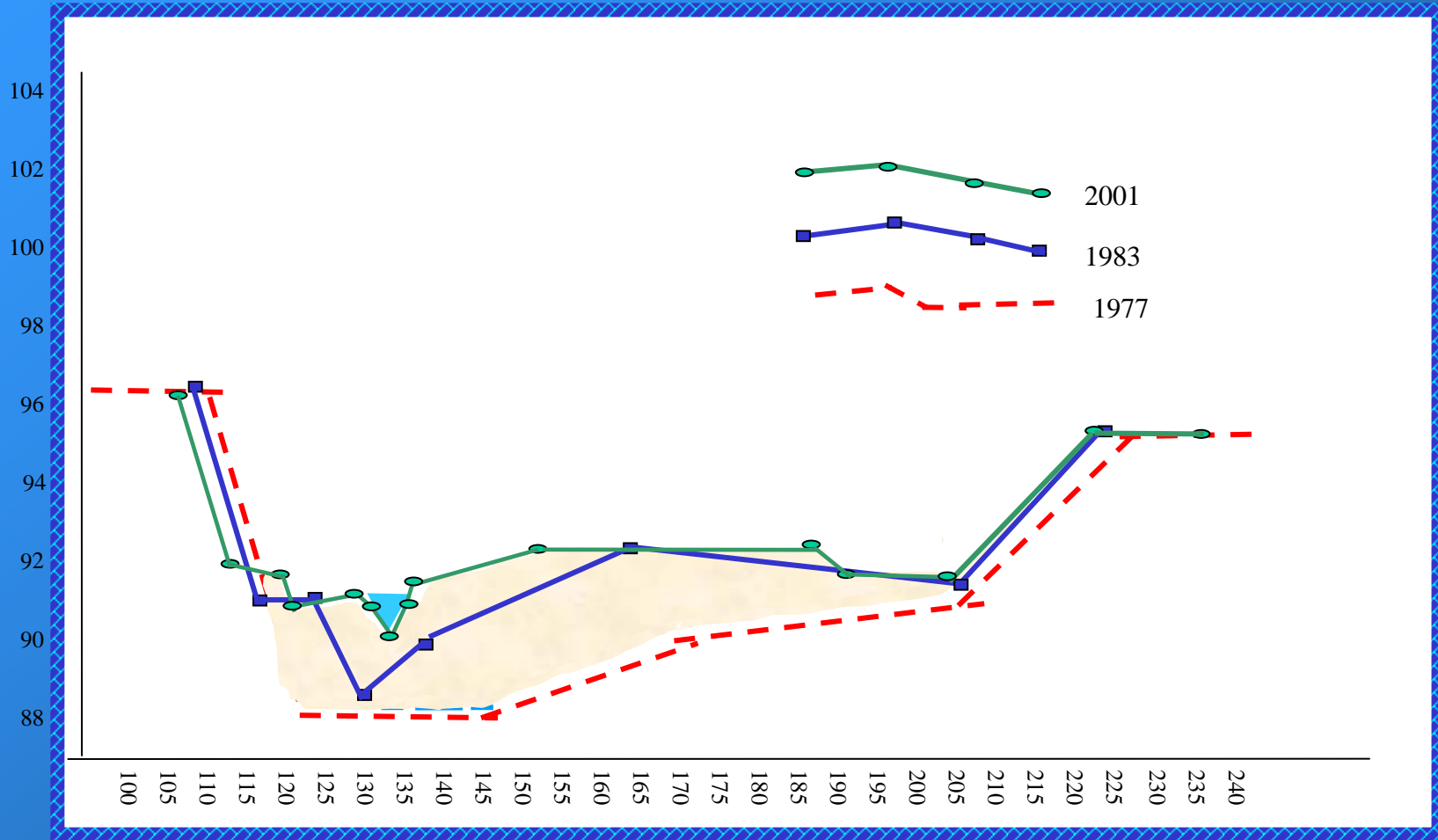
27 years

Bear Creek July 2004



# Bear Creek : Change In Channel Profile (1977 - 2001)

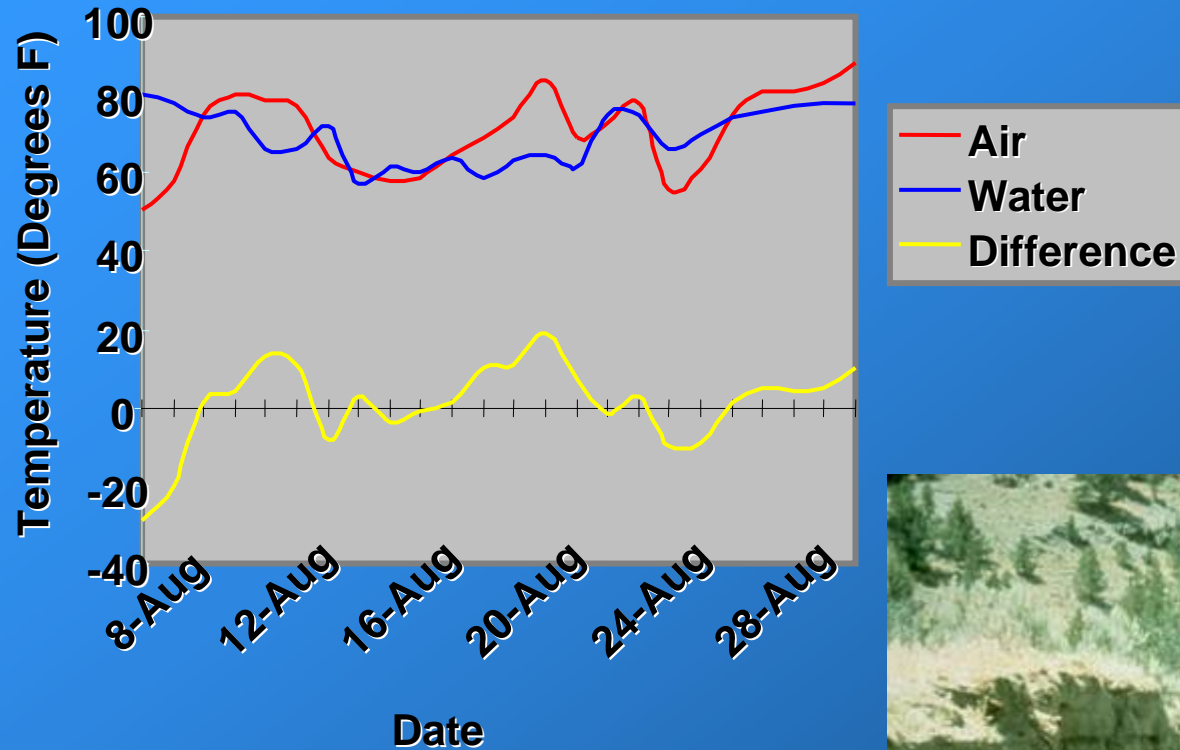
## 2001





# Difference in Air & Water Temperatures

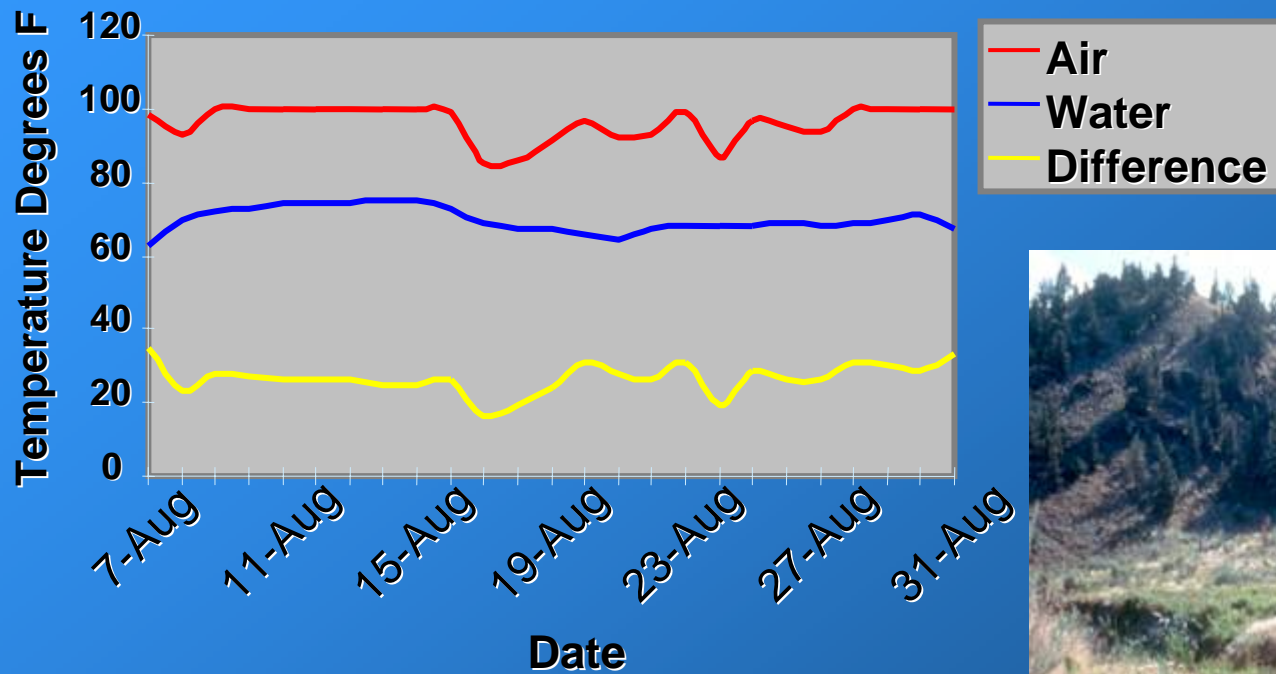
Bear Creek - Central Oregon  
1976





# Difference in Air & Water Temperatures

Bear Creek - Central Oregon  
1998





# Bear Creek

## (3.5 Miles)

|               | 1978           | 1994           |
|---------------|----------------|----------------|
| Wetted Area   | 7.8 acres      | 15.9 acres     |
| Bank Erosion  | 12,448 feet    | 799 feet       |
| Water Storage | 500,000 gal/mi | 1.5 mil gal/mi |
| Production    | 200 lbs/acre   | 2000 lbs/acre  |

Data from C. Rasmussen (1996) and W. Elmore



# Winston Churchill

- **Americans can always be trusted to do what is right after they have tried everything else.**