

**Goose Creek  
Watershed Assessment:  
Summary & Recommendations**  
~ October 2003 ~

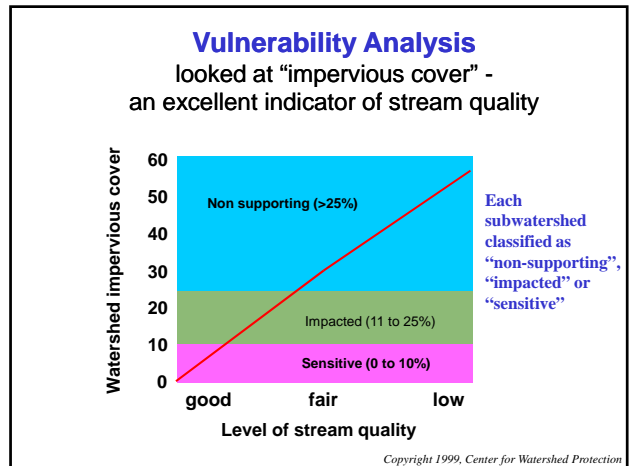
Piedmont Environmental Council  
& Goose Creek Association  
in consultation with  
Center For Watershed Protection

### What makes the Goose Creek Watershed special?

- Drinking water source for City of Fairfax and half of eastern Loudoun County suburbs
- Early 1990's surveys indicated very high water quality
- Scientific studies have reported that its ecosystem supports more diversity of microscopic and invertebrate animals than most streams worldwide
- 20% of watershed protected by conservation easements
- A state scenic river
- Scenic, historic, rural countryside

### Threats

- Point source pollution (e.g. sewage treatment plants)
- Non-point source pollution (e.g. bank erosion from livestock and development)
- Fecal coliform pollution (human, livestock, wildlife)
- Increasing impervious cover
- Changing hydrology
- Eroding ecosystem health

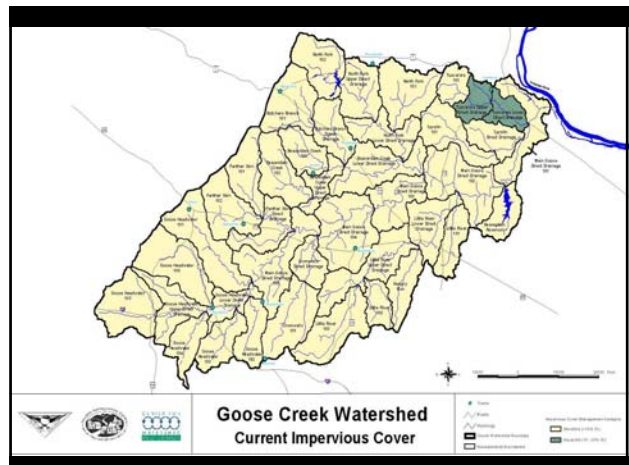


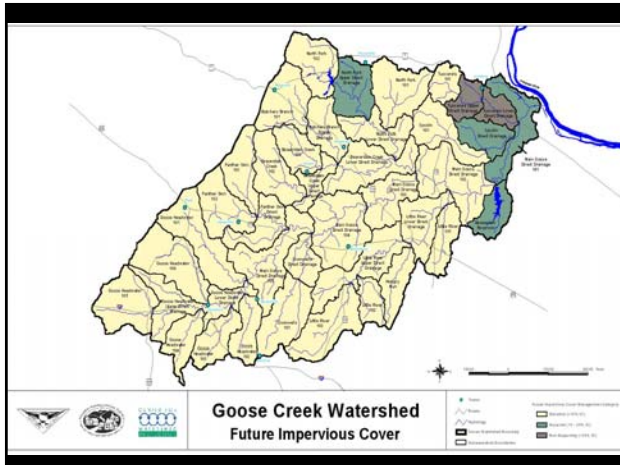
### Stream Impacts



**Impervious Cover**

- < 5%
- 8-10%
- 20%
- 30%
- > 65%





Revising Management Categories:  
Rural Watershed Quality Points

In-stream Factors  
~ Unfavorable Points ~


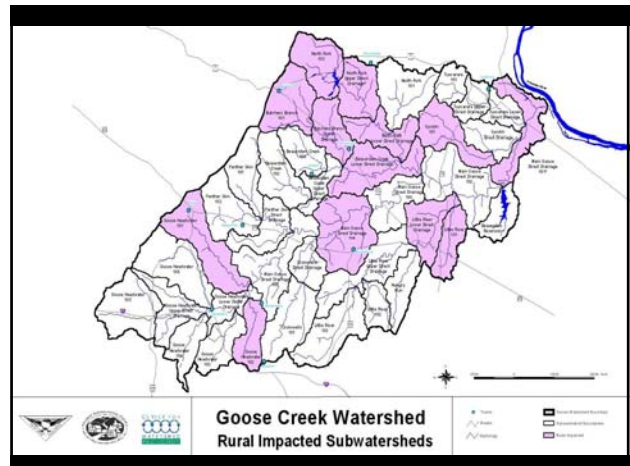
- ☐ Impaired Waters (VA DEQ)
- ☐ Water quality violations
- ☐ Poor to Fair Fish IBI
- ☐ Fish Barriers



Revising Management Categories:  
Rural Watershed Quality Points

Subwatershed Factors  
~ Unfavorable Points ~

- ☐ Low % of wetlands
- ☐ “Unusual NPS” (wastewater treatment plants, landfills, golf courses, vineyards)
- ☐ High Septic Density
- ☐ High Cattle Density / High Horse Density
- ☐ Bacteria Level

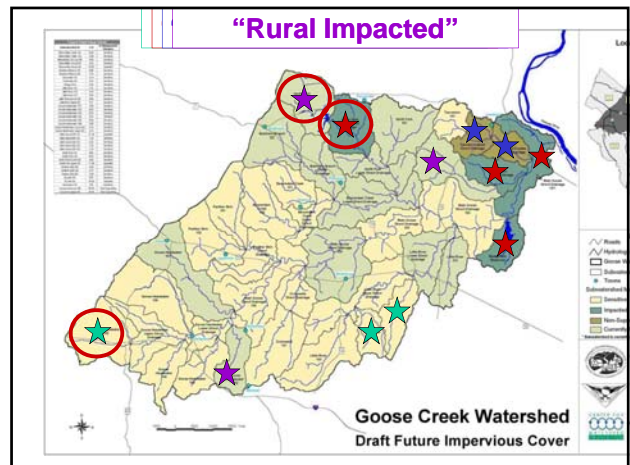
Selection of “12 Most Vulnerable”

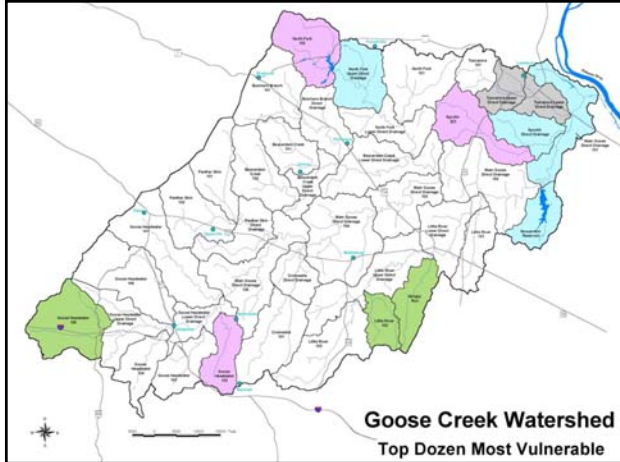
**High Quality** - Three headwaters with most favorable watershed quality points and fewest unfavorable points

**Rural Impacted** - Three rural Impacted Headwaters with most unfavorable points

**Future Urban Impacted** - The four subwatersheds that are predicted to become impacted (due to impervious cover)

**Future Non-supporting** - The two subwatersheds that are predicted to become non-supporting (due to impervious cover)





**Detailed Analysis of 3 Subwatersheds:**

**Rapid Stream Assessment**

1. assess the overall habitat and condition of headwater streams in each subwatershed,
2. suggest locations and designs for riparian reforestation, stream restoration, bank stabilization or upstream stormwater retrofits in each subwatershed



**Subwatershed Study**

**Goose Headwater 105**

**Watershed Classification:** High Quality

**Stream Habitat Quality:** 80% of sites rated Excellent or Good

**Forest Cover:** 75% of watershed

**Inadequate buffer:** 37% of stream miles

**Cattle access:** 12% of stream miles

**North Fork Upper Direct Drainage**

**Watershed Classification:** Rural Impacted

**Stream Habitat Quality:** 60% of sites Good; No Excellent sites

**Forest Cover:** 21% of watershed

**Inadequate buffer:** 42% of stream miles

**Cattle access:** 20% of stream miles

**Subwatershed Study**

**North Fork 102**

**Watershed Classification:** Rural Impacted

**Stream Habitat Quality:** 62.5% of sites rated Good; No Excellent sites

**Forest Cover:** 42% of watershed

**Inadequate buffer:** 30% of stream miles

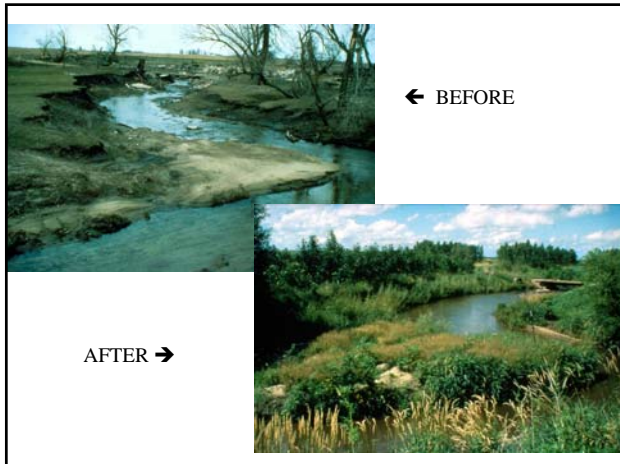
**Cattle access:** 8% of stream miles



**Stream reach in need of  
streamside reforestation**



**Failing ESC practices at a  
construction site**



### Goals and Recommendations

- Overarching goals
- Watershed goals
- Final report included over 140 recommendations:
  - Watershed-wide
  - Countywide—Loudoun & Fauquier
  - Subwatershed level

