























- Flood prevention
- Erosion control

#### BENEFITS OF WETLANDS cont'd

- groundwater flow and recharge
- deep aquifer recharge
- sub-irrigation of crops
- nutrient & pollutant removal
- effects of wetlands on local/regional weather
- flood prevention & flow stabilization







#### Shell River Watershed 1986 DUC Habitat Inventory Summary

	Small Wetlands	Large Wetlands	Total	Wetlands Within Parks
Number	25,566 (69.5 %)	11,208 (30.5 %)	36,774	2,020 (5.5%)
Acres	15,173 (15.2 %)	84,573 (84.8 %)	99,746	15,354 (15.4 %)
note – numbers i	n brackets represent % of total			





Birdtail River Watershed 1986 DUC Habitat Inventory Summary				
	Small Wetlands	Large Wetlands	Total	Wetlands In RMNP
Number	52,868 (73.6 %)	18,926 (26.4 %)	71,794	6,257 ( 8.7 %)
Acres	29,230 (20.1 %)	116,140 (79.9 %)	145,368	28,216 (19.4 %)
note – numbers in l	brackets represent % of total			











	Small Wetlands	Large Wetlands	Total	Wetlands In RMNP
Number	36,155 (73.8 %)	12,810 (26.2 %)	48,974	8,072 (16.5%)
Acres	24,307 (14.2 %)	146,629 (85.8%)	170,936	69,400 (40.6%)



## Wetland Trends

- Wetlands continue to be lost or degraded at a rate greater than they are preserved or protected
- Loss occurs through drainage and infilling
- Degradation occurs through impact on riparian area surrounding the wetland
- Removal of "top water" impacts function.
- Consolidation of wetlands

# Trends cont'd

CWS transect data-Pat provided overview

# Trends cont'd

• Analysis of CWS data and drainage license and complaints









#### Broughton Creek Watershed Change Analysis

- Compare historical photos (1968) to current photos (2005) in GIS environment
- utilized a photo-based stereo interpretation of wetlands
- Mapped the wetlands, drains, and change in wetland area
- the accuracy assessment of the inventory was 93% +/- 2.8%, with 95% confidence







































- Work in progress
- Further research being conducted to relate water quality and quantity effects of this drainage
- Model to predict the effects of further drainage as well as show benefits of restoration and retention.
- Will share with group once available

### **Risk of wetland loss**

- All wetlands are at some degree of risk to loss or degradation
- Current protection:
- Parks and WMAs
  - Conservation agreements
- Private
  - Wetlands imbedded in grassland at less risk
  - Wetlands in cultivation are at high risk of loss or degradation especially small shallow basins





#### Recommendations

- Adopt a no net loss of wetland policy
- Currently the licensing process does not take into account the ecological function of all wetlands e.g. drainage of temporary and seasonal wetlands.
- Include in this plan a mechanism to mitigate for wetland loss to ensure a healthy watershed (both ecological and hydrological function maintained)

- Current drainage license process
  - Water Rights Act requires landowner to apply for license for drainage
  - The watershed plan should seek to assist landowners in complying with this requirement
  - Drainage licenses should be included in the overall plan to ensure that there are no further ecological or hydrological degradation to the watershed

#### Water Rights Act-Enforcement

 The plan should call for increased enforcement efforts to ensure compliance to act and adherence to the surface water management plan.

## **Recommended BMPs**

- Wetland protection and restoration – APF, DUC, MHHC, NCC
- Protection of natural areas

   DUC, MHHC, NCC, payment for EG&S
- Increase in perennial cover

   APF Greencover, CD forage programs, DUC forage programs
- Promotion of Conservation Tillage, Winter Wheat
  - APF, DUC







