

Background and introduction

The importance of wetlands

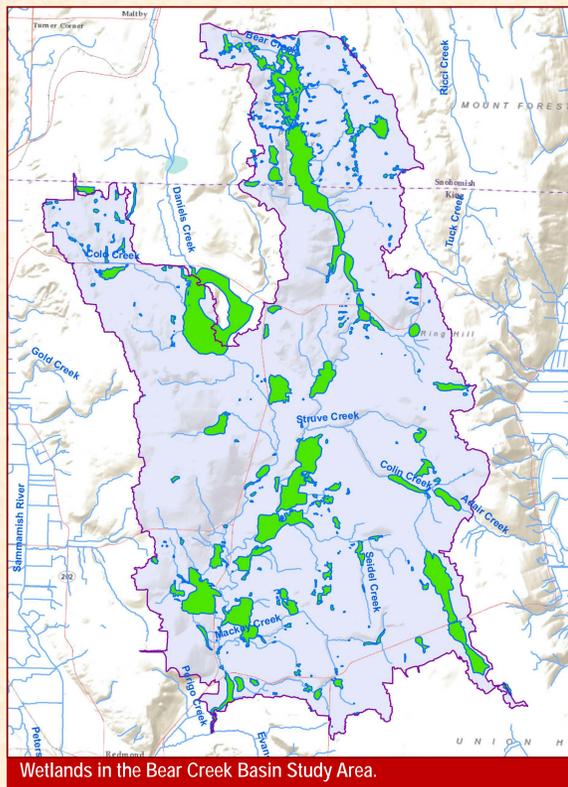
Wetlands perform a wide array of ecological functions and environmental benefits: water purification, flood protection, groundwater recharge, streamflow maintenance, and valuable habitat for fish and wildlife.

Purpose

The purpose of this assessment is to inventory wetlands in the Bear Creek Watershed, analyze how much wetland loss has occurred over the past 30 years, and ultimately to protect and restore wetlands in the watershed to the maximum extent possible.

Inventory

There are ~340 mapped wetlands in the Bear Creek Watershed (see map) totaling ~1962 acres. There are likely many more wetlands that are not mapped. And, not all mapped wetlands have been verified to actually be wetlands.



Wetland datasets

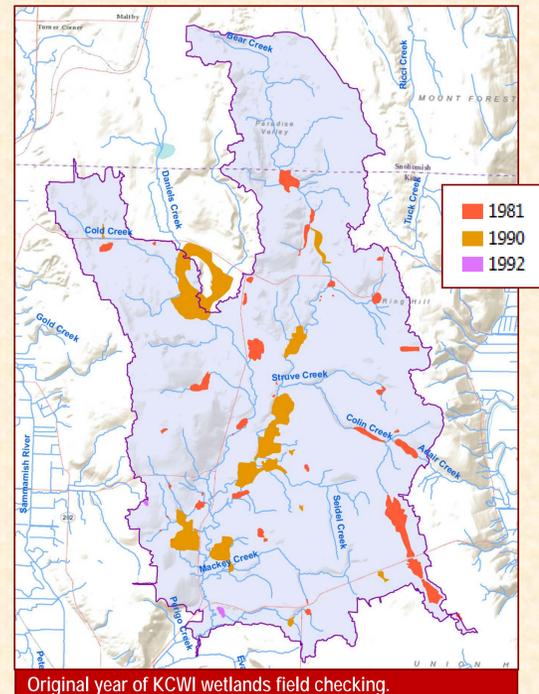
We used several sources of wetland GIS data to make these maps, though none are fully accurate.

- King County Wetland Inventory (KCWI); 1981; 1990
- National Wetland Inventory; 1983-84
- King County permit application data; 2005-13
- Wetland data from other jurisdictions:
 - Snohomish County
 - Cities of Woodinville and Redmond

Changes over the past 25-35 years

Then and now

KCWI contains 56 wetlands in the Bear Creek watershed study area that were field verified in the early 1980s (46) and updated (4) or added (10) in the early 1990s.



KCWI wetlands were used as a subset of the wetland data to estimate wetland loss. 54 of the wetlands were visually inspected in GIS using 2015 aerial imagery.

- 43 out of 54 (79%) were visibly unchanged in size
- 11 out of 54 (20%) were visibly altered in size

Results of the exercise are summarized in the table below.

Visual change in wetland area since 1981 / 1990?	# of wetlands	Approx. area (acres) of wetlands	
		1981/ 1990	in 2015
No	43	731	731
Yes	11	371	325
Total	54	1102	1056



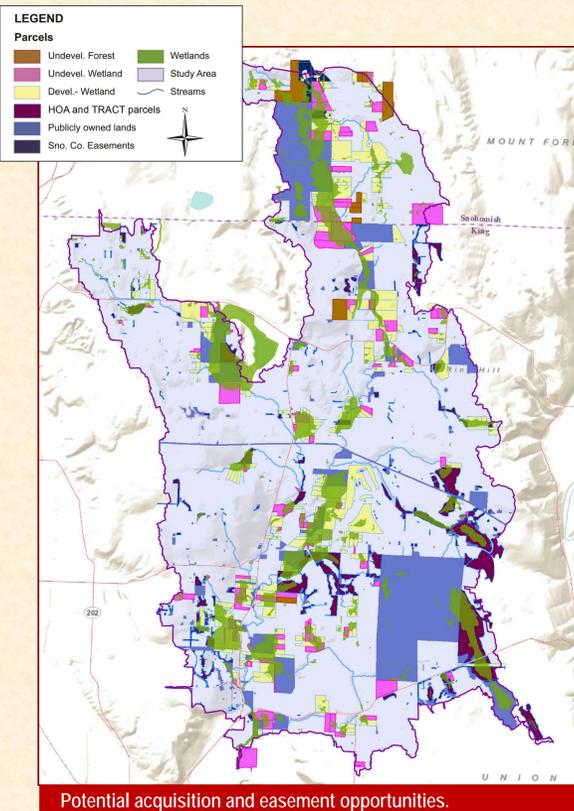
Example of wetland loss: wetland 0284.
KCWI size in 1990 (left): 87 acres.
Remaining undeveloped size in 2015 (right): 60.3 acres.
Note that undeveloped areas may or may not still be wetland.

Potential for improvements

Acquisitions and easements

Each mapped wetland in the study area was examined in GIS in relation to parcel data. Parcels containing all or a part of a wetland were identified for potential acquisition or easement. Undeveloped forested parcels adjacent to parcels with wetlands were also identified. Results are summarized in the table and illustrated in the map below.

Parcel description	Acres	# parcels
Undeveloped privately owned parcels containing all or part of a wetland	756	121
Parcels with development attached to large wetland (easement potential?)	1277	241
Undeveloped forested parcels adjacent to undeveloped parcels containing wetlands	167	13



Other land

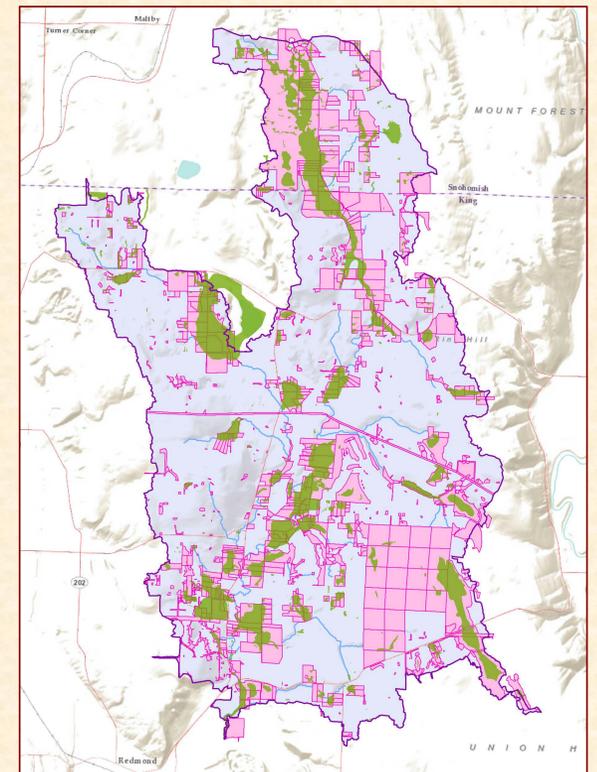
Several parcel types are not appropriate for acquisition but do play an important role in protecting wetlands. Parcel types that are assumed to provide protection to the wetlands and streams within them include:

- Publicly owned lands and conservation easements.
- Undeveloped, vegetated parcels that are associated with Home Owners Associations (HOA).
- "TRACT" parcels, which are parcels held in undivided interest. It is possible some of these areas will not provide permanent protection; however, they appear to be vegetated areas mostly around streams and wetlands and associated with developments (similar to HOA green spaces).

Potential permanently protected wetland network

Wetland protection

With all public lands, HOA and TRACT parcels, and parcels for potential acquisition or easement turned one color (pink), the full potentially protected wetland network is easier to visualize. The map below illustrates this potential network.



Potential prioritization scheme

With hundreds of wetlands and hundreds of parcels, a prioritization scheme is needed to help identify where to begin implementing protection mechanisms. A prioritization scheme is under development based on the following recommendations:

- Class 1 wetlands are the most valuable types of wetlands in terms of functions and values and should be prioritized above other wetland classes.
- Larger wetlands of the same class should be prioritized over smaller wetlands.
- Protecting an undeveloped wetland and surrounding buffer should be prioritized over those that are partially developed.
- Parcels identified for acquisition should be compared to parcels prioritized in the riparian and other analyses, and those parcels that are repeatedly identified should be the highest priorities.
- Parcels adjacent to publicly owned lands should be prioritized over those adjacent to private lands.