

What are the conditions in the Summit Lake Sub-watershed?

Current conditions

Approximately three percent of the Summit Lake Sub-watershed is covered by urban land uses (see Figure 26 and 26a, Classification Percent Totals for Summit Lake Sub-watershed). Summit lake has a drainage area of 3.1 square miles.

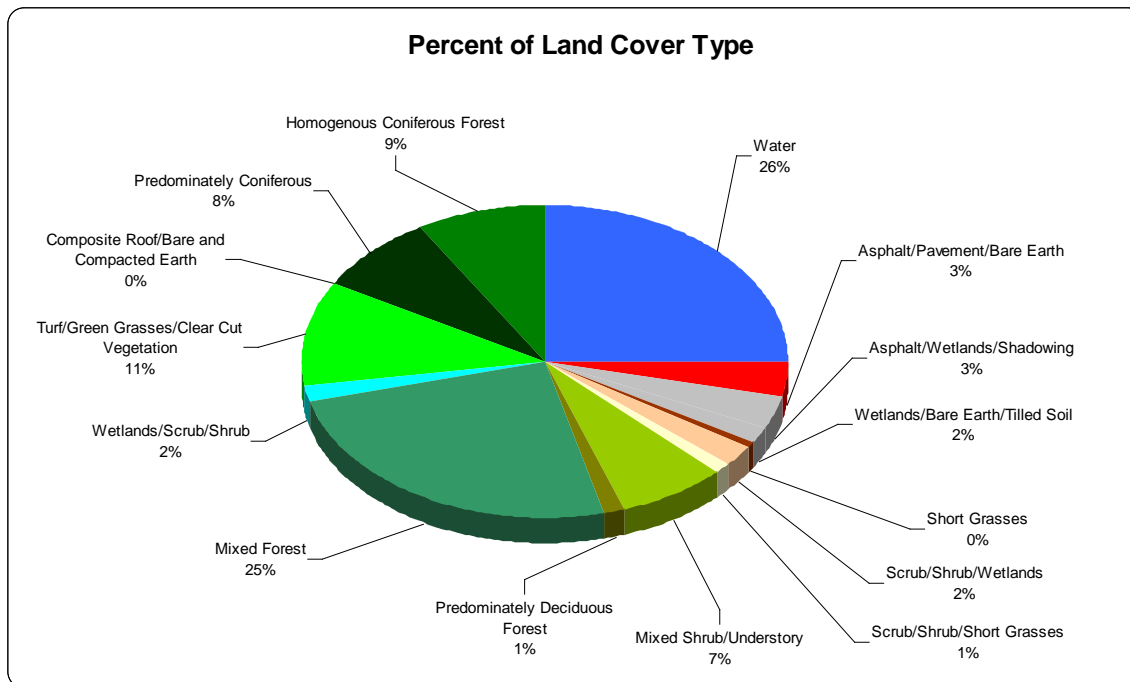


Figure 26a. Classification Percent Totals for Summit Lake Sub-watershed

Land cover data from 2005 SPOT imagery.

Human alteration to the movement of water

The effects of human land use on the natural delivery of water in the Summit Lake Sub-watershed were characterized using the following landscape attributes: percent TIA, percent forest land, and percent wetland cover at the DAU scale. Results indicate that the Summit Lake Sub-watershed is in an "at risk" condition for the delivery of water.

Human alteration to the natural movement of sediment

The effects of human land use on the natural delivery of sediment to the Summit Lake Sub-watershed were characterized using the following landscape attributes: percent bare soils, road density, and percent unstable slopes at the DAU scale. The result is "at risk" and "properly functioning" condition.

Human alteration to the natural movement of large wood

The effects of human land use on the natural delivery and routing of large wood in the Summit Lake and its tributaries were characterized using the following landscape attributes: percent forested riparian and average number of stream crossings per kilometer of stream at the DAU scale. Results indicate that the Summit Lake Sub-watershed is primarily in a “not properly functioning” condition for the delivery and routing of large wood. Exceptions include three “at risk” and one “properly functioning” DAUs.

Human alteration to the natural movement of pollutants

The effects of human land use on the natural delivery and routing of pollutants in the Summit Lake and its tributaries were characterized using the following landscape attributes: Extent of 303(d) listed water bodies for nutrients, toxicants, and bacteria and condition and extent of wetlands at the DAU scale. There is no data to rank pollutants.

Human alteration to the natural movement of heat

The effects of human land use on the natural delivery and routing of heat in the McLane Creek Sub-watershed were characterized using the following landscape attributes: Extent of 303(d) listed water bodies for nutrients, toxicants, and bacteria, percent 67 meter riparian zone with mature canopy, road density, and percent TIA at the DAU scale. Results indicate that the McLane Creek Sub-watershed is primarily in an “at risk” condition for the delivery and routing of heat. The exception is one DAU that is “properly functioning.”

Aquatic integrity

The effects of human land use on aquatic integrity in the Summit Lake and its tributaries in the Summit Lake Sub-watershed were characterized using the following landscape attributes: percent riparian forest, percent TIA, and available B-IBI scores at the DAU scale. There is no data to rank aquatic integrity.

Habitat Connectivity

Forest covers forty-three percent of the Summit Lake Sub-watershed. The Summit Lake Sub-watershed is considered “at risk” with only one DAU considered “not properly functioning” for habitat connectivity.

Ecological Benefit

DAUs within the study area having ecological and biological processes that are considered "at risk" under current land use conditions were identified for further consideration. DAUs in the “at risk” category for multiple key ecological and biological processes are assumed to provide the greatest potential to maximize environmental benefits when restored. The process scores are then ranked according to the weight criteria, and converted to a high, medium, or low process

rank. Summit Lake has primarily high and moderate ecological benefit, with only one DAUs ranked as low (Figure 27. Summit Lake Sub-watershed Weighted Processes).

Environmental Benefit

Once all the DAUs were ranked for their ecological benefit, all natural resource sites were ranked for their environmental benefit. Only the high and medium scoring sites were used in further evaluation to develop natural resource, fish habitat, and stormwater preservation and restoration sites.

Table 10. Summit Lake Environmental Benefit Ranking of Natural Resource Sites

Summit Lake Potential Restoration Sites				
Rank	Wetland	Riparian	Floodplain	Total
High	1	0	NA	1
Medium	0	4	NA	4
Low	7	16	NA	23

The following wetlands, riparian and floodplain sections describe the environmental benefit ranking of the natural resource sites.

Wetlands

Prior to human alteration, wetlands in the Summit Lake Sub-watershed totaled approximately 62 acres. We estimate that approximately 1 acre of the sub-watershed is currently wetlands or degraded/destroyed wetlands with some restoration potential. (Figure 28. Summit lake Sub-Watershed Resource Sites).

Riparian condition

Urban development has encroached on approximately X acres of the 67-meter wide riparian corridors in the Summit Lake basin. Of the X acres, approximately X acres have some restoration potential (Figure 28. Summit lake Sub-Watershed Resource Sites).

Floodplain Condition

There is no regulated floodplain in the Summit Lake Sub-watershed.

Natural Resource Sites

All potential natural resource sites were evaluated for their environmental benefit and ranked high, medium, or low. Following evaluation, a total of five sites were of high or medium environmental benefit (Figure 29. Summit Lake Ecological Processes and Resource Site Scoring).

Fish Habitat

There were 20 riparian sites evaluated for habitat value to salmonid fish species. These sites were then used to evaluate potential natural resource sites that have the potential to be stormwater retrofits sites. While the goal is to use natural resource sites as stormwater retrofit sites, we don't want to compromise high quality fish habitat sites.

Stormwater Retrofit

All the natural resource sites were evaluated for stormwater retrofit sites (Figure 30. Summit Lake Potential Stormwater Restoration Sites).

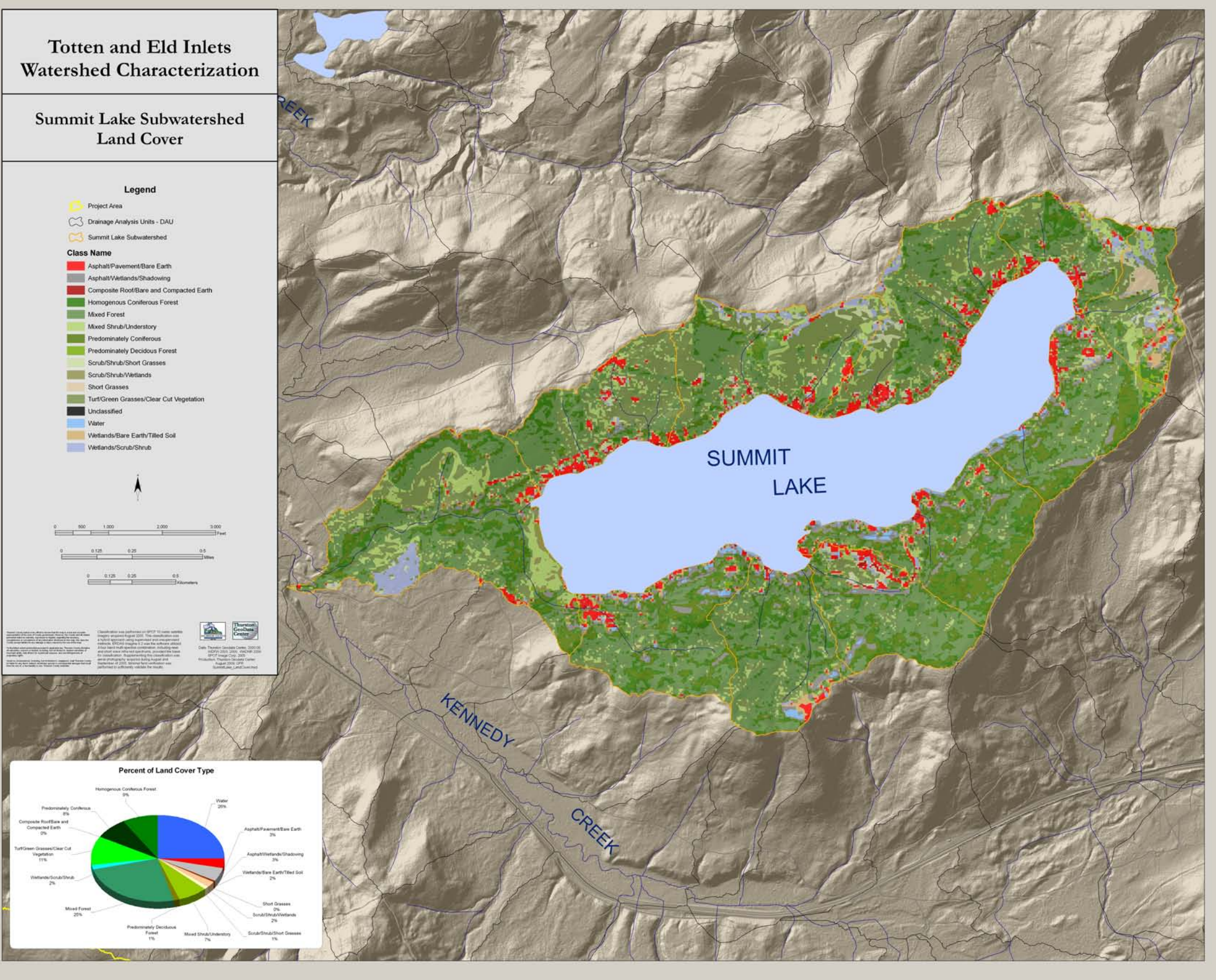


Figure 26 Summit Lake Sub-watershed Land Cover

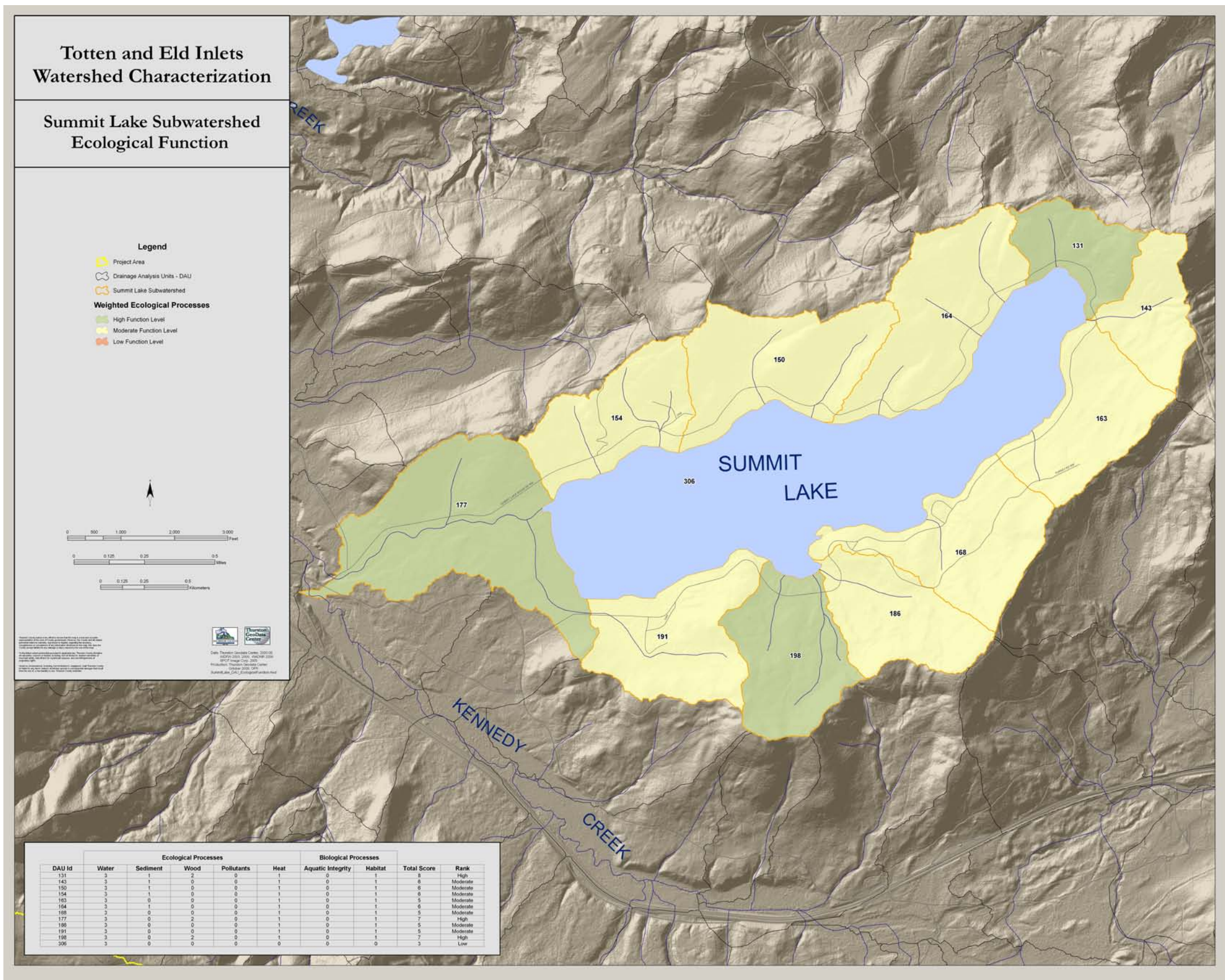


Figure 27 Summit Lake Sub-watershed Weighted Processes

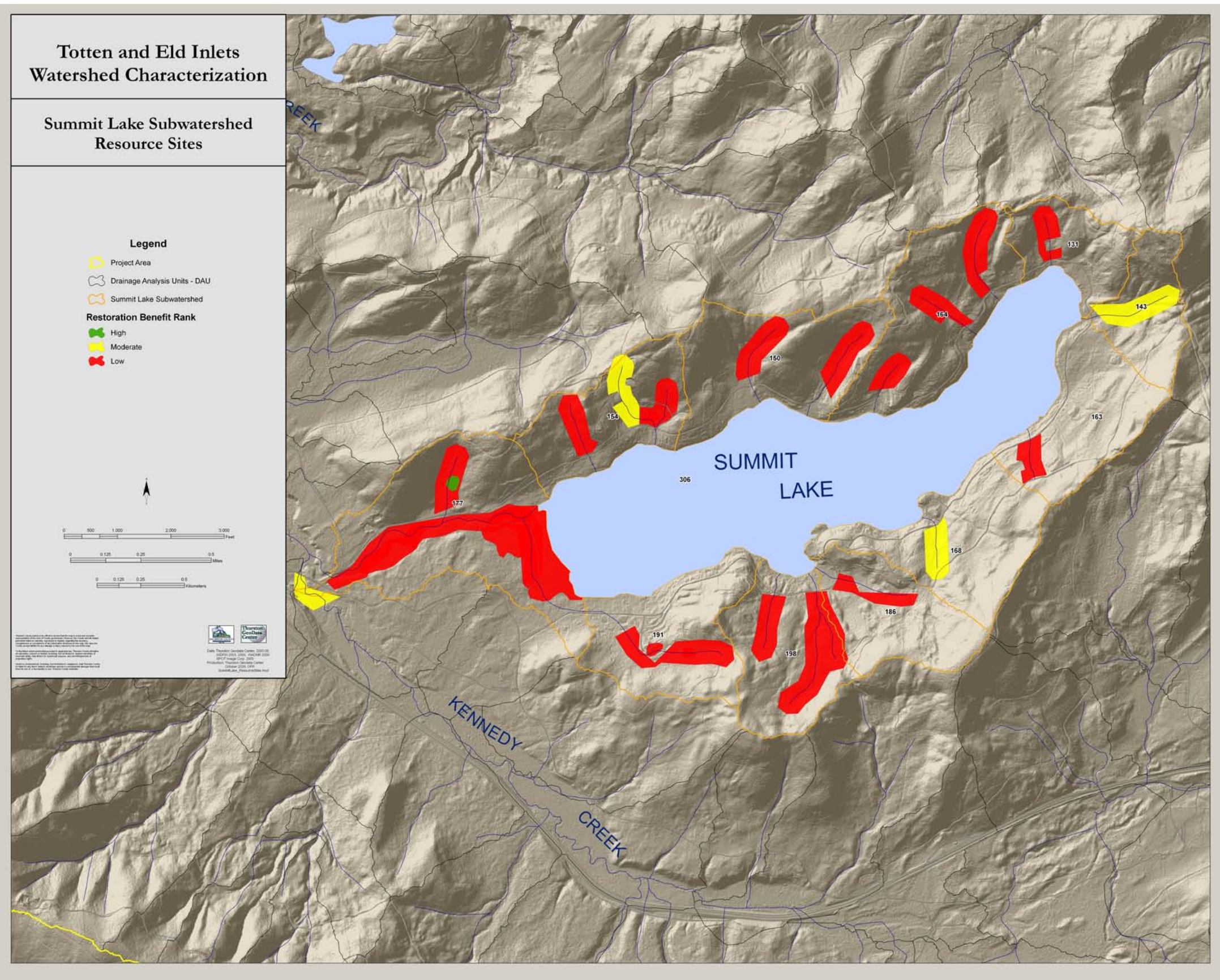


Figure 28 Summit Lake Sub-watershed Resource Sites

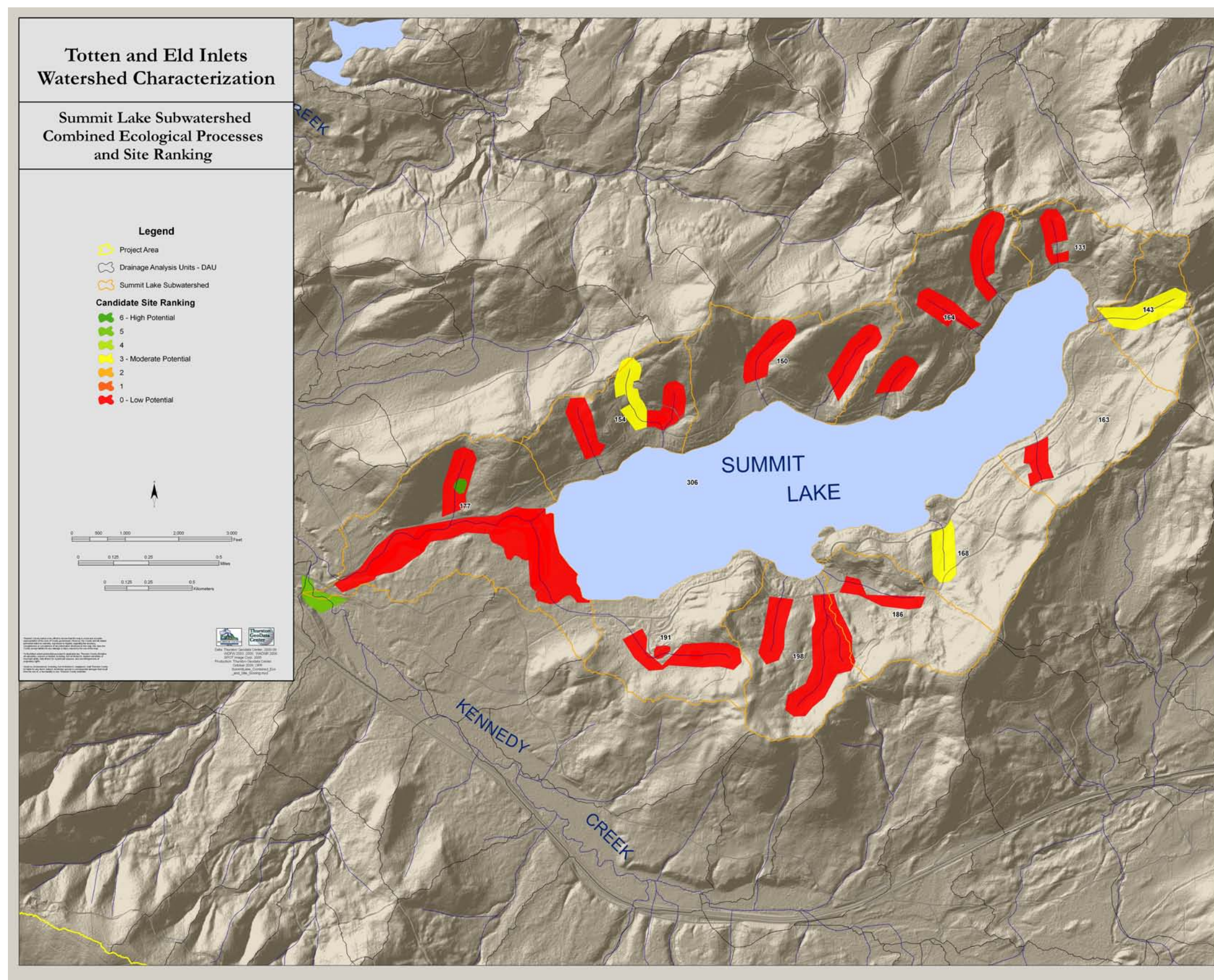


Figure 29 Summit Lake Sub-watershed Ecological Processes and Resource Site Scoring

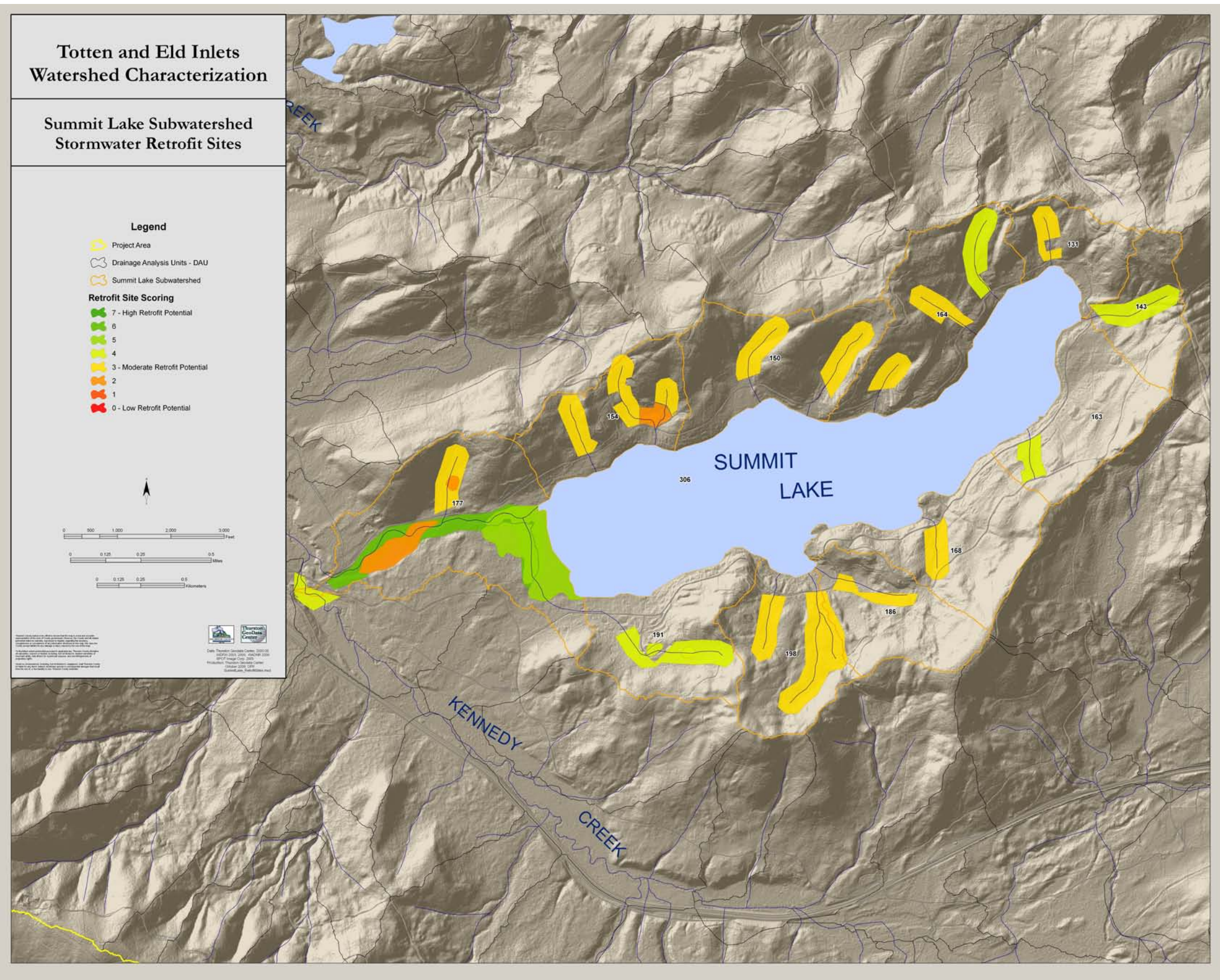


Figure 30 Summit Lake Sub-watershed Retrofit Sites