Vegetation of Waterton-Glacier International Peace Park

Waterton-Glacier International Peace Park Vegetation Mapping Project

WATERTON·GLACIER

NatureServe

Montana Natural Heritage Program

U.S. Geological Survey
Upper Midwest Environmental Sciences Center

USGS-NPS Vegetation Mapping Program

USGS science for a changing world

Research to Practice.

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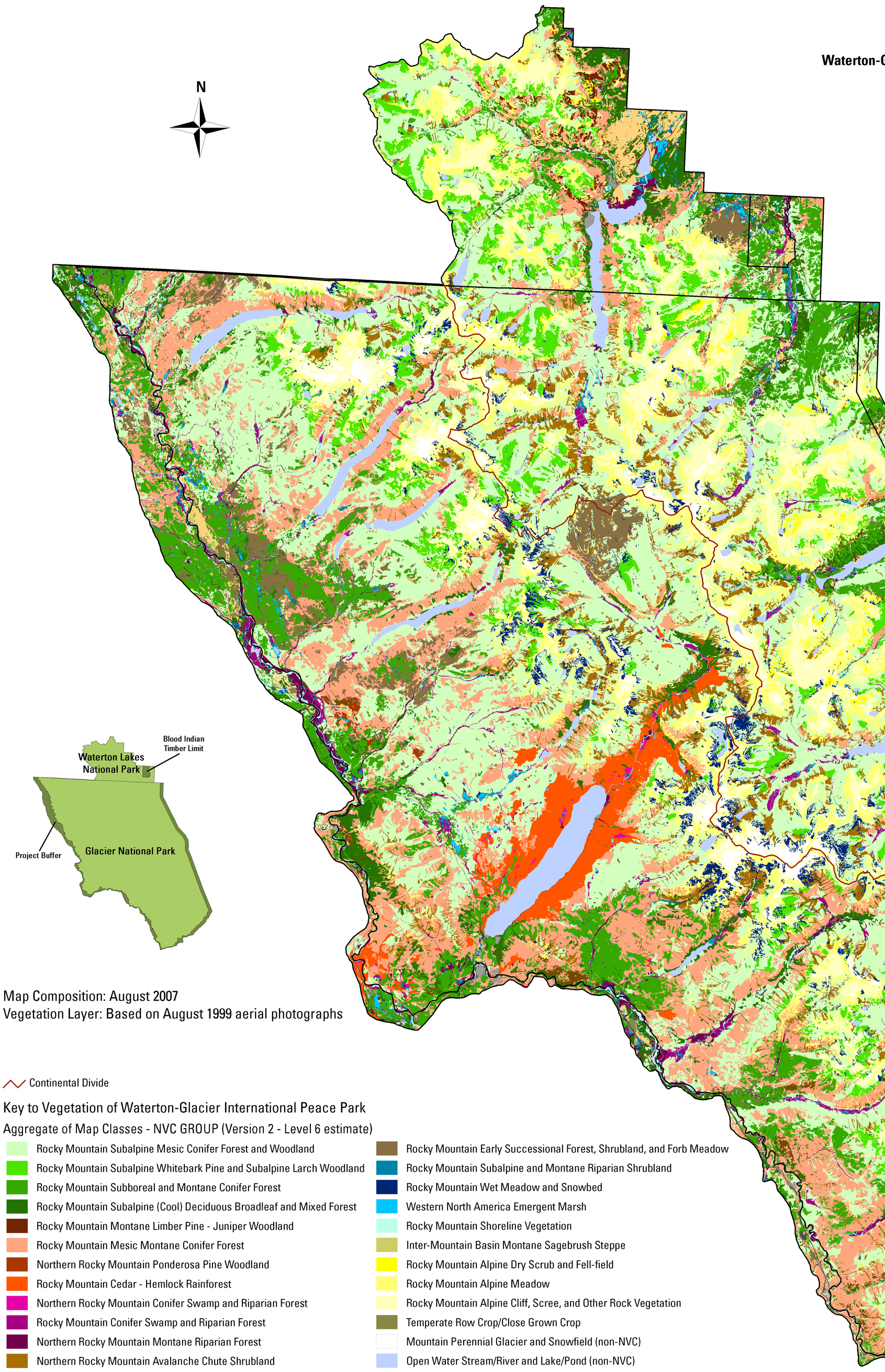

This map illustrates vegetation and land cover features of Waterton-Glacier International Peace Park and immediate surroundings. The spatial database used to compose this map was produced for the USGS-NPS Vegetation Mapping Program. The Glacier National Park (GNP) portions were developed by the USGS Upper Midwest Environmental Sciences Center (UMESC). The Waterton Lakes National Park (WLNP) portions were developed by various contractors to WLNP, with the UMESC providing final database development to synchronize the two spatial layers. NatureServe and the Montana Natural Heritage Program developed the plant community classification based on the National Vegetation Classification (NVC) System.

These spatial databases were derived from the stereo interpretation of August 1999 true color aerial photographs (1:15,840-scale). Prior to mapping, photointerpreters performed fieldwork to learn photographic appearances of vegetation types and to link map classes to NVC plant communities (associations). The interpreted data were orthorectified using OrthoMapper Photogrammetric software, and subsequently digitized into two vector spatial database layers; one of each park unit. Polygons and attributes between the two layers match seamlessly. The standard minimum mapping unit applied was 0.5 hectares. Each spatial database layer is projected in Universal Transverse Mercator, Zone 12, using the North American Datum of 1983.

This map layout shows aggregates of map classes, summarized with an estimation of NVC Groups (Level 6 of Version 2 - Working Draft). The spatial database offers finer details than shown on this map layout (e.g. map classes, relationship to NVC alliance and association types, physiognomic features of vegetation).

The spatial database reflects conditions existing at the time of aerial photography. A margin of error is inherent with interpreting aerial photographs. Based on results of thematic accuracy assessments, the estimated overall accuracy for map classes representing NVC plant communities is 87.9% (kappa index of 87.4%) for the GNP vegetation layer, and 77.9% (kappa index of 76.8%) for the WLNP vegetation layer. Those using the database should determine for themselves the fitness of the data prior to use.

The spatial database layers, along with supporting information, is located on the Internet at http://biology.usgs.gov/npsveg.

Map Composition: August 2007
Vegetation Layer: Based on August 1999 aerial photographs

Continental Divide

Key to Vegetation of Waterton-Glacier International Peace Park

Aggregate of Map Classes - NVC GROUP (Version 2 - Level 6 estimate)

- Rocky Mountain Subalpine Mesic Conifer Forest and Woodland
- Rocky Mountain Subalpine Whitebark Pine and Subalpine Larch Woodland
- Rocky Mountain Subboreal and Montane Conifer Forest
- Rocky Mountain Subalpine (Cool) Deciduous Broadleaf and Mixed Forest
- Rocky Mountain Montane Limber Pine - Juniper Woodland
- Rocky Mountain Mesic Montane Conifer Forest
- Northern Rocky Mountain Ponderosa Pine Woodland
- Rocky Mountain Cedar - Hemlock Rainforest
- Northern Rocky Mountain Conifer Swamp and Riparian Forest
- Rocky Mountain Conifer Swamp and Riparian Forest
- Northern Rocky Mountain Montane Riparian Forest
- Northern Rocky Mountain Avalanche Chute Shrubland
- Northern Rocky Mountain Lower Montane Deciduous Shrubland
- Rocky Mountain Montane Grassland
- Rocky Mountain Early Successional Forest, Shrubland, and Forb Meadow
- Rocky Mountain Subalpine and Montane Riparian Shrubland
- Rocky Mountain Wet Meadow and Snowbed
- Western North America Emergent Marsh
- Rocky Mountain Shoreline Vegetation
- Inter-Mountain Basin Montane Sagebrush Steppe
- Rocky Mountain Alpine Dry Scrub and Fell-field
- Rocky Mountain Alpine Meadow
- Rocky Mountain Alpine Cliff, Scree, and Other Rock Vegetation
- Temperate Row Crop/Close Grown Crop
- Mountain Perennial Glacier and Snowfield (non-NVC)
- Open Water Stream/River and Lake/Pond (non-NVC)
- Developed Area (non-NVC)
- Other Cultural Area (non-NVC)

Miles
0 5 10 20 30 40

0 10 20 40 60 80
Kilometers