Wieslander Vegetation Type Mapping Project

Historic vegetation data set available via webGIS

The Wieslander Vegetation Type Map (VTM) collection was compiled in the 1920s-1930s; it consists of photos, species inventories, plot maps and vegetation maps covering much of the wildlands of California. The data provide a snapshot of the state's vegetation in the early 20th century, making the collection a valuable resource for examining changes in land cover and use, and for habitat restoration. The goals of the current VTM Project are to digitize the collection and make it accessible via the web, to ensure its preservation and to allow its distribution to the research community.

The VTM Collection

plot data

There are approximately 18,000 plots statewide, concentrated along the central and southern coastal ranges, and along the Sierras. These sample plots were located across a gradient of vegetation types, and the historic records contain data regarding tree stand structure, percent cover of dominant overstory and understory vegetation by species, soil type, parent material, leaf litter, elevation, slope, aspect, parent material, and other environmental variables. Each plot was 1/5th acre (0.08 ha) in size in forests, and 1/10th acre (0.04 ha) in scrub and chaparral communities. All plot data were stored on paper data sheets, and individual plots were numbered according to USGS quad name, and quad section number, and plot number.

plot maps

The VTM plot maps show the locations of all the individual plots surveyed by the original VTM crews. Hollow circles of about 3.5 mm in diameter depicting the location of the plots were stamped in red ink on USGS topographic maps (edition of 1893, reprinted 1930's) that had been cut into sections, mounted on canvas, and folded, to facilitate use in the field. The plot map collection comprises about 150, 15-minute (1:62,500 scale) and 30-minute (1:125,000 scale) United State Geological Survey quadrangles, primarily concentrated along the central and southern coastal ranges, and along the Sierras.

photographs

Approximately 3,100 black and white photographs (3 5/8" X 5 3/8") exist in the collection from 1920-1941. Some of the photographs are "panorama" style images, but most are 3-5/8th inches in size and focused on a stand. The photographs document the typical and atypical subtype, wider species, timber stand conditions, range of variation, consequence of land use and cultivation, grazing, logging, mining and fire.

vegetation maps

The vegetation type maps were mapped in the field by the VTM crews, directly upon 15-minute (1:62,500-scale) topographic quadrangles by direct observation, and "sketching from ridges, peaks, and other vantage points" and supplemented by sample plots. Plant communities were mapped to a minimum of 16 ha. Dominant plant species were mapped, while considerable understory vegetation information was collected in the associated sample plots. The mapped products include map sheets overprinted in color on 15- and 30-minute USGS topographic quadrangles, and simplified, uncolored blue-line print sheets.

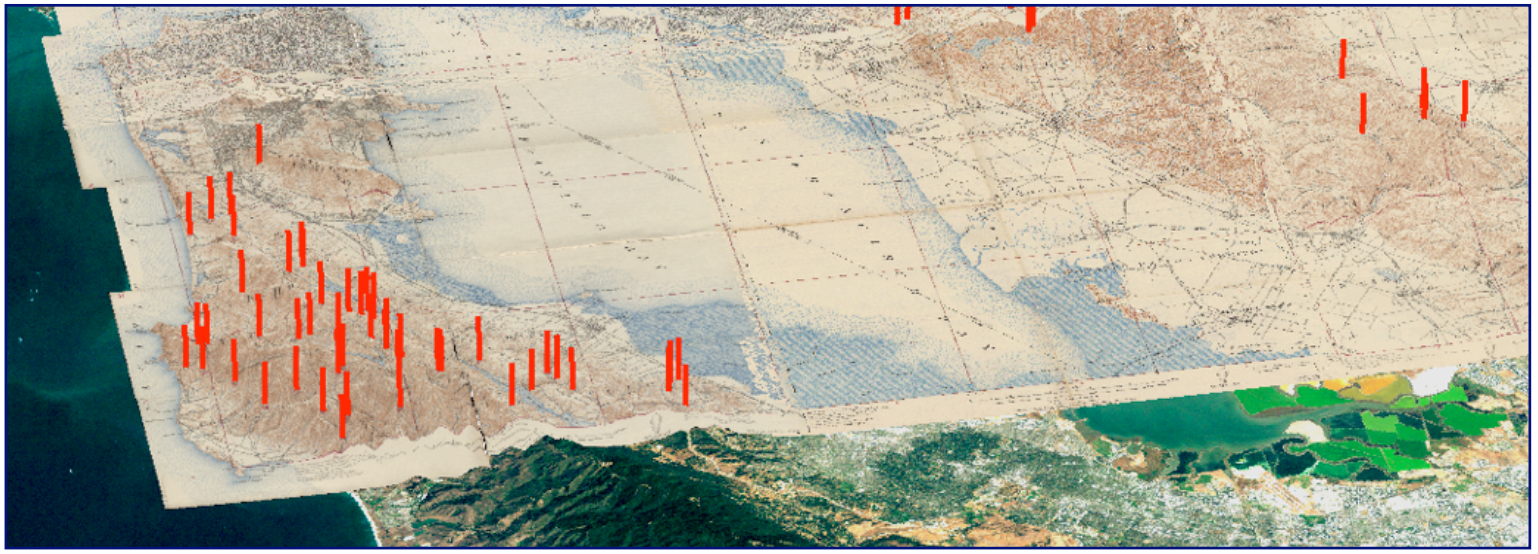
herbarium specimens

The team also collected herbarium specimens for every species recorded on the vegetation maps or in the sample plots. We have not begun incorporating the herbarium specimens into the digital data set at this time.

More Information

All data with the exception of the herbarium specimens are being digitized, stored in a database linked to a Geographic Information System (GIS), and made accessible to researchers via the Internet. More information can be found at: vtm.berkeley.edu. Maggi Kelly at mkelly@berkeley.edu created this flier. 4-24-05.

Lead PIs: M. Kelly & B. Allen-Diaz. Funding: USDA-Forest Service: PSW & PNW; USDA-CSREES; UC Berkeley Koshland Biosciences Library; UC Berkeley College of Natural Resources.



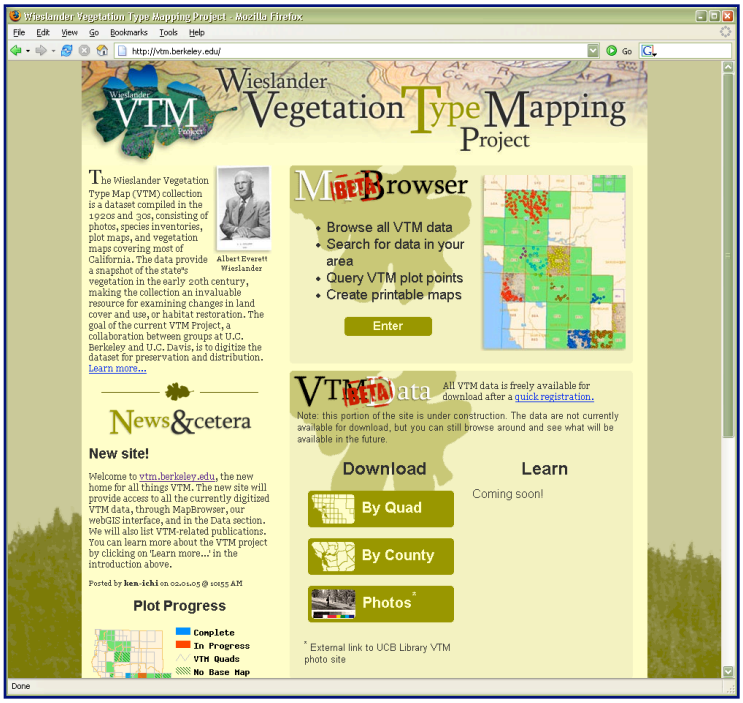
VTM plot maps with plot locations overlayed on modern Landsat TM satellite imagery

Historical GIS

Geographical Information Systems have made historical spatial data, such as those data found in the VTM collection, available for spatial analyses by ecologists. In order to create a complete and linked database accessible to the public and to researchers, historical GIS researchers need to make data digital, index each component by its spatial location, and develop web tools for users to query, view, and download data. Technical considerations, like proper quality control in georeferencing and digitization ensure that historical ecological data can be used with contemporary ecological data for analysis of vegetation community change.

The VTM Project website

We are developing a webGIS site to unite all aspects of the project. WebGIS refers to websites that unite two components: (1) GIS database storage and maintenance and (2) Internet accessibility. Although not yet widely used in natural resource management, such systems are a promising option for entering and storing heterogeneous datasets, indexed by location, and making them widely available in a visual, dynamic and interactive format. When finished, the website will allow users to view project data in mapped form.



Collaborators

The digitization and web-access portions of the project are being handled by several different groups. The VTM photo digitization has been handled by the Koshland Bioscience Library (Leads: Beth Weil & Norma Kobzina), and is complete. They maintain the photos on their own web site, which is linked to ours. The Kelly Lab in ESPM handles the plot map digitization and georeferencing, and they make these data available on this web site as they are completed. The Allen-Diaz Lab in ESPM took on the task of entering all of the plot data, which the original surveyors recorded by hand, in the field, on thin sheets of paper in faint pencil. Now these data reside in a database, which is accessible through this site via the MapBrowser (the webGIS), via searching by quad or county, or by direct download of files in the Data section of the site. Researchers at the Information Center for the Environment at UC Davis have scanned all the unpublished vegetation maps and are currently working on georeferencing and digitizing the zones of vegetation. The raw ungeoreferenced vegetation maps are also available on our website. All data will be free for researchers, but we will ask that interested parties register on the site before downloading the data. Several map libraries statewide have been very helpful locating and scanning historic maps for use in the georeferencing process (e.g., UCSB Map Library, CSU Chico, and UCLA Map Library). More information can be found at: vtm.berkeley.edu; mkelly@nature.berkeley.edu.