

A User's Guide to the Web-mapping Application - GeoBookMarkers: The Last Season

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In October of 2009 a web-mapping application (GeoBookMarkers: The Last Season) was developed relative to Eric Blehm's book 'The Last Season'. The application is designed to allow persons reading the book to 'look up' most of the places (in California) that are referenced in Eric's book. The following 'User's Guide' is intended to explain the web-mapping capabilities of this 'GeoBookMarkers' application that are provided through use of the open source software packages used; the University of Minnesota 'MapServer' and the 'pMapper' web-mapping 'framework'. The application uses publicly available GIS (geographic information systems) data layers to provide context for the placenames researched from 'The Last Season', and geo-referenced through use of the U.S. Geological Survey's 'Geographic Names Information System' (GNIS).

The 'pMapper' web-mapping framework accesses data sets served up by the (UMN) MapServer software to provide geo-search capabilities to an end-user. The graphic below shows the overall 'layout' of the GeoBookMarkers: The Last Season application, as presented by the pMapper framework.

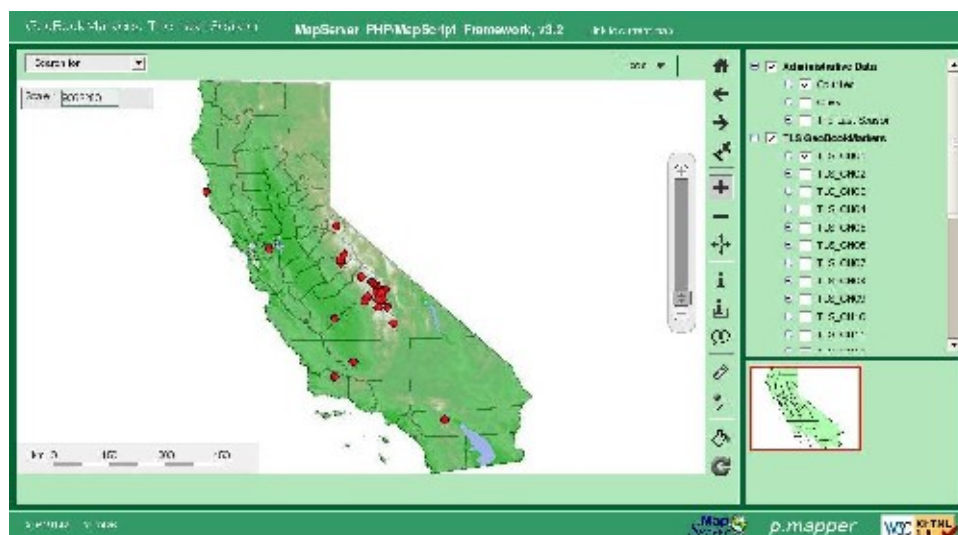
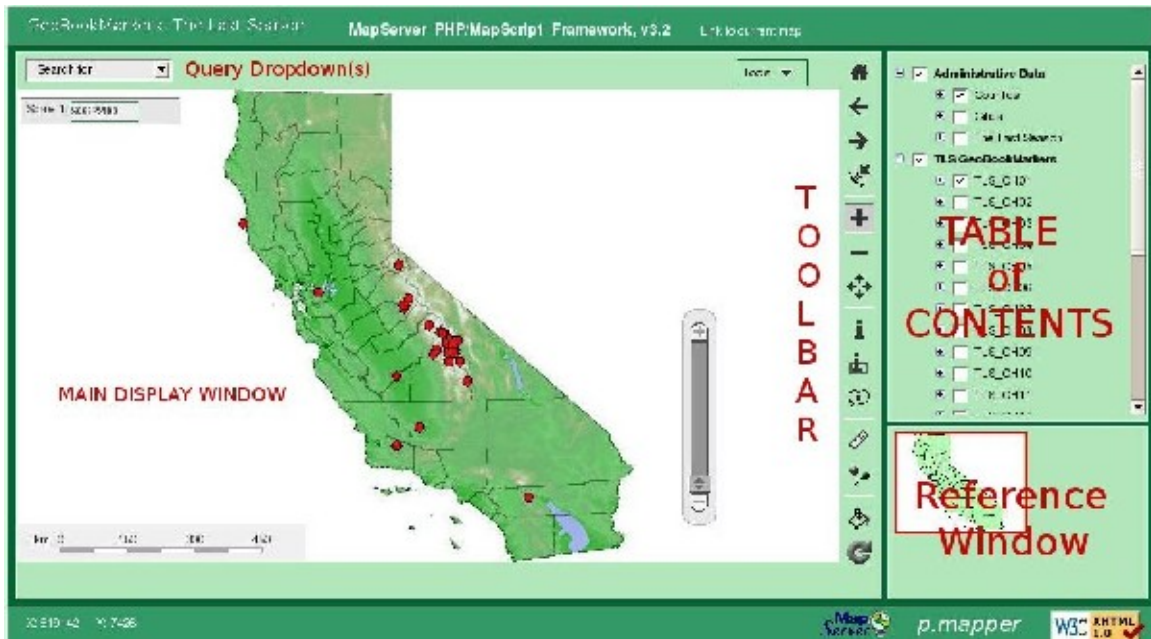


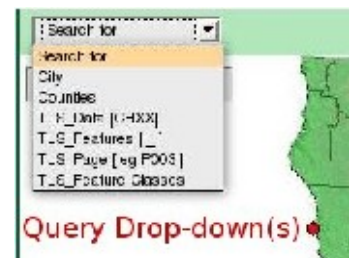
Figure 1. - Initial layout of 'GeoBookMarkers: The Last Season'

There are five main functional 'frames' to this web-mapping 'framework'; a) the 'query' drop-down menus (upper left of application), b) the map-display window (the main window occupying two-thirds of of the display area), c) the 'toolbar' (providing access to display utilities [zoom in, zoom out, 'identify' mapped elements, etc]), d) the 'Table of Contents' (listing the various 'active / inactive' map layers), and e) the 'Reference' window (showing what is being displayed in the main 'map window' relative to the whole State of California).



Note: Some map 'features' are turned on by default when the initial 'display' is shown; shown by default are a) the counties for California, The Last Season places discussed in 'Chapter 01' [CH01], and the California 'Digital Elevation Model' [DEM].

In the upper-lefthand corner of the application is the 'Query Drop-down' options; for The Last Season, one can query for cities, counties, all places for a particular chapter, places by 'name' (features), places by page (from the book) and places by 'feature class' (eg a 'summit').



The searches automatically allow for 'sub-string' searching. For example, a search on 'TLS_Feature' specifying 'Bench Lake' will find both 'Bench Lake' (a lake feature) and 'Bench Lake Ranger Station' (a 'locale').

The 'MAIN MAP DISPLAY' window (or frame) [see below] is where all the currently 'active' map layers will be displayed. (Map layers are made 'active' by clicking on the desired data layers in the 'Table of Contents' (in the right-most, upper 'frame' of the application)).

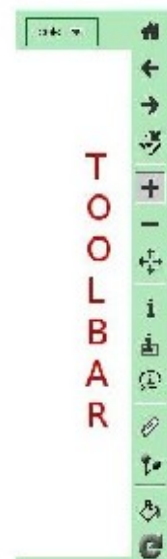


Figure 2. The 'Main Map Display' window (frame) provided by the pMapper web-application framework.

Note the automatic display of the map 'scale', the presence of a 'scalebar' and the 'slider' tool, to allow for variable zooming (in and out, from the center of the currently displayed map information).

The 'Toolbar' (see graphic, on the right) provides for many 'interactive' capabilities relative to the maps being displayed in the 'Main Map Display'

In general, by clicking on the various 'icons' on the toolbar, one can a) zoom to the full extent of the application (California), b) go 'Back' to the previous reference scale, c) go 'Forward' to a sub-subsequent reference scale, d) zoom to a 'selected' feature, e) zoom in, f) zoom out, g) pan around the display, h) identify features, i) select features, j) ask for 'tool tips', k) measure distances, l) add points of interest, m) change transparency, and n) do a 'redraw'.





The 'Table of Contents' (frame) on the right-side of the application 'framework' and to the top, is where a list of potentially viewable geographic data layers are listed. 'Active' (currently viewable) data layers will have a 'checkmark' in the box next to the various potentially viewable data layers. The 'Table of Contents' is 'collapsible', allowing individually displayed items to be 'rolled up' to their 'major' categories, or further 'expanded' to display the symbology used for individual data items.

The 'major' categories for 'GeoBookMarkers: The Last Season' are a) Administrative Data (counties, cities, all geobookmarkers), b) the 'GeoBookMarkers' displayable by Chapter (Chapters 01 thru 15; with Prologue and Epilogue entries, too), c) 'Natural Features Data (eg streams), d) Manmade Features Data (eg highways), and e) Raster Data (elevation grids, a California 'basemap', and topographical quadrangles [24K scale; but just for the 'SEKI' {Sequoia/Kings Canyon National Park} vicinity], and the NASA Jet Propulsion Laboratory 'Global Mosaic' (of earth imagery from space).

The 'fifth' key applications area of the (pMapper) web-mapping framework, is the 'Reference' window. It will show what area is being displayed in the 'Main Map Display' window, relative to the application-wide reference frame of the State of California.



The next fifteen 'graphics' show the range of the map display capabilities provided in 'GeoBookMarkers: The Last Season' through use of the 'pMapper' web-mapping applications framework.

In 'summary', the graphics show:



Figure 3. Collapsibility of items displayed in the 'Table of Contents', to display or hide details (major categories, individual data layers, and/or symbology).

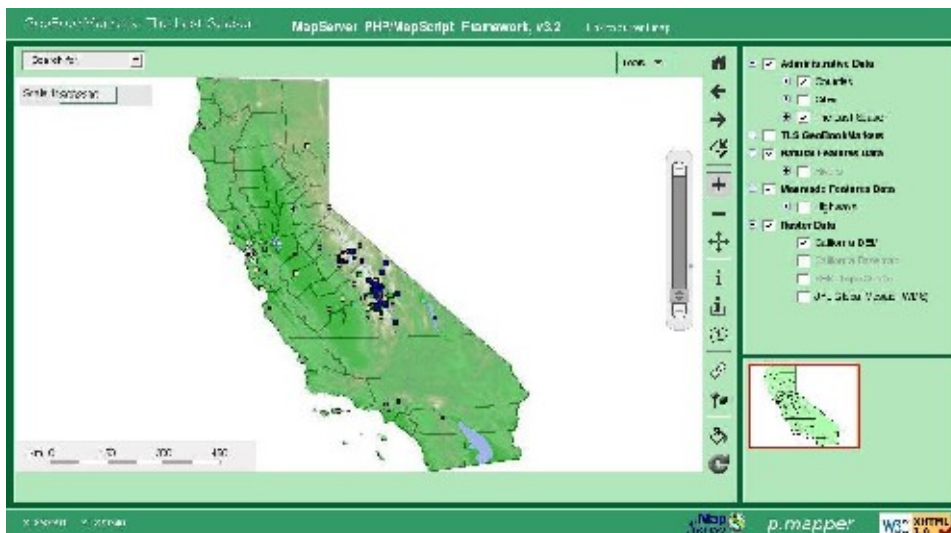


Figure 4. An overview of all 'GeoBookMarkers' referenced in 'The Last Season' application. Individual 'GeoBookMakers' can be queried for Chapter and Page using the 'Identify' tool.



Figure 5. This graphic shows the ability to 'zoom' to a particular level, with all 'active' data layers redisplayed to the chosen scale.

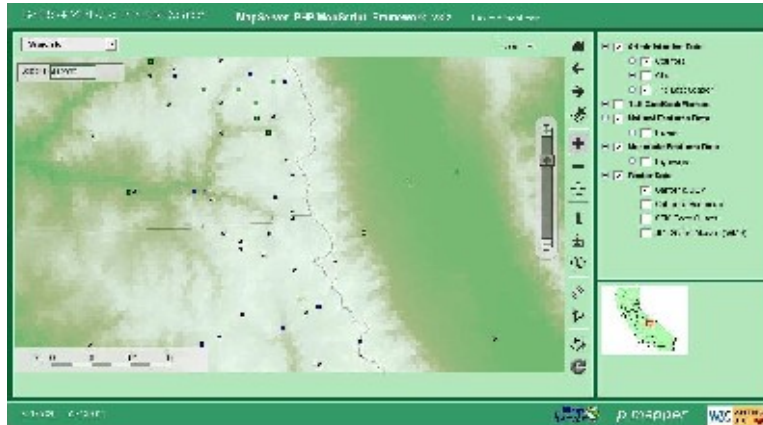


Figure 6. Here is a further zoom, with the same data features displayed.

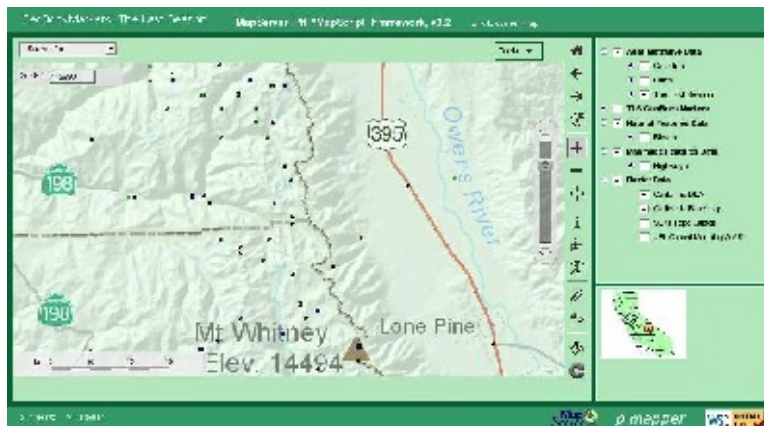


Figure 7. Display of the addition of the California basemap (a raster data layer) to the main map display.

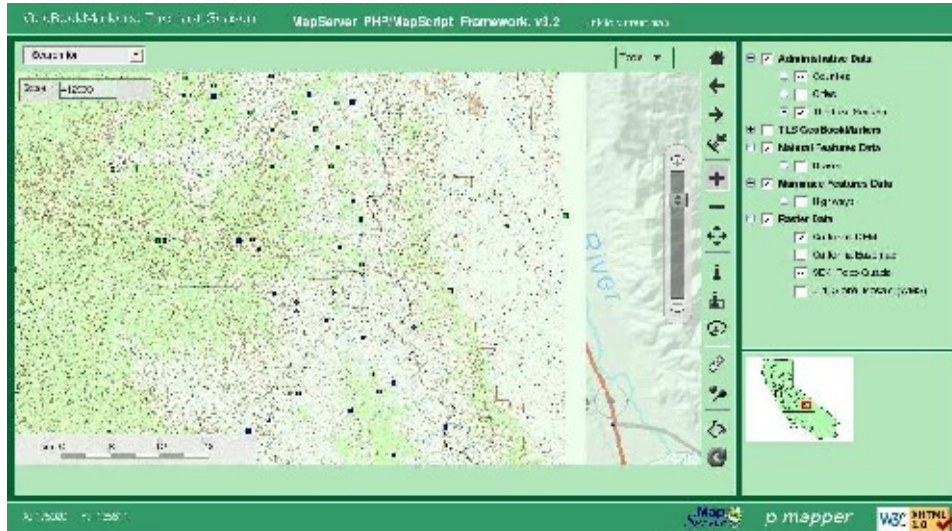


Figure 8. Here the main display was changed to make the Sequoia / Kings Canyon National Park (SEKI) topographic quadrangles 'active'. (Note: display of topographic maps at this scale are allowed, but marginally useful.)



Figure 9. Here the main display was changed to make the NASA - Jet Propulsion Laboratory 'Global Mosaic' (space-borne imagery) 'active'.

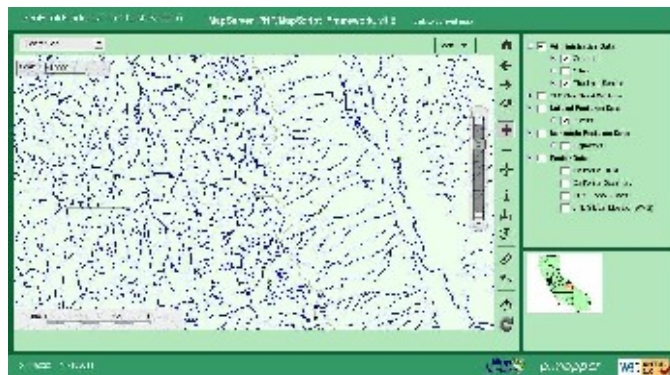


Figure 10. Here the main display was changed to make the streams (a 'Natural Feature') vector layer 'active', while all the 'raster' layers were made 'inactive'.

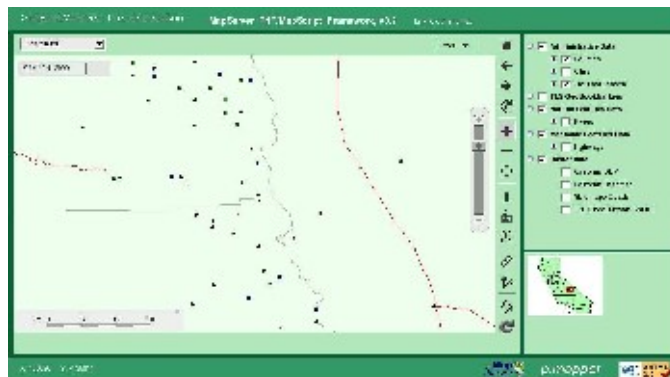


Figure 11. Here the main display was changed to make the highways (a 'Manmade Feature') vector layer 'active', while leaving all the 'raster' layers 'inactive'.



Figure 12. Here the main display was changed to make the cities ('Administrative Data') vector layer 'active', while making all 'raster' layers 'inactive'.



Figure 13. Here the main display was changed to make the 'California DRGs' (raster) data layer active, and all the points in 'The Last Season' data layer are still 'active'.



Figure 14. A 'zoom' on the main display to expose a more appropriate level of detail for the California DRG(s) (topographic quadrangles). [Note: Scale 1:37820].

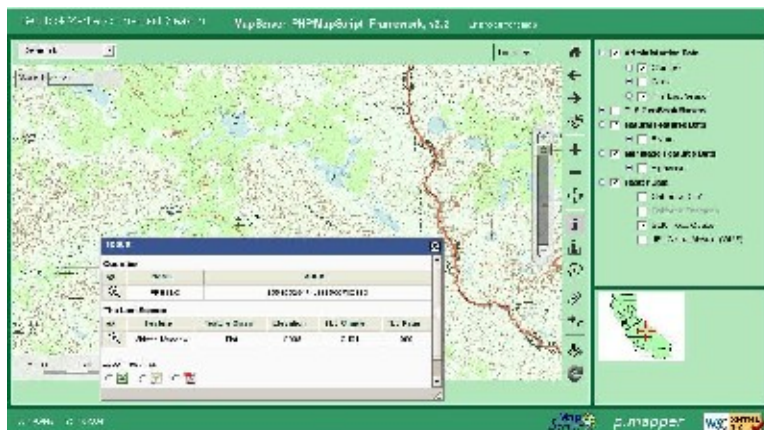


Figure 15. A 'query' response to doing an 'Identify' on a feature from the cumulative data layer 'The Last Season'.

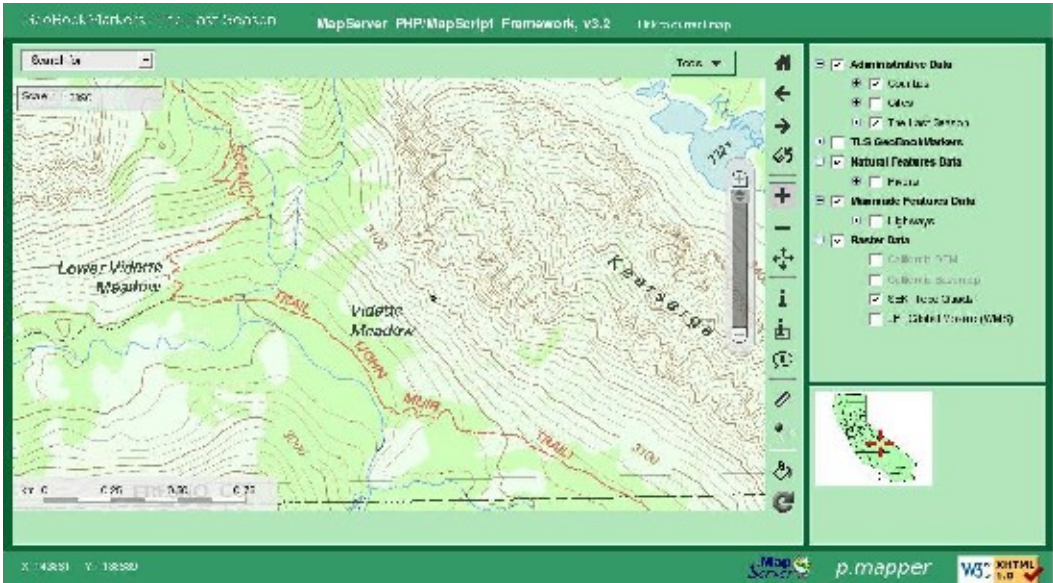


Figure 16. An even more appropriate viewing level for 'topo' map is revealed at a scale of 1:13690.



Figure 17. The previous scale map re-displayed, but with the label for the chose 'The Last Season' feature displayed by making the appropriate 'Chapter' level data set 'active'. Note: by doing an 'Identify' on Vidette Meadow all the Chapters and Pages on which it is referenced in 'The Last Season' could be revealed.