

Workshop on Digital Gazetteer Research and Practice
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Position Paper

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Background

The U.S. Geological Survey developed the Geographic Names Information System (GNIS) for the U.S. Board on Geographic Names as the official repository of domestic geographic names data. Confusion and controversy about geographic names and their applications to places and features led President Benjamin Harrison to establish the U.S. Board on Geographic Names in 1890. That early Executive Order was based on recognition that conflicts in naming geographic features were, in fact, a serious detriment to the orderly process of exploring and settling this country. A later decision, in 1906, by President Theodore Roosevelt to extend the responsibilities of the Board to include standardization of all geographic names for Federal use was a far-reaching decision that, coupled with the Harrison order, forms the foundation for the present organization of the U.S. Board on Geographic Names established in Public Law 80-242, signed by President Truman in 1947.

GNIS is the official vehicle for geographic names use by all departments of the Federal Government and the source for applying geographic names to Federal electronic and printed products. GNIS can be accessed at <http://geonames.usgs.gov>. The GNIS contains information about physical and cultural geographic features of all types in the United States, associated areas, and Antarctica, current and historical, but not including roads and highways (under statute, the Board on Geographic Names has purview over road and highway names, but has chosen not to execute that authority). The database holds the Federally recognized name of each feature and defines the feature location by state, county, USGS topographic map, and geographic coordinates. Over 1.9 million features are represented in GNIS. Other attributes include names or spellings other than the official name, feature designations, feature classification, historical and descriptive information, and for some categories the geometric boundaries.

Components of Gazetteer Services

Geospatial Location:

Most features in GNIS are associated with one location (e.g. summit, structure, lake, populated place) even though that feature may have an areal extent. Streams have a location for the source and mouth. The extent of an areal feature can be estimated from a set of coordinates that identify a series of geographic tiles with one point per USGS topographic map containing the feature. More accurate geographic descriptions of the features are not maintained within the gazetteer, but are contained in thematic geodatabases. For example, the National Hydrography Dataset (NHD, <http://nhd.usgs.gov>), which is the USGS's most comprehensive set of digital spatial data about surface water features, is closely integrated with GNIS. The hydrographic feature names contained in and displayed by the NHD are from the GNIS. When partners submit new data to NHD, feature names are validated against the GNIS. To meet legal and policy requirements of the Board on

Geographic Names, the NHD will display a hydrographic feature name only if the feature is entered into GNIS with an assigned Feature ID. Similar linkages exist for administrative boundaries, where accurate geographic descriptions are maintained by the Census Bureau.

Efforts to delineate of precise extents for ambiguous physiographic features (e.g. summit, range, valley) have had limited success or utility. For example, it does not seem useful to tag each cell of an elevation model with a set of feature applicable names (Mount Rag, Blue Ridge Mountains). A way to deal with these soft-edged features is awaited.

Integration of Gazetteer Data from Multiple Sources:

The 30-year GNIS data compilation program began in 1976 and is continuing. The first phase (1976-1982) collected names (except roads and highways) from the USGS topographic maps, but many manmade and administrative features either are not shown or not named on these maps. Between 1982 and 1984, names from other Federal sources were collected, but only about 30 percent of the known names appeared on Federal sources (for manmade features it was a far smaller percentage). A second extensive compilation phase was begun in 1982 and continues to collect, State by State, data from official State and local sources as well as from other pertinent current and historical materials. Feature additions or corrections are accepted for consideration from any source, and when validated by appropriate agencies, will be entered into the database. Local and State agencies are encouraged to submit data and to participate in the GNIS partnership program. Non-government organizations with valuable data are considered on a case basis. Authorized partners have access to web based transaction entry and edit forms, which submit data directly to the GNIS for review and inclusion in the database. Partners also submit batch files in most standard formats, and coordinate with the Geographic Names Project to develop joint services, processes, and applications for greatest efficiency. Data entered into the GNIS immediately is available to all web services and applications dependent on it. While we anticipate discovering most additional entries (even historical locations) through the partnership program, there will always be those that escape detection. Web-based facilities allow users to submit an administrative name or errors they believe to have found. Because of the resources that would be required for official names validation, we have not yet implemented a “geoname Wiki” to solicit additional names data.

Interoperable Gazetteer Services

GNIS assigns a unique, permanent feature identifier, the Feature ID, as the only standard Federal key for accessing, integrating, or reconciling feature data from multiple data sets. The GNIS collects data from a broad program of partnerships and provides data to all levels of government, to the public, and to numerous applications through a web query site, web map and feature services (ArcIMS map service, GNIS XML service), file download services, and customized files upon request. GNIS has active linkages to a variety of mapping services including *The National Map*, Google Map, TerraFly.com, TopoZone.com, TerraServer, Tiger Map Server, and EPA’s Find the Watershed.