Joel Grapentine

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Education
▪ Master of Science in Geographic Information Systems/Remote Sensing/Planning
  Eastern Michigan University, 2005
▪ Bachelor of Science in History, Minor in Geography
  Eastern Michigan University, 2002

Employment
▪ U.S. Forest Service Pacific Southwest Regional Headquarters: Vallejo, California   September 2010-Present.

Geographic Information Systems (GIS) Database Analyst for all Forest Service corporate business area related to biological/resource management sciences and engineering, responsibilities and duties are varied and include:
- Spatial and tabular attribute data processing and manipulation with Environmental Sciences Research Institute (ESRI) ArcGIS, extensions, standard toolboxes and Python.
- Strong working knowledge of both front and backend of major National Applications. Abandoned Mine Lands (AML), Aquatic Surveys (AQS), Wildlife (WL), Forest Activities (FACTS), Infrastructure (INFRA), Inventory and Mapping/Terrestrial Ecological Unit Inventory (TEUI), Threatened Endangered Sensitive Species/Invasive Species (TESP/IS), Watershed Improvement and Tracking (WIT), Data Exchange (DX).
- Strong working knowledge of all corporate database. Natural Resources Management (NRM) Data Center (iWEB), Enterprise Data Center (GDB02a), Enterprise Data Warehouse (EDW).
- Database analysis with customized Structured Query Language (SQL), including 'Object Searcher' and 'Search Cursor', innovative scripts capable of finding database schema objects by keyword string, thru Procedural Language/Structured Query Language (PLSQL) Developer for Oracle.
- Identify existing National Applications database schema inconsistency and anomaly, diagnose extent of known issue and summarize concerns for transfer to appropriate National Applications database stewards.
- Geospatial Interface (GI) Registration/Project Tool development environment. Custom Forest Service development environment in which corporate spatial and tabular data can be processed, manipulated and extracted. Extensive experience building custom visualizations and projects for biological, ecological and engineering management needs. Visualizations and Projects of note: Wildlife count of Site and Observation vector features by QC status (available nationally), Wildlife/Aquatics Taxonomic Observations returned in native vector format (point, line and polygon), Invasive treatment events counted for each invasive occurrence vector polygon (a trans-schema data query).
- Sierra Nevada Watershed Improvement Program. Joint Forest Service/State of California partnership to restore/protect Sierra Nevada watershed, phase one of which required a landscape-scale assessment of existing conditions. Research all project elements from major Forest Service business area, acquire most appropriate, accurate and current data available from corporate database to model current unit and provincial conditions with conclusion-driven statistical summary tables and cartographic products, as well value-added processed spatial feature class. Design, build, implement and maintain with GI Project Tool following application standards. Replicate projects for all Forests within Region and provide ongoing support and training to Forest stewards. GI Project Tool stats: one master template for nineteen projects (one for each Forest within FS Region 5, one for entire Sierra Nevada province), twenty-seven data extraction/processing steps, fifty-two Visualizations (tabular and spatial query utilizing ArcGIS geoprocessing steps as well as custom Python scripts), thirty-four custom summary scripts (eight hundred lines of code, both Oracle and Access based SQL), custom FACTS Visualization (eleven processing steps) that generates from tabular latitude/longitude data a vector polygon feature class for FACTS SubUnits, thusly narrowing existing corporate data gaps. Project documentation and reference folder presently contains one hundred eighty-eight files available to Forest resource management staff.

- Training of new personnel. Providing complete explanation of Forest Service National Applications program/project workflow, Natural Resources Management (NRM)/Natural Resource Information Systems (NRIS) products, corporate database structures. Background resources and query scripts offered to facilitate quick and smooth transition to Information Management (IM) team. Thereafter, on-going support is provided.
- Regional and Forest Eco-Management/Planning staff support. Corporate data pulls for exterior agency, National Applications data loading advice/support, geospatial advice/guidance, custom SQL for tabular attribute data summary and statistics.
- United States Geological Survey (USGS) National Hydrography Dataset (NHD) and Watershed Boundary Dataset (WBD) Editing. Coordinate region-wide edits to NHD and WBD datasets. Process and stage forest-extent replications of both datasets and all necessary background and reference documentation. Available as ongoing helpdesk resource facilitating Forest efforts, thereby increasing edit consistency across the region. Participant at fall 2016 USGS/California Department of Water Resources sponsored NHD and WBD training.
- Python script for stream delineation. Custom python script written to expedite delineation of stream network from Light Detection and Ranging (LIDAR) generated Digital Elevation Model (DEM). Script written after extensive experience in this process/procedure at the Tomales Bay Watershed Council. Beta version of script has to-date been tested and used by five Forests within the Region. Script will help provide dataset consistency across Region and save Forests from tedious learning curve associated with multi-step procedure.
- Sierra Nevada (SNV) meadow hydro-geomorphic (HGM) classification and spatial delineation. In addition, a spatial analytical technique was developed to quantify up-slope catchment extent for meadows within a given watershed.

Software: ArcGIS 10x and extensions, Python, Microsoft Office 2013, PLSQL Developer for Oracle, United States Geological Survey (USGS) Hydro Event Management (HEM) Tool, Hawth's Tools, XToolsPro60.
Data: Spatial and tabular data associated with all Forest Service corporate business areas (all database, all schema), USGS National Hydrography Dataset, LIDAR.

- U.S. Forest Service Stanislaus Supervisors Office: Sonora, California   June 17, 2014-August 1, 2014.

RIM Fire Recovery, Environmental Impact Statement (EIS) GIS support:
GIS support for RIM Recovery multi-disciplinary core team lead and members, efforts related to producing final draft of Environmental Impact Statement. Daily workflow varied as needed, but included: data acquisition from project data libraries as well as Forest Service corporate databases, geoprocessing and manipulation, draft and final cartographic production, geo-spatial analysis for wildlife and reforestation studies. Support and project assistance was also extended to Pacific Northwest/Southwest Research staff related to design and layout of long-term study areas within RIM fire perimeter. Stream delineation from Forest Lidar dataset was performed for project level needs for aquatic resource staff.

Software: ArcGIS 10x and extensions, Python, Microsoft Office 2013, PLSQL Developer for Oracle, United States Geological Survey (USGS) Hydro Event Management (HEM) Tool, Hawth's Tools, XToolsPro60.
Data: Spatial and tabular data associated with all Forest Service corporate business areas (all database, all schema), USGS National Hydrography Dataset, LIDAR.

- Tomales Bay Watershed Council (TBWC): West Marin, California   September 2012- May 2013.

GIS Spatial Data Analyst:
Initiated the update of NHD Flowline, NHD Waterbody and WBD Hydrologic Units (HUC, levels 1-6) datasets of coastal Marin County, California from LIDAR derived DEM base data. Dataset creation involved considerable research into appropriate methodology for feature delineation, two separate toolsets were chosen and utilized in concert. Final products from both methodology were analyzed for optimal spatial resolution, and the accuracy and consistency of the value added tabular attributes. Extensive field validation for both spatial and tabular components of the datasets was performed, increasing model validity. Methodology was documented and later transferred to Python coding. Performed cartographic production for TBWC website, and the Fish and Wildlife Service Map Atlas project.

Software: ArcGIS 9.3 and extensions, USGS Hydro Event Management Tool.
Data: USGS 1/9-Arc Second National Elevation Dataset, USGS NHD and WBD.

▪ Wild Salmon Center: Portland, Oregon   May 2009-September 2009.

GIS Consultant:
Cartographic production for the daily business needs of WSC staff, extensive dataset geoprocessing to support environmental modeling requirements, FGDC metadata update to facilitate the expansion of both raster and vector datasets (and accompanying tabular attributes) relevant to Pacific Northwest salmon habitat restoration.

Software: ArcGIS 9.3 and extensions, Microsoft Office 2007, Hawth's Tools, XToolsPro60, Marxan.
Data: Gradient Nearest Neighbor (GNN) Vegetation Classes, StreamNet Fish Data for the Northwest, Bureau of Land Management (road), USGS (culvert), and US Fish and Wildlife Service (hatchery), Multi-Resolution Land Characteristics Consortium's National Land Cover Dataset (NLCD), USGS NHD and WBD.

▪ NRCS Western Remote Sensing Lab: Portland, Oregon   January 2008-March 2009.

Geospatial/Data Collection Analyst:
Responsible for various aspects of Natural Resources Conservation Service projects (National Resources Inventory (NRI), Wetlands Reserve Program (WRP)); scanning, registration and mosaicing of large-scale imagery, aerial photographic interpretation, data collection, digitizing and support map creation. Primary responsibility of data collection for the NRI involved stringent analysis of high resolution large-scale imagery, interpretation of landscape features, and capture of both spatial and tabular data.

Software: ERDAS IMAGINE, ArcGIS 9x and extensions, Microsoft Office 2002.
Data: 1:7920 color vertical photographs and digital orthorectified counterpart, Digital Ortho Quads (DOQs).

▪ United States Geological Survey, Great Lakes Science Center: Ann Arbor, Michigan   April 2007-December 2007.

GIS/Remote Sensing Specialist:
Responsibilities included GIS and remote sensing efforts related to United States Geological Survey (USGS) wetland restoration and monitoring projects in northeastern Ohio, on Lake Erie. A photogrammetric method to georeference large-scale imagery of an emergent Great Lakes coastal wetland environment was designed, tested and implemented. The *Georeferencing Large-Scale Aerial Photographs of a Great Lakes Coastal Wetland: A Modified Photogrammetric Method* manuscript was published in the Society of Wetland Scientists' *Wetlands* journal by Springer Publishing. The method was devised as a cost effective means to use existing analytical resources to produce data of increased accuracy.

Software: ArcGIS 9x, ArcInfo/ArcEditor, GTCO.
Data: 1:6000 CIR vertical photography.

Software Application and Hardware Experience
▪ ESRI ArcGIS 10x and Extensions (Python, 3D Analyst, Spatial Analyst, Data Reviewer, Survey Analyst, ArcHydro, Production Mapping, Hawth's Tools…)
▪ Microsoft Office, Microsoft Visual Studio.Net
▪ Allround Automation's Procedural Language/Structured Query Language (PLSQL) Developer for Oracle, iSQL*Plus for Oracle JDeveloper.
▪ Leica Geosystems Geospatial Imaging's Erdas Imagine, PCI Geomatics' Geomatica
▪ US Army Corps of Engineers' Corpscon6, and Franson's CoordTrans v2.3
▪ Garmin MapSource (for E Trex Legend GPS)
▪ NexSens WQ SensorPro (for USB Sensors)
▪ GTCO Calcorp TableWorks (for Accutab 3648 Digitizer)
▪ Eclipse 3.2.1 SDK

Supplemental Coursework
▪ Relational Database Management Systems, Structured Query Language (SQL), VB.NET, C++, Java

Professional Memberships and Associations
▪ American Society for Photogrammetry & Remote Sensing
▪ Portland Area GIS (PAGIS) User Group