

Improving Access to Mineral Resource Data

**Final Report
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Introduction

The Maine Geological Survey maintains several files of paper core logs and assays. These records were collected over decades from mineral exploration firms as they completed their Maine work or otherwise released their data, covering both public and private lands that were the subject of mineral exploration. These records represent the best public collection of the major mineral exploration efforts of the 1960s-1980s and are not available elsewhere. Prior to our work under this project, these records could only be accessed through personal visits to the Maine Geological Survey offices in Augusta, Maine, greatly diminishing their usefulness.

The core logs are important analytical records related to our physical core library, which we maintain for research purposes. The physical core and core log collections are focused on hard rock mineral resources and represent projects widely scattered about Maine in both time and space. About 70,000 feet of core representing millions of dollars in recovery expense are preserved in the facility. All cores and related documentation were donated to the State at various times by their rightful owners and are now considered State records, available for public inspection. A generalized map (Figure 1) shows townships for which we have cores or core logs, or both.

Tasks:

I.1. Inventory core logs and assays. Files are currently organized by township. As part of our past effort to catalog physical drill core, staff from the Maine Geological Survey identified logs that correspond to drill core. Through this task, we inventoried all paper core logs and assays for which we could identify a location, 595 logs in all. Figure 1 shows locations of these core logs relative to townships for which the Maine Geological Survey stores cores.

II.1. Develop metadata for scanned logs. A metadata record for the collection of scanned core logs was created, following the standards presented in “Metadata Profile for the National Digital Catalog” (as posted on the National Data Catalog website). This record provides documentation

about the collection and information necessary to access the Google Earth application through which scanned logs may be accessed. This metadata record was added to the NGGDPP community in ScienceBase in February 2014.

Through additional work with USGS staff, 636 individual metadata records for scanned core logs and maps were properly formatted and uploaded to the NGGDPP community in ScienceBase in April 2014. Figure 2 is a screen shot showing the entry page for the collection, “Scanned mineral exploration core logs.”

III.1-2. Automate core logs, assays, and maps. Paper geologic core logs and most cross-sections were scanned into pdf files using conventional document scanners. A large-format scanner was used for large-scale core-location maps and some large cross sections. The scanned maps were geo-registered using standard ArcGIS tools, topographic maps, and Google Earth imagery. Core locations were screen-digitized into shapefiles. Due to the quality of some of the core location maps, we consider the digitized core locations to be accurate within about 100 meters. Shapefile attribute tables were populated with the CoreID, Township, Operator, and http:// links for Log, Map and Section associated with the core.

III.3. A Google Earth application was developed for accessing and viewing scanned core logs. Shapefiles developed in Task III.2 were then exported as a KML file for Google Earth. PDF files for each core log associated with a location in the KML were then posted onto the MGS website matching the http:// links within the shapefile and KML. Within the Google Earth application each Log, Map or Cross-Section PDF file associated with a specific drilled core can now be "viewed" without leaving the Google Earth application and users can download and/or print any PDF file within the KML. Since posting to the Maine Geological Survey website, the Google Earth application has experienced hundreds of page views monthly. This application has been particularly timely while Maine has engaged in a statewide policy discussion on metallic mineral mining. Exploration and mining interests have made considerable use of this resource.

The Google Earth application can be accessed at:
<http://www.maine.gov/dacf/mgs/explore/mining/core/core.htm>

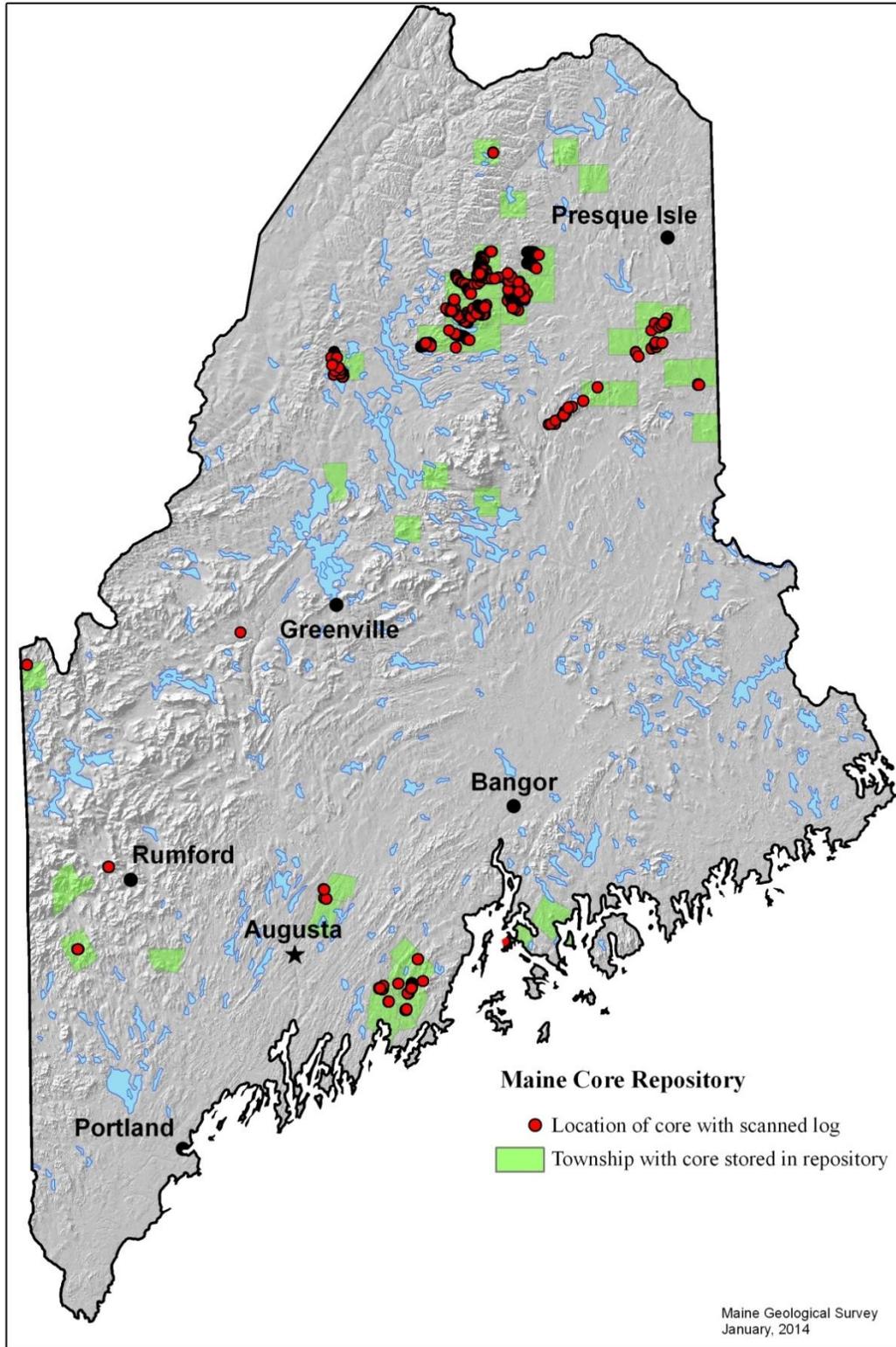


Figure 1. Locations of townships in Maine for which the Maine Geological Survey stores physical core and locations of scanned core logs.

The screenshot shows the ScienceBase catalog interface. The browser address bar displays the URL: <https://www.sciencebase.gov/catalog/item/52f3d4afe4b0b3a191d4b9b7community=NGGDDP+++National+Geological+and+Geophysical+Data+Preservation+Pr...>

The page title is "Scanned mineral exploration core logs". The navigation menu includes "NGGDDP - National Geological and Geophysical Data Preservation Program", "About", "Communities", "Add Item", "My Items", "My Tasks", "Help", and "Logout".

The "Communities" section lists various organizations, including the 2010 Colorado Wildfires, Biodiversity Information, Bureau of Ocean Energy Management, Coastal and Marine Spatial Planning, Columbia Environmental Research Center, Community for Data Integration (CDI), Data Preservation, Informatics, and DataOne, Eastern Montana Fisheries, Ecosystems Mission Area, Energy and the Environment in the Pacific Northwest, Energy Development and Natural Resources, Fisheries, Fort Collins Science Center, Global, Great Lakes Restoration Initiative, Great Lakes Science Center, Greater Platte River Basin, Integrated Landscape Modeling (ILM), John Wesley Powell Center for Analysis and Synthesis, Kansas Water Science Center, Landscape-scale Energy Action Planning, LC MAP - Landscape Conservation Planning, Mangrove expansion and salt marsh, Minute 319 Pulse Flow, Multistate Aquatic Resources Information System, National Climate Change and Wildlife Research Act, National Cooperative Geologic Mapping, National Fish Habitat Partnership, and National Geospatial Program.

The "Provenance" section states: "Data source: Input directly. Core logs collected from various exploration firms representing exploration work of the 1970s and 1980s, scanned at the Maine Geological Survey in 2012." The "Catalog Item" section lists the creator as Robert Manvinney and the last updated date as 18 Apr 2014.

The "Interactive Mapper" section features a map of Maine with red dots indicating the locations of the scanned mineral exploration core logs. The map shows major cities like Augusta, Fredericton, and Saint John, and major roads like 1, 2, and 3.

The "Related Items" section lists several related items, including "Maine Geological Survey Bedrock Core Sample ID 1010-1" through "1010-5".

Figure 2. Screen shot of collection description and map for “Scanned mineral exploration core logs” in ScienceBase catalog.