

## NGGDPP Final Technical Report

Award Number: G12AP20141

Project Title: Rescue and Data Preservation of Oklahoma Aerial Photographs at the Oklahoma Geological Survey

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### **I. Abstract**

In FY 2012, per our cooperative agreement with the USGS-NGGDPP program, the Oklahoma Geological Survey (OGS) was able to successfully rescue approximately 15,600 Oklahoma aerial photographs from its Oklahoma Petroleum Information Center (OPIC) library and storage facility. These data were rescued from adverse storage environments. Once rescued and housed in a suitable archival space, the photos were sorted and prepared for assimilation into the OGS public access holdings. Additionally, metadata was prepared for a portion of the rescued photographs.

### **II. Project Goals and Objectives**

The storage facilities that house the photographs intended for rescue are not designed to preserve archival paper or photographic data. The OPIC storage spaces consist of overfilled warehouses which are prone to leaks, sustained moisture accumulation, mold, pests, and extreme temperature fluctuation. As a result the aerial photographs in storage are subject to rapid decay, leaching, and material degradation. This is the case for the approximately 138 cubic feet of aerial photographs stored at the OGS-OPIC facility that we desired to rescue and assimilate into our public access collection.

The initial scope of the FY 2012 project was to rescue aerial photographic data stored on-site in physically deteriorating preservation conditions. Once rescued the data would be organized and integrated into an environment conducive to archival preservation and made available to the public. Rescued data would be eventually added to existing public access aerial photograph collection thus expanding its contents and coverage of the state.

This project is consistent with three aspects of our long-range data preservation plan-to develop an electronic catalog, to process incoming data into individual collections, and to prepare metadata of those items for the National Digital Catalog. The work will result in:

- (1) Rescue and improved preservation of data in danger of immediate obliteration.

- (2) Greatly improved accessibility of total aerial photograph collection. Photographs will be sorted by Section-Township-Range, then by county and finally by the year flight survey was executed.
- (3) A digital inventory of aerial photographs published on the OGS website. This will be in the form of a downloadable Excel spreadsheet containing county, location and flight year data. From this inventory metadata will be created for individual photographs and uploaded into the National Digital Catalog. This electronic inventory will allow interested patrons to peruse our holdings remotely and determine whether an on-site trip is warranted based off their research needs. This will also have the function of increasing awareness to the public that OGS has such a collection, and that it is available for public use. This will finally enable patrons to request imaging of individual photographs from the collection once it is sorted and cataloged.
- (4) To facilitate the digitization of rescued photographs for posterity and research requests.



Photo 1. Derelict Storage Facilities at the OGS-OPIC Facility.

The proposed project was envisioned to be the catalyst of future expansions of the existing aerial photographic data collection in subsequent years. OGS has emerged as the principle custodian of statewide aerial photographs within Oklahoma. It is therefore the goal of OGS to improve curation of current holdings, and rescue proposed materials in order to enhance this data set.



Photo 2. Storage facilities expose data to adverse environmental conditions.



Photo 3. Adjacent storage bay where aerial photos were rescued.

The proposed project was envisioned to be the catalyst of future expansions of the existing data collection in subsequent years. OGS has emerged as the principle custodian of statewide aerial photographs within Oklahoma. It is therefore the goal of OGS to improve curation of current holdings, and rescue proposed materials in order to enhance this collective data set.

### **III. Work Accomplished**

As a result of the cooperative agreement between OGS and DOI-USGS, we were able to successfully meet the goals outlined in our proposal. All Oklahoma aerial photographs placed in storage were rescued and interred into an environmentally friendly archival space for sorting and metadata collection. We rescued approximately 15,600 historical Oklahoma aerial photographs in all. The photographs, once rescued, were sorted by county and year, and finally geo-referenced to determine section-township-range. Once the photographs were initially sorted, we began the secondary objective of recording the following metadata from the rescued elements:

- County
- Flight Date
- Frame ID/Alpha Fip Code
- S-T-R

To date we have created metadata for 2,237 aerial photographs representative of 21 Oklahoma counties which were uploaded to the National Digital archive as a flat CSV file. With the additional funding of \$9,980 OGS was able to hire additional student workers to assist in the completion of the project as assisted and supervised by Richard Tarver. Without these important resources supplied by DOI-USGS, these data would likely have deteriorated in storage.



Photo 4. Rescued photos being sorted and prepped for recording metadata.



Photo 5. Rescued photos being sorted and prepped for recording metadata.



Photo 6. Rescued photos being sorted and prepped for recording metadata.

#### **IV. Conclusion**

Historical aerial photographs are utilized by an ever-increasing number of individuals from various professional backgrounds including petroleum engineers, drilling operators, geologists, environmental due diligence professionals, and archaeologists. The inherent value of this data is demonstrated in its ability to:

- (1) Exhibit geophysical and environmental change through time within a temporal range that encapsulates much of the 20<sup>th</sup> century, most of which preceded the advent of landsat/satellite imagery.
- (2) Facilitate the planning of petroleum drilling and sampling projects.
- (3) Demonstrate the environmental impact of both naturally and artificially occurring phenomena which are not otherwise readily observable. In doing so, salvage and conservation measures may be strategized in order to alleviate environmental blight.
- (4) Facilitates historic archaeological research which contributes to state heritage as well as further developing an archaeological record of America's indigenous peoples.

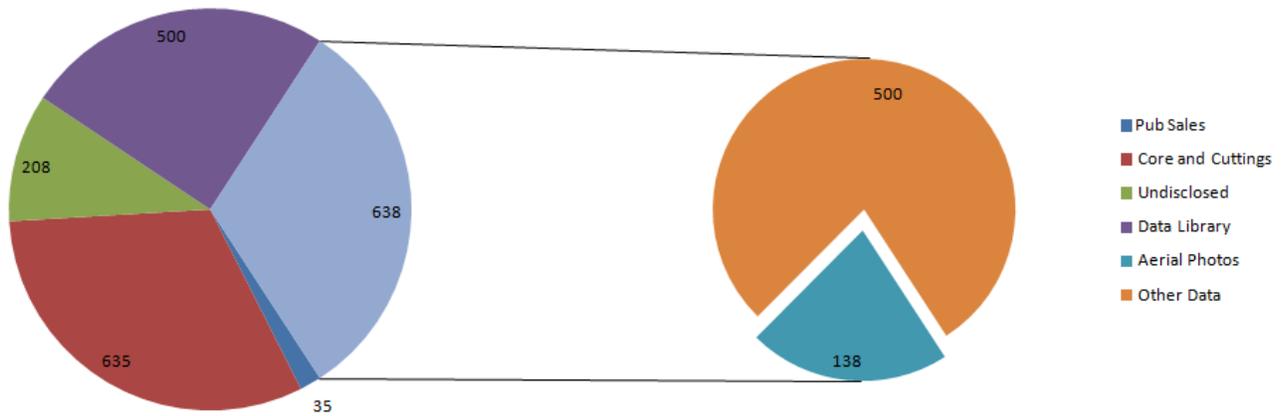
Most pre-1950s historical aerial photographs are limited in circulation and lack negative backup. As many photos have likely remained in storage for decades, there has been little opportunity to digitally preserve this data. OGS is leading efforts to curate Oklahoma aerial photographs within the state.

As with most of our collections, only a small portion of partially organized aerial photographs are accessible to the public through OGS. Yet, this public collection constitutes the most comprehensive collection of Oklahoma aerial photographs in the state, representing all 77 counties and ranging in dates from 1936-1986. These photographs represent an extremely valuable data collection due to their limited circulation as well as their ability to demonstrate geophysical and environmental change through time. The photographs are used by a wide range of professionals including geologists, civil engineers, archaeologists, and environmental conservationists. OGS annual user statistics for calendar year 2012 indicate an increasing demand for this data set among our patrons both local and nationally (See attached Fig 1.).

Efforts of this project will continue into FY 2013 which will allow OGS to assimilate rescued photographs into the public access collection. Once these this rescue data are assimilated into our existing collection, we will continue on with the creation of metadata for this entire collection (See attached Table 1). The anticipated results of the two year project (FY 2012-G12AP20141, FY2013-G13AP00084) will be a digital catalog of all aerial holdings at OGS and will eventually facilitate the digitization of this unique and degrading medium.

**Fig 1. 2012 OGS-OPIC User Statistics**

**2012 OGS-OPIC Visitor Usage by Collection**



Total Visitors=1523

**Table 1. Completed OGS Projects**

<b>Previous NGGDPP Projects Completed by OGS</b>			
<i>NGGDPP Collection ID</i>	<i>Collection</i>	<i>Number of collection inventories or metadata records uploaded to the National Digital Catalog</i>	<i>Year uploaded</i>
	Data Inventory	26 Collection Inventories	FY 2007
P1355	Oklahoma Rock Cores	8910 metadata records	FY 2009
P1165	Oklahoma mud logs	700-800 metadata records	FY 2010
P1165	Oklahoma mud logs	2000 metadata records	FY 2011
P1163	Oklahoma aerial photos	15,600 Inventoried, 2,237 Metadata Records	FY 2012
P1163	Oklahoma aerial photos	Pending	FY 2013