

# Creation of a Geodatabase of the Digital Aerial Photography Archives for the Greater Everglades of South Florida and the Southern Inland and Coastal System

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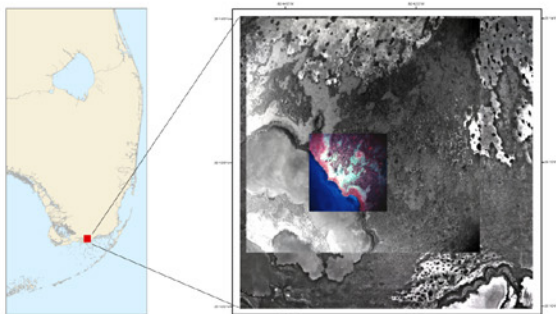
<sup>4</sup> Dyncorp Systems and Solutions, LLC, Gainesville, FL (currently 3001, Inc.)

<sup>5</sup> U.S. Geological Survey, Gainesville, FL

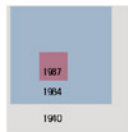
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## Digital archives of historic aerial photography

The project to create a digital archive of historical aerial photographs for the Greater Everglades is an important first step in the development of an understanding of the pre-drainage vegetation in the south Florida landscape. This knowledge is essential in the development of endpoints, restoration goals and performance measures to gauge restoration success. Work on the digital archive has progressed with the creation of two open file reports publishing maps from 1927 – 1935 and imagery from 1940.



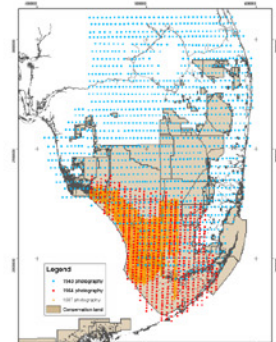
Overlapping images of Seven Palm Lake from three time periods show the differing scales of the original imagery.



## Spatial integration of database and imagery in a geographic information system (GIS)

After scanning the photography, georeferenced mosaics of the flight lines were constructed indicating the general locations of the photography. From these mosaics, approximate center points of each photograph were recorded in the database, thereby providing general locations to which the photographic metadata could be linked. The utility of linking the metadata with physical locations became readily apparent. It would be even more useful if the metadata about the photograph could be linked to each georeferenced raster image in the archive.

It has always been the intention of the digital archives project to create georeferenced imagery of the south Florida photography. However, in order for the imagery to be useful as a tool, it must be integrated into a geographic information system (GIS). This presents a challenge to users since, as individual files, the raster images are very large thus limiting their use to small study areas, and effectively restricting their use in landscape-scale analyses. The challenge of incorporating raster images with large file sizes (e.g., 160 MB) into a geographic information system is resolved in the ArcGIS geodatabase system using ArcSDE and Oracle database management software.



Map showing approximate center points of photography in the Digital Aerial Photography Archives for the Greater Everglades.

## Creation of a geodatabase

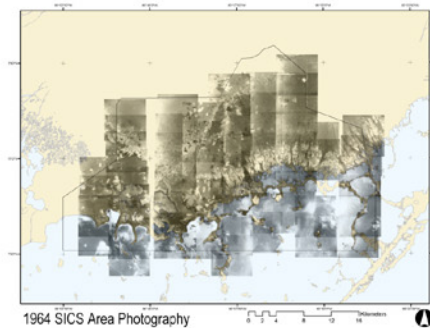
To test the geodatabase system as it applies to the Digital Aerial Photography Archives for the Greater Everglades of South Florida, a limited area was selected as a pilot project. The project consists of a geodatabase that includes georeferenced raster imagery from 1940, 1964 and 1987 incorporated with tables of detailed information about the photographs. It also includes vector files and raster imagery of the T-sheets that are based on a 1927 aerial photographic survey. The selected area corresponds to the Southern Inland and Coastal System of the Everglades. The geodatabase is part of the South Florida Information Access (SOFIA) clearinghouse and can be searched and used free of charge by accessing the SOFIA web address (<http://sofia.usgs.gov/exchange/>).

## Database development

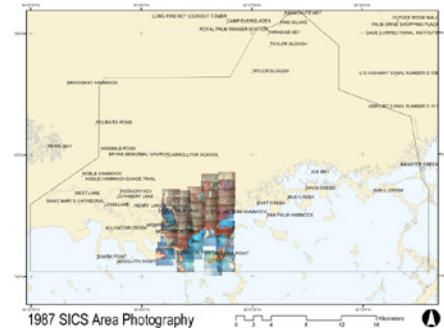
Concurrent with the development of the digital archive, information about the photography was recorded in a relational database using Microsoft Access. The data recorded included information on the flight, the photography, the scanning process and detailed information on each individual photograph.

| Unique Photo ID | Sur # | Date      | Flight # | Photo # | Existing | Content   | Rating | Condition  | K_COORD     | L_COORD      |
|-----------------|-------|-----------|----------|---------|----------|---|--------|--|-------------|--------------|
| 2452            | 34    | 16-Apr-47 | 89       | 81-108  | -        | Everglades City                                   | 3      | written on   | 462587.7720 | 286444.5413  |
| 255             | 34    | 16-Apr-47 | 28       | 25-874  | -        | Middle Cape Sable                                 | 3      | written on   | 408819.9740 | 377940.1907  |
| 256             | 34    | 16-Apr-47 | 28       | 25-875  | -        | Middle Cape Sable, Lake Ingraham                  | 3      | written on   | 408819.9740 | 378072.8559  |
| 259             | 34    | 16-Apr-47 | 25       | 25-878  | -        | Lake Ingraham                                     | 3      | written on   | 408819.9740 | 378215.5232  |
| 284             | 34    | 16-Apr-47 | 10       | 81-127  | -        | Chokoloskee Island                                | 3      | written on   | 482232.5137 | 285429.1485  |
| 2960            | 14    | 26-Apr-64 | 2        | 7       | -        | Krome Ave.  | 4      | upper right corner creased                         | 552602      | 2527.0736    |
| 2961            | 14    | 26-Apr-64 | 3        | 12      | -        | Long Stock, Oak Bay, Fresh Marsh                  | 5      | some ground setting on the back                    | 562668.8902 | 279192.5989  |
| 2966            | 14    | 26-Apr-64 | 6        | 45      | -        | Terrace Keys, Deer Key                            | 5      | duplicate of photos 19-2462, water leak            | 547721.2432 | 276650.5903  |
| 2968            | 14    | 19-May-64 | 14       | 179     | -        | Beer Lake, Alligator Lake                         | 5      | duplicate of photo 19-2201, red wax pencil writing | 501183.9653 | 277519.4935  |
| 3261            | 14    | 16-May-64 | 14       | 120     | -        | Beer Lake, Alligator Lake, Canal, Deer & Wild Fox | 3      | red ink typew mark, blue ink writing on back       | 507111.2660 | 276199.5122  |
| 4423            | 1     | 07-Mar-40 | 3        | 30      | -        | Pratt's Hammock, West of Taylor Slough            | 5      | duplicate of photo 19-4624, water leak             | 520875.9201 | 319194.6899  |
| 4417            | 1     | 07-Mar-40 | 6        | 46      | -        | Broad R., Rokey Branch, Short Slough              | 4      | slightly creased                                   | 520184.2946 | 321814.2872  |
| 4418            | 1     | 07-Mar-40 | 9        | 48      | -        | Broad R., Rokey Branch, Short Slough              | 3      | red ink on image, slightly creased                 | 520420.3791 | 321914.2872  |
| 4421            | 1     | 07-Mar-40 | 9        | 49      | -        | Indian Cove, Creek, Broad River, Broad River      | 4      | upper edge creased                                 | 426715.5128 | 321914.2872  |
| 4419            | 1     | 05-May-40 | 15       | 15      | -        | Big Cypress                                       | 5      | original transparency, SPWMD                       | 488483.4623 | 286279.1296  |
| 5098            | 1     | 05-May-40 | 19       | 19      | -        | Big Cypress                                       | 5      | mute fresh   | 488169.8936 | 286279.8120  |
| 6412            | 1     | 07-Mar-40 | 5        | 7       | -        | Mosier's Deer Eagle's Back Order Keys             | 5      | original transparency, SPWMD                       | 542223.4241 | 2781458.8161 |

As of March, 2003, over 8000 photographs have been cataloged in the Everglades Historical Aerial Photographic Database.



1964 SICS Area Photography



1987 SICS Area Photography