



## WISCONSIN MAPPING BULLETIN

### Volume 6 No. 4 October 1980

INFORMATION ON CARTOGRAPHIC ACTIVITIES,  
MAPPING PROGRAMS, GEODETIC CONTROL  
AND AERIAL PHOTOGRAPHIC COVERAGE IN THE  
STATE OF WISCONSIN; PUBLISHED QUARTERLY.

#### Wisconsin State Cartographer's Office

Established 1973

155 Science Hall UW Madison, WI 53706

Art Ziegler

State Cartographer (608) 262-3065

Christine Reinhard

Editor

### \* \* \* N. C. I. C. AFFILIATION \* \* \*

Wisconsin has become one of the U.S. Geological Survey's most recent National Cartographic Information Center's affiliates, which now number 27 in all. The office of the State Cartographer will provide the services of the national headquarters (Reston, VA) and the EROS Data Center (Sioux Falls, SD) to the populace of Wisconsin. Christine Reinhard is the affiliate contact person.

On November 7th, Charles Croom of the U.S.G.S. Mid-Continent Mapping Center (Rolla, MO) will present an overview of the affiliate system to a group of state agency representatives. This presentation will conclude with a tour of the newly expanded S.C.O.'s facility. Mr. Croom will then conduct a training workshop for the S.C.O.'s staff.

The Wisconsin N.C.I.C. outlet will be fully operational by January 1st. Future issues of the Bulletin will highlight the features of the various N.C.I.C. programs.

### ◀ ▶ D. O. T. MAP SALES MOVES ▶ ◀

Wisconsin Department of Transportation document sales, where the public can purchase all types of maps prepared by the Transportation Department, will be moved Nov. 3 from its present location at Hill Farms State Office Building on Sheboygan Avenue to 3617 Pierstorff St. near Truax Field, on Madison's far east side. Sales will resume Dec. 1st.

The phone number will also be changed to (608) 266-8921.

David Bohlman, administrator of the department's Business Management Division, said the move is made "with reluctance" but has to be done out of fiscal necessity.

All aerial photography sales will remain at the Special Services Division, D.O.T., Hill Farms State Office Bldg. (608) 266-0309.

# ★ DEVELOPMENTAL PROTOTYPE MAP SERIES ★

## 1:100,000 SCALE

This office has reported on the production of 1:100,000-scale mapping in Wisconsin by the U.S. Geological Survey (U.S.G.S.) since 1977. In an effort to standardize and improve county base maps in Wisconsin, the State Cartographer's Office, through a special appropriation of the legislature, is modifying the color separation positives of the U.S.G.S. and developing prototype maps.

The prototype county mapping program is intended to encourage county officials to improve their mapping products by utilizing U.S.G.S. copy and to initiate a compatible county mapping series in Wisconsin. The U.S.G.S. copy offers a standardized scale and consistency in content. In addition, using the U.S.G.S. copy saves money for each county or agency and, ultimately, for the state.

A report will be released in December 1980 that will provide background information and the design and production guidelines of these prototype maps from compilation stage to printed product. Included in the appendices are page-size samples of the modified county maps published by the State Cartographer's Office and an unmodified U.S.G.S. topographic quadrangle map, all at 1:100,000 scale. Modifications to the U.S.G.S. copy included the addition of political boundaries, more Public Land Survey section numbers, more road symbols and color. The report fully explains these and other changes. The modified county maps are base maps for JEFFERSON and ROCK Counties and a Farmland Preservation Map of Jefferson County.

Distribution of the report will initially be limited to government officials. A more detailed explanation of the report's availability will be presented in the January Bulletin.



## SOIL SURVEYS

### ADAMS COUNTY

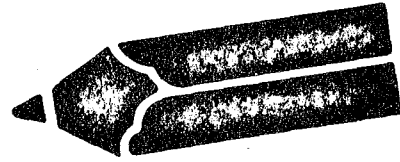


The Soil Survey of Adams County, Wisconsin has been published by the U.S.D.A. Soil Conservation Service in cooperation with the Research Division of the College of Agricultural and Life Sciences of the University of Wisconsin. Major fieldwork for this soil survey was completed in the period 1973-1977. It contains 142 pages of text and tables and 57 soil maps at a scale of 1:15,840. A full color general soil map for the county is also included. Contact the Adams County Soil Conservation Office or the State Soil Conservation Service Office to obtain a copy.

### NO MORE SOIL SURVEYS

Adams County was the last of seven county soil surveys published this year. There now will be a gap of about two years before S.C.S. will have any Wisconsin counties ready for publication. MONROE and SHAWANO Counties have had field work completed and they will be issued in 1983.

## UPDATES



### D.N.R. WETLANDS MAPPING (v. 6, no. 2, p. 3)

Two factors have delayed general distribution of the Department of Natural Resources (D.N.R.) wetlands maps: the revision of Administrative Code NR 115 and the fiscal and administrative problems in setting up a wetlands map distribution system.

Under the recently revised NR 115 each county will be required to zone wetlands, as shown on D.N.R. wetlands maps within the shoreland zone (Wis. Stats. 59.971) of the unincorporated portions of the county. This is to be done within 6 months of the county's receipt of final Wisconsin Wetlands Inventory maps. Because of this, wetlands maps of a county will not be made available to the public prior to that county receiving its preliminary wetlands maps. The priority list and scheduling of when counties are to receive their wetlands maps has not been finalized.

### D.N.R. TOPOGRAPHIC MAPPING GRANTS (v. 6, no. 2, p. 7)

Mr. Bill Marlett of the Flood Plain/Shoreland Management Section of the Department of Natural Resources cautions local planning and zoning administrators that December 1, 1980 is the deadline for applying for this fiscal year's grants for topographic mapping of eligible flood plain or shoreland areas. The grants provide 50% of the costs of preparing these maps. Last year the program distributed \$163,000 in mapping grants to 9 municipal applicants.

### U.S.D.A. PHOTOGRAPHY (v. 6, no. 3, p. 8)

The October 3rd report received from the U.S. Department of Agriculture Aerial Photographic Laboratory in Salt Lake City indicates additional Wisconsin county photography has been flown and accepted in September by the lab. The following counties are listed as accepted at 1:40,000 scale (1" = 3,333'):

ASHLAND, BARRON, BAYFIELD, BURNETT, CHIPPEWA, DOUGLAS, IRON, LANGLADE, LINCOLN, ONEIDA, PRICE, RUSK, SAWYER, TAYLOR, VILAS and WASHBURN.

Additionally the following county is shown as flown but not yet accepted by the lab: BURNETT (at 1:48,000, 1" = 4,000', for SCS). All the photography listed above is at 1:40,000 scale, black and white panchromatic, taken between April 15 and October 31. The January Bulletin will graphically summarize the extensive aerial photography acquired by U.S.D.A. during 1980.

### IMPORTANT FARMLAND MAPS (v. 6, no. 1, p. 6)

The USDA-Soil Conservation Service has been given the mandate to make and keep current an inventory of prime, unique, statewide, and other significant farmlands of the state. The maps are in color and at a scale of 1:100,000. To date, maps have been published for BROWN, FOND DU LAC, KENOSHA, LA CROSSE, MILWAUKEE, OZAUKEE, PIERCE, RACINE, ROCK, WALWORTH, WASHINGTON, and WAUKESHA COUNTIES. These can be obtained free of charge at the county field offices of the Soil Conservation Service.

Other Important Farmland Maps now being printed and available in the near future are BARRON, COLUMBIA, DANE, DUNN, EAU CLAIRE, GRANT, GREEN, IOWA, and JEFFERSON COUNTIES.

continued on page 4

# ▲ MID-CONTINENT MAPPING CENTER ▲

## WISCONSIN TOPOGRAPHIC MAPPING COMMITTEE

On September 9th, Mr. Larry Borgerding, Chief of the U.S. Geological Survey Mid-Continent Mapping Center, Mr. Bill Mengel, Chief of Plans and Programs and Mr. Glen Osick, Special Assistant for Requirements, met with the Wisconsin Topographic Mapping Committee at the Wisconsin Geological Survey in Madison. A wide ranging discussion took place which included the cooperative mapping effort between the two organizations and the direction of the Mid-Continent Mapping Center's other funded mapping programs. Highlights of the meeting were:

1. Due to the reallocation of production resources it is now apparent that the modern 7.5 minute topographic mapping program for Wisconsin will be completed through the lithographic printing stage in 1984. This is a delay of one year from the previously scheduled date;

2. The 7.5 minute topographic revision program has been altered in its concept and now involves three stages: Interim Revision which is the current standard magenta overprint common on all revisions; Limited Revision which will have aerial photographic revision, some field checking and will be reprinted in standard map colors; and Complete Revision which will be a total review and reworking of the map which will be printed in the new 7.5 by 15 minute format with *metric* contours;

3. A review of the five federal agency High Altitude Aerial Photographic Program, of which the Geological Survey is a part, was reviewed. See page 6.

4. Additional 30 minute by 1 degree Metric Topographic Maps (Bulletin, v. 6, no. 3, p. 2) are in the process of being printed for Wisconsin. Except for the Fond du Lac quad previously mentioned in the Bulletin, all these maps are in northwestern Wisconsin. See facing page.

Additional items of interest from the meeting will be summarized in future Bulletins.

### ▲ ▲ UPDATES, continued ▲ ▲

#### STATEWIDE AERIAL PHOTOGRAPHY PROGRAM (v. 6, no. 2, p. 9)

The Wisconsin Department of Transportation, Special Services Section has processed 96% of the 1" = 400' enlargements of the state's unified aerial photographic acquisition program. A total of 14,300 enlargements are required for monoscopic (non-overlapping) coverage of the state. For specific information contact: Special Services, D.O.T., P.O. Box 7916, Madison, WI 53707 (608) 266-0309.

#### CARTOGRAPHIC INFORMATION SOCIETY (v. 6, no. 3, p. 13)

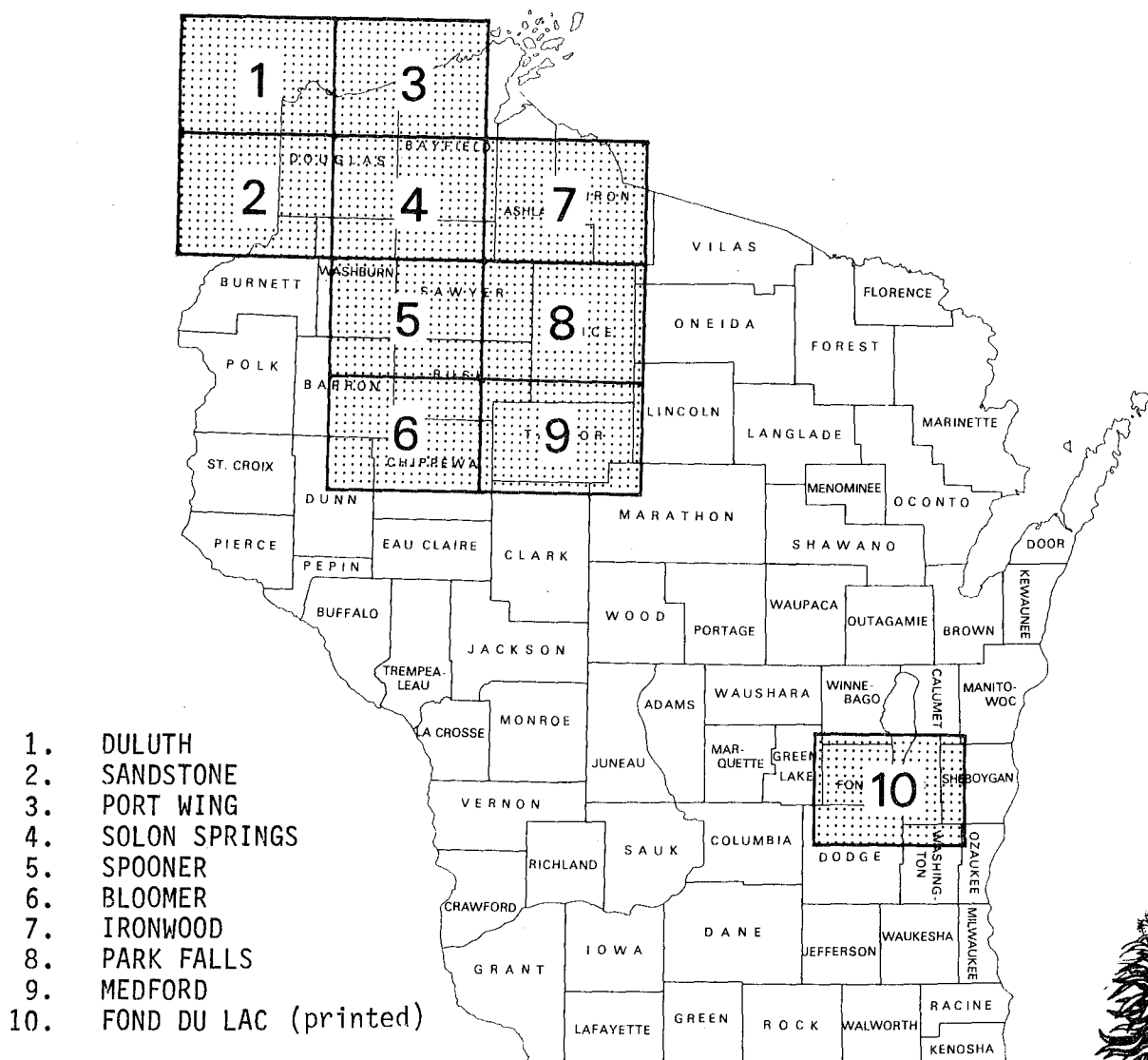
The organizational meeting of CIS held in Milwaukee on Oct. 2-4 was very successful. The 70 participants automatically did what CIS is all about; they talked to other cartographic professionals in quite different fields. Ad hoc officers and committees were established which will develop programs and iron out details. The January Bulletin will include a progress report. For more information please contact Christine Reinhard, 143 Science Hall, Madison, WI 53706.

(continued from page 4)

## METRIC TOPOGRAPHIC MAPS

(see item 4, page 4)

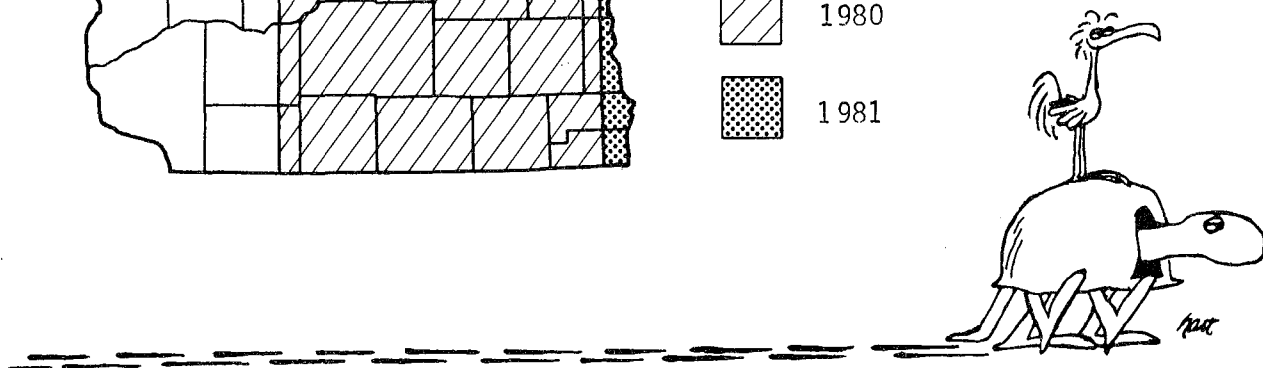
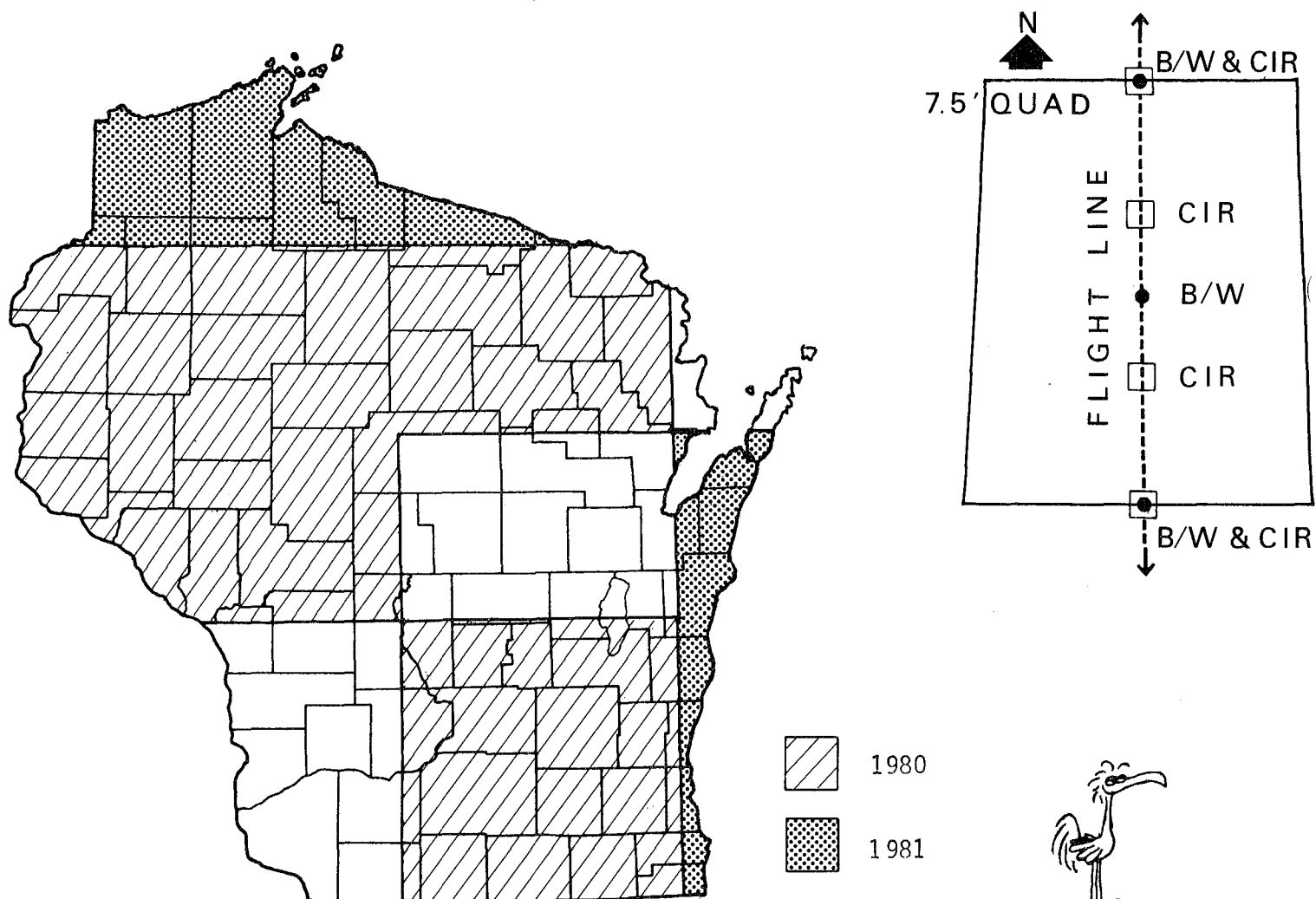
These 5-color *metric* topographic maps (10 meter interval = 32.8 feet) in the 30 minute by 1 degree quadrangle format are at a scale of 1:100,000 (1" = 8,333'). These maps are part of the "family of maps" series of the U.S. Geological Survey and are intended for intermediate scale coverage between the 1:24,000 and 1:250,000 scale maps. They are complete editions containing hydrography, public land survey lines, roads including street patterns in cities, county and state boundaries, railroads and other cultural features, names, vegetation and the metric contours. When available, the maps will be sold through the Wisconsin Geological Survey, 1815 University Ave., Madison, WI 53706.



(continued from page 4)

HIGH - ALTITUDE AERIAL PHOTOGRAPHY PROGRAM (5 FEDERAL AGENCY PROGRAM)  
(see item 3, page 4)

The photography will be acquired in north-south flight lines over the centers of standard U.S. Geological Survey 7.5 minute quads. The aircraft will have two cameras, one with a 8 1/4-inch focal length using color infrared film (CIR) and the other with a cartographic 6-inch focal length using panchromatic high-resolution black-and-white (B/W) film. The flying height will be 40,000 feet resulting in a scale of approximately 1:56,000 for the CIR and 1:80,000 for the B/W. The first and fourth exposure of the CIR camera will coincide with the first and third exposure of the B/W camera as shown in the accompanying figure. The coverage planned for summer 1980 and 1981 is illustrated.



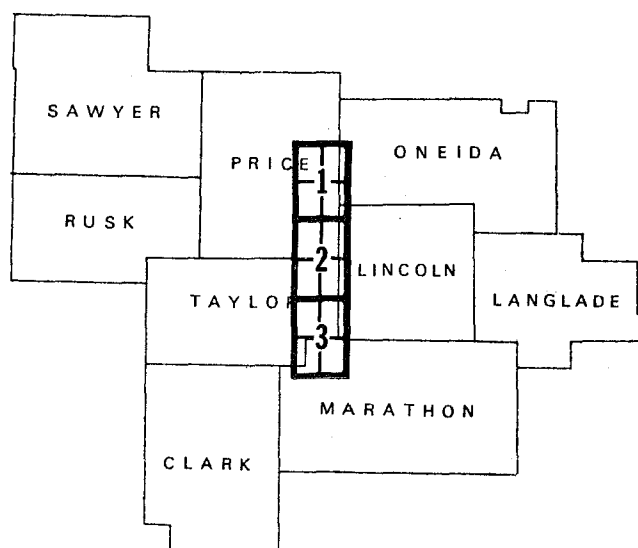
## NEW PRODUCTION FROM U.S. GEOLOGICAL SURVEY

These newly published 7½' topographic quadrangle maps (1:24,000) are listed by their location on the superseded 15' planimetric map of the area. They are available from the Wisconsin Geological Survey, 1815 University Ave., Madison, WI 53706 (608) 263-7389. Topographic quadrangles are \$1.50 each.

**1** BRANTWOOD 15' PLAN  
NE¼ Thunder Creek '80  
NW¼ Dover '79  
SW¼ Big Briens Lake '79  
SE¼ Brantwood '79

**3** ATHENS 15' PLAN  
NE¼ Goodrich '80  
NW¼ Rib River Lookout Tower '79  
SW¼ Corinth '80  
SE¼ Athens '80

**2** RIB LAKE 15' PLAN  
NE¼ Spirit '79  
NW¼ Timms Hill '79  
SW¼ Rib Lake '79  
SE¼ Wood Lake '79



NOTE: Order 7½' quads by name, NOT by the index number used here for location.

### INDEX AVAILABLE

At long last the Wisconsin Geological Survey has received a small shipment of the new, revised U.S. Geological Survey's topographic map index. Although the index is dated March 1979 it includes information current as of December 1979. This index supercedes the one issued in May 1978. For the most up-to-date topographic map coverage information, the Editor urges you to stay tuned to the Wisconsin Mapping Bulletin.

### COATE'S LAW

"ANY AREA OF GEOLOGIC INTEREST, NO MATTER HOW SMALL, LIES AT THE INTERSECTION OF FOUR TOPOGRAPHIC MAPS."



Geotimes, May 1971

# FARMLAND PRESERVATION PROGRAM

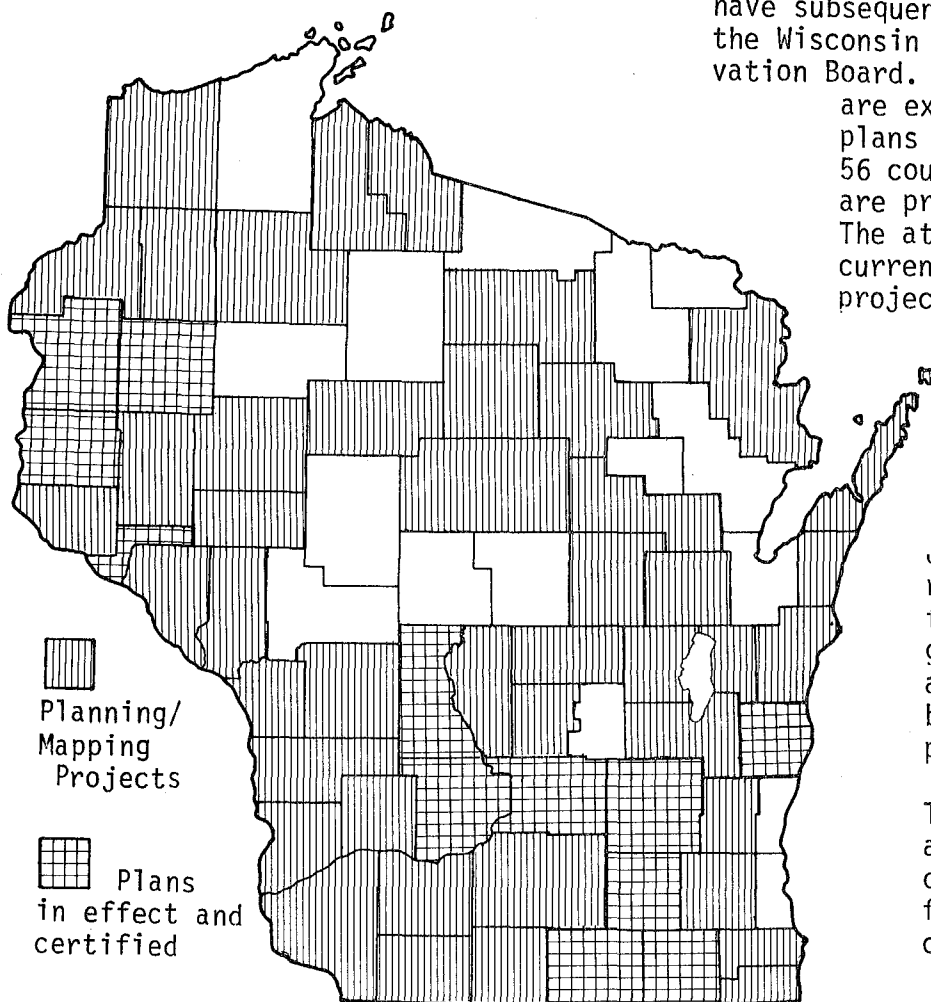
## Total Participation:

As of June 30th, 13,127 individual Wisconsin farms have been made eligible for tax relief under the farmland preservation program of the Department of Agriculture, Trade and Consumer Protection. Approximately 2.7 million acres of farmland are protected by farmland preservation agreements or through local exclusive agricultural zoning ordinances.

To date, twelve counties have adopted agricultural preservation plans which have subsequently been certified by the Wisconsin Agricultural Lands Preservation Board. An additional 15 counties are expected to complete their plans this year. Altogether, 56 counties have completed or are preparing agricultural plans. The attached map shows the current status of county planning projects.

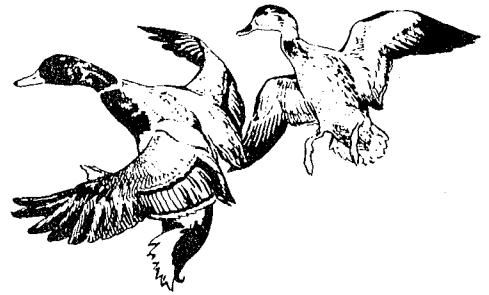
The Farmland Preservation Program provides funds to assist counties in developing these mapping and planning projects. As of June 30, 1980, 54 counties have received or have been approved for funding. The average county grant is \$23,000 and a total of approximately \$1.3 million had been awarded to all county projects.

The Department of Revenue reports a total of \$5,997,000 in credits claimed by 4,245 farm owners so far this year. The average credit was \$1,413.





## WESTPORT LAND RECORDS PROJECT



Through a cooperative effort, the University of Wisconsin and the Dane County Regional Planning Commission (RPC) are developing a large-scale, survey based, computerized land records system that will integrate both property records and resource information. The Town of Westport (DANE COUNTY) was chosen as a test area. This case study, partially funded by the Wisconsin State Cartographer's Office, is to determine the applicability and cost effectiveness of such a system. Based on their findings, the researchers will document the value of integrated and standardized data creation and storage.

A basic requirement for this project is the extension of ground control throughout the test area. This means determining Wisconsin State Plane Coordinates (SPC) for all section and quarter section corners. Only by having control points established in a mathematically based location system, such as SPC, can land information be reliably automated.

Points with known SPC and those requiring SPC were panelled prior to the aerial photography mission, contracted by the Dane County RPC, (v. 6, no. 3, p. 8), so that these points could be accurately identified on the photographs. The points, as measured off the photos, are used in the analytical aerotriangulation process employed to compute SPC for panelled points lacking them. These calculated coordinates will be the basis for ground control in the computerized land records system.

Presently under development are computerized storage and retrieval techniques that will be used for constructing the data base. This requires establishing efficient methods for digitizing and for keyboard data entry as well as writing appropriate supporting software.

The Westport project is a four-year undertaking. Thus, complete documentation will not be available for at least three years. Newsletters, with information on task progress will be distributed. Those on our Bulletin mailing list will receive these planned progress reports.

## NEBRASKA MAP CENTER

The Nebraska Remote Sensing Center and the new Map Information Center are part of the Conservation and Survey Division, a state agency that is a unit of the Institute of Agriculture and Natural Resources of the University of Nebraska-Lincoln. The Conservation and Survey Division also includes the Nebraska Geological Survey, Soil Survey, and Water Survey. The purpose of all surveys in the Conservation and Survey Division is service, research, and education.

A RSC/MIC newsletter is available by contacting the Remote Sensing Center and Map Information Center, Conservation and Survey Division, Institute of Agriculture and Natural Resources, University of Nebraska-Lincoln, 113 Nebraska Hall, Lincoln, NE 68588 (402) 472-3471.



## LAKE LEVELS AND RELATED LOCAL BOUNDARIES

The Great Lakes States have selected several ways to define the boundary between public trust waters and private property. Some States use the ordinary (mean) high water mark, others use a line which fluctuates with the lake level, and still others use a specific lake level. Except on Lake Michigan, the States have proprietary interest in the waters of the Great Lakes lying between the appropriate State-private line and the boundary between the United States and Canada, subject to the interest of the general public (including Canada and other foreign nations) in navigation and access. The boundary between Michigan and Illinois and Wisconsin follows in large part the approximate centerline of Lake Michigan. The States retain the right to control or limit access to natural resources in and under the water outside the line chosen to represent the State-private boundary.

Since there is no measurable rise and fall of tide in the Great Lakes, it is not relevant to attempt to determine the ordinary high water mark by analysis of water level gage records for diurnal or simidiurnal effects.

The height of water levels in the Great Lakes varies in an irregular and apparently noncyclical pattern due to meteorological conditions (rainfall and snowfall) in the upper watershed areas. There is no predictable cycle, but the variation is predominantly annual. Thus to determine the ordinary high water mark requires resolution and interpretation of water level gage recordings over many years.

Advice, assistance, and products relative to the heights of the water surfaces of the Great Lakes can be obtained from:

Tides and Water Levels Branch  
National Ocean Survey  
National Oceanic and Atmospheric Administration  
6001 Executive Boulevard  
Rockville, Maryland 20852  
Telephone: 301-443-8441

Source: Ellis, Melvin Y., editor; 1978; Coastal Mapping Handbook: U.S. Geological Survey, p. 32.



THE WISCONSIN MAPPING BULLETIN IS DISTRIBUTED FREE OF CHARGE ON REQUEST. NEWS ON COMPLETED OR ONGOING PROJECTS, PUBLISHED MAPS OR REPORTS, AND CONFERENCES/WORKSHOPS IS WELCOMED BY THE EDITOR. LOCAL AND REGIONAL INFORMATION IS ESPECIALLY REQUESTED. PLEASE SEND ALL COMMENTS, CORRECTIONS AND NEWS ITEMS TO CHRISTINE REINHARD, STATE CARTOGRAPHER'S OFFICE, 155 SCIENCE HALL, MADISON, WI. 53706.

# REMOTE SENSING BROADCAST

WISCONSIN MAPPING BULLETIN SUPPLEMENT  
October 1980

State Cartographer's Office  
144 Science Hall, Madison, WI 53706  
(608) 262-3065

Christine Reinhard, Editor



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## REMOTE SENSING OVERVIEW

Robert W. Merideth, Jr.  
Environmental Remote Sensing Center  
Institute for Environmental Studies  
University of Wisconsin

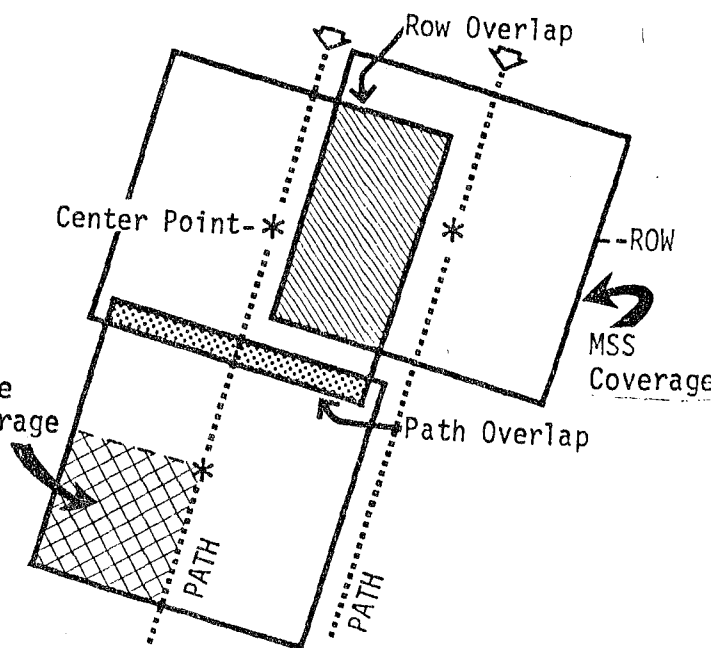
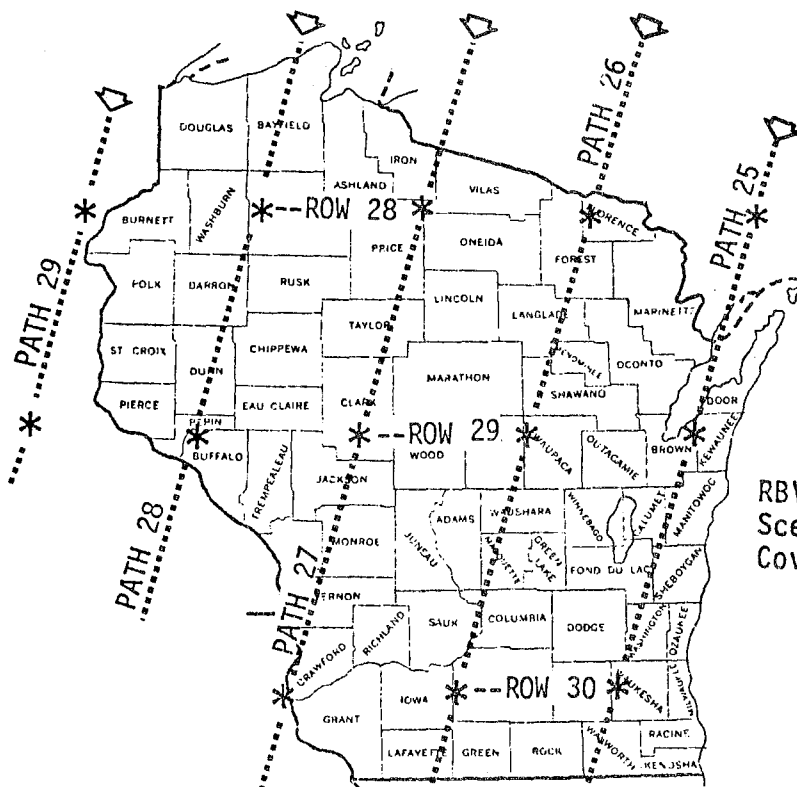
This is the first in a series of articles on remote sensing to be published regularly in the Wisconsin Mapping Bulletin. This article presents an overview of three types of remotely sensed data: Landsat (satellite) imagery, high altitude aerial photography, and low altitude aerial photography. A summary of the Wisconsin Remote Sensing Applications Project is also presented.

### LANDSAT

The first Earth Resources Technology Satellite, ERTS-1 (later renamed Landsat-1) was launched July 23, 1972. Landsat-2 was launched in 1975 and Landsat-3 in 1978. Launch of a fourth satellite, Landsat D, is tentatively scheduled for late 1981 or later. Each Landsat orbits approximately 570 miles (920 km) above the Earth's surface and circles the Earth every 103 minutes, or roughly 14 times per day. Each daytime orbital pass is from north to south. From such a vantage point, each Landsat can cover the entire globe, except for the poles, with repetitive coverage every 18 days. A unique feature of each of the satellites, because of the orbit, is that it views each location on the Earth at the same local time. For Wisconsin, that time is approximately 10:30 a.m. The sensors on board the spacecraft transmit data to NASA receiving stations in Alaska, California, and Maryland either directly or from tape recorders. The data are converted from electronic signals to photographic images and computer compatible tapes in NASA's Goddard Space Flight Center in Greenbelt, Maryland. At the EROS Data Center in Sioux Falls, South Dakota, where images are placed on file, requests for reproductions are filled for the scientific community, industry, and the public at large. Because of the experimental nature of the satellites and the limited capabilities of NASA ground processing equipment at Greenbelt, approximately 30-90 days are required from the time the signals are first received on the ground to the time that the data are available to the public at the EROS Data Center.

### Data Acquisition

Each Landsat presently carries three data acquisition systems: (1) a multi-spectral scanner (four spectral bands), (2) a return beam vidicon (RBV) or television system, and (3) a data collection system (DCS) to relay environmental data from ground-based data collection platforms (DCP's). Landsat D will also carry a seven channel thematic mapper. The multispectral scanner, or MSS, is the primary sensor system and acquires images of 115 miles (185 km) per side in four spectral bands in the visible and near-infrared portions of the electromagnetic spectrum. Each image is geographically designated through a worldwide reference system of path/row numbers (the path numbers referring to the satellite orbital paths and the row numbers indicating the nominal center of each image acquired along the paths). Figure 1 on the following page illustrates the path/row designations for Wisconsin.



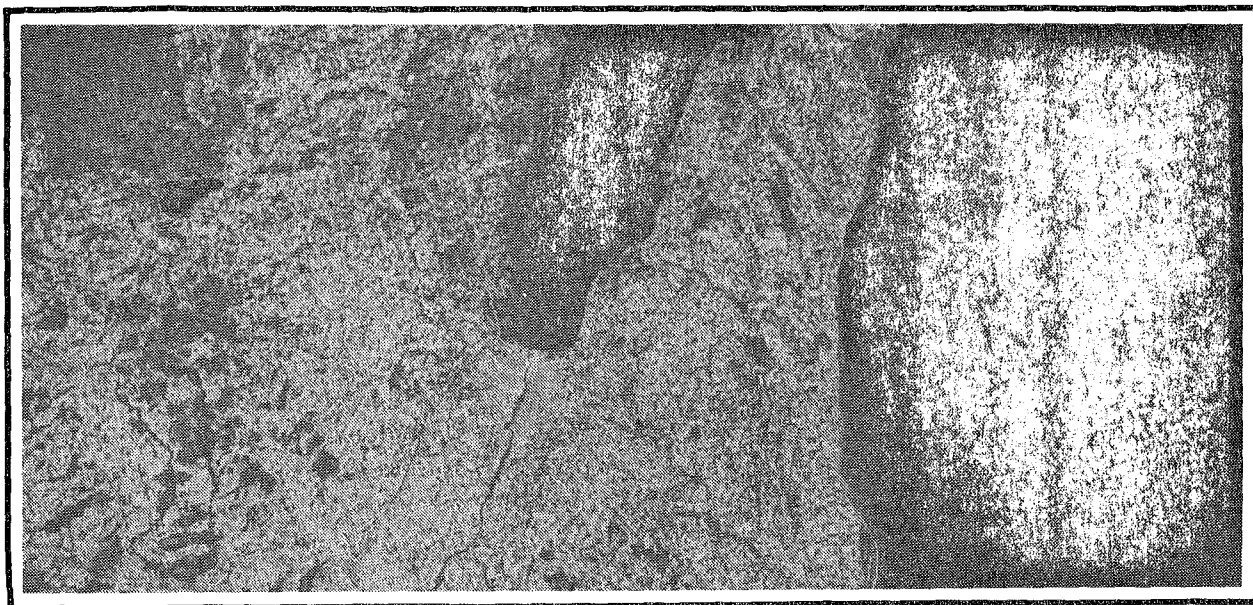
The four spectral bands of the MSS are:

Band 4, the green band, 0.5 to 0.6 micrometers; emphasizes movement of sediment-laden water and delineates areas of shallow water, such as shoals, reefs, etc.;

Band 5, the red band, 0.6 to 0.7 micrometers; emphasizes cultural features, such as metropolitan areas, roads, gravel pits, and quarries;

Band 6, the near-infrared band, 0.7 to 0.8 micrometers; emphasizes vegetation, the boundary between land and water, and landforms; and

Band 7, the second near-infrared band, 0.8 to 1.1 micrometers; provides the best penetration of atmospheric haze and also emphasizes vegetation, the boundary between land and water, and landforms.



Landsat; Band 5; centered over Green Bay; June 25, 1979; 1:1,000,000 scale.

## Products and Uses

MSS images are available as either transparencies or prints, both in either black-and-white or "false-color". Images of individual bands are in a black-and-white format. When ordering a single black-and-white image, it is best to order band 5. This band usually gives the best general-purpose view of the Earth's surface. On the other hand, an MSS false-color composite image is generally created by simultaneously exposing three of the four black-and-white transparencies (usually bands 4, 5, and 7) through different color filters onto color film. On these false-color images, healthy vegetation appears bright red, rather than green; clear water appears black; sediment-laden water is powder blue; and urban centers often appear blue or blue-gray.

An analysis of the four individual black-and-white images or the false-color composite images often permits users to identify and inventory different environmental phenomena, such as distribution and general type of vegetation, regional geologic structures, and areal extent of surface water. The repetitive (9 or 18 days) and seasonal coverage provided by Landsat imagery is an important new tool for the interpretation of dynamic phenomena.

A special set of Landsat images has been prepared for the conterminous United States. The 470 scenes required to cover the United States are available in all four bands (as black-and-white images) or as high-quality color composites. The scenes selected were chosen on the basis of quality, optimum time of year (generally spring or summer), and minimum cloud cover. Also, several computer (digitally) enhanced Landsat color composite images have been produced at the EROS Data Center. All of Wisconsin is covered by these enhanced imagery.

Landsat data in digital form are also available as Computer Compatible Tapes (CCT).

## HIGH ALTITUDE PHOTOGRAPHY

### National High Altitude Photography Program

Many Federal and State agencies have been acquiring high-altitude aircraft photographs for several years. Coverage at scales ranging from 1:60,000 to 1:135,000 is used extensively for mapping purposes and numerous other applications including resource inventory, pollution detection, and agricultural monitoring. A program currently underway recognizes the value of these efforts by suggesting a repetitive, cyclic, national high-altitude photography data base for the use of all.

At a meeting in August 1978, representatives from interested federal agencies gathered to discuss this program and contribute their ideas on what kind of aerial coverage would best meet their needs. Many user requirements, it was learned, would be satisfied by using two mapping cameras to obtain color infrared and black-and-white panchromatic stereoscopic coverage from altitudes near 12,200 meters (40,000 feet). Portions of the conterminous

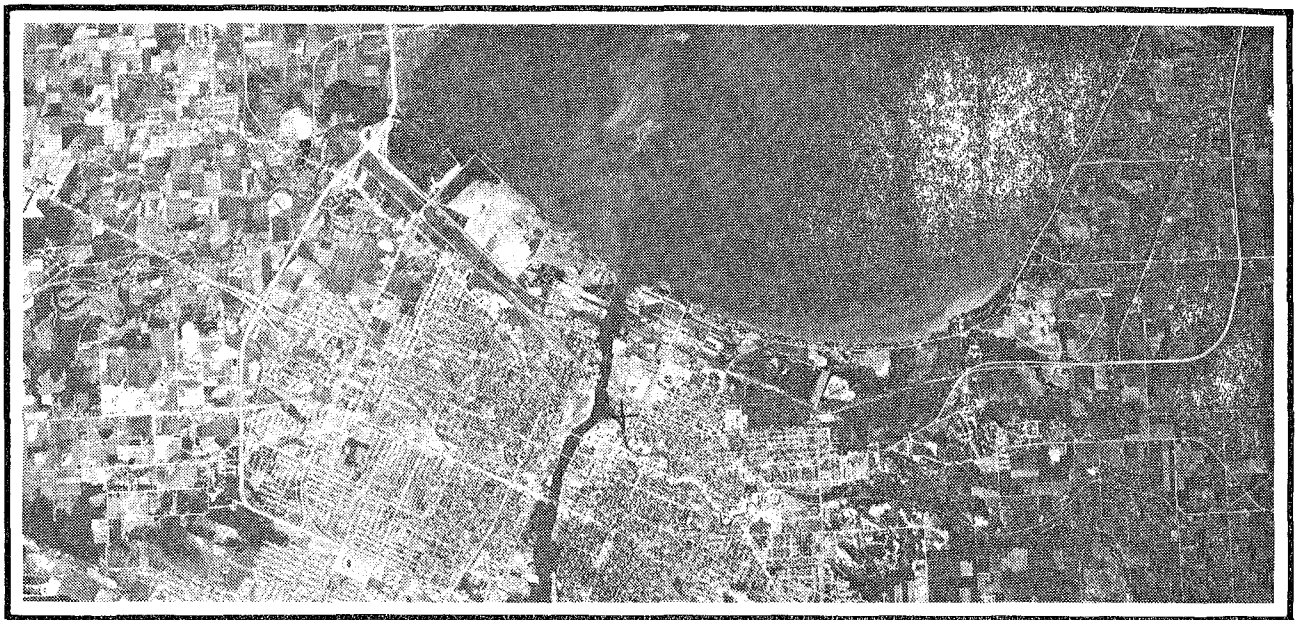
United States would be photographed each year so that full coverage would be available in 3 to 4 years, and then repeated at regular intervals.

In December 1979, Mark Hurd Aerial Surveys, Inc., of Minneapolis, Minnesota, was determined to be the low bidder on the program to acquire high-altitude photography for a nationwide aerial photo data base. Formal award of the contract was made in February 1980.

Flights began in Spring 1980 under the coordinating auspices of the U.S. Geological Survey National Mapping Division. Approximately 600,000 square miles of coverage are scheduled for the first year. Seasonal factors and the priorities of funding agencies will dictate the pattern of coverage as the program continues. Some 88,300 flight line miles will have been covered by the completion of this contract. Portions of Wisconsin are to be covered by December 1980; acquisition of the available imagery can be made then.

The 9-inch black-and-white (1:80,000) and color infrared (1:58,000) photography will be acquired in north-south strips acquired along flight lines centered over U.S.G.S. 7.5-minute quadrangles. The first and fourth exposure of the color infrared camera will coincide with the first and third exposure of the black-and-white camera to simplify the production of orthophotoquads and facilitate indexing. All coverage will be geographically retrievable and will be maintained "on the shelf" for any user wanting to purchase reproductions. The EROS Data Center and the Agricultural Stabilization and Conservation Service (ASCS) in Salt Lake City, Utah will be distribution centers for the photography.

There is no doubt of the utility of high-altitude photography for a wide variety of mapping and interpretive applications. Sufficient experience has been gained to indicate that a National High Altitude Photography Data Base will be of immediate and significant value to federal, state, and local organizations involved in all aspects of land use, management, exploration and conservation.



High altitude; Green Bay; June 4, 1972; 1:120,000 scale.



## NASA Aerial Photography

NASA high-altitude aerial photography is the product of aerial surveys carried out by the NASA Earth Resources Aircraft Program. The program is directed primarily at testing a variety of remote-sensing instruments and techniques in aerial flights generally over certain preselected test sites within the continental United States.

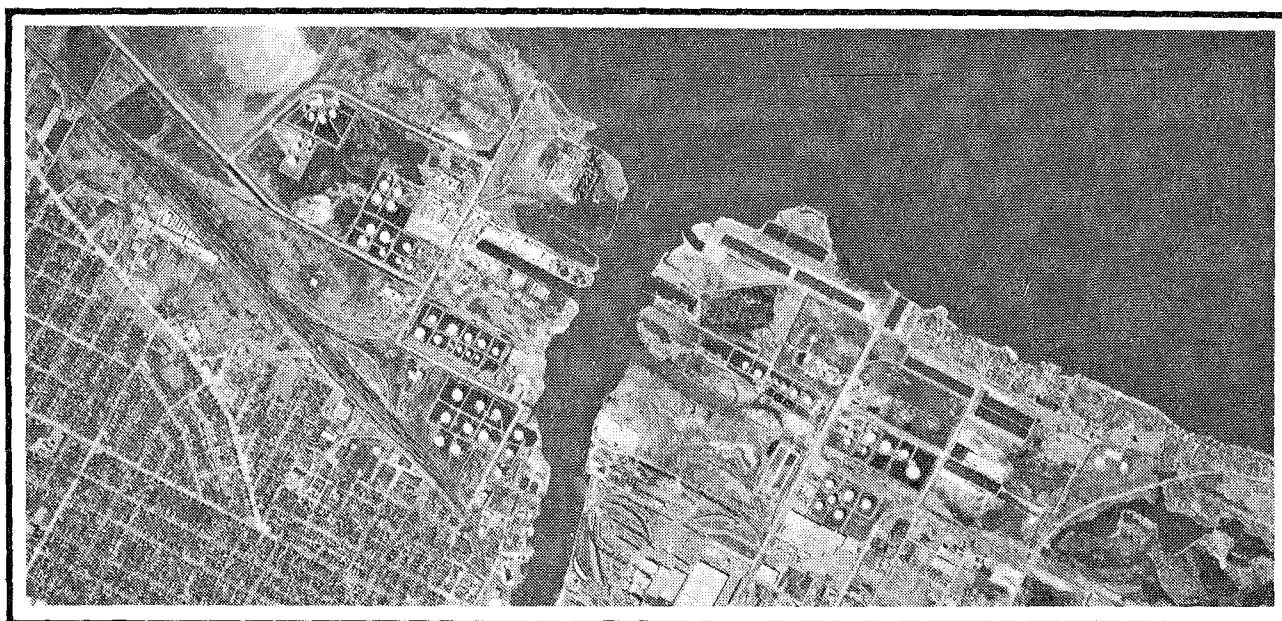
Aerial photography is available in black and white, color, or false-color infrared, and clearly shows easily identifiable ground features such as roads, farms, and cities. Cloud cover is present in some photographs and NASA aerial photographic coverage is not available for all areas.

This aerial photography is also available from the EROS Data Center in a wide variety of formats from flights at altitudes of a few thousand feet (1,000 m) up to U-2 and RB-57F flights at altitudes above 60,000 feet (18,000 m). The high-altitude photography is generally available on a 9 by 9 inch (23 by 23 cm) film format at approximate scales of 1:120,000 and 1:60,000. In general, each high-altitude frame of 9-inch (23 cm) film format photography at 1:120,000 scale shows an area approximately 17 miles (27 km) on a side.

## LOW ALTITUDE PHOTOGRAPHY

Aerial photography during the past 25 years was acquired by the U.S. Geological Survey, Soil Conservation Service, Agricultural Stabilization and Conservation Service, and other federal government agencies for mapping of the United States. The photography is black and white and has less than 5 percent cloud cover.

Depending on the planned use of the photographs, the aerial-survey altitude typically ranges from 10,000 feet (300 m) to 40,000 feet (12,000 m). The basic film format is 9 x 9 inches (23 x 23 cm) and shows areas 9 miles (14.4 km) or greater on a side depending on the scale of the photograph.



Low altitude; Green Bay; April 17, 1971; 1:30,000 scale.

Because of the large number of aerial photographs needed to show any specific region on the ground, the photographs have been indexed by mounting series of consecutive and adjacent overlapping photographs to create mosaics of photographs of specified areas. These aerial photographic mosaics are referred to as "photo indexes" and allow for rapid identification of photographic coverage of a specified area. Presently, several hundred thousand photo indexes are available at the EROS Center and the Agricultural Stabilization and Conservation Service, Salt Lake City, Utah.

#### WISCONSIN REMOTE SENSING APPLICATIONS PROJECT

A remote sensing applications project for the State of Wisconsin is currently underway, involving the Wisconsin Departments of Administration, Transportation, and Natural Resources, the Wisconsin State Cartographer, the University of Wisconsin-Madison, the National Aeronautics and Space Administration, the U.S. Geological Survey, and other interested local, state and federal agencies.

The goals of this project are to establish mechanisms which will facilitate the communication between and within the remote sensing research/user groups and to transfer some form of remote sensing technology to these state or local agency user groups. Specifically, the project will establish a remote sensing coordinating committee for Wisconsin, will formulate a regular remote sensing newsletter, and will set up training workshops and seminars for demonstrating applications and techniques of remote sensing technology. In addition, specific projects will be undertaken to demonstrate and to evaluate the technology transfer processes.

Input will be solicited during the coming fall and winter concerning the types of applications of remote sensing which might be undertaken. Persons interested in learning to utilize remote sensing technology for a particular application are encouraged to attend the training workshops and seminars (to be scheduled this fall) or to contact the persons listed below.

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