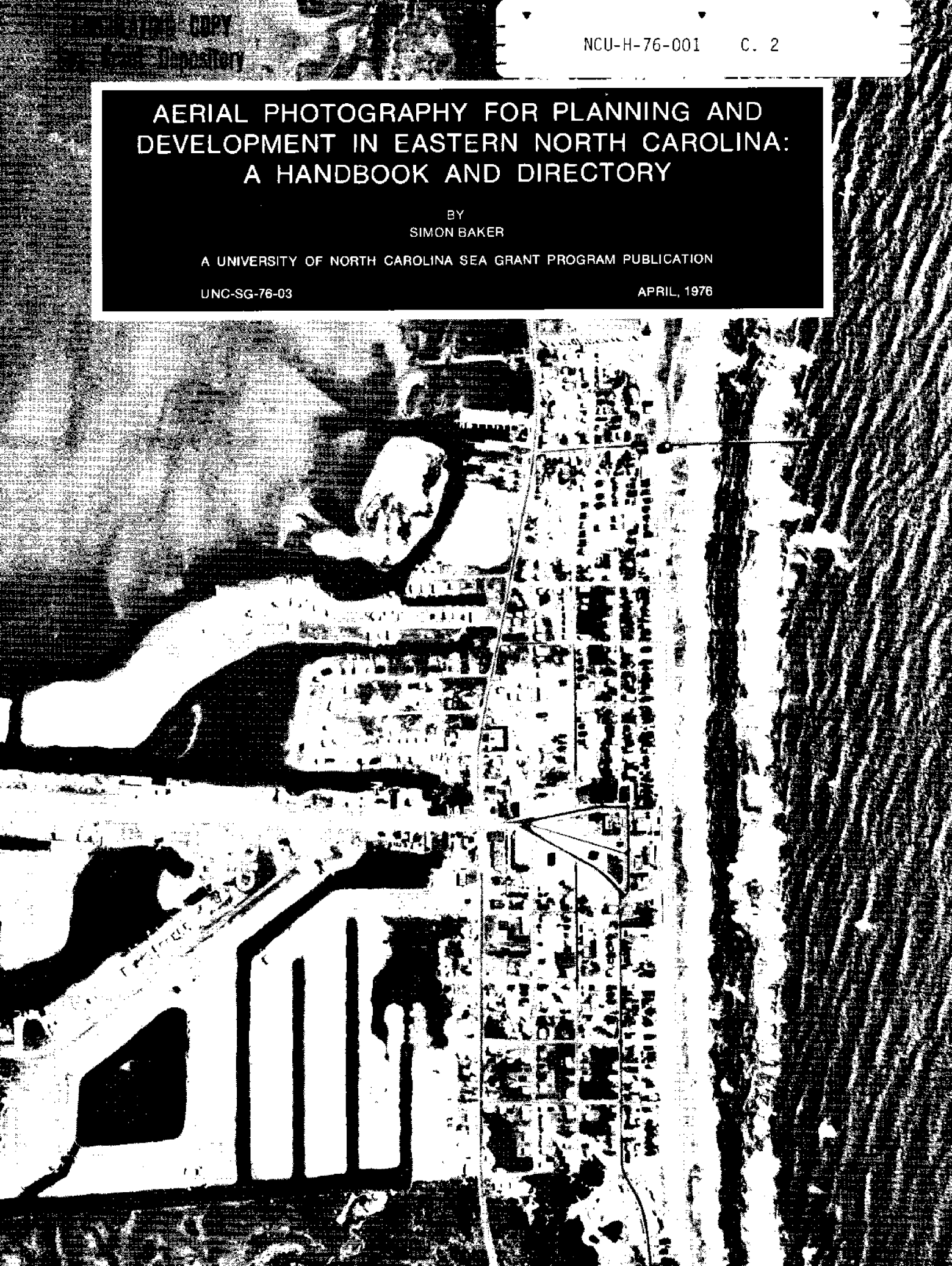
AERIAL PHOTOGRAPHY FOR PLANNING AND DEVELOPMENT IN EASTERN NORTH CAROLINA: A HANDBOOK AND DIRECTORY

BY
SIMON BAKER

A UNIVERSITY OF NORTH CAROLINA SEA GRANT PROGRAM PUBLICATION

UNC-SG-76-03 APRIL, 1976



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Sea Grant Publication UNC-SG-76-03

April, 1976

This work was sponsored by the Office of Sea Grant, NOAA, United States Department of Commerce under Grant Number 04-3-158-46 and the North Carolina Department of Administration.

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ACKNOWLEDGEMENTS

A publication of this sort is hardly ever completed by the efforts of one person alone. The cooperation and assistance of a number of individuals was crucial in the assemblage of materials and preparation of the manuscript. H. D. Wolfe, Chief of the Photo Map and Imagery Section of the National Ocean Survey, kindly provided copies of all available airphoto index sheets of coastal North Carolina. The list of National Ocean Survey aerial photography appearing herein was extracted from data on these index sheets. The various Federal and State agencies involved in the taking and sale of aerial photography provided information on their holdings and procedures for ordering imagery.

A number of illustrations were provided by: Professors Arthur Sullivan and Jay L. Langfelder of North Carolina State University, Mr. H. C. Blaylock of the Agricultural Stabilization and Conservation Service, Mr. Ben McKenzie of the North Carolina Department of Natural and Economic Resources, and Mr. K. E. Reynolds of Wild Heerbrugg Instruments Inc. The University of Chicago Press kindly permitted reproduction of an illustration from one of its publications.

Jill Stivers assisted with the compilation of data. The manuscript was typed by Patricia Van Hoy and Laurie Toussaint. The author is responsible for errors or omissions and would appreciate being informed of any.

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INTRODUCTION

The main purpose of this publication is to provide a directory of freely available low cost aerial photography of eastern North Carolina. This is approximately the Coastal Plain portion of the State and the counties listed are those lying entirely or mostly within that region (Figure 1). Many of these counties are presently engaged in planning for their future development and growth. Aerial photographs are an important source of many kinds of information needed in the planning and development process; therefore, anyone concerned with the land and its use should be acquainted with them. Such photographs are a record of the past and present use of the land and show the range of natural conditions visible on the earth's surface. In addition to planners and developers, many others such as foresters, engineers, naturalists, historians, geologists, farmers, and members of the general public can and do use aerial photographs.

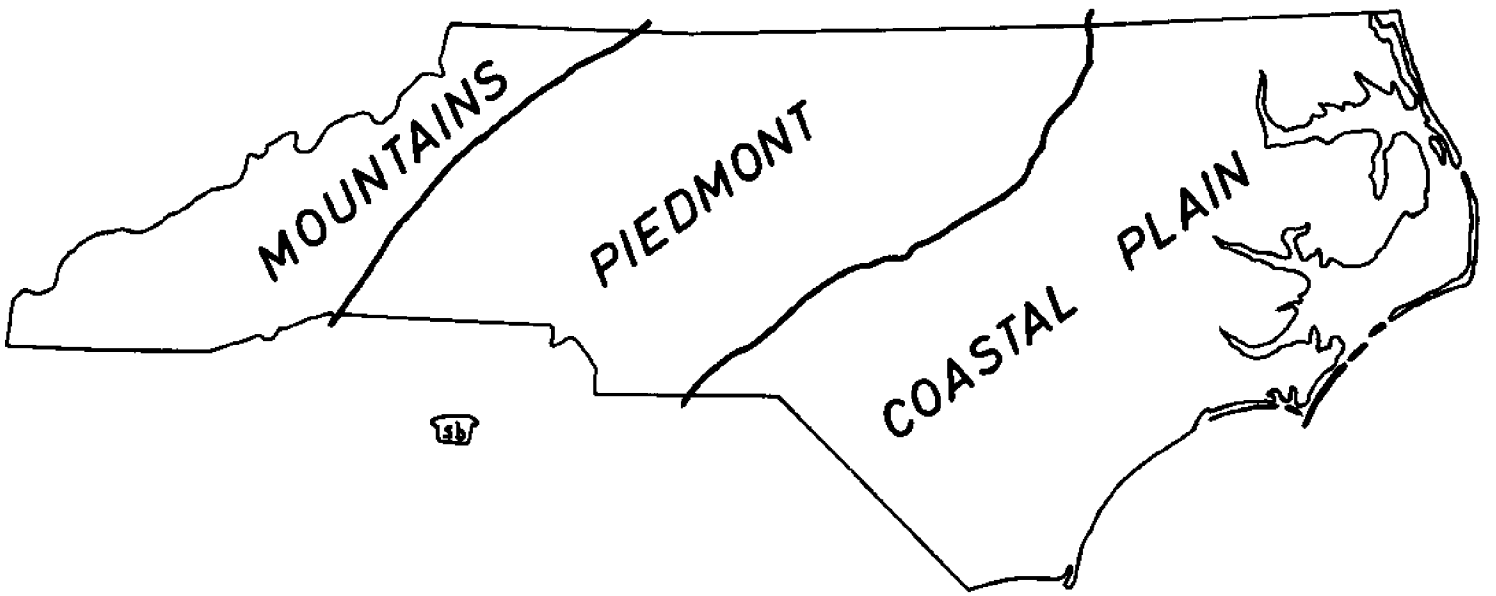


Figure 1, North Carolina Regions.

The camera is an impartial recorder of scenes exposed to its view. When it is mounted in an airplane and pointed at the earth below, the scene recorded

is out of the ordinary perspective and full of detail. In itself, the picture conveys little more than what may appear to be a confused mass of unrelated elements. Since the aerial photograph is a passive data source, the amount of information extracted from it depends on the background and skill of the photo interpreter. This is a skill which can be acquired through a combination of study and practice. If there are no courses in photo interpretation available to the aspiring user of aerial photographs, he need not be discouraged. Several good texts exist which can be used in a self-study course or for reference by almost everyone.[1] A good way to begin is to obtain aerial photographs of the local area and examine these in the light of what is read in the text. The photographs should first be studied in the office to attempt to understand what they show. This must be followed by trips into the field to examine on the ground the areas represented by various images on the photographs. Such verification is not only necessary in the learning stage but also in the later stage of practice. Aerial photo interpretation is not a substitute for field work. The use of such photographs may dramatically reduce the amount and simplify the field work, but it never does away with its necessity. Once a basic understanding of aerial photography has been acquired, the specialist will find that he is able to apply more and more of the previously accumulated knowledge and experience of his specialty to the process of photo interpretation.

MEASUREMENT OF CHANGE

A single set of aerial photographs of a place can be examined by a group of specialists and each one will extract different information. The planner, the forester, the geologist, or the agronomist will study the area, each from his particular point of view, training, or background. It is not possible in this brief discussion to provide specific information to all the various types of specialists. However, there is a very significant characteristic of aerial photography which is of value to most specialists. Aerial photographs of the same place taken at different times are historic records of that place. When viewed in a time sequence, it is possible to detect and record changes in the natural and man-made landscapes. It is as if we were examining individual frames in a very slow motion movie extending over a period of many years. Figures 2 and 3 show man induced changes over a period of seven years on Bogue Banks. It is very clear what kind of natural environment existed prior to the contruction and it is also obvious how this area is intended to be used. Once an environment has been singled out for development by man, the change and alteration of the natural

surface may take place at a rapid rate.

Figure 2, Bogue Banks, Pine Knoll Shores. 1964

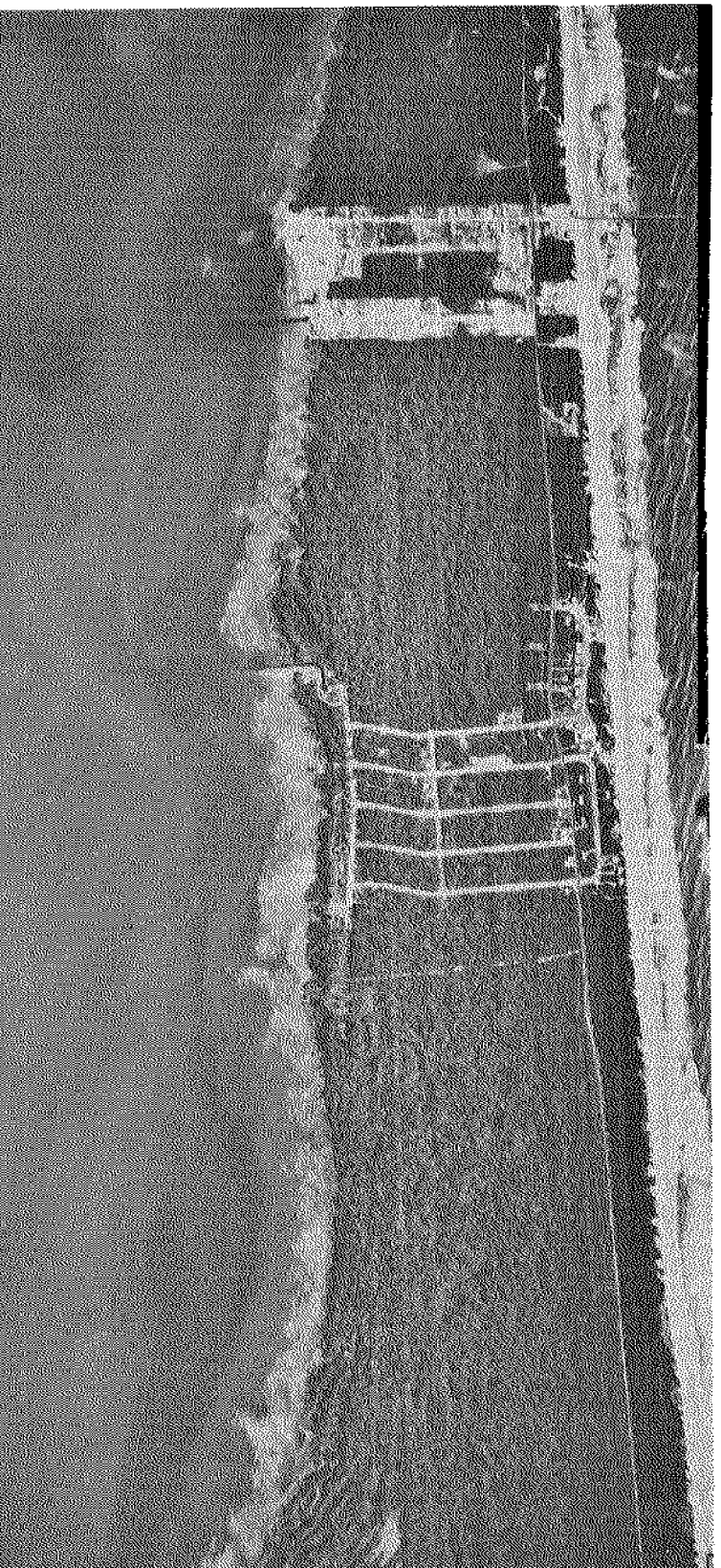
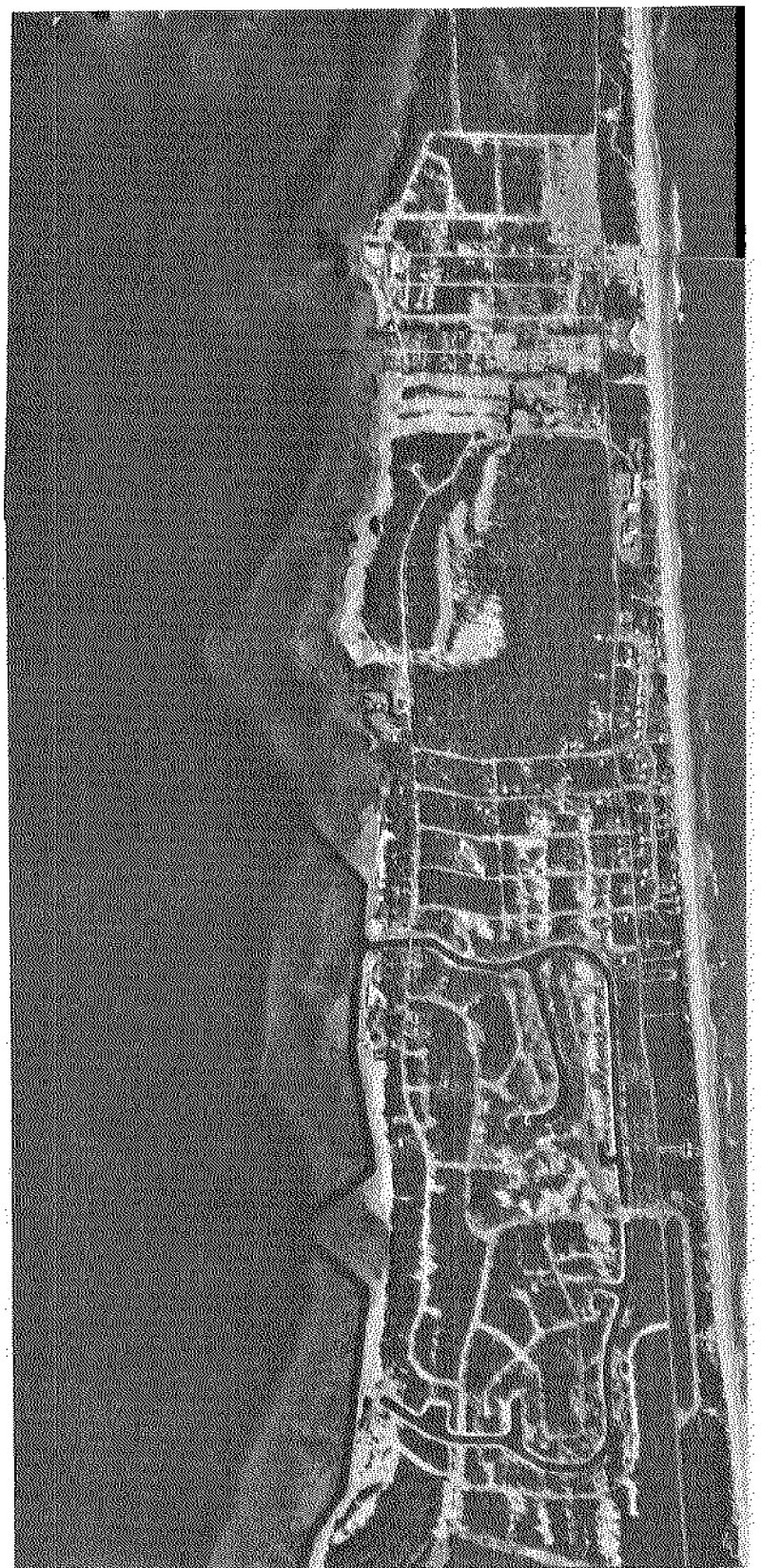


Figure 3, Bogue Banks, Pine Knoll Shores. 1971



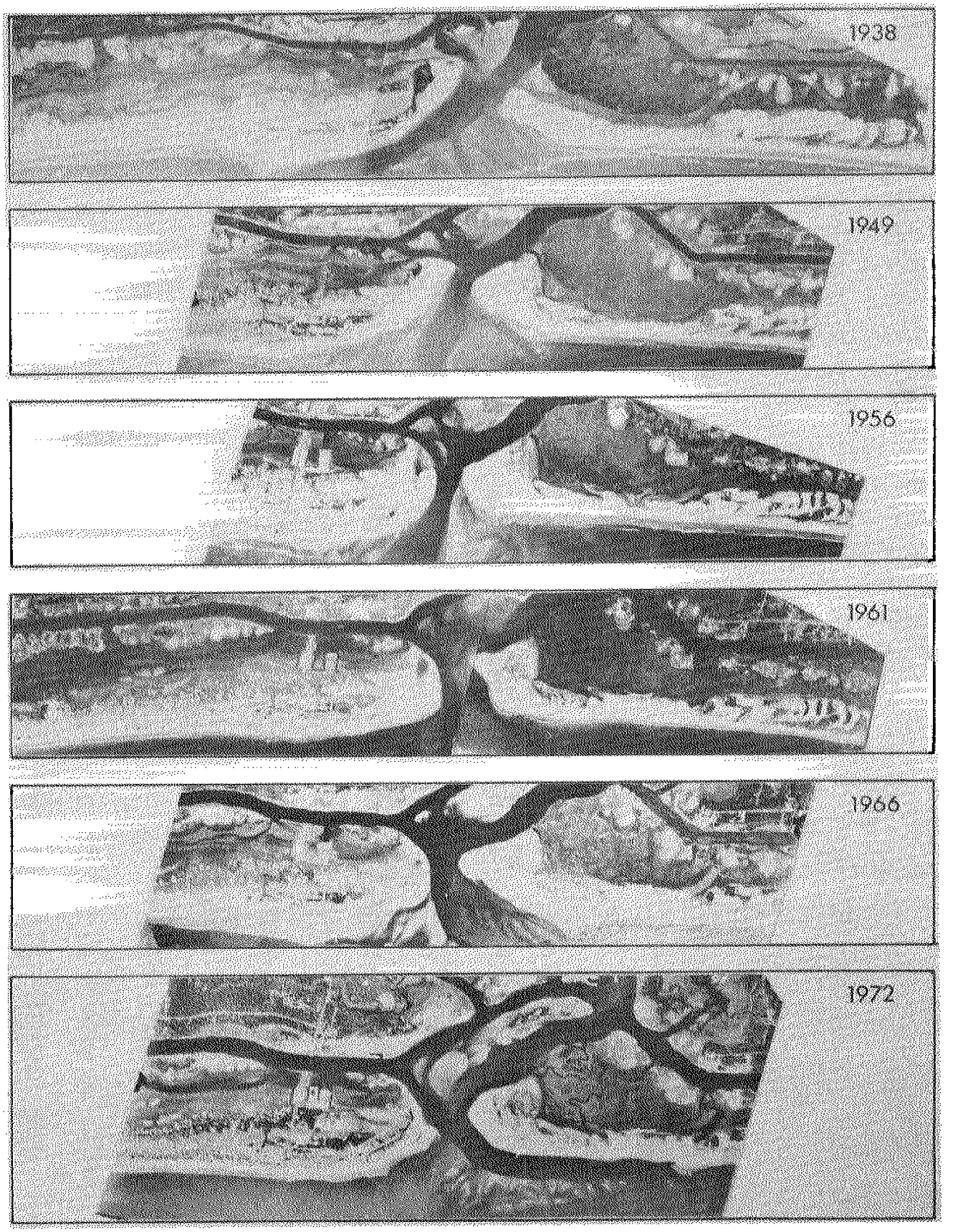
Natural change of the landscape takes place at varying rates. The wearing down of hills and mountains must be measured on the geological scale of time and we cannot look to a study of aerial photographs for measurable clues. In some circumstances we are able to see dramatic examples of what appears to be natural erosion, but very often we find that these have been induced by poor farming practices or some other intervention by man. An exception to nature's general slowness of change in the landscape, however, is when a place has been subjected to a cataclysmic phenomenon such as a hurricane or earthquake. The use of aerial photographs taken before and after the event may provide the best possible means of evaluating the changes and assessing damage. The dynamic coastal environment of North Carolina is a natural one in which change takes place at a rate measurable in terms of the human life span. The value of an aerial photographic record here is clearly shown by the comparison of the series shown in Figure 4.

Measurement of change and its rate very often provides the only real clues we have to the future configuration or development of a place. In addition to this, it is sometimes very important to know what kind of natural environment existed in a place prior to its development by man. For these reasons the lists of available aerial photography in this publication have been compiled to include not only the most recent, but also all previously known coverage of the counties and coastline.

ANGLE OF PHOTOGRAPHIC VIEW

Most scientific photo interpretation is conducted on vertical aerial photographs, and all those listed herein are such. The term refers to the angle of the camera at the instant of exposure of the film (Figure 5). In making a vertical aerial photograph, the axis of the camera is pointed at the earth datum plane surface so that it makes an angle of 90^{0} with it. If the reader can imagine the aircraft momentarily suspended in flight with a plumb line hanging from it, the vertical view would be produced by a camera pointed down at the plumb bob. This, of course, is impossible and in practice the camera is carefully adjusted so that the film plane is level and parallel to the datum plane of the earth's surface. This can be done because the aerial or mapping camera, as it is often called, is usually mounted within the aircraft so that it may take photographs through an opening in the floor.

SHALLOTTE INLET



APPROXIMATE SCALE: 1" = 3333'

Figure 4, Changes in a dynamic natural environment.

If the camera is aimed at an angle other than 90^{o} and the view includes the horizon and some sky, the resulting photograph is called a high oblique (Figure 5 and 6). Many of the views we see in magazines and newspapers are of this type. They are easily understood by untrained people, but they are not reliable for making measurements. In hilly and mountainous country large areas may be obscured and not be visible on the photograph.

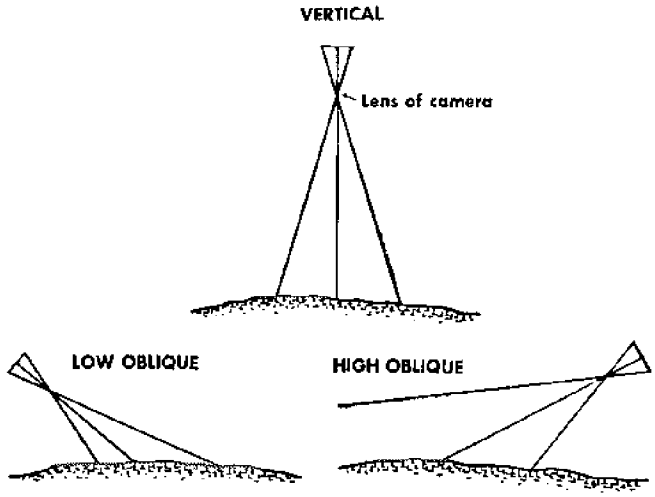


Figure 5, Camera angles in aerial photography.

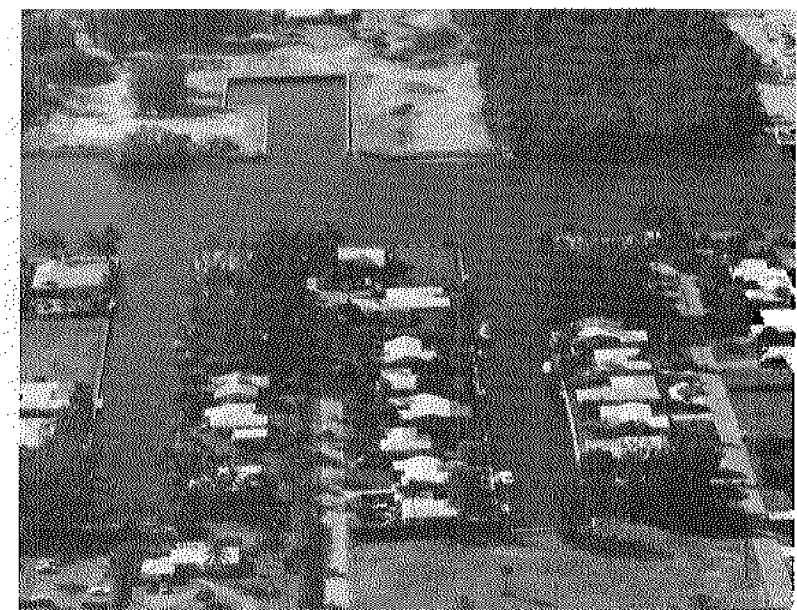
When the angle of view of the camera lies between that for the vertical and the high oblique and shows no sky, we have a photograph described as a low oblique (Figures 5 and 7). This type of photograph is used a great deal for purposes of illustration and shares some of the shortcomings of the high oblique view. In the discussion that follows we will be concerned only with vertical aerial photography of the type illustrated in Figures 2 and 3.

OVERLAP AND SIDELAP OF PHOTOGRAPHS

Once an area has been earmarked for photographic coverage, the aircraft with its camera will cover it in a series of flight lines. Each flight line is

Figure 6, High oblique view

Figure 7, Low oblique view



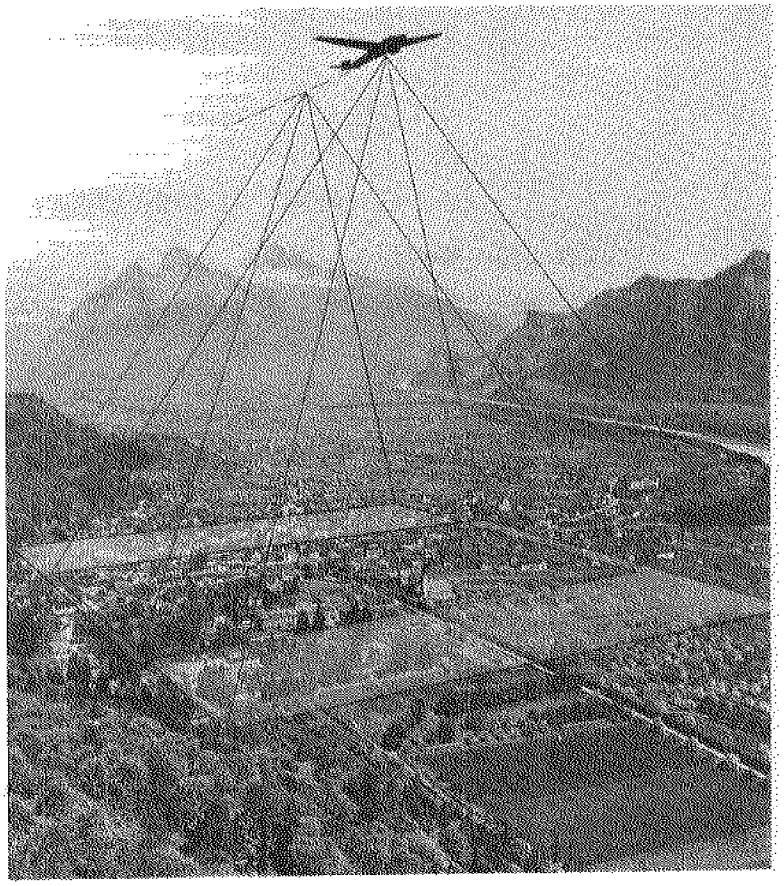


Figure 8, Adjoining photographs in a flight line showing area of overlap.

represented by a strip composed of overlapping individual photographs. Figure 8 shows how adjoining photographs within a strip are usually taken. A timing device attached to the camera controlling the rate of film transport and exposure is adjusted to take the altitude and speed of the aircraft over the ground surface into account. The normal result is a series of overlapping photographs with each one covering about 60% of the area taken in the previous photograph. The clear area in Figure 8 is the area of overlap common to the adjoining photographs. There are two important reasons for the overlap: 1. the common area visible on adjoining photographs represents the same area taken from two points of view. When these similar areas are viewed through a stereoscope it is possible to see that portion of the earth's surface in three dimensions. It is also possible to measure heights of objects and draw contour lines when using photogrammetric instruments; 2. some degree of overlap is always required so that there should be no gaps of unphotographed terrain in the flight line.

When a long strip of photographs of a flight line has been properly exposed, we have every part of the terrain covered twice. This is clearly shown by Figure 9. This example strip of seven photographs may then be adjoined by one or more additional strips of photographs until the entire target area is covered. Adjoining strips are usually lined up and flown so that they overlap by about 30% and the reason for this is to avoid gaps in the coverage (Figure 10). This sidelap obviates having to go to the expense and trouble of later flying a patch-up mission to fill the gaps. The coverage of a specified portion of the earth's surface with flight lines is analagous to painting a wall with a brush. Each brush stroke covers a strip with paint and, in order to be certain of complete coverage, a good painter will always be sure to sidelap a brush stroke with the previous one.

Each vertical photograph contains added marginal data in the form of numbers

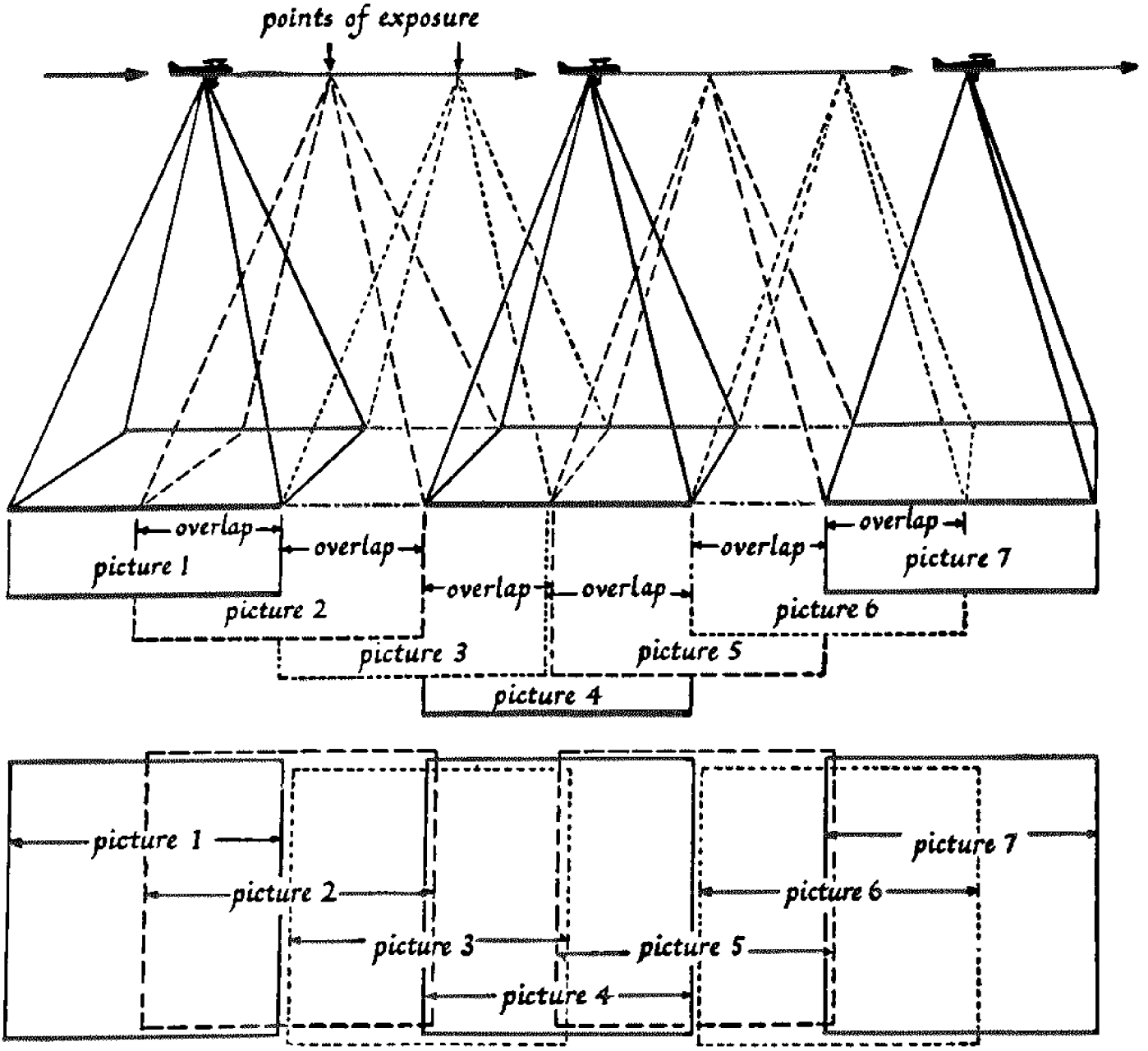


Figure 9, How photographic shots are overlapped in aerial mapping.

and letters. These usually indicate the mission designation or location, the film roll number, the individual exposure number, and the date. Federal agencies, other public bodies, and private contractors use different formats in presenting their marginal data, but they usually show at least the above information in order to identify and facilitate the retrieval of desired photographs.

INDEX SHEETS

Once an area has been covered, some sort of index to the available photography is prepared. It may take the form of a photo-mosaic of the type used by the

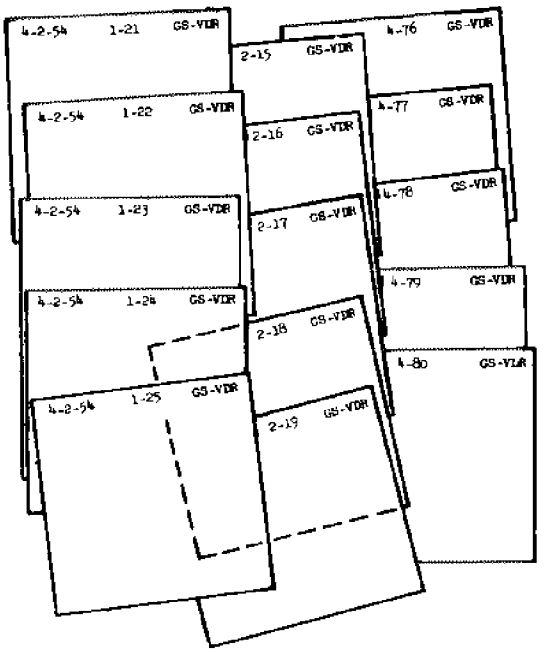


Figure 10, Portions of three flight lines showing overlap of photos within each line, and sidelap between adjoining lines.

Agricultural Stabilization and Conservation Service (ASCS) of the United States Department of Agriculture (Figure 11). These are made by laying out each flight line, one photograph at a time, and superimposing areas of overlap between adjoining photographs. These are stapled in place with the marginal data of each photograph clearly visible. Adjoining flight lines are laid down and stapled in the same manner with particular attention given to the area of sidelap being visually superimposed. When the entire area photographed has been fitted together in this manner, a larger view of the earth's surface emerges just as a mosaic picture is created by putting many small ceramic tiles in place, hence the name photomosaic. Figure 10 shows how portions of three flight lines might fit together in the overlapping arrangement described above. Once the mosaic is assembled, it is photographed at a smaller scale, reducing it in size.

Often an index of aerial photographic coverage is presented in map form. The centers of the individual photographs in the flight lines are plotted with their identifying number-letter designations also indicated. The indexes of the National Ocean Survey (NOS) are of this type (Figure 12). Since the NOS is concerned with the coast, a great deal of its photography consists of single flight lines covering the linear zone where land meets ocean.[2] This agency, then, is an important source of photographic coverage of the Outer Banks and barrier island system of coastal North Carolina.

STEREOSCOPIC VIEWING

As indicated above, it is standard practice to make adjoining photographs in a flight line so that there is about 60% of overlap. This is necessary in order to view scenes stereoscopically. The ability to conduct good photo interpretation is greatly enhanced, although not absolutely essential, by stereoscopic examination.

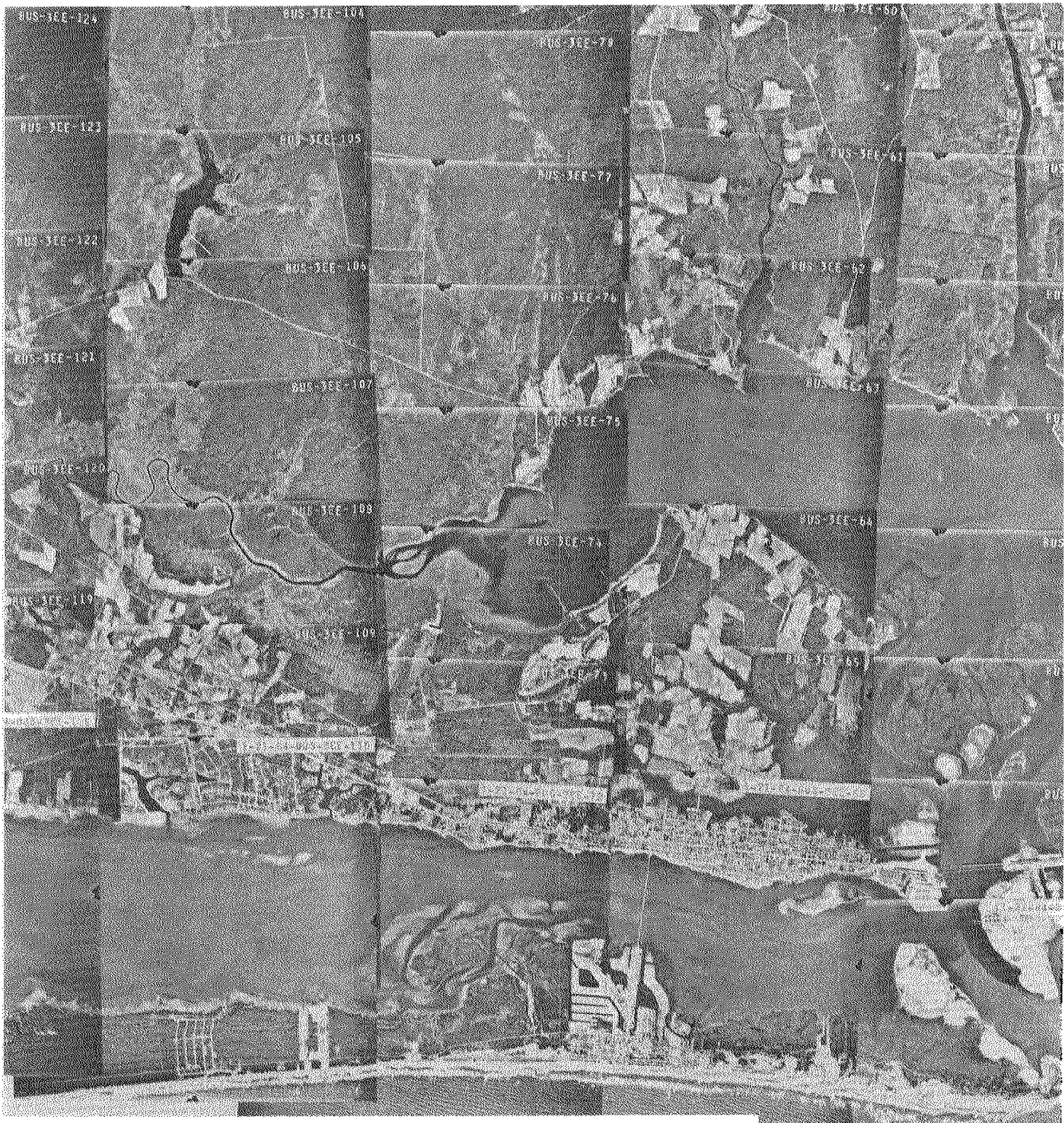


Figure 11, Portion of a photo mosaic sheet of Carteret County, N.C., Scale 1:63,360, Agricultural Stabilization and Conservation Service.

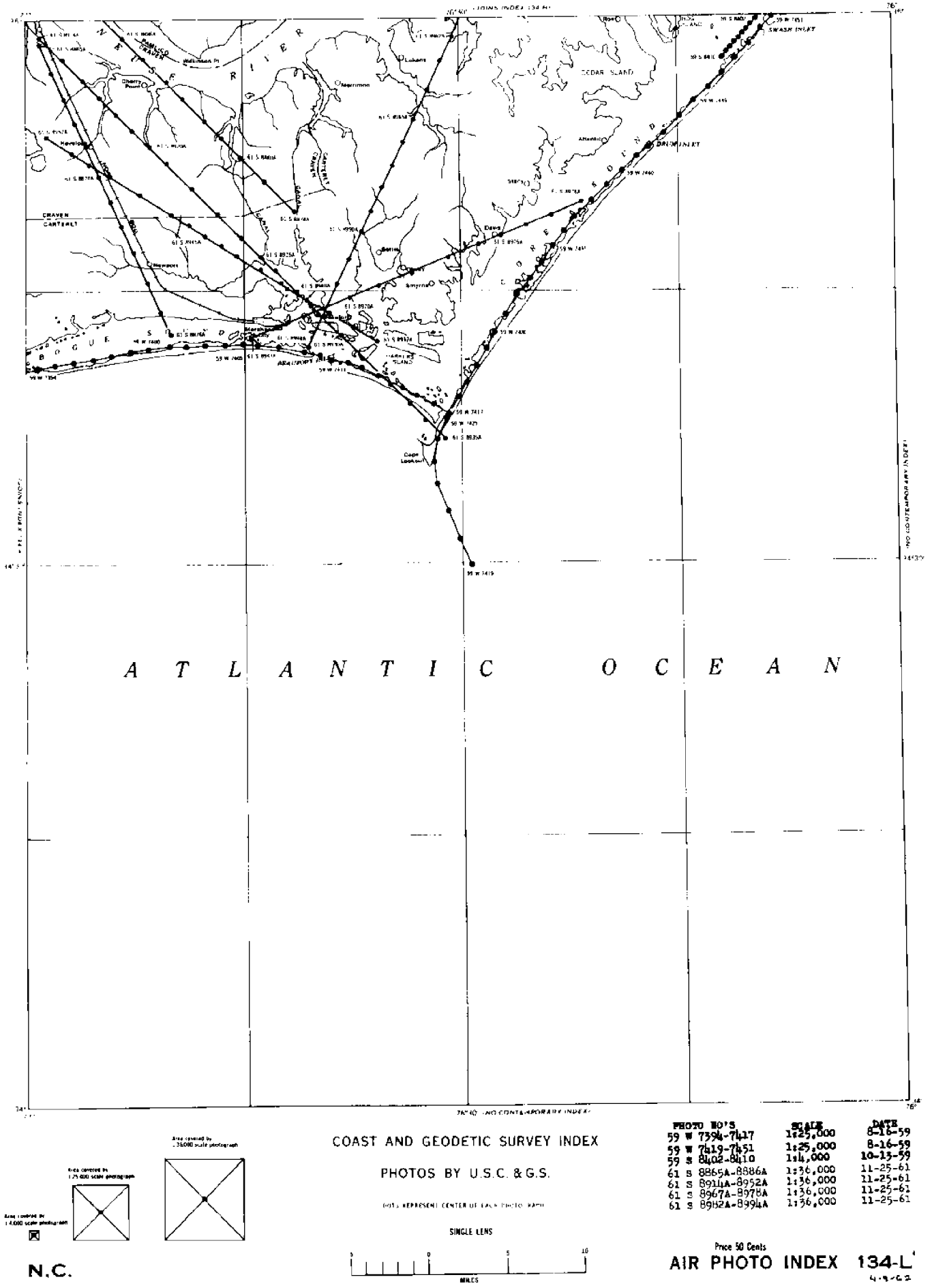


Figure 12, Approximately one-half reduction of the original.

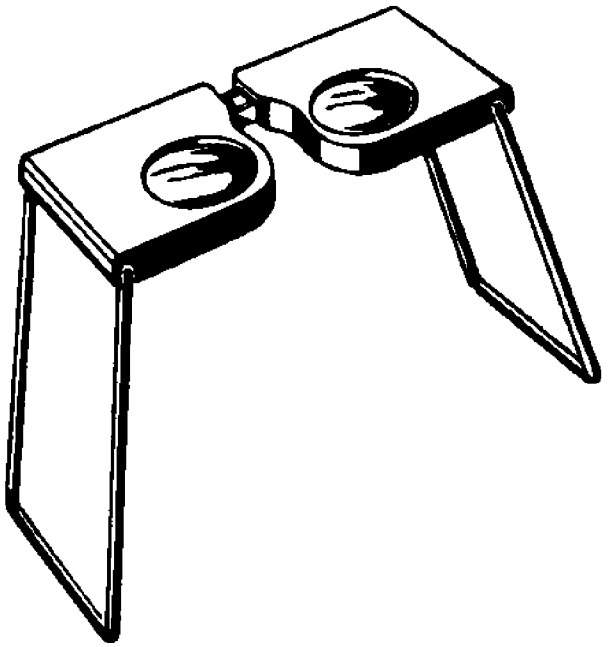


Figure 13, Lens stereoscope.

The instruments required to do this are essentially simple ones. The lens or pocket stereoscope of the type shown in Figure 13 will suffice for most jobs and is excellent for field use. A somewhat more complex and expensive instrument like the mirror stereoscope shown in Figure 14, presents a larger stereoscope model to the viewer and is intended mainly for office use. Any good text explains the alignment of aerial photographs for stereoscopic viewing and the employment of both types of stereoscopes. There is a whole science and technology of making measurements on aerial photographs, based on the stereogram, called photogrammetry; but it is very specialized and beyond the scope of this publication. Readers who desire to go into it should refer to a good basic text on the subject.[3]

PHOTOGRAPHIC SCALE

Photo interpreters are often required to make simple measurements of distance or area and an understanding of scale is essential. The ratio scale commonly employed in connection with line maps is also utilized with aerial photographs. It is also called "numerical scale" or "representative fraction." An example of a common scale used in aerial photography is 1:20,000, also expressed as 1/20,000. This means that one unit of distance on the map is equivalent to 20,000 of the same units on the ground. Hence, two points one inch apart on a map or aerial photograph of this scale would be 20,000 inches apart on the earth's surface. Distance expressed in inches is very hard to visualize so the 20,000 inches must be divided by 12" in order to get the more meaningful length in feet (1,666.7'). Engineers working with maps and aerial photographs at large scales commonly express them in terms of feet per inch, rather than as above.

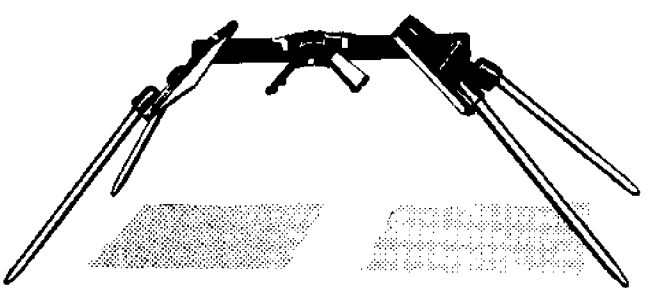


Figure 14, Mirror stereoscope.

Table 1, Map scales and equivalents.*

Ratio scale	Feet per inch	Inches per 1,000 feet	Inches per mile	Miles per inch	Meters per inch	Acres per square inch	Square inches per acre	Square miles per square inch
1: 500	41.667	24.00	126.72	0.008	12.700	0.0399	25.091	0.00006
1: 600	50.00	20.00	105.60	.009	15.240	.0574	17.424	.00009
1: 1,000	83.333	12.00	63.36	.016	25.400	.1594	6.273	.00025
1: 1,200	100.00	10.00	52.80	.019	30.480	.2296	4.356	.00036
1: 1,500	125.00	8.00	42.24	.024	38.100	.3587	2.788	.00056
1: 2,000	166.667	6.00	31.68	.032	50.800	.6377	1.568	.00100
1: 2,400	200.00	5.00	26.40	.038	60.960	.9183	1.089	.0014
1: 2,500	208.333	4.80	25.344	.039	63.500	.9964	1.004	.0016
1: 3,000	250.00	4.00	21.12	.047	76.200	1.4348	.697	.0022
1: 3,600	300.00	3.333	17.60	.057	91.440	2.0661	.484	.0032
1: 4,000	333.333	3.00	15.84	.063	101.600	2.5508	.392	.0040
1: 4,800	400.00	2.50	13.20	.076	121.920	3.6731	.272	.0057
1: 5,000	416.667	2.40	12.672	.079	127.000	3.9856	.251	.0062
1: 6,000	500.00	2.00	10.56	.095	152.400	5.7392	.174	.0090
1: 7,000	583.333	1.714	9.051	.110	177.800	7.8117	.128	.0122
1: 7,200	600.00	1.667	8.80	.114	182.880	8.2645	.121	.0129
1: 7,920	660.00	1.515	8.00	.125	201.168	10.00	.100	.0156
1: 8,000	666.667	1.500	7.92	.126	203.200	10.203	.098	.0159
1: 8,400	700.00	1.429	7.543	.133	213.360	11.249	.089	.0176
1: 9,000	750.00	1.333	7.041	.142	228.600	12.913	.077	.0202
1: 9,600	800.00	1.250	6.60	.152	243.840	14.692	.068	.0230
1: 10,000	833.333	1.200	6.336	.158	254.000	15.942	.063	.0249
1: 10,800	900.00	1.111	5.867	.170	274.321	18.595	.054	.0291
1: 12,000	1,000.00	1.0	5.280	.189	304.801	22.957	.044	.0359
1: 13,200	1,100.00	.909	4.800	.208	335.281	27.778	.036	.0434
1: 14,400	1,200.00	.833	4.400	.227	365.761	33.058	.030	.0517
1: 15,000	1,250.00	.80	4.224	.237	381.001	35.870	.028	.0560
1: 15,600	1,300.00	.769	4.062	.246	396.241	38.797	.026	.0606
1: 15,840	1,320.00	.758	4.00	.250	402.337	40.000	.025	.0625
1: 16,000	1,333.333	.750	3.96	.253	406.400	40.812	.024	.0638
1: 16,800	1,400.00	.714	3.771	.265	426.721	44.995	.022	.0703
1: 18,000	1,500.00	.667	3.52	.284	457.201	51.653	.019	.0807
1: 19,200	1,600.00	.625	3.30	.303	487.681	58.770	.017	.0918
1: 20,000	1,666.667	.60	3.168	.316	508.002	63.769	.016	.0996
1: 20,400	1,700.00	.588	3.106	.322	518.161	66.345	.015	.1037
1: 21,120	1,760.00	.568	3.00	.333	536.449	71.111	.014	.1111
1: 21,600	1,800.00	.556	2.933	.341	548.641	74.380	.013	.1162
1: 22,800	1,900.00	.526	2.779	.360	579.121	82.874	.012	.1295
1: 24,000	2,000.00	.50	2.640	.379	609.601	91.827	.011	.1435
1: 25,000	2,083.333	.480	2.534	.395	635.001	99.639	.010	.1557
1: 31,680	2,640.00	.379	2.000	.500	804.674	160.000	.006	.2500
1: 48,000	4,000.00	.250	1.320	.758	1,219.202	367.309	.003	.5739
1: 62,500	5,208.333	.192	1.014	.986	1,587.503	622.744	.0016	.9730
1: 63,360	5,280.00	.189	1.000	1.000	1,609.347	640.00	.0016	1.0000
1: 96,000	8,000.00	.125	.660	1.515	2,438.405	1,469.24	.0007	2.2957
1: 125,000	10,416.667	.096	.507	1.973	3,175.006	2,490.98	.0004	3.8922
1: 126,720	10,560.00	.095	.500	2.00	3,218.694	2,560.00	.0004	4.00
1: 250,000	20,833.333	.048	.253	3.946	6,350.012	9,963.907	.0001	15.5686
1: 253,440	21,120.00	.047	.250	4.00	6,437.389	10,244.202	.0001	16.00
1: 500,000	41,666.667	.024	.127	7.891	12,700.025	39,855.627	.000025	62.2744
1: 1,000,000	83,333.333	.012	.063	15.783	25,400.050	159,422.507	.0000062	249.0977

*From Aerial-Photo Interpretation in Classifying and Mapping Soils, Agriculture Handbook 294, Soil Conservation Service, U. S. Department of Agriculture, Washington, 1966.

In order to facilitate the work of photo interpreters and to avoid confusion between the various expressions of scale, Table 1 has been included as a ready reference. It should also be useful in making measurements involving area and metric conversion.

The scale of an aerial photograph usually refers to that of the contact print made from the aerial negative. It follows, then, that it is really the scale of the negative we refer to when we indicate that a particular coverage was flown at some designated scale. Any negative can be put into an enlarger to produce a print of the same scene at a different scale. This can be very useful for special purposes where more detail is required in making an interpretation. However, it should be pointed out that the normal procedure is to make contact prints which are of the same scale as the negative.

SCALE AND PHOTOINTERPRETATION

There is no one perfect scale of aerial photography to meet all needs. Different purposes require different scales. Very often the planner or developer may have little or no choice of scale in the photography available to him and he must make do with what he has. Table 2 has been included to give these users an idea of the kinds of information they are likely to be able to extract at a variety of scales. This table was prepared by Jeanne M. Davis, a practicing planner and photo interpreter.[4] It is based on her experience and interviews with other photo interpreters. She points out that there are differences of opinion about the amount of detail discernible at the various scales; some airphoto interpreters believe that more can be seen while others claim the opposite. In her own work, she has been able to identify the items listed at the various scales in the following table.

Table 2.--Approximate airphoto scale ranges useful for planning and planning-related studies

Example of uses	Level of detail discernible
Scale 1:250,000	
Studies of land forms Studies of gross land use	Natural features: Mountain ranges Valleys Lakes Rivers Urban areas: Rural areas: Forests Farmland
Scale 1:96,000-1:126,720	
Studies of land forms Studies of gross land use	Includes all discernible at preceding scale Urban areas: Subdivisions Rural areas: Villages Reservoirs Transportation and communication: Airports Railroad yards Expressways and interchanges
Scale 1:62,500-1:70,000	
General land-use studies at State and regional levels Studies of watershed drainage patterns Studies of road and street patterns Studies of rate of rural to urban land use change Preliminary site selection studies for new towns Selection of possible sites for State or county parks Preliminary site selection studies for new highways	Detail discernible at preceding scale. Natural features: Streams Flood plains Ponds Beaches Potholes Rapids Swamps Urban land uses: Residential areas Industrial areas Commercial areas Parks and recreation areas Race tracks Rural land uses: Woodlots Cultivated fields Pasture or idle land

Table 2--Continued

Scale 1:62,500-1:70,000(Continued)	
Example of uses	Level of detail discernible

	Industrial complexes
	Transportation and communication:
	  High-voltage electric transmission towers
	  Pipelines
	  Gas and oil storage tank farms

Scale 1:25,000-1:50,000	

Natural resources inventory
Studies for reservoir site selection
Study of potential water power
	Detail discernible at preceding scale.
	Transportation:
	  Railroads
	  Highways
	  Docks
	  Shipyards
	Urban land uses:
	  Subdivisions
	  Shopping centers
	  Mobile home parks
	  Central business districts
	  Drive-in theaters
	  Stadiums
	  Golf courses
	Rural land uses:
	  Farms
	  Nurseries
	  Greenhouses
	  Cemeteries

Scale 1:12,000-1:20,000	

Detailed land-use studies
Mapping the distribution of one crop
Housing market analyses
Shopping center location studies
Studies for selection of dam sites
School site selection
Farm land-use planning
Erosion control studies
	Detail discernible at preceding scale.
	Urban land uses:
	  Residential
	  Houses--single, duplex, row
	  Apartment buildings
	  Institutional
	  Hospitals
	  Churches
	  Community facilities
	  Schools

Table 2--Continued

Scale 1:12,000-1:20,000(Continued)	
Example of uses	Level of detail discernible
Soil mapping Forest classification Forest inventory	Commercial Shopping areas Gasoline stations Industrial Factories Warehouses Vacant land Rural land uses: Nonfarm residential Farmsteads Houses Barns Cropland Row crops Close-grown crops Pasture Orchards Vineyards Idle land Irrigation and drainage ditches Natural features: Rivers Sandbars Streams Ponds Swamps, marshes Transportation and communication: Roundhouses Lanes Streets Parking lots Bridges Airports Runways Hangers Administration buildings Control towers Pipelines Pumping stations Oil storage tanks Gasometers Water storage tanks Recreation areas: Football fields Baseball diamonds Campgrounds Swimming pools Picnic grounds

Table 2--Continued

Example of uses	Level of detail discernible
Scale 1:7,920	
Classification and inventory of buildings Count buildings Count railroad cars on a siding Highway route selection	Detail discernible at preceding scale.
Scale 1:5,280	
Measure size of buildings Identify individual heavy industries	Detail discernible at preceding scale.
Scale 1:2,400	
Measure size of railroad cars and automobiles	Detail discernible at preceding scale

TYPES OF FILM EMULSIONS

Just as scale is important in determining what kinds of information the photo interpreter may extract, the types of films or emulsions used to make aerial photographs are also crucial in this process. The following compilations of readily available photography list four types of film and it is necessary to consider and understand their characteristics before ordering any for use. By far the most commonly available and widely used film is black and white panchromatic. This film sees the natural colors of the visible spectrum of electromagnetic energy as shades of gray ranging from white to black. Panchromatic film has been widely used for mapping and general data gathering for a broad variety of purposes. It is of relatively low cost and is so generally satisfactory that its use will probably continue into the foreseeable future. People who are new to photo interpretation readily understand and accept this film because of previous experience with black and white snapshots, newspaper pictures, and television images. With training and experience it is possible to discern the meaning of subtle differences in shades of gray and the absence of color may hardly be missed.

A second emulsion which may, at first glance, be confused with the black and white panchromatic film is black and white infrared. This latter is a special film which is sensitive to near infrared radiation not visible to the human eye. The components of the natural and man-made landscape reflect infrared radiation in varying degrees. The film converts this infrared reflectiveness into shades of gray with the lighter tones corresponding to high intensity. Foresters have used this characteristic to help identify and sort out tree species. Broad-leafed trees tend to be much more reflective of infrared radiation and will appear in very light gray tones compared to conifers which absorb more of the radiation and show up in darker tones. The National Ocean Survey uses black and white infrared for shoreline mapping studies because the difference in reflectance from land and water is very great making for a clearly defined boundary. Water is a poor reflector of infrared and shows up as a black tone while land and vegetation are usually brighter.

Natural color films of various types are being used with greater frequency as costs go down and the photographs become more manageable. Early photography of this type was in the form of bulky rolls of transparencies. This was very awkward for field use and production of prints was expensive and often not very satisfactory. Film technology has been changing and good natural color prints can be obtained using color negative film. Color transparencies have by no means been abandoned and there are many cases where such photography is taken and used. The natural color films have an advantage in that they record scenes, more or less, as the eye sees them. Given the range of color which can be registered on such films, compared with the number of gray shades possible on panchromatic, the interpreter has a larger and more accurate data source to use in conducting his work.

Finally, we must consider color infrared aerial photography because of its special characteristics and increasing availability. This emulsion is also called "false-color" or "camouflage-detection" film. The latter name is indicative of the military origins of the film while the former is descriptive of the different appearance of the colors of familiar objects. Infrared reflectance from vegetation is registered in shades of red. Thus, healthy vegetation does not show up in green but in a variety of reds. The intensity of the red color for any given species may be used as an indication of the vigor and health of the plants. Shades of red may also be used to distinguish between conifers and broad-leafed trees. Unhealthy vegetation looses its ability to reflect infrared radiation and does not register in a red color but may appear as a shade of blue. It has been found that the poor state

of health of growing plants may register on color infrared film before it is apparent to observers on the ground. For this reason, the emulsion has become very important for workers involved with plant diseases and insect infestations on plants.

All of the above-listed film emulsions are illustrated and their uses discussed in a series of introductory photo interpretation publications of the Eastman Kodak Company.[5]

IDENTIFYING AREAS FOR ORDERING PHOTOGRAPHS

We come now to the very practical problem of how to know what kind of aerial photographic coverage is available for a given place and how to go about obtaining what we need. The discussion to this point has been concerned with the subject of photo interpretation, but we must first obtain the appropriate aerial photographs in order to begin to interpret. This section describes a method of identifying areas so that the agency which made or holds the photography and is contacted will know precisely what coverage is required and will be able to respond to requests in the most efficient and time-saving way. Once an area can be accurately described, the agencies holding the photography are also able to inform the interpreter of the various scales and film emulsions they have for that place.

Easily available gasoline station roadmaps provide the basis for describing locations for which aerial photographic coverage is desired. There is enough detail on such maps so that it is possible to pinpoint an individual piece of property closely enough for an agency to select the single photograph likely to cover it (Figure 15). In such a case a dot marked on the roadmap (point A) with a dark pen, so as to obscure as little of the surrounding detail as possible, will suffice. A large arrow drawn pointing at the dot will call attention to its location. An example from Carteret County, North Carolina, has been selected and portions of photographs of the place taken in two different years are shown as Figures 2 and 3. If stereoscopic coverage of the property is desired, this should be indicated so that the agency can respond with the photograph flight line designations and frame numbers for ordering purposes. In the letter to the agency, the photograph user should indicate the name of the state and county where the property is located in addition to sending the marked road map. The agency will usually respond by sending a price list along with the identification data for the photographs. With that accomplished, it is then possible to send a routine order and be reasonably certain of getting the photographic coverage required.

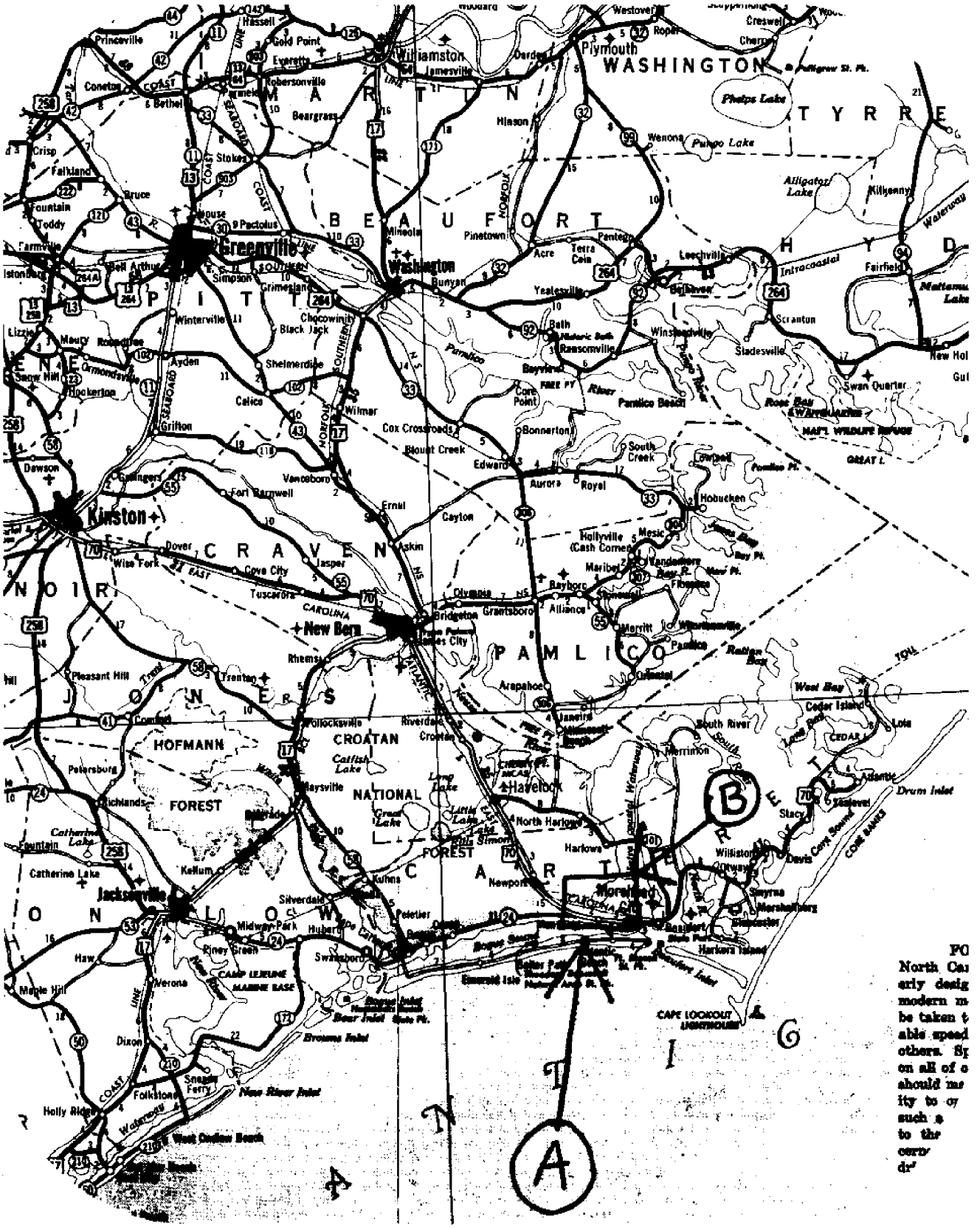


Figure 15, An ordinary road map used to indicate areas of interest in ordering aerial photography.

If the photograph user is uncertain about the extent of coverage required, he should request a copy of an index sheet for the portion of interest of the county or coast. Figure 15 also shows such a large area (marked B) which has been outlined with a pen. The user could either ask for the numbers of the individual photographs covering this area or he could order the appropriate index sheet and select the photographs himself (Figure 11). In any case, planning agencies and other branches of county government will find it extremely useful to have on hand complete photo index coverage of their county. The cost is not great and, in addition to being used for ordering aerial photography, they provide a reasonably clear overview of the entire county at a scale of 1:63,360, or one inch to a mile. The index sheets referred to are, of course, those produced and sold by the Agricultural Stabilization and Conservation Service of the U. S. Department of Agriculture.

One last word about indicating locations on road maps. It is not necessary to send the entire road map to the governmental agency holding the desired aerial photography. Since such maps are usually available at no cost, the user should not hesitate to cut out the portion of interest and send it with his letter of inquiry. Enough of the area around the designated location should be included to show main roads, surrounding towns, rivers, state and county boundaries or segments of the coast, if appropriate. Many of these points of reference are usually included if a radius of four or five inches from the designated point is used as a guide for cutting out the road map segment (Figure 15).

AGENCY SOURCES OF AERIAL PHOTOGRAPHY

This section lists and describes the aerial photographic holdings of a number of agencies of the Federal and State governments from which any person may purchase photographs. It is necessary to prepare such a guide because there is no single agency holding and distributing all the photography for those others actively engaged in taking it. The user need not be deterred by this fact, however, because the lists of available aerial photography for eastern North Carolina identify the agencies producing and distributing their particular coverage.

ORDERING FROM THE NATIONAL ARCHIVES

The special historical characteristics of aerial photography were discussed earlier in this publication. It is not possible to list the potential users of such photography here, but anyone who may have need of information from the 1930's and

early 1940's should first consult the National Archives. This organization is now the repository for photography taken during those years by several other Federal agencies. In the case of North Carolina, the early aerial photography was done by the Soil Conservation Service (SCS) and the Agricultural Stabilization and Conservation Service (ASCS). During those early years the predecessor agency of the ASCS was the Agricultural Adjustment Administration later renamed the Agricultural Adjustment Agency. In the following lists all photography by these earlier agencies is designated as having been done by the ASCS. When inquiring about the coverage for a particular county, the symbol, year, agency, and scale should be mentioned. Both the SCS and ASCS were and are part of the U. S. Department of Agriculture (USDA). The Department has developed a system of designating counties by letter symbols so it is important to include this information. Inquiries about photographic coverage and orders should be sent to:

Cartographic Records Division
National Archives (GSA)
Washington, D.C. 20408

ORDERING FROM THE AGRICULTURAL STABILIZATION AND CONSERVATION SERVICE

Probably the single agency which provides most of the photographic coverage of eastern North Carolina is the Agricultural Stabilization and Conservation Service (ASCS) and its predecessor agencies. All of the counties except Dare have been photographed by ASCS, which operates only in agriculturally active locations. Photography has been and continues to be done on a county by county basis for a large part of the United States. The primary purpose is to provide a record of farming activity and acreages devoted to crops of interest to ASCS in carrying out its mandated activities. The scale of photography is normally 1:20,000 and mosaic index sheets at a scale of 1:63,360 are available. Even though the mosaic index sheets are intended mainly for that use, they have given us the only large scale views we have had of extensive parts of the earth's surface.[6] Such views are now routinely provided by the Landsat satellites but at smaller scales and poorer resolution.

ASCS has used letter symbols to designate specific counties since the inception of its aerial photographic activity. On July 1, 1971, ASCS also began to use the Federal Information Processing Standards (FIPS) which utilize a number to identify each State and county. These numbers are shown under the column labelled "Code" in the following lists and have also been applied to photography made before 1971 in

order to avoid confusion.

There is an ASCS office in each of the counties of eastern North Carolina except Dare. Copies of the most recent photo mosaic index sheets of a county are normally kept in the ASCS office and may be viewed there. Visiting the office could be helpful and save considerable time in ordering current photography. The State ASCS office in the Federal Building in Raleigh also holds copies of current mosaics and aerial photography for the entire State except Dare County. Formerly ASCS maintained two installations to process orders; an eastern laboratory in Asheville, North Carolina, and a western laboratory in Salt Lake City, Utah. Operations have now been consolidated in the western laboratory and the Asheville installation has been closed down. Orders for coverage of all parts of the United States should now be addressed to:

Aerial Photography Field Office
Administrative Services Division
ASCS - USDA
2511 Parley's Way
Salt Lake City, Utah 84109

ORDERING FROM THE SOIL CONSERVATION SERVICE

Two other of the Services of the U. S. Department of Agriculture hold aerial photographic coverage of parts of eastern North Carolina. The Soil Conservation Service (SCS) has photography of several counties taken at a variety of large and medium scales. The details appear in the following list. Orders should be placed and inquiries directed to:

Cartographic Division
Soil Conservation Service
Federal Building
Hyattsville, Maryland 20782

ORDERING FROM THE FOREST SERVICE

The Forest Service (FS) conducts most of its activities in the western states and coverage of eastern North Carolina is minimal. Ordering this aerial photography is done by regions and North Carolina falls in Region 8 which includes the southeastern and south central States. Orders should be placed with:

Regional Forester
U. S. Forest Service
1720 Peachtree Road, Northwest
Atlanta, Georgia 30309

ORDERING FROM THE U. S. GEOLOGICAL SURVEY

The Geological Survey (GS) of the U. S. Department of the Interior (USDI) has aerial photography at several scales covering all of eastern North Carolina. This vertical photography is made for purposes of topographic and geologic mapping. The boundaries for areas covered by particular photographic flights usually correspond to parallels and meridians rather than county lines. For this reason, the coverage of a particular county may involve more than one scale and be divided among several flights. Because of this, it is essential to send along a carefully annotated road map when requesting information from the GS.

Photoindexes are available and may be ordered for most GS aerial photography. These are usually printed to conform with boundaries of the topographic quadrangle maps of the 7½-minute or 15-minute series. If the reader is not acquainted with the GS topographic map coverage of North Carolina, he can obtain a free copy of the "Index to Topographic Maps of North Carolina," or of any other state by writing:

National Cartographic Information Center
U. S. Geological Survey
507 National Center
Reston, Virginia 22092

Status maps of national aerial photographic and photoindex coverage may also be obtained on request by writing the above address.

In addition to the usual black and white vertical photographs produced by the GS, there is a small scale (1:76,000) series called "quad centered" photography. These are photographs taken so that each one covers the entire area encompassed in a standard 7½-minute quadrangle. A photoimage map at the scale of 1:24,000 is made from each quad-centerd photograph with its adjoining overlapping photographs and it corresponds in area with the traditional line map for the given quadrangle. The finished product, called an "orthophotoquad," is described at the end of this publication. Both the usual and quad-centered aerial photography of North Carolina are available from:

National Cartographic Information Center
U. S. Geological Survey
507 National Center
Reston, Virginia 22092

ORDERING FROM THE EARTH RESOURCES OBSERVATION SYSTEMS PROGRAM

The closest the United States comes to having a single source for aerial photography and other remotely sensed data is the Earth Resources Observation Systems (EROS) Program of the Department of the Interior. This was created in 1966 and is administered by the Geological Survey. The principal facility of the Program is the EROS Data Center located near Sioux Falls, South Dakota. Training programs in the interpretation and application of remotely sensed data are conducted there. Up-to-date collections of a wide variety of imagery and data are also housed at the Center. Among the sources of remotely sensed data on hand are: the Landsat (formerly ERTS) satellites, the National Aeronautics and Space Administration (NASA) Skylab Program, the Gemini and Apollo missions, the U. S. Geological Survey, and the NASA Earth Resources Aircraft Program. It is this latter source which is of interest to users of aerial photography in eastern North Carolina. Strips of high altitude natural color and color infrared photography have been made of that portion of the state by NASA. The scales of 1:60,000 and 1:120,000 are small, but the detail can be very clear. Those users requiring such photography should send clearly marked road map cut-outs or geographic coordinates to:

User Services Unit
EROS Data Center
Sioux Falls, South Dakota 57198

The NASA photography is irregular in extent and was made about 1970. The cloud cover in some of the images is as high as 30%. Rather than attempt to list this specialized photography, it was felt that potential users should make their needs known directly to the EROS Data Center which will provide a computer print-out pinpointing what is available for specific locations. This service is provided at no cost to the user.

ORDERING FROM THE NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

Within North Carolina the governmental agency most prominent in taking, using, and selling aerial photography likely to be of interest for purposes of planning and development is the Department of Transportation (DOT). Most of its photography tends to be in strips corresponding with road building activities, but in 1974 DOT also photographed the entire Atlantic coast of North Carolina. Should the user have a special need involved with transportation or the coast, he may send his marked road map to:

Photogrammetric Unit
North Carolina Department of Transportation
and Highway Safety
Highway Building
Post Office Box 25201
Raleigh, North Carolina 27611

A variety of photographic reproductions and enlargements are for sale to the public.

PRIVATE SOURCES AND A NOTE ON PRICES

In conclusion it should be pointed out that no attempt has been made to list and describe private sources of aerial photography. Persons or organizations requiring the services of private professionals in all aspects of photogrammetry and interpretation are advised to consult the annual Yearbook Issue of Photogrammetric Engineering and Remote Sensing, the Journal of the American Society of Photogrammetry.[7]

Prices have not been mentioned because they might not apply in the near or distant future. The person ordering aerial photography should request a current price list when making inquiry about the availability of imagery. Outdated published prices would only serve to mislead and result in inaccurate cost estimates for the user.

The reader should also note that all photography mentioned and appearing in the following lists is panchromatic black and white unless otherwise indicated.

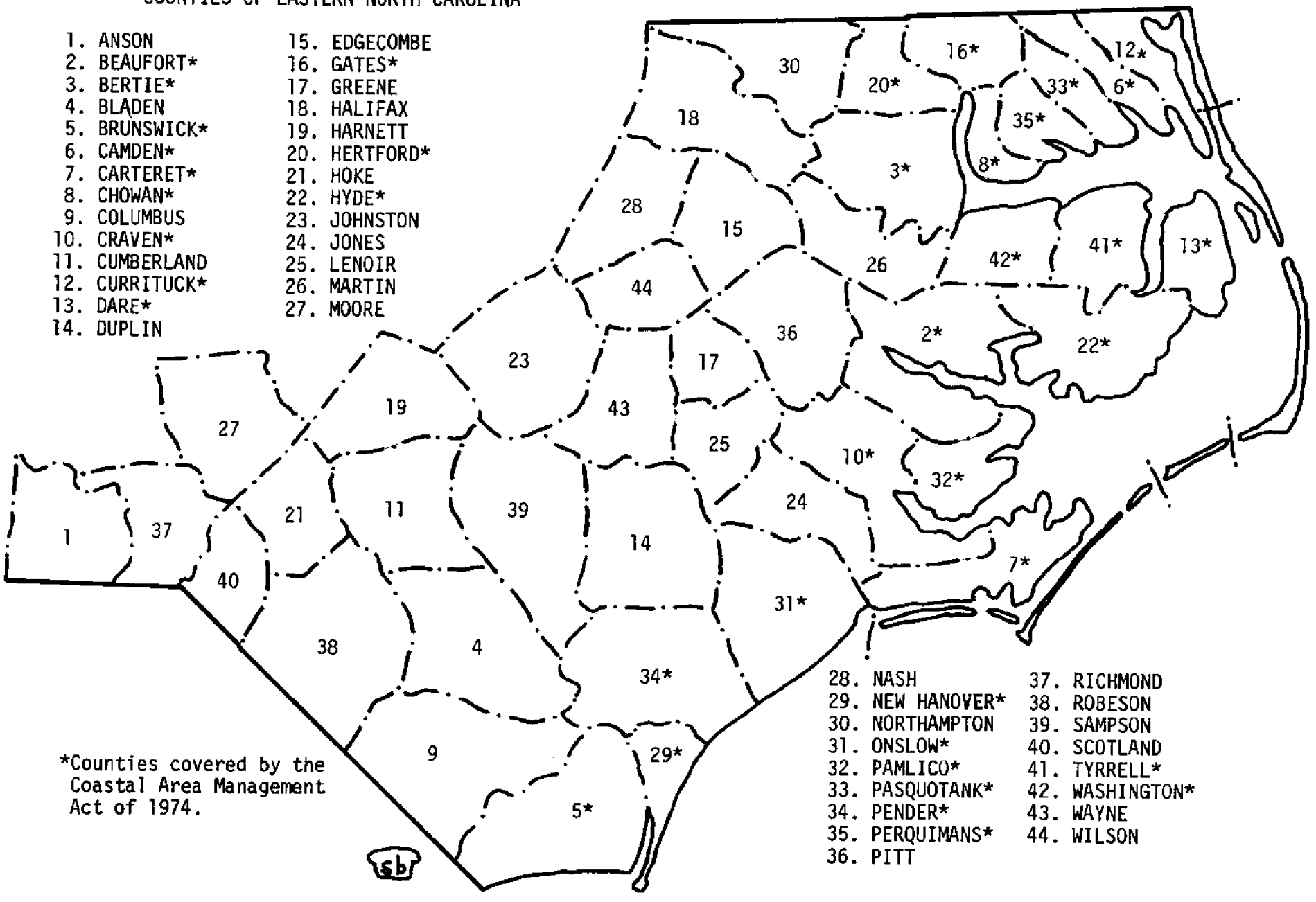

COUNTIES OF EASTERN NORTH CAROLINA
1. ANSON
2. BEAUFORT*
3. BERTIE*
4. BLADEN
5. BRUNSWICK*
6. CAMDEN*
7. CARTERET*
8. CHOWAN*
9. COLUMBUS
10. CRAVEN*
11. CUMBERLAND
12. CURRITUCK*
13. DARE*
14. DUPLIN
15. EDGECOMBE
16. GATES*
17. GREENE
18. HALIFAX
19. HARNETT
20. HERTFORD*
21. HOKE
22. HYDE*
23. JOHNSTON
24. JONES
25. LENOIR
26. MARTIN
27. MOORE
28. NASH
29. NEW HANOVER*
30. NORTHAMPTON
31. ONSLOW*
32. PAMLICO*
33. PASQUOTANK*
34. PENDER*
35. PERQUIMANS*
36. PITT
37. RICHMOND
38. ROBESON
39. SAMPSON
40. SCOTLAND
41. TYRRELL*
42. WASHINGTON*
43. WAYNE
44. WILSON
*Counties covered by the Coastal Area Management Act of 1974.

Figure 16.

LIST OF AVAILABLE AERIAL PHOTOGRAPHY BY COUNTIES

AERIAL PHOTOGRAPHS IN THE NATIONAL ARCHIVES

Symbol	Year	Number of Indexes	Agency	Scale
None	*34P	1	SCS	1:20,000
ACD	38	4	ASCS	1:20,000

* indicates partial coverage

AERIAL PHOTOGRAPHY FROM THE AGRICULTURAL STABILIZATION AND CONSERVATION SERVICE

Symbol	Code	Year	Number of Indexes	Scale
ACD	37007	50	1	1:20,000
ACD	37007	56	1	1:20,000
ACD	37007	61	4	1:20,000
ACD	37007	68	4	1:20,000

GEOLOGICAL SURVEY HIGH ALTITUDE AERIAL PHOTOGRAPHY

Project Symbol	Year	Extent of Coverage	Scale
AF 64-12	64	Entire County	1:50,000

GEOLOGICAL SURVEY LOW ALTITUDE AERIAL PHOTOGRAPHY

Project Area	Project Symbol	Year	Extent of Coverage	Scale
6	VAP-62	59	Partial	1:40,000
11	VCO	55	Partial	1:18,000
43	VCEA	69	Partial	1:19,000

AERIAL PHOTOGRAPHS IN THE NATIONAL ARCHIVES

Symbol	Year	Number of Indexes	Agency	Scale
ABP	37	7	ASCS	1:20,000

AERIAL PHOTOGRAPHY FROM THE AGRICULTURAL STABILIZATION AND CONSERVATION SERVICE

Symbol	Code	Year	Number of Indexes	Scale
ABP	37013	48	4	1:20,000
ABP	37013	54	6	1:20,000
ABP	37013	58	6	1:20,000
ABP	37013	63	6	1:20,000
ABP	37013	70	5	1:20,000

GEOLOGICAL SURVEY HIGH ALTITUDE AERIAL PHOTOGRAPHY

Project Symbol	Year	Extent of Coverage	Scale
AF 64-12	64	Entire County	1:50,000
*VDMG	74	Entire County	1:76,000

*Indicates quad-centered coverage

GEOLOGICAL SURVEY LOW ALTITUDE AERIAL PHOTOGRAPHY

Project Area	Project Symbol	Year	Extent of Coverage	Scale
17	VIR	57	Partial	1:19,000

AERIAL PHOTOGRAPHS IN THE NATIONAL ARCHIVES

Symbol	Year	Number of Indexes	Agency	Scale
ABQ	37	6	ASCS	1:20,000

AERIAL PHOTOGRAPHY FROM THE AGRICULTURAL STABILIZATION AND CONSERVATION SERVICE

Symbol	Code	Year	Number of Indexes	Scale
ABQ	37015	48	4	1:20,000
ABQ	37015	54	4	1:20,000
ABQ	37015	59	6	1:20,000
ABQ	37015	63	5	1:20,000
ABQ	37015	70	4	1:20,000

GEOLOGICAL SURVEY HIGH ALTITUDE AERIAL PHOTOGRAPHY

Project Symbol	Year	Extent of Coverage	Scale
AF 61-36	61	Northern Portion	1:59,000
AF 64-12	64	Southern Portion	1:50,000
*VDMG	74	Partial	1:76,000

*Indicates quad-centered coverage

GEOLOGICAL SURVEY LOW ALTITUDE AERIAL PHOTOGRAPHY

Project Area	Project Symbol	Year	Extent of Coverage	Scale
12	VCR	54	Partial	1:24,000
17	VIR	57	Partial	1:19,000
56	SWFT	72	Partial	1:21,000

AERIAL PHOTOGRAPHS IN THE NATIONAL ARCHIVES

Symbol	Year	Number of Indexes	Agency	Scale
ACE	38	7	ASCS	1:20,000

AERIAL PHOTOGRAPHY FROM THE AGRICULTURAL STABILIZATION AND CONSERVATION SERVICE

Symbol	Code	Year	Number of Indexes	Scale
ACE	37017	51	6	1:20,000
ACE	37017	55	6	1:20,000
ACE	37017	61	5	1:20,000
ACE	37017	66	6	1:20,000
ACE	37017	72	6	1:20,000

GEOLOGICAL SURVEY HIGH ALTITUDE AERIAL PHOTOGRAPHY

Project Symbol	Year	Extent of Coverage	Scale
AF 64-12	64	Entire County	1:50,000
*VDMG	74	Entire County	1:76,000

*Indicates quad-centered coverage

GEOLOGICAL SURVEY LOW ALTITUDE AERIAL PHOTOGRAPHY

Project Area	Project Symbol	Year	Extent of Coverage	Scale
6	VAP-62	59	Entire County	1:40,000

AERIAL PHOTOGRAPHS IN THE NATIONAL ARCHIVES

Symbol	Year	Number of Indexes	Agency	Scale
AOH	38	6	ASCS	1:20,000

AERIAL PHOTOGRAPHY FROM THE AGRICULTURAL STABILIZATION AND CONSERVATION SERVICE

Symbol	Code	Year	Number of Indexes	Scale
AOH	37019	49	6	1:20,000
AOH	37019	56	5	1:20,000
AOH	37019	61	7	1:20,000
AOH	37019	66	*6P	1:20,000
AOH	37019	72	6	1:20,000

*Indicates partial coverage

GEOLOGICAL SURVEY HIGH ALTITUDE AERIAL PHOTOGRAPHY

Project Symbol	Year	Extent of Coverage	Scale
AF 64-12	64	Entire County	1:50,000
*VDMG	74	Partial	1:76,000

*Indicates quad-centered coverage

GEOLOGICAL SURVEY LOW ALTITUDE AERIAL PHOTOGRAPHY

Project Area	Project Symbol	Year	Extent of Coverage	Scale
6	VAP-62	59	Partial	1:40,000
46	VCEE	70	Partial	1:18,000

(See National Ocean Survey list for additional photography)

AERIAL PHOTOGRAPHS IN THE NATIONAL ARCHIVES

Symbol	Year	Number of Indexes	Agency	Scale
AOI	38	4	ASCS	1:20,000

AERIAL PHOTOGRAPHY FROM THE AGRICULTURAL STABILIZATION AND CONSERVATION SERVICE

Symbol	Code	Year	Number of Indexes	Scale
AOI	37029	58	3	1:20,000
AOI	37029	63	4	1:20,000
AOI	37029	69	3	1:20,000

AERIAL PHOTOGRAPHY FROM THE SOIL CONSERVATION SERVICE

Symbol	Year	Number of Indexes	Scale
--	53	3	1:20,000

GEOLOGICAL SURVEY HIGH ALTITUDE AERIAL PHOTOGRAPHY

Project Symbol	Year	Extent of Coverage	Scale
AF 61-36	61	Entire County	1:59,000
*VDMG	74	Partial	1:76,000

*Indicates quad-centered coverage

GEOLOGICAL SURVEY LOW ALTITUDE AERIAL PHOTOGRAPHY

Project Area	Project Symbol	Year	Extent of Coverage	Scale
9	TU	53	Entire County	1:28,000

AERIAL PHOTOGRAPHS IN THE NATIONAL ARCHIVES

Symbol	Year	Number of Indexes	Agency	Scale
BUS	*38P	4	ASCS	1:20,000

* Indicates partial coverage

AERIAL PHOTOGRAPHY FROM THE AGRICULTURAL STABILIZATION AND CONSERVATION SERVICE

Symbol	Code	Year	Number of Indexes	Scale
BUS	37031	58	5	1:20,000
BUS	37031	64	*5P	1:20,000
BUS	37031	71	*5P	1:20,000

* Indicates partial coverage

AERIAL PHOTOGRAPHY FROM THE SOIL CONSERVATION SERVICE

Symbol	Year	Number of Indexes	Scale
--	53	5	1:20,000

GEOLOGICAL SURVEY HIGH ALTITUDE AERIAL PHOTOGRAPHY

Project Symbol	Year	Extent of Coverage	Scale
AF 64-12	64	Entire County	1:50,000
*VDMG	74	Partial	1:76,000

*Indicates quad-centered coverage

GEOLOGICAL SURVEY LOW ALTITUDE AERIAL PHOTOGRAPHY

Project Area	Project Symbol	Year	Extent of Coverage	Scale
6	VAP-62	59	Partial	1:40,000
13	AF 72-21	72	Partial	1:25,000

U. S. FOREST SERVICE AERIAL PHOTOGRAPHY

Project Area	Year	Extent of Coverage	Scale
Croatan National Forest	71	Partial	1:15,840

(See National Ocean Survey list for additional photography)

AERIAL PHOTOGRAPHS IN THE NATIONAL ARCHIVES

Symbol	Year	Number of Indexes	Agency	Scale
AOJ	38	2	ASCS	1:20,000

AERIAL PHOTOGRAPHS FROM THE AGRICULTURAL STABILIZATION AND CONSERVATION SERVICE

Symbol	Code	Year	Number of Indexes	Scale
AOJ	37041	48	1	1:20,000
AOJ	37041	55	1	1:20,000
AOJ	37041	58	1	1:20,000
AOJ	37041	63	3	1:20,000
AOJ	37041	69	2	1:20,000

GEOLOGICAL SURVEY HIGH ALTITUDE AERIAL PHOTOGRAPHY

Project Symbol	Year	Extent of Coverage	Scale
AF 61-36	61	Entire County	1:59,000
*VDMG	74	Partial	1:76,000

*Indicates quad-centered coverage

GEOLOGICAL SURVEY LOW ALTITUDE AERIAL PHOTOGRAPHY

Project Area	Project Symbol	Year	Extent of Coverage	Scale
9	TU	53	Partial	1:28,000

AERIAL PHOTOGRAPHS IN THE NATIONAL ARCHIVES

Symbol	Year	Number of Indexes	Agency	Scale
ACH	38	7	ASCS	1:20,000

AERIAL PHOTOGRAPHY FROM THE AGRICULTURAL STABILIZATION AND CONSERVATION SERVICE

Symbol	Code	Year	Number of Indexes	Scale
ACH	37047	51	6	1:20,000
ACH	37047	55	6	1:20,000
ACH	37047	61	5	1:20,000
ACH	37047	66	*7P	1:20,000
ACH	37047	72	5	1:20,000

*Indicates partial coverage

GEOLOGICAL SURVEY HIGH ALTITUDE AERIAL PHOTOGRAPHY

Project Symbol	Year	Extent of Coverage	Scale
AF 64-12	64	Entire County	1:50,000
*VDMG	74	Partial	1:76,000

*Indicates quad-centered coverage

GEOLOGICAL SURVEY LOW ALTITUDE AERIAL PHOTOGRAPHY

Project Area	Project Symbol	Year	Extent of Coverage	Scale
6	VAP-62	59	Entire County	1:40,000

AERIAL PHOTOGRAPHS IN THE NATIONAL ARCHIVES

Symbol	Year	Number of Indexes	Agency	Scale
AOK	38	7	ASCS	1:20,000

AERIAL PHOTOGRAPHY FROM THE AGRICULTURAL STABILIZATION AND CONSERVATION SERVICE

Symbol	Code	Year	Number of Indexes	Scale
AOK	37049	49	6	1:20,000
AOK	37049	54	6	1:20,000
AOK	37049	58	6	1:20,000
AOK	37049	64	6	1:20,000
AOK	37049	70	*4P	1:20,000

*Indicates partial coverage

GEOLOGICAL SURVEY HIGH ALTITUDE AERIAL PHOTOGRAPHY

Project Symbol	Year	Extent of Coverage	Scale
AF 64-12	64	Entire County	1:50,000
*VDMG	74	Partial	1:76,000

*Indicates quad-centered coverage

GEOLOGICAL SURVEY LOW ALTITUDE AERIAL PHOTOGRAPHY

Project Area	Project Symbol	Year	Extent of Coverage	Scale
8	TD	53	Partial	1:28,000
17	VIR	57	Partial	1:19,000
31	VAYC	64	Partial	1:24,000
13	AF 72-21	72	Partial	1:25,000

U. S. FOREST SERVICE AERIAL PHOTOGRAPHY

Project Area	Year	Extent of Coverage	Scale
Croatan National Forest	71	Partial	1:15,840

AERIAL PHOTOGRAPHS IN THE NATIONAL ARCHIVES

Symbol	Year	Number of Indexes	Agency	Scale
AOC	38	4	ASCS	1:20,000

AERIAL PHOTOGRAPHY FROM THE AGRICULTURAL STABILIZATION AND CONSERVATION SERVICE

Symbol	Code	Year	Number of Indexes	Scale
AOC	37051	51	4	1:20,000
AOC	37051	55	4	1:20,000
AOC	37051	60	4	1:20,000
AOC	37051	66	4	1:20,000
AOC	37051	72	4	1:20,000

GEOLOGICAL SURVEY HIGH ALTITUDE AERIAL PHOTOGRAPHY

Project Symbol	Year	Extent of Coverage	Scale
AF 64-12	64	Entire County	1:50,000
*VDMG	74	Partial	1:76,000

*Indicates quad-centered coverage

GEOLOGICAL SURVEY LOW ALTITUDE AERIAL PHOTOGRAPHY

Project Area	Project Symbol	Year	Extent of Coverage	Scale
6	VAP-62	59	Partial	1:40,000
21	VCUQ	71	Partial	1:24,000
60	SWHZ	74	Partial	1:21,000

AERIAL PHOTOGRAPHS IN THE NATIONAL ARCHIVES

Symbol	Year	Number of Indexes	Agency	Scale
AOL	*38P	4	ASCS	1:20,000

*Indicates partial coverage

AERIAL PHOTOGRAPHY FROM THE AGRICULTURAL STABILIZATION AND CONSERVATION SERVICE

Symbol	Code	Year	Number of Indexes	Scale
AOL	37053	58	3	1:20,000
AOL	37053	63	*3P	1:20,000
AOL	37053	69	*3P	1:20,000

*Indicates partial coverage

AERIAL PHOTOGRAPHY FROM THE SOIL CONSERVATION SERVICE

Symbol	Year	Number of Indexes	Scale
--	53	4	1:20,000

GEOLOGICAL SURVEY HIGH ALTITUDE AERIAL PHOTOGRAPHY

Project Symbol	Year	Extent of Coverage	Scale
AF 61-36	61	Entire County	1:59,000
*VDMG	74	Partial	1:76,000

*Indicates quad-centered coverage

GEOLOGICAL SURVEY LOW ALTITUDE AERIAL PHOTOGRAPHY

Project Area	Project Symbol	Year	Extent of Coverage	Scale
9	TU	53	Partial	1:28,000
49	VCRA	71	Partial	1:36,000

(See National Ocean Survey list for additional photography)

GEOLOGICAL SURVEY HIGH ALTITUDE AERIAL PHOTOGRAPHY

Project Symbol	Year	Extent of Coverage	Scale
AF 64-12	64	Entire County	1:50,000

(See National Ocean Survey list for additional photography)

AERIAL PHOTOGRAPHS IN THE NATIONAL ARCHIVES

Symbol	Year	Number of Indexes	Agency	Scale
AUM	38	7	ASCS	1:20,000

AERIAL PHOTOGRAPHY FROM THE AGRICULTURAL STABILIZATION AND CONSERVATION SERVICE

Symbol	Code	Year	Number of Indexes	Scale
AOM	37061	49	4	1:20,000
AOM	37061	54	4	1:20,000
AOM	37061	58	4	1:20,000
AOM	37061	65	4	1:20,000
AOM	37061	70	4	1:20,000

GEOLOGICAL SURVEY HIGH ALTITUDE AERIAL PHOTOGRAPHY

Project Symbol	Year	Extent of Coverage	Scale
AF 64-12	64	Entire County	1:50,000
*VDMG	74	Entire County	1:76,000

*Indicates quad-centered coverage

GEOLOGICAL SURVEY LOW ALTITUDE AERIAL PHOTOGRAPHY

Project Area	Project Symbol	Year	Extent of Coverage	Scale
6	VAP-62	59	Partial	1:40,000
13	AF 72-21	72	Partial	1:25,000

AERIAL PHOTOGRAPHS IN THE NATIONAL ARCHIVES

Symbol	Year	Number of Indexes	Agency	Scale
ABR	37	4	ASCS	1:20,000

AERIAL PHOTOGRAPHY FROM THE AGRICULTURAL STABILIZATION AND CONSERVATION SERVICE

Symbol	Code	Year	Number of Indexes	Scale
*CSP	--	40	4	1:20,000
ABR	37065	48	4	1:20,000
ABR	37065	54	4	1:20,000
ABR	37065	59	4	1:20,000
ABR	37065	64	4	1:20,000
ABR	37065	71	4	1:20,000

*Indicates special administrative symbol

GEOLOGICAL SURVEY HIGH ALTITUDE AERIAL PHOTOGRAPHY

Project Symbol	Year	Extent of Coverage	Scale
AF 61-36	61	Northern tip of county	1:59,000
AF 64-12	64	Rest of county	1:50,000
*VDMG	74	Partial	1:76,000

*Indicates quad-centered coverage

GEOLOGICAL SURVEY LOW ALTITUDE AERIAL PHOTOGRAPHY

Project Area	Project Symbol	Year	Extent of Coverage	Scale
12	VCR	54	Partial	1:24,000
17	VIR	57	Partial	1:19,000
64	VDJC	74	Partial	1:24,000

AERIAL PHOTOGRAPHS IN THE NATIONAL ARCHIVES

Symbol	Year	Number of Indexes	Agency	Scale
AON	38	2	ASCS	1:20,000

AERIAL PHOTOGRAPHY FROM THE AGRICULTURAL STABILIZATION AND CONSERVATION SERVICE

Symbol	Code	Year	Number of Indexes	Scale
AON	37073	48	1	1:20,000
AON	37073	55	1	1:20,000
AON	37073	58	4	1:20,000
AON	37073	63	2	1:20,000
AON	37073	70	2	1:20,000

GEOLOGICAL SURVEY HIGH ALTITUDE AERIAL PHOTOGRAPHY

Project Symbol	Year	Extent of Coverage	Scale
AF 61-36	61	Entire County	1:59,000
*VDMG	74	Partial	1:76,000

*Indicates quad-centered coverage

GEOLOGICAL SURVEY LOW ALTITUDE AERIAL PHOTOGRAPHY

Project Area	Project Symbol	Year	Extent of Coverage	Scale
9	TU	53	Partial	1:28,000
30	VAXM	64	Partial	1:24,000

AERIAL PHOTOGRAPHS IN THE NATIONAL ARCHIVES

Symbol	Year	Number of Indexes	Agency	Scale
ABS	37	2	ASCS	1:20,000

AERIAL PHOTOGRAPHY FROM THE AGRICULTURAL STABILIZATION AND CONSERVATION SERVICE

Symbol	Code	Year	Number of Indexes	Scale
*CSP	--	40	3	1:20,000
ABS	37079	49	1	1:20,000
ABS	37079	54	1	1:20,000
ABS	37079	59	1	1:20,000
ABS	37079	65	3	1:20,000
ABS	37079	71	2	1:20,000

*Indicates special administrative symbol

GEOLOGICAL SURVEY HIGH ALTITUDE AERIAL PHOTOGRAPHY

Project Symbol	Year	Extent of Coverage	Scale
AF 64-12	64	Entire County	1:50,000
*VDMG	74	Entire County	1:76,000

*Indicates quad-centered coverage

GEOLOGICAL SURVEY LOW ALTITUDE AERIAL PHOTOGRAPHY

Project Area	Project Symbol	Year	Extent of Coverage	Scale
17	VIR	57	Partial	1:19,000

AERIAL PHOTOGRAPHS IN THE NATIONAL ARCHIVES

Symbol	Year	Number of Indexes	Agency	Scale
ABT	37	4	ASCS	1:20,000

AERIAL PHOTOGRAPHY FROM THE AGRICULTURAL STABILIZATION AND CONSERVATION SERVICE

Symbol	Code	Year	Number of Indexes	Scale
*CSO	--	40	6	1:20,000
ABT	37083	48	2	1:20,000
ABT	37083	54	4	1:20,000
ABT	37083	59	5	1:20,000
ABT	37083	64	6	1:20,000
ABT	37083	71	5	1:20,000

*Indicates special administrative symbol

GEOLOGICAL SURVEY HIGH ALTITUDE AERIAL PHOTOGRAPHY

Project Symbol	Year	Extent of Coverage	Scale
AF 61-36	61	Entire County	1:59,000

GEOLOGICAL SURVEY LOW ALTITUDE AERIAL PHOTOGRAPHY

Project Area	Project Symbol	Year	Extent of Coverage	Scale
12	VCR	54	Partial	1:24,000
18	VTK	58	Partial	1:24,000
66	VCYR	73	Partial	1:19,000
62	SWIA	74	Partial	1:21,000

AERIAL PHOTOGRAPHS IN THE NATIONAL ARCHIVES

Symbol	Year	Number of Indexes	Agency	Scale
AOD	38	6	ASCS	1:20,000

AERIAL PHOTOGRAPHY FROM THE AGRICULTURAL STABILIZATION AND CONSERVATION SERVICE

Symbol	Code	Year	Number of Indexes	Scale
AOD	37085	49	4	1:20,000
AOD	37085	55	4	1:20,000
AOD	37085	60	5	1:20,000
AOD	37085	65	6	1:20,000
AOD	37085	72	4	1:20,000

GEOLOGICAL SURVEY HIGH ALTITUDE AERIAL PHOTOGRAPHY

Project Symbol	Year	Extent of Coverage	Scale
AF 64-12	64	Lower S.W. Corner	1:50,000
*VDFN	73	Most of County	1:76,000

*Indicates quad-centered coverage

GEOLOGICAL SURVEY LOW ALTITUDE AERIAL PHOTOGRAPHY

Project Area	Project Symbol	Year	Extent of Coverage	Scale
21	VCUQ	71	Partial	1:24,000
59	VCYT	72	Partial	1:19,000
58	VDFO	73	Partial	1:19,000
60	SWHZ	74	Partial	1:21,000

AERIAL PHOTOGRAPHS FROM THE NATIONAL ARCHIVES

Symbol	Year	Number of Indexes	Agency	Scale
ABU	37	4	ASCS	1:20,000

AERIAL PHOTOGRAPHY FROM THE AGRICULTURAL STABILIZATION AND CONSERVATION SERVICE

Symbol	Code	Year	Number of Indexes	Scale
ABU	37091	48	3	1:20,000
ABU	37091	55	1	1:20,000
ABU	37091	59	3	1:20,000
ABU	37091	63	4	1:20,000
ABU	37091	70	3	1:20,000

GEOLOGICAL SURVEY HIGH ALTITUDE AERIAL PHOTOGRAPHY

Project Symbol	Year	Extent of Coverage	Scale
AF 61-36	61	Entire County	1:59,000
*VDMG	74	Partial	1:76,000

*Indicates quad-centered coverage

GEOLOGICAL SURVEY LOW ALTITUDE AERIAL PHOTOGRAPHY

Project Area	Project Symbol	Year	Extent of Coverage	Scale
12	VCR	54	Partial	1:24,000
56	SWFT	72	Partial	1:21,000

AERIAL PHOTOGRAPHS IN THE NATIONAL ARCHIVES

Symbol	Year	Number of Indexes	Agency	Scale
ACM	38	3	ASCS	1:20,000

AERIAL PHOTOGRAPHY FROM THE AGRICULTURAL STABILIZATION AND CONSERVATION SERVICE

Symbol	Code	Year	Number of Indexes	Scale
ACM	37093	49	3	1:20,000
ACM	37093	56	1	1:20,000
ACM	37093	61	4	1:20,000
ACM	37093	66	4	1:20,000
ACM	37093	72	3	1:20,000

GEOLOGICAL SURVEY HIGH ALTITUDE AERIAL PHOTOGRAPHY

Project Symbol	Year	Extent of Coverage	Scale
AF 64-12	64	Entire County	1:50,000

GEOLOGICAL SURVEY LOW ALTITUDE AERIAL PHOTOGRAPHY

Project Area	Project Symbol	Year	Extent of Coverage	Scale
6	VAP-62	59	Partial	1:40,000
55	SWEM	71	Partial	1:21,000

AERIAL PHOTOGRAPHS IN THE NATIONAL ARCHIVES

Symbol	Year	Number of Indexes	Agency	Scale
AOO	*38P	4	ASCS	1:20,000

*Indicates partial coverage

AERIAL PHOTOGRAPHY FROM THE AGRICULTURAL STABILIZATION AND CONSERVATION SERVICE

Symbol	Code	Year	Number of Indexes	Scale
AOO	37095	56	4	1:20,000
AOO	37095	63	6	1:20,000
AOO	37095	69	4	1:20,000

GEOLOGICAL SURVEY HIGH ALTITUDE AERIAL PHOTOGRAPHY

Project Symbol	Year	Extent of Coverage	Scale
AF 64-12	64	Entire County	1:50,000
*VDMG	74	Partial	1:76,000

*Indicates quad-centered coverage

(See National Ocean Survey list for additional photography)

AERIAL PHOTOGRAPHS IN THE NATIONAL ARCHIVES

Symbol	Year	Number of Indexes	Agency	Scale
ABV	37	4	ASCS	1:20,000

AERIAL PHOTOGRAPHY FROM THE AGRICULTURAL STABILIZATION AND CONSERVATION SERVICE

Symbol	Code	Year	Number of Indexes	Scale
*CSP	--	40	5	1:20,000
ABV	37101	49	5	1:20,000
ABV	37101	54	5	1:20,000
ABV	37101	57	**1P	1:20,000
ABV	37101	59	5	1:20,000
ABV	37101	65	5	1:20,000
ABV	37101	71	5	1:20,000

*Indicates special administrative symbol

**Indicates partial coverage

GEOLOGICAL SURVEY HIGH ALTITUDE AERIAL PHOTOGRAPHY

Project Symbol	Year	Extent of Coverage	Scale
*VDFN	73	Entire County	1:76,000

*Indicates quad-centered coverage

GEOLOGICAL SURVEY LOW ALTITUDE AERIAL PHOTOGRAPHY

Project Area	Project Symbol	Year	Extent of Coverage	Scale
59	VCYT	72	Partial	1:19,000
68	SWHK	74	Partial	1:21,000

AERIAL PHOTOGRAPHS IN THE NATIONAL ARCHIVES

Symbol	Year	Number of Indexes	Agency	Scale
AOP	38	5	ASCS	1:20,000

AERIAL PHOTOGRAPHY FROM THE AGRICULTURAL STABILIZATION AND CONSERVATION SERVICE

Symbol	Code	Year	Number of Indexes	Scale
AOP	37103	49	4	1:20,000
AOP	37103	55	4	1:20,000
AOP	37103	59	4	1:20,000
AOP	37103	64	5	1:20,000
AOP	37103	71	4	1:20,000

GEOLOGICAL SURVEY HIGH ALTITUDE AERIAL PHOTOGRAPHY

Project Symbol	Year	Extent of Coverage	Scale
AF 64-12	64	Entire County	1:50,000
*VDMG	74	Entire County	1:76,000

*Indicates quad-centered coverage

GEOLOGICAL SURVEY LOW ALTITUDE AERIAL PHOTOGRAPHY

Project Area	Project Symbol	Year	Extent of Coverage	Scale
13	AF 72-21	72	Entire County	1:25,000

U.S. FOREST SERVICE AERIAL PHOTOGRAPHY

Project Area	Year	Extent of Coverage	Scale
Croatan National Forest	71	Partial	1:15,840

AERIAL PHOTOGRAPHY FROM THE AGRICULTURAL STABILIZATION AND CONSERVATION SERVICE

Symbol	Code	Year	Number of Indexes	Scale
*CSP	--	40	4	1:20,000
ABW	37107	49	3	1:20,000
ABW	37107	54	1	1:20,000
ABW	37107	59	1	1:20,000
ABW	37107	65	4	1:20,000
ABW	37107	71	4	1:20,000

*Indicates special administrative symbol

AERIAL PHOTOGRAPHY FROM THE SOIL CONSERVATION SERVICE

Symbol	Year	Number of Indexes	Scale
--	74	1	1:45,000 -- 1:55,000

GEOLOGICAL SURVEY HIGH ALTITUDE AERIAL PHOTOGRAPHY

Project Symbol	Year	Extent of Coverage	Scale
AF 64-12	64	Entire County	1:50,000
*VDMG	74	Entire County	1:76,000

*Indicates quad-centered coverage

GEOLOGICAL SURVEY LOW ALTITUDE AERIAL PHOTOGRAPHY

Project Area	Project Symbol	Year	Extent of Coverage	Scale
13	AF 72-21	72	Partial	1:25,000
17	VIR	57	Partial	1:19,000

AERIAL PHOTOGRAPHS IN THE NATIONAL ARCHIVES

Symbol	Year	Number of Indexes	Agency	Scale
ABX	*37P	5	ASCS	1:20,000

*Indicates partial coverage

AERIAL PHOTOGRAPHY FROM THE AGRICULTURAL STABILIZATION AND CONSERVATION SERVICE

Symbol	Code	Year	Number of Indexes	Scale
ABX	37117	48	3	1:20,000
ABX	37117	54	4	1:20,000
ABX	37117	59	4	1:20,000
ABX	37117	63	5	1:20,000
ABX	37117	70	4	1:20,000

GEOLOGICAL SURVEY HIGH ALTITUDE AERIAL PHOTOGRAPHY

Project Symbol	Year	Extent of Coverage	Scale
AF 61-36	61	N.W. Tip of County	1:59,000
AF 64-12	64	Most of County	1:50,000
*VDMG	74	Partial	1:76,000

*Indicates quad-centered coverage

GEOLOGICAL SURVEY LOW ALTITUDE AERIAL PHOTOGRAPHY

Project Area	Project Symbol	Year	Extent of Coverage	Scale
12	VCR	54	Partial	1:24,000
17	VIR	57	Partial	1:19,000
65	SWIE	74	Partial	1:21,000

AERIAL PHOTOGRAPHS IN THE NATIONAL ARCHIVES

Symbol	Year	Number of Indexes	Agency	Scale
ACQ	38	5	ASCS	1:20,000

AERIAL PHOTOGRAPHY FROM THE AGRICULTURAL STABILIZATION AND CONSERVATION SERVICE

Symbol	Code	Year	Number of Indexes	Scale
ACQ	37125	50	4	1:20,000
ACQ	37125	55	4	1:20,000
ACQ	37125	61	4	1:20,000
ACQ	37125	66	5	1:20,000
ACQ	37125	72	4	1:20,000

GEOLOGICAL SURVEY HIGH ALTITUDE AERIAL PHOTOGRAPHY

Project Symbol	Year	Extent of Coverage	Scale
AF 64-12	64	Southern Portion	1:50,000
*VDFN	73	Northern Portion	1:76,000

*Indicates quad-centered coverage

GEOLOGICAL SURVEY LOW ALTITUDE AERIAL PHOTOGRAPHY

Project Area	Project Symbol	Year	Extent of Coverage	Scale
58	VDFO	73	Partial	1:19,000

AERIAL PHOTOGRAPHS IN THE NATIONAL ARCHIVES

Symbol	Year	Number of Indexes	Agency	Scale
ABY	37	4	ASCS	1:20,000

AERIAL PHOTOGRAPHY FROM THE AGRICULTURAL STABILIZATION AND CONSERVATION SERVICE

Symbol	Code	Year	Number of Indexes	Scale
*CSO	--	40	4	1:20,000
ABY	37127	48	2	1:20,000
ABY	37127	54	4	1:20,000
ABY	37127	59	4	1:20,000
ABY	37127	64	4	1:20,000
ABY	37127	71	4	1:20,000

*Indicates special administrative symbol

GEOLOGICAL SURVEY HIGH ALTITUDE AERIAL PHOTOGRAPHY

Project Symbol	Year	Extent of Coverage	Scale
AF 61-36	61	N.E. Portion	1:59,000
AF 64-12	64	S.E. Portion	1:50,000
SWEN-S	71	N.W. Portion	1:77,000
*VDFN	73	S.W. Portion	1:76,000
*VDMG	74	Partial	1:76,000

*Indicates quad-centered coverage

GEOLOGICAL SURVEY LOW ALTITUDE AERIAL PHOTOGRAPHY

Project Area	Project Symbol	Year	Extent of Coverage	Scale
18	VTK	58	Partial	1:24,000
51	VCPF	71	Partial	1:19,000
64	VDJC	74	Partial	1:24,000

AERIAL PHOTOGRAPHS IN THE NATIONAL ARCHIVES

Symbol	Year	Number of Indexes	Agency	Scale
AOQ	38	2	ASCS	1:20,000

AERIAL PHOTOGRAPHY FROM THE AGRICULTURAL STABILIZATION AND CONSERVATION SERVICE

Symbol	Code	Year	Number of Indexes	Scale
AOQ	37129	49	1	1:20,000
AOQ	37129	56	1	1:20,000
AOQ	37129	60	2	1:20,000
AOQ	37129	66	*2P	1:20,000
AOQ	37129	72	2	1:20,000

*Indicates partial coverage

AERIAL PHOTOGRAPHY FROM THE SOIL CONSERVATION SERVICE

Symbol	Year	Number of Indexes	Scale
--	70	1	1:31,680 -- 1:44,000

GEOLOGICAL SURVEY HIGH ALTITUDE AERIAL PHOTOGRAPHY

Project Symbol	Year	Extent of Coverage	Scale
AF 64-12	64	Entire County	1:50,000

GEOLOGICAL SURVEY LOW ALTITUDE AERIAL PHOTOGRAPHY

Project Area	Project Symbol	Year	Extent of Coverage	Scale
46	VCEE	70	Partial	1:18,000
13	AF 72-21	72	Partial	1:25,000

(See National Ocean Survey list for additional photography)

AERIAL PHOTOGRAPHS IN THE NATIONAL ARCHIVES

Symbol	Year	Number of Indexes	Agency	Scale
ABZ	37	5	ASCS	1:20,000

AERIAL PHOTOGRAPHY FROM THE AGRICULTURAL STABILIZATION AND CONSERVATION SERVICE

Symbol	Code	Year	Number of Indexes	Scale
*CSO	--	40	5	1:20,000
ABZ	37131	48	4	1:20,000
ABZ	37131	55	4	1:20,000
ABZ	37131	59	5	1:20,000
ABZ	37131	64	5	1:20,000
ABZ	37131	71	5	1:20,000

*Indicates special administrative symbol

GEOLOGICAL SURVEY HIGH ALTITUDE AERIAL PHOTOGRAPHY

Project Symbol	Year	Extent of Coverage	Scale
AF 61-36	61	Entire County	1:59,000

GEOLOGICAL SURVEY LOW ALTITUDE AERIAL PHOTOGRAPHY

Project Area	Project Symbol	Year	Extent of Coverage	Scale
56	SWFT	72	Partial	1:21,000
62	SWIA	74	Partial	1:21,000

AERIAL PHOTOGRAPHS IN THE NATIONAL ARCHIVES

Symbol	Year	Number of Indexes	Agency	Scale
AOR	38	7	ASCS	1:20,000

AERIAL PHOTOGRAPHY FROM THE AGRICULTURAL STABILIZATION AND CONSERVATION SERVICE

Symbol	Code	Year	Number of Indexes	Scale
AOR	37133	49	4	1:20,000
AOR	37133	56	4	1:20,000
AOR	37133	60	4	1:20,000
AOR	37133	64	5	1:20,000
AOR	37133	70	*4P	1:20,000

*Indicates partial coverage

GEOLOGICAL SURVEY HIGH ALTITUDE AERIAL PHOTOGRAPHY

Project Symbol	Year	Extent of Coverage	Scale
AF 64-12	64	Entire County	1:50,000
*VDMG	74	Partial	1:76,000

*Indicates quad-centered coverage

GEOLOGICAL SURVEY LOW ALTITUDE AERIAL PHOTOGRAPHY

Project Area	Project Symbol	Year	Extent of Coverage	Scale
13	AF 72-21	72	Partial	1:25,000
69	AF 72-21A	72	Partial	1:10,000

(See National Ocean Survey list for additional photography)

AERIAL PHOTOGRAPHS IN THE NATIONAL ARCHIVES

Symbol	Year	Number of Indexes	Agency	Scale
AOS	38	3	ASCS	1:20,000

AERIAL PHOTOGRAPHY FROM THE AGRICULTURAL STABILIZATION AND CONSERVATION SERVICE

Symbol	Code	Year	Number of Indexes	Scale
AOS	37137	58	4	1:20,000
AOS	37137	64	4	1:20,000
AOS	37137	70	4	1:20,000

AERIAL PHOTOGRAPHY FROM THE SOIL CONSERVATION SERVICE

Symbol	Year	Number of Indexes	Scale
--	53	4	1:20,000

GEOLOGICAL SURVEY HIGH ALTITUDE AERIAL PHOTOGRAPHY

Project Symbol	Year	Extent of Coverage	Scale
AF 64-12	64	Entire County	1:50,000
*VDMG	74	Partial	1:76,000

*Indicates quad-centered coverage

GEOLOGICAL SURVEY LOW ALTITUDE AERIAL PHOTOGRAPHY

Project Area	Project Symbol	Year	Extent of Coverage	Scale
31	VAYC	64	Partial	1:24,000
13	AF 72-21	72	Partial	1:25,000

AERIAL PHOTOGRAPHS IN THE NATIONAL ARCHIVES

Symbol	Year	Number of Indexes	Agency	Scale
AOT	38	4	ASCS	1:20,000

AERIAL PHOTOGRAPHY FROM THE AGRICULTURAL STABILIZATION AND CONSERVATION SERVICE

Symbol	Code	Year	Number of Indexes	Scale
AOT	37139	58	1	1:20,000
AOT	37139	63	4	1:20,000
AOT	37139	69	3	1:20,000

AERIAL PHOTOGRAPHY FROM THE SOIL CONSERVATION SERVICE

Symbol	Year	Number of Indexes	Scale
--	53	4	1:20,000

GEOLOGICAL SURVEY HIGH ALTITUDE AERIAL PHOTOGRAPHY

Project Symbol	Year	Extent of Coverage	Scale
AF 61-36	61	Entire County	1:59,000
*VDMG	74	Partial	1:76,000

*Indicates quad-centered coverage

GEOLOGICAL SURVEY LOW ALTITUDE AERIAL PHOTOGRAPHY

Project Area	Project Symbol	Year	Extent of Coverage	Scale
9	TU	53	Entire County	1:28,000

AERIAL PHOTOGRAPHS IN THE NATIONAL ARCHIVES

Symbol	Year	Number of Indexes	Agency	Scale
AOU	38	6	ASCS	1:20,000

AERIAL PHOTOGRAPHY FROM THE AGRICULTURAL STABILIZATION AND CONSERVATION SERVICE

Symbol	Code	Year	Number of Indexes	Scale
AOU	37141	49	6	1:20,000
AOU	37141	56	4	1:20,000
AOU	37141	61	6	1:20,000
AOU	37141	66	*6P	1:20,000
AOU	37141	72	6	1:20,000

*Indicates partial coverage

GEOLOGICAL SURVEY HIGH ALTITUDE AERIAL PHOTOGRAPHY

Project Symbol	Year	Extent of Coverage	Scale
AF 64-12	64	Entire County	1:50,000
*VDMG	74	Partial	1:76,000

*Indicates quad-centered coverage

GEOLOGICAL SURVEY LOW ALTITUDE AERIAL PHOTOGRAPHY

Project Area	Project Symbol	Year	Extent of Coverage	Scale
6	VAP-62	59	Partial	1:40,000
46	VCEE	70	Partial	1:18,000
13	AF 72-21	72	Partial	1:25,000
69	AF 72-21A	72	Partial	1:10,000

(See National Ocean Survey list for additional photography)

AERIAL PHOTOGRAPHS IN THE NATIONAL ARCHIVES

Symbol	Year	Number of Indexes	Agency	Scale
AOV	38	6	ASCS	1:20,000

AERIAL PHOTOGRAPHY FROM THE AGRICULTURAL STABILIZATION AND CONSERVATION SERVICE

Symbol	Code	Year	Number of Indexes	Scale
AOV	37143	48	1	1:20,000
AOV	37143	55	1	1:20,000
AOV	37143	58	1	1:20,000
AOV	37143	63	3	1:20,000
AOV	37143	69	3	1:20,000

GEOLOGICAL SURVEY HIGH ALTITUDE AERIAL PHOTOGRAPHY

Project Symbol	Year	Extent of Coverage	Scale
AF 61-36	61	Entire County	1:59,000
*VDMG	74	Entire County	1:76,000

*Indicates quad-centered coverage

GEOLOGICAL SURVEY LOW ALTITUDE AERIAL PHOTOGRAPHY

Project Area	Project Symbol	Year	Extent of Coverage	Scale
9	TU	53	Partial	1:28,000

AERIAL PHOTOGRAPHS IN THE NATIONAL ARCHIVES

Symbol	Year	Number of Indexes	Agency	Scale
ACA	37	4	ASCS	1:20,000

AERIAL PHOTOGRAPHY FROM THE AGRICULTURAL STABILIZATION AND CONSERVATION SERVICE

Symbol	Code	Year	Number of Indexes	Scale
*CSP	--	40	4	1:20,000
ACA	37147	48	3	1:20,000
ACA	37147	54	4	1:20,000
ACA	37147	58	4	1:20,000
ACA	37147	63	5	1:20,000
ACA	37147	70	4	1:20,000

*Indicates special administrative symbol

AERIAL PHOTOGRAPHY FROM THE SOIL CONSERVATION SERVICE

Symbol	Year	Number of Indexes	Scale
--	70	1	1:31,680 -- 1:44,000

GEOLOGICAL SURVEY HIGH ALTITUDE AERIAL PHOTOGRAPHY

Project Symbol	Year	Extent of Coverage	Scale
AF 64-12	64	Entire County	1:50,000
*VDMG	74	Entire County	1:76,000

*Indicates quad-centered coverage

GEOLOGICAL SURVEY LOW ALTITUDE AERIAL PHOTOGRAPHY

Project Area	Project Symbol	Year	Extent of Coverage	Scale
17	VIR	57	Entire County	1:19,000

AERIAL PHOTOGRAPHS IN THE NATIONAL ARCHIVES

Symbol	Year	Number of Indexes	Agency	Scale
ACS	38	5	ASCS	1:20,000

AERIAL PHOTOGRAPHY FROM THE AGRICULTURAL STABILIZATION AND CONSERVATION SERVICE

Symbol	Code	Year	Number of Indexes	Scale
ACS	37153	50	3	1:20,000
ACS	37153	56	3	1:20,000
ACS	37153	61	4	1:20,000
ACS	37153	68	5	1:20,000

GEOLOGICAL SURVEY HIGH ALTITUDE AERIAL PHOTOGRAPHY

Project Symbol	Year	Extent of Coverage	Scale
AF 64-12	64	Entire County	1:50,000

GEOLOGICAL SURVEY LOW ALTITUDE AERIAL PHOTOGRAPHY

Project Area	Project Symbol	Year	Extent of Coverage	Scale
11	VCO	55	Partial	1:18,000
6	VAP-62	59	Partial	1:40,000

AERIAL PHOTOGRAPHS IN THE NATIONAL ARCHIVES

Symbol	Year	Number of Indexes	Agency	Scale
ACT	38	4	ASCS	1:20,000

AERIAL PHOTOGRAPHY FROM THE AGRICULTURAL STABILIZATION AND CONSERVATION SERVICE

Symbol	Code	Year	Number of Indexes	Scale
ACT	37155	51	6	1:20,000
ACT	37155	55	5	1:20,000
ACT	37155	60	5	1:20,000
ACT	37155	66	7	1:20,000
ACT	37155	72	5	1:20,000

AERIAL PHOTOGRAPHY FROM THE SOIL CONSERVATION SERVICE

Symbol	Year	Number of Indexes	Scale
--	73	1	1:45,000 -- 1:55,000

GEOLOGICAL SURVEY HIGH ALTITUDE AERIAL PHOTOGRAPHY

Project Symbol	Year	Extent of Coverage	Scale
AF 64-12	64	Entire County	1:50,000
*VDMG	74	Partial	1:76,000

*Indicates quad-centered coverage

GEOLOGICAL SURVEY LOW ALTITUDE AERIAL PHOTOGRAPHY

Project Area	Project Symbol	Year	Extent of Coverage	Scale
6	VAP-62	59	Partial	1:40,000
55	SWEM	71	Partial	1:21,000

AERIAL PHOTOGRAPHS IN THE NATIONAL ARCHIVES

Symbol	Year	Number of Indexes	Agency	Scale
AOG	38	6	ASCS	1:20,000

AERIAL PHOTOGRAPHY FROM THE AGRICULTURAL STABILIZATION AND CONSERVATION SERVICE

Symbol	Code	Year	Number of Indexes	Scale
AOG	37163	51	6	1:20,000
AOG	37163	55	5	1:20,000
AOG	37163	60	5	1:20,000
AOG	37163	66	5	1:20,000
AOG	37163	72	5	1:20,000

GEOLOGICAL SURVEY HIGH ALTITUDE AERIAL PHOTOGRAPHY

Project Symbol	Year	Extent of Coverage	Scale
AF 64-12	64	Entire County	1:50,000
*VDMG	74	Entire County	1:76,000

*Indicates quad-centered coverage

GEOLOGICAL SURVEY LOW ALTITUDE AERIAL PHOTOGRAPHY

Project Area	Project Symbol	Year	Extent of Coverage	Scale
6	VAP-62	59	Partial	1:40,000
60	SWHZ	74	Partial	1:21,000

AERIAL PHOTOGRAPHS IN THE NATIONAL ARCHIVES

Symbol	Year	Number of Indexes	Agency	Scale
ACU	38	2	ASCS	1:20,000

AERIAL PHOTOGRAPHY FROM THE AGRICULTURAL STABILIZATION AND CONSERVATION SERVICE

Symbol	Code	Year	Number of Indexes	Scale
ACU	37165	49	1	1:20,000
ACU	37165	56	1	1:20,000
ACU	37165	61	2	1:20,000
ACU	37165	66	4	1:20,000
ACU	37165	72	3	1:20,000

GEOLOGICAL SURVEY HIGH ALTITUDE AERIAL PHOTOGRAPHY

Project Symbol	Year	Extent of Coverage	Scale
AF 64-12	64	Entire County	1:50,000

GEOLOGICAL SURVEY LOW ALTITUDE AERIAL PHOTOGRAPHY

Project Area	Project Symbol	Year	Extent of Coverage	Scale
6	VAP-62	59	Partial	1:40,000
55	SWEM	71	Partial	1:21,000

TYRELL COUNTY

AERIAL PHOTOGRAPHS IN THE NATIONAL ARCHIVES

Symbol	Year	Number of Indexes	Agency	Scale
AOW	*38P	3	ASCS	1:20,000

*Indicates partial coverage

AERIAL PHOTOGRAPHY FROM THE AGRICULTURAL STABILIZATION AND CONSERVATION SERVICE

Symbol	Code	Year	Number of Indexes	Scale
AOW	37177	56	1	1:20,000
AOW	37177	63	4	1:20,000
AOW	37177	69	3	1:20,000

GEOLOGICAL SURVEY HIGH ALTITUDE AERIAL PHOTOGRAPHY

Project Symbol	Year	Extent of Coverage	Scale
AF 64-12	64	Entire County	1:50,000
*VDMG	74	Entire County	1:76,000

*Indicates quad-centered coverage

AERIAL PHOTOGRAPHS IN THE NATIONAL ARCHIVES

Symbol	Year	Number of Indexes	Agency	Scale
AOX	38	5	ASCS	1:20,000

AERIAL PHOTOGRAPHY FROM THE AGRICULTURAL STABILIZATION AND CONSERVATION SERVICE

Symbol	Code	Year	Number of Indexes	Scale
AOX	37187	48	1	1:20,000
AOX	37187	55	1	1:20,000
AOX	37187	59	4	1:20,000
AOX	37187	63	3	1:20,000
AOX	37187	70	3	1:20,000

GEOLOGICAL SURVEY HIGH ALTITUDE AERIAL PHOTOGRAPHY

Project Symbol	Year	Extent of Coverage	Scale
AF 64-12	64	Entire County	1:50,000
*VDMG	74	Entire County	1:76,000

*Indicates quad-centered coverage

AERIAL PHOTOGRAPHS IN THE NATIONAL ARCHIVES

Symbol	Year	Number of Indexes	Agency	Scale
ACB	37	4	ASCS	1:20,000

AERIAL PHOTOGRAPHY FROM THE AGRICULTURAL STABILIZATION AND CONSERVATION SERVICE

Symbol	Code	Year	Number of Indexes	Scale
*CSP	--	40	4	1:20,000
ACB	37191	49	3	1:20,000
ACB	37191	54	3	1:20,000
ACB	37191	59	4	1:20,000
ACB	37191	65	4	1:20,000
ACB	37191	71	4	1:20,000

*Indicates special administrative symbol

AERIAL PHOTOGRAPHY FROM THE SOIL CONSERVATION SERVICE

Symbol	Year	Number of Indexes	Scale
--	70	1	1:45,000 -- 1:55,000

GEOLOGICAL SURVEY HIGH ALTITUDE AERIAL PHOTOGRAPHY

Project Symbol	Year	Extent of Coverage	Scale
AF 64-12	64	Eastern half and lower S.W. of county	1:50,000
*VDFN	73	Most of western half of county	1:76,000
*VDMG	74	Partial	1:76,000

*Indicates quad-centered coverage

GEOLOGICAL SURVEY LOW ALTITUDE AERIAL PHOTOGRAPHY

Project Area	Project Symbol	Year	Extent of Coverage	Scale
17	VIR	57	Partial	1:19,000
68	SWHK	74	Partial	1:21,000

AERIAL PHOTOGRAPHS IN THE NATIONAL ARCHIVES

Symbol	Year	Number of Indexes	Agency	Scale
ACC	37	3	ASCS	1:20,000

AERIAL PHOTOGRAPHY FROM THE AGRICULTURAL STABILIZATION AND CONSERVATION SERVICE

Symbol	Code	Year	Number of Indexes	Scale
*CSP	--	40	3	1:20,000
ACC	37195	48	1	1:20,000
ACC	37195	54	1	1:20,000
ACC	37195	59	1	1:20,000
ACC	37195	64	3	1:20,000
ACC	37195	71	2	1:20,000

*Indicates special administrative symbol

GEOLOGICAL SURVEY HIGH ALTITUDE AERIAL PHOTOGRAPHY

Project Symbol	Year	Extent of Coverage	Scale
AF 64-12	64	Eastern portion of county	1:50,000
*VDFN	73	Western portion of county	1:76,000
*VDMG	74	Partial	1:76,000

*Indicates quad-centered coverage

GEOLOGICAL SURVEY LOW ALTITUDE AERIAL PHOTOGRAPHY

Project Area	Project Symbol	Year	Extent of Coverage	Scale
17	VIR	57	Partial	1:19,000
64	VDJC	74	Partial	1:24,000

ORDERING FROM THE NATIONAL OCEAN SURVEY

The photographic holdings of the National Ocean Survey (NOS) of the U. S. Department of Commerce (USDC) and its predecessor agency, the U. S. Coast and Geodetic Survey (USC & GS) have been listed separately because of their special nature. This is coastal photography usually taken in single strips or as a few parallel strips. There is no attempt by the NOS to make continuous coverage over large land areas. Those users requiring photography of the Atlantic Ocean shore of North Carolina should find it in the following list. In order to facilitate the identification and ordering of aerial photographs, the list was compiled by NOS photo index sheets and their individual contents, rather than by counties. The user requiring coverage of a particular part of the coast should refer to Figure 17 to determine the identity of the index sheet showing that place. Within the following large list he will find a number of dated short lists. Each of these represents a separate index sheet of that date, and shows emulsion type, photo numbers, scales, and dates along with the centers of the individual photographs in the flight lines (Figure 12). Since NOS coverage is irregular, the user cannot be certain that photography actually exists for his specific location. He should either order the appropriate air photo index sheet for further reference or send a marked road map cut-out to the NOS. The following list, then, is a guide to NOS index sheets and an indication of kinds of photography likely to be available.

In addition to photography of the ocean strand, some of the NOS photo index sheets show occasional irregular coverage of the counties bordering on the sounds. The best way to determine if photography is available for such a location is to mark it on a road map and send an inquiry.

Should the user be involved with civil airfields, it is important for him to know that NOS has photography for more than six hundred of those serving passenger carrying airlines all across the United States. This coverage is taken in connection with the NOS aeronautical charting program and is available to the public.

Inquiries and requests for the purchase of air photo index sheets and aerial photographs should be directed to:

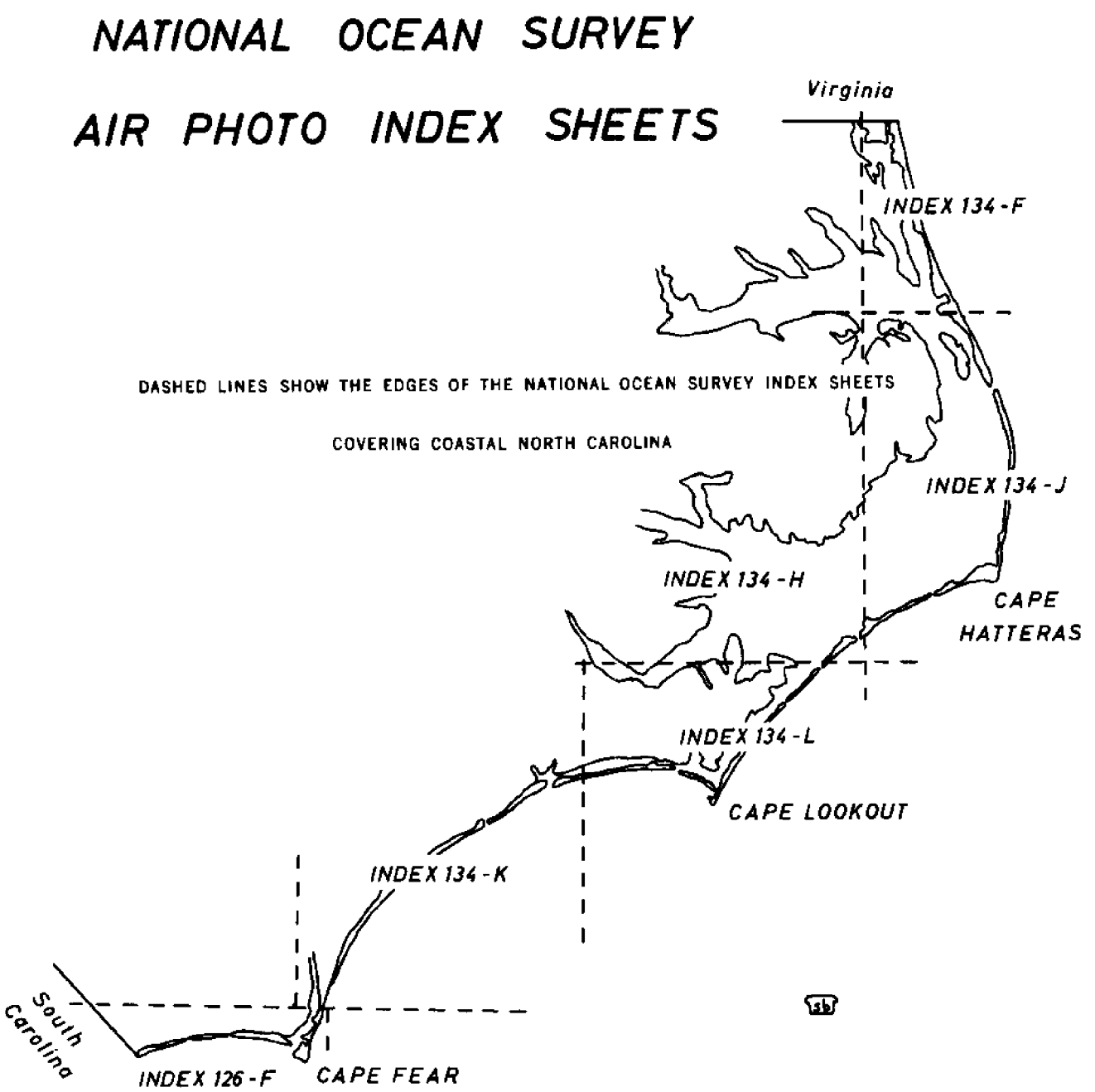

NATIONAL OCEAN SURVEY
AIR PHOTO INDEX SHEETS
Virginia
INDEX 134-F
DASHED LINES SHOW THE EDGES OF THE NATIONAL OCEAN SURVEY INDEX SHEETS
COVERING COASTAL NORTH CAROLINA
INDEX 134-J
INDEX 134-H
CAPE
HATTERAS
INDEX 134-L
CAPE LOOKOUT
INDEX 134-K
South
Carolina
INDEX 126-F
CAPE FEAR

Figure 17.

Coastal Mapping Division, C3415
National Ocean Survey, NOAA
Rockville, Maryland 20852

One final word of caution to the user about black and white infrared photography appearing in this list is in order. NOS states that it is taken, "for the special purpose of defining and mapping the shoreline. This photography provides a high contrast between land and water but does not show cultural and other land details as clearly as ordinary panchromatic photography and is not generally acceptable in lieu of panchromatic photography. It should not be purchased unless the special high contrast between land and water with diminished clarity of other details is acceptable."

LIST OF NATIONAL OCEAN SURVEY AERIAL PHOTOGRAPHY

National Ocean Survey Air Photo Index 134-F covers the Atlantic coast from the Virginia State boundary in the north to a point about two miles south of Kill Devil Hills.

AIR PHOTO INDEX 134-F (7-23-54)
Panchromatic Photography

Photo No's	Scale	Date
45 C 114 thru 127	1: 5,000	1- 5-45
45 C 128 thru 129	1:20,000	1- 5-45
45 C 131 thru 140	1:20,000	1- 5-45
45 C 941 thru 956	1:20,000	1-24-45
49 O 1795	1:40,000	12- 5-49
53 O 22 thru 30	1:20,000	5-31-53
53 J 3619-3641	1:10,000	12- 2-53

AIR PHOTO INDEX 134-F (6-20-63)
Panchromatic Photography

Photo No's	Scale	Date
55 W 5665-5705	1:20,000	3-29-55
55 W 5726-5759	1:20,000	3-29-55
61 S 9033A-9040A	1:36,000	11-26-61
61 S 9098A-9105A	1:36,000	11-28-61
62 S 3515A-3540A	1:20,000	10-31-62
62 S 3550A-3566A	1:20,000	10-13-62
62 W 4071-4124	1:20,000	5- 3-62
62 W 415-417	1:20,000	10-24-62

AIR PHOTO INDEX 134-F (11-28-62)
Panchromatic Photography

Photo No's	Scale	Date
62 S 1753-1787	1:24,000	3-13-62

AIR PHOTO INDEX 134-F (4-1-66)

Panchromatic Photography

Photo No's	Scale	Date
63 W 2477-2488	1:40,000	10-31-63
63 W 2868-2878	1:30,000	2-18-63
63 W 2886-2903	1:30,000	2-18-63
63 W 2907-2928	1:30,000	2-18-63
63 W 2930-2956	1:30,000	2-20-63
65 S 546-552	1:24,000	10-27-65
65 S 592-595	1:24,000	10-27-65

AIR PHOTO INDEX 134-F (1-1-69)

Natural Color Photography

Photo No's	Scale	Date
62 S(C) 1801-1808	1:10,000	3-13-62
62 W(C) 2434A-2458A	1:10,000	11-16-62
65 S(C) 9739-9755	1:20,000	10-23-65
65 S(C) 9974-9979	1:20,000	10-24-65
65 S(C) 180-247	1:20,000	10-25-65
65 S(C) 318-368	1:20,000	10-25-65
65 S(C) 394-439	1:20,000	10-26-65
65 S(C) 464-495	1:20,000	10-26-65

AIR PHOTO INDEX 134-F (3-13-63)

Infrared Black and White Photography

Photo No's	Scale	Date
62 L 2935-2958	1:20,000	5- 3-62
62 L 2962-2981	1:20,000	5- 3-62

National Ocean Survey Air Photo Index 134-J covers the Atlantic coast from a point about two miles south of Kill Devil Hills southward to the southern tip of Ocracoke Island

AIR PHOTO INDEX 134-J (No Date)
Panchromatic Photography

Photo No's	Scale	Date
45 C 886-940	1:20,000	1-24-45
45 C 957-1044	1:10,000	1-24-45
45 C 2112-2149	1:10,000	1-24-45
49 O 1708-1717	1:40,000	12- 5-49
49 O 1735-1754	1:40,000	12- 5-49
49 O 1779-1794	1:40,000	12- 5-49
49 O 1796-1813	1:40,000	12- 5-49
49 O 1828-1841	1:40,000	12- 6-49

AIR PHOTO INDEX 134-J (7-29-53)
Panchromatic Photography

Photo No's	Scale	Date
53 O 31 thru 88	1:20,000	5-31-53

AIR PHOTO INDEX 134-J (10-3-58)
Panchromatic Photography

Photo No's	Scale	Date
55 W 5570-5574	1:17,500	3-29-55
55 W 5581-5664	1:20,000	3-29-55
58 S 2724-2728	1:25,000	5- 4-58
58 S 2730-2733	1:24,000	5- 4-58

AIR PHOTO INDEX 134-J (2-4-59)
Panchromatic Photography

Photo No's	Scale	Date
58 W 1457-1474	1:18,000	10-10-58
58 W 1476-1548	1:18,000	10-10-58

AIR PHOTO INDEX 134-J (2-11-60)

Panchromatic Photography

Photo No's	Scale	Date
59 W 7507-7531	1:25,000	8-16-59
59 W 7533-7535	1:25,000	8-16-59
59 W 7537-7552	1:25,000	8-16-59

AIR PHOTO INDEX 134-J (11-28-62)

Panchromatic Photography

Photo No's	Scale	Date
62 S 1687-1752	1:24,000	3-13-62

AIR PHOTO INDEX 134-J (12-30-63)

Panchromatic Photography

Photo No's	Scale	Date
62 S 1833A-1839A	1:30,000	9-18-62
62 S 3451A-3465A	1:20,000	10-13-62
62 M 2782-2796	1:60,000	12- 5-62
62 M 2834-2849	1:60,000	12- 5-62
62 M 2887-2897	1:60,000	12- 5-62
62 M 2942	1:60,000	12- 7-62
62 M 3030-3050	1:60,000	12- 7-62
62 W 4125-4158	1:20,000	5- 3-62
62 W 4160-4216	1:15,000	5- 3-62
62 W 4218-4277	1:20,000	5- 3-62
62 W 9789-9796	1:30,000	10-17-62
63 W 2905-2906	1:30,000	2-18-63
63 W 2957	1:30,000	2-18-63

AIR PHOTO INDEX 134-J (1-1-69)

Panchromatic Photography

Roll No.	Photo No's	Scale	Date
35-03	68 E 3386-3411	1:20,000	4- 7-68

AIR PHOTO INDEX 134-J (4-1-66)

Natural Color Photography

Photo No's	Scale	Date
62 S(C) 1246-1252	1:19,000	9- 2-62
62 S(C) 1809-1838	1:10,000	3-13-62
62 S(C) 4996-5021	1:10,000	4- 4-62
63 S(C) 7007-7079	1:20,000	7- 5-63
63 S(C) 8771-8775	1:20,000	10- 1-63
63 W(C) 2202-2221	1:20,000	10-15-63
65 S(C) 115-136	1:20,000	10-25-65
65 S(C) 163-175	1:20,000	10-25-65
65 S(C) 248-277	1:20,000	10-25-65
65 S(C) 286-317	1:20,000	10-25-65
65 S(C) 440-454	1:20,000	10-26-65

AIR PHOTO INDEX 134-J (1-1-69)

Natural Color Photography

Roll No.	Photo No's	Scale	Date
100-458	68 E(C) 4658-4687	1:20,000	4-25-68

AIR PHOTO INDEX 134-J (1-1-74)

Natural Color Photography

Roll No.	Photo No's	Scale	Date
100-626	70 E(C) 8763-8769	1:20,000	12- 6-70
100-645	71 E(C) 061-073	1:20,000	3-21-71
100-646	71 E(C) 080-119	1:20,000	3-21-71
100-646	71 E(C) 120-132	1:10,000	3-21-71
100-718	71 E(C) 9222A-9224A	1:40,000	11-11-71
100-718	71 E(C) 9225A-9238A	1:20,000	11-11-71
100-718	71 E(C) 9239A-9247A	1:10,000	11-11-71
100-801	73 E(C) 743-759	1:40,000	10-12-73
100-801	73 E(C) 809-843	1:10,000	10-13-73

AIR PHOTO INDEX 134-J (1-1-75)
Natural Color Photography

Roll No.	Photo No's	Scale	Date
100-860	74 C(C) 1235-1270	1:10,000	10-31-74
100-860	74 C(C) 1283-1339	1:10,000	10-31-74
100-861	74 C(C) 1384-1484	1:10,000	10-31-74
100-862	74 C(C) 1688-1753	1:10,000	11- 1-74

AIR PHOTO INDEX 134-J (1-1-75)
Infrared Color Photography

Roll No.	Photo No's	Scale	Date
100-835	74 C(C) 8781R-8790R	1:60,000	4- 1-74
100-835	74 C(C) 8815R-8824R	1:60,000	4- 1-74
100-835	74 C(C) 8881R-8890R	1:60,000	4- 3-74
100-836	74 C(C) 9034R	1:60,000	4- 7-74
100-837	74 C(C) 9043R-9051R	1:60,000	4- 7-74
100-838	74 E(C) 4413R-4420R	1:30,000	4- 1-74
100-838	74 E(C) 4430R-4443R	1:30,000	4- 1-74
100-838	74 E(C) 4505R-4520R	1:15,000	4- 1-74

AIR PHOTO INDEX 134-J (No Date)
Infrared Black and White Photography

Photo No's	Scale	Date
62 L 2982-3006	1:20,000	5- 3-62
62 L 3008-3056	1:15,000	5- 3-62
62 L 3058-3133	1:20,000	5- 3-62

AIR PHOTO INDEX 134-J (1-1-75)
Infrared Black and White Photography

Roll No.	Photo No's	Scale	Date
42-27	74 E 7524R-7553R	1:5,800	10-31-74
42-27	74 E 7567R-7586R	1:5,800	10-31-74
42-27	74 E 7590R-7675R	1:5,800	10-31-74
42-27	74 E 7678R-7763R	1:5,800	10-31-74
42-27	74 E 7821R-7878R	1:5,800	11- 1-74

National Ocean Survey Air Photo Index 134-H covers the Atlantic coast from the southern tip of Ocracoke Island southward to the southern tip of Portsmouth Island.

AIR PHOTO INDEX 134-H (7-18-55)
Panchromatic Photography

Photo No's	Scale	Date
45 C 190-201	1:20,000	1- 5-45
45 C 209-211	1:20,000	1- 5-45
45 C 808-817	1:20,000	1-24-45
45 C 879-885	1:20,000	1-24-45
48 J 7-12	1:24,000	1-26-48
49 O 1718-1734	1:40,000	12- 5-49
49 O 1755-1778	1:40,000	12- 5-49
49 O 1814-1827	1:40,000	12- 6-49
49 O 1842-1885	1:40,000	12- 6-49
53 J 3566-3597	1:10,000	11-24-53
55 W 5562-5569	1:17,500	3-29-55
55 W 5575-5580	1:20,000	3-29-55

AIR PHOTO INDEX 134-H (3-15-62)
Panchromatic Photography

Photo No's	Scale	Date
58 S 2735-2738	1:25,000	5- 4-58
58 W 1549-1558	1:18,000	10-10-58
59 W 7452	1:25,000	8-16-59
59 W 7501-7506	1:25,000	8-16-59
59 S 8386-8401	1: 4,000	10-13-59
61 S 8887A-8890A	1:36,000	11-25-61
61 S 8902A-8911A	1:36,000	11-25-61
61 S 8980A-8981A	1:36,000	11-25-61

AIR PHOTO INDEX 134-H (11-28-62)
Panchromatic Photography

Photo No's	Scale	Date
62 S 1682-1686	1:24,000	3-13-62

AIR PHOTO INDEX 134-H (4-1-66)

Panchromatic Photography

Photo No's	Scale	Date
62 S 1840A-1844A	1:30,000	9-18-62
62 S 3308A-3450A	1:20,000	10-13-62
62 S 3494A-3513A	1:20,000	10-13-62
62 M 2765-2781	1:60,000	12- 5-62
62 M 2797-2814	1:60,000	12- 5-62
62 M 2818-2833	1:60,000	12- 5-62
62 M 2850-2867	1:60,000	12- 5-62
62 M 2871-2886	1:60,000	12- 5-62
62 M 2898-2914	1:60,000	12- 5-62
62 M 2918-2922	1:60,000	12- 7-62
62 M 2924-2941	1:60,000	12- 7-62
62 M 2953-2969	1:60,000	12- 7-62
62 M 2973-2993	1:60,000	12- 7-62
62 M 2997-3023	1:60,000	12- 7-62
62 M 3026-3029	1:60,000	12- 7-62
62 W 4278-4290	1:20,000	5- 3-62
62 W 9738-9743	1:30,000	10-16-62
65 S 2751-2755	1:30,000	5- 2-65
65 S 2777-2782	1:30,000	5- 2-65

AIR PHOTO INDEX 134-H (1-1-69)

Panchromatic Photography

Roll No.	Photo No's	Scale	Date
35-03	68 E 3368-3385	1:20,000	4- 7-68

AIR PHOTO INDEX 134-H (4-1-66)
Natural Color Photography

Photo No's	Scale	Date
62 S(C) 1238-1245	1:19,000	9- 2-62
62 S(C) 4978-4995	1:10,000	4- 4-62
63 W(C) 2493-2509	1:15,000	10-31-63
63 W(C) 2526-2564	1:15,000	10-31-63
65 S(C) 9926-9928	1:20,000	10-23-65
65 S(C) 9951-9971	1:20,000	10-23-65
65 S(C) 9981-0016	1:20,000	10-24-65
65 S(C) 049-068	1:20,000	10-25-65
65 S(C) 077-114	1:20,000	10-25-65
65 S(C) 137-162	1:20,000	10-25-65
65 S(C) 281-285	1:20,000	10-25-65

AIR PHOTO INDEX 134-H (1-1-69)
Natural Color Photography

Photo No's	Scale	Date
67 L(C) 2003-2009	1:30,000	5- 8-67
67 L(C) 2024-2031	1:20,000	5- 8-67
68 E(C) 4688-4702	1:20,000	4-25-68

AIR PHOTO INDEX 134-H (3-13-63)
Infrared Black and White Photography

Photo No's	Scale	Date
62 L 3134-3144	1:20,000	5- 3-62

National Ocean Survey Air Photo Index 134-G-H covers the same portion of the Atlantic coast as 134-H.

AIR PHOTO INDEX 134-G-H (1-1-75)

Infrared Color Photography

Roll No.	Photo No's	Scale	Date
100-835	74 C(C) 8812R-8814R	1:60,000	4- 1-74
100-835	74 C(C) 8857R-8864R	1:15,000	4- 1-74
100-836	74 C(C) 9032R-9033R	1:60,000	4- 7-74
100-837	74 C(C) 9040R-9042R	1:60,000	4- 7-74
100-838	74 E(C) 4421R-4425R	1:30,000	4- 1-74
100-838	74 E(C) 4448R-4454R	1:20,000	4- 1-74

National Ocean Survey Air Photo Index 134-L covers the Atlantic coast from the southern tip of Portsmouth Island southwestward to a point about three miles west of the town of Emerald Isle on Bogue Banks.

AIR PHOTO INDEX 134-L (4-15-54)
Panchromatic Photography

Photo No's	Scale	Date
45 C 202-208	1:20,000	1- 5-45
45 C 212-244	1:10,000	1- 5-45
45 C 818-832	1:20,000	1-24-45
45 C 848-879	1:20,000	1-24-45
51 O 3202-3221	1:24,000	3-31-51
53 O 89-92	1:10,000	6-10-53
53 O 216-220	1:24,000	6-10-53
53 O 221-268	1:20,000	6-10-53
53 J 3520-3565	1:10,000	11-24-53

AIR PHOTO INDEX 134-L (2-21-55)
Panchromatic Photography

Photo No's	Scale	Date
54 W 3842-3883	1:24,000	11-30-54
54 W 3908-3926	1:24,000	11-30-54
55 W 5529-5561	1:17,500	3-29-55

AIR PHOTO INDEX 134-L (8-4-59)
Panchromatic Photography

Photo No's	Scale	Date
58 S 2740-2743	1:25,000	5- 4-58
58 S 2745-2749	1:25,000	5- 4-58
58 S 2751-2754	1:24,000	5- 4-58
58 S 2756-2758	1:24,000	5- 4-58
58 W 1559-1634	1:18,000	10-10-58
59 W 3880-3890	1:30,000	4- 3-59

AIR PHOTO INDEX 134-L (4-9-62)
Panchromatic Photography

Photo No's	Scale	Date
59 W 7394-7417	1:25,000	8-16-59
59 W 7419-7451	1:25,000	8-16-59
59 S 8402-8410	1: 4,000	10-13-59
61 S 8865A-8886A	1:36,000	11-25-61
61 S 8914A-8952A	1:36,000	11-25-61
61 S 8967A-8978A	1:36,000	11-25-61
61 S 8982A-8994A	1:36,000	11-25-61

AIR PHOTO INDEX 134-L (11-28-62)
Panchromatic Photography

Photo No's	Scale	Date
62 S 1646	1:28,000	3-13-62
62 S 1648-1681	1:24,000	3-13-62

AIR PHOTO INDEX 134-L (4-1-65)
Panchromatic Photography

Photo No's	Scale	Date
62 S 1845A-1848A	1:30,000	9-18-62
62 W 4291-4346	1:20,000	5- 3-62
62 W 4552-4569	1:20,000	5- 4-62
62 M 3025	1:60,000	12- 5-62
64 S 1334-1372	1:30,000	5- 8-64

AIR PHOTO INDEX 134-L (1-1-69)
Panchromatic Photography

Photo No's	Scale	Date
65 L 9515-9530	1:20,000	11-25-65
65 S 691-723	1:20,000	10-27-65
68 E 3310-3367	1:20,000	4- 7-68
68 E 3600-3635	1:20,000	4-12-68

AIR PHOTO INDEX 134-L (1-1-69)
Natural Color Photography

Photo No's	Scale	Date
62 S(C) 4945-4977	1:10,000	4- 4-62
63 W(C) 2510-2525	1:15,000	10-31-63
67 L(C) 1987-2001	1:30,000	5- 8-67
67 L(C) 2010-2022	1:30,000	5- 8-67
67 L(C) 2032-2040	1:30,000	5- 8-67
68 E(C) 4703-4750	1:20,000	4-25-68

AIR PHOTO INDEX 134-L (3-13-63)
Infrared Black and White Photography

Photo No's	Scale	Date
62 L 3145-3201	1:20,000	5- 3-62
62 L 3394-3411	1:20,000	5- 4-62

National Ocean Survey Air Photo Index 134-K covers the Atlantic coast from a point about three miles west of the town of Emerald Isle on Bogue Banks southwestward to the town of Kure Beach.

AIR PHOTO INDEX 134-K (4-15-54)
Panchromatic Photography

Photo No's	Scale	Date
53 O 93-95	1:20,000	5-31-53
53 O 96-108	1:24,000	5-31-53
53 J 3396-3408	1:10,000	11-24-53
53 J 3413-3519	1:10,000	11-24-53

AIR PHOTO INDEX 134-K (2-4-59)
Panchromatic Photography

Photo No's	Scale	Date
58 S 2760-2772	1:25,000	5- 4-58
58 S 2774-2777	1:25,000	5- 4-58
58 S 2779-2795	1:25,000	5- 4-58
58 S 2797-2800	1:25,000	5- 4-58
58 W 1635-1660	1:18,000	10-10-58
58 W 1694-1745	1:18,000	10-10-58
58 W 1772-1791	1:18,000	10-10-58

AIR PHOTO INDEX 134-K (6-12-61)
Panchromatic Photography

Photo No's	Scale	Date
59 W 7336-7393	1:25,000	8-16-59
60 S 9371-9376	1:29,000	2-20-60
60 S 998-1006	1:35,000	3-25-60
60 S 1008-1024	1:35,000	3-25-60
60 S 5014A-5031A	1:36,000	12- 2-60
60 S 5043A-5069A	1:36,000	12- 2-60
60 S 5074A-5081A	1:36,000	12- 2-60

AIR PHOTO INDEX 134-K (11-28-62)

Panchromatic Photography

Photo No's	Scale	Date
62 S 1595-1612	1:24,000	3-13-62
62 S 1614-1645	1:28,000	3-13-62

AIR PHOTO INDEX 134-K (4-1-66)

Panchromatic Photography

Photo No's	Scale	Date
62 W 4570-4640	1:20,000	5- 4-62
63 W 3017-3020	1:30,000	2-21-63
64 S 1242-1257	1:30,000	5- 8-64
64 S 1261-1278	1:30,000	5- 8-64
64 S 1281-1296	1:30,000	5- 8-64
64 S 1301-1324	1:30,000	5- 8-64
64 S 1327-1333	1:30,000	5- 8-64
65 L 8212-8243	1:30,000	10-26-65
65 S 615-626	1:20,000	10-27-65
65 S 653-685	1:20,000	10-27-65
65 S 687	1: 5,000	10-27-65
65 S 2764-2766	1:30,000	5- 2-65
65 S 2784-2785	1:30,000	5- 2-65

AIR PHOTO INDEX 134-K (1-1-69)

Panchromatic Photography

Roll No.	Photo No's	Scale	Date
35-02	68 E 3225-3293	1:20,000	4- 7-68
35-03	68 E 3299-3309	1:20,000	4- 7-68
35-03	68 E 3413-3432	1:20,000	4- 7-68

AIR PHOTO INDEX 134-K (1-1-69)

Natural Color Photography

Photo No's	Scale	Date
63 W(C) 2432-2437	1:20,000	10-27-63
68 L(C) 4232-4237	1:40,000	10- 4-68
68 L(C) 4243-4248	1:40,000	10- 4-68
68 L(C) 4305-4311	1:40,000	10- 4-68
68 L(C) 4324-4340	1:40,000	10- 4-68
68 L(C) 4352-4379	1:40,000	10- 5-68
68 L(C) 4401-4417	1:40,000	10- 5-68
68 S(C) 7125-7154	1:20,000	9-15-68
68 S(C) 7188-7210	1:20,000	9-15-68
68 S(C) 7225-7260	1:20,000	9-15-68
68 S(C) 7267-7311	1:20,000	9-15-68
68 S(C) 7314-7322	1:20,000	9-15-68

AIR PHOTO INDEX 134-K (3-13-63)

Infrared Black and White Photography

Photo No's	Scale	Date
62 L 3412-3466	1:20,000	5- 4-62

National Ocean Survey Air Photo Index 134-K-L covers the Atlantic coast from the southern tip of Portsmouth Island southwestward to the town of Kure Beach.

AIR PHOTO INDEX 134-K-L (1-1-74)

Natural Color Photography

Roll No.	Photo No's	Scale	Date
100-559	69 E(C) 3609-3612	1:15,000	11-30-69
100-626	70 E(C) 8746-8762	1:20,000	12- 6-70
100-718	71 E(C) 9248-9250	1:20,000	11-11-71
100-772	72 E(C) 6704-6733	1:40,000	10-20-72
100-772	72 E(C) 6741-6765	1:40,000	10-20-72
100-772	72 E(C) 6821-6828	1:40,000	10-21-72
100-773	72 E(C) 6852-6863	1:40,000	10-21-72
100-773	72 E(C) 6871-6923	1:20,000	10-21-72
100-773	72 E(C) 6926-6928	1:20,000	10-21-72
100-773	72 E(C) 6929-6940	1:10,000	10-21-72
100-773	72 E(C) 6941-6946	1:20,000	10-21-72
100-773	72 E(C) 6951-6954	1:20,000	10-21-72
100-773	72 E(C) 6960-6963	1:20,000	10-21-72
100-773	72 E(C) 6968-6977	1:20,000	10-21-72
100-783	73 E(C) 8215-8275	1:20,000	1-30-73
100-801	73 E(C) 725-731	1:40,000	10-12-73
100-801	73 E(C) 760-770	1:40,000	10-12-73
100-779	73 E(C) 779-783	1:35,000	10-13-73

AIR PHOTO INDEX 134-K-L (1-1-74)

Natural Color Photography

Roll No.	Photo No's	Scale	Date
100-807	73 C(C) 5479-5585	1: 7,500	11- 7-73
100-808	73 C(C) 5623-5715	1: 7,500	11- 7-73
100-809	73 C(C) 5770-5863	1: 7,500	11- 7-73
100-810	73 C(C) 5920-6015	1: 7,500	11-10-73
100-811	73 C(C) 6210-6258	1: 7,500	11-12-73
100-811	73 C(C) 6259-6313	1: 7,500	11-12-73
100-812	73 C(C) 6355-6472	1: 7,500	11-12-73

AIR PHOTO INDEX 134-K-L (1-1-75)

Natural Color Photography

Roll No.	Photo No's	Scale	Date
100-839	74 E(C) 4632-4641	1:20,000	4- 7-74
100-866	74 E(C) 8388-8403	1:10,000	12- 4-74

AIR PHOTO INDEX 134-K-L (1-1-74)

Infrared Color Photography

Roll No.	Photo No's	Scale	Date
100-798	73 C(C) 4664R-4680R	1:60,000	10-13-73
100-798	73 C(C) 4685R-4695R	1:60,000	10-13-73
100-799	73 C(C) 4746R-4754R	1:60,000	10-13-73
100-799	73 C(C) 4759R-4769R	1:60,000	10-13-73
100-799	73 C(C) 4779R-4786R	1:60,000	10-15-73
100-799	73 C(C) 4791R-4802R	1:60,000	10-15-73
100-802	73 C(C) 4890R-4900R	1:60,000	10-18-73
100-802	73 C(C) 4910R-4922R	1:60,000	10-18-73
100-802	73 C(C) 4958R-4966R	1:60,000	10-18-73
100-815	73 E(C) 1972R-2000R	1:20,000	11-10-73
100-815	73 E(C) 2005R-2048R	1:10,000	11-10-73
100-815	73 E(C) 2052R-2070R	1:30,000	11-10-73
100-815	73 E(C) 2074R-2084R	1:40,000	11-10-73

AIR PHOTO INDEX 134-K-L (1-1-75)

Infrared Color Photography

Roll No.	Photo No's	Scale	Date
100-797	73 C(C) 4525R-4540R	1:30,000	10-12-73
100-798	73 C(C) 4607R-4622R	1:30,000	10-12-73
100-799	73 C(C) 4813R-4820R	1:30,000	10-15-73
100-813	73 C(C) 6067R-6072R	1:30,000	11-10-73
100-813	73 C(C) 6084R-6094R	1:50,000	11-10-73
100-813	73 C(C) 6098R-6106R	1:70,000	11-10-73
100-813	73 C(C) 6130R-6139R	1:60,000	11-11-73
100-813	73 C(C) 6143R-6156R	1:60,000	11-11-73
100-804	73 E(C) 1262R-1356R	1: 4,340	11- 7-73
100-805	73 E(C) 1408R-1531R	1: 4,340	11- 7-73
100-806	73 E(C) 1560R-1643R	1: 4,340	11- 7-73
100-814	73 E(C) 1827R-1914R	1: 4,340	11-10-73
100-816	73 E(C) 2129R-2224R	1: 4,340	11-12-73
100-817	73 E(C) 2277R-2388R	1: 4,340	11-12-73
100-835	74 C(C) 8797R-8807R	1:60,000	4- 1-74
100-835	74 C(C) 8828-8856R	1:15,000	4- 1-74
100-836	74 C(C) 9021R-9031R	1:60,000	4- 7-74
100-838	74 E(C) 4455R-4473R	1:20,000	4- 1-74
100-838	74 E(C) 4477R-4501R	1:15,000	4- 1-74

AIR PHOTO INDEX 134-K-L (1-1-73)

Infrared Black and White Photography

Roll No.	Photo No's	Scale	Date
40-21	72 K 7369R-7386R	1:40,000	10-23-72

National Ocean Survey Air Photo Index 126-F covers the Atlantic coast from the town of Kure Beach southwestward to the South Carolina State boundary.

AIR PHOTO INDEX 126-F (4-15-54)
Panchromatic Photography

Photo No's	Scale	Date
45 C 724-765	1:20,000	1-23-45
51 O 3120-3149	1:20,000	3-31-51
53 O 109-111	1:24,000	5-31-53
53 J 3282-3395	1:10,000	11-24-53
53 J 3409-3412	1:10,000	11-24-53

AIR PHOTO INDEX 126-F (2-21-55)
Panchromatic Photography

Photo No's	Scale	Date
54 W 3977-3996	1:24,000	11-30-54
54 W 4004-4064	1:24,000	11-30-54

AIR PHOTO INDEX 126-F (2-11-59)
Panchromatic Photography

Photo No's	Scale	Date
58 S 2802-2805	1:25,000	5- 4-58
58 S 2807-2809	1:25,000	5- 4-58
58 S 2811-2812	1:24,000	5- 4-58
58 S 2814-2816	1:24,000	5- 4-58
58 W 1746-1771	1:18,000	10-10-58
58 W 1792-1831	1:18,000	10-10-58

AIR PHOTO INDEX 126-F (3-1-63)

Panchromatic Photography

Photo No's	Scale	Date
59 W 7302-7335	1:25,000	8-16-59
60 S 5001A-5003A	1:36,000	12- 2-60
62 S 5038-5101	1:20,000	4- 4-62
62 S 827A-862A	1:30,000	8-24-62
62 S 900A-922A	1:30,000	8-24-62

AIR PHOTO INDEX 126-F (11-28-62)

Panchromatic Photography

Photo No's	Scale	Date
62 S 1579-1594	1:24,000	3-13-62

AIR PHOTO INDEX 126-F (4-1-66)

Panchromatic Photography

Photo No's	Scale	Date
62 W 4641-4737	1:20,000	5- 4-62
63 W 3021-3043	1:30,000	2-21-63
64 S 1232-1241	1:30,000	5- 8-64
65 S 627-647	1:20,000	10-27-65
65 S 650-652	1:20,000	10-27-65

AIR PHOTO INDEX 126-F (1-1-69)

Panchromatic Photography

Roll No.	Photo No's	Scale	Date
35-02	68 E 3173-3223	1:20,000	4- 7-68
35-03	68 E 3433-3459	1:20,000	4- 7-68

AIR PHOTO INDEX 126-F (1-1-69)

Natural Color Photography

Photo No's	Scale	Date
62 S(C) 4925-4944	1:10,000	4- 4-62
63 W(C) 2421-2431	1:20,000	10-27-63
68 E(C) 3465-3467	1:20,000	4- 7-68
68 E(C) 3493-3508	1:20,000	4- 8-68
68 L(C) 4380-4383	1:40,000	10- 5-68
68 L(C) 4394-4400	1:40,000	10- 5-68
68 S(C) 7114-7123	1:20,000	9-15-68
68 S(C) 7155-7163	1:20,000	9-15-68
68 S(C) 7166-7185	1:20,000	9-15-68

AIR PHOTO INDEX 126-F (3-21-63)

Infrared Black and White Photography

Photo No's	Scale	Date
62 K 20-55	1:30,000	8-23-62
62 L 3496-3578	1:20,000	5- 4-62

National Ocean Survey Air Photo Index 126-E-F covers the same portion of the Atlantic coast as 126-F.

AIR PHOTO INDEX 126-E-F (1-1-75)
Natural Color Photography

Roll No.	Photo No's	Scale	Date
100-559	69 E(C) 3701-3737	1:20,000	12- 4-69
100-560	69 E(C) 3740-3789	1:20,000	12- 4-69
100-626	70 E(C) 8714-8745	1:40,000	12- 5-70
100-772	72 E(C) 6734-6740	1:40,000	10-20-72
100-772	72 E(C) 6780-6781	1:30,000	10-21-72
100-773	72 E(C) 6864-6870	1:40,000	10-21-72
100-839	74 E(C) 4625-4631	1:20,000	4- 7-74
100-866	74 E(C) 8362-8369	1:40,000	12- 3-74

AIR PHOTO INDEX 126-E-F (1-1-74)
Infrared Color Photography

Roll No.	Photo No's	Scale	Date
100-797	73 C(C) 4517R-4524R	1:30,000	10-12-73
100-798	73 C(C) 4600R-4606R	1:30,000	10-12-73
100-799	73 C(C) 4807R-4812R	1:30,000	10-15-73
100-802	73 C(C) 4955R-4957R	1:60,000	10-18-73
100-813	73 C(C) 6073R-6079R	1:30,000	11-10-73
100-813	73 C(C) 6126R-6129R	1:60,000	11-11-73

AIR PHOTO INDEX 126-E-F (1-1-71)
Infrared Black and White Photography

Roll No.	Photo No's	Scale	Date
37-11	70 K 5039R-5089R	1:20,000	3-27-70
37-11	70 K 5128R-5206R	1:20,000	4- 3-70

U. S. GEOLOGICAL SURVEY ORTHOPHOTOQUADS AND ORTHOPHOTOMAPS

In recent years a technique for the rectification of aerial photographs to produce a product that has the accuracy of topographic quadrangle maps while still retaining photographic detail has been perfected. These orthophotoquads are being increasingly used around the world. Most of eastern North Carolina has now been covered by them in a collaborative effort between the U. S. Geological Survey and the North Carolina Department of Natural and Economic Resources. Users of aerial photography and topographic maps will find this new product to be extremely helpful (Figure 18).

The U. S. Geological Survey has published a two page descriptive sheet on the subject and it is reproduced here for the information of the reader:

ORTHOPHOTOQUADS AND ORTHOPHOTOMAPS

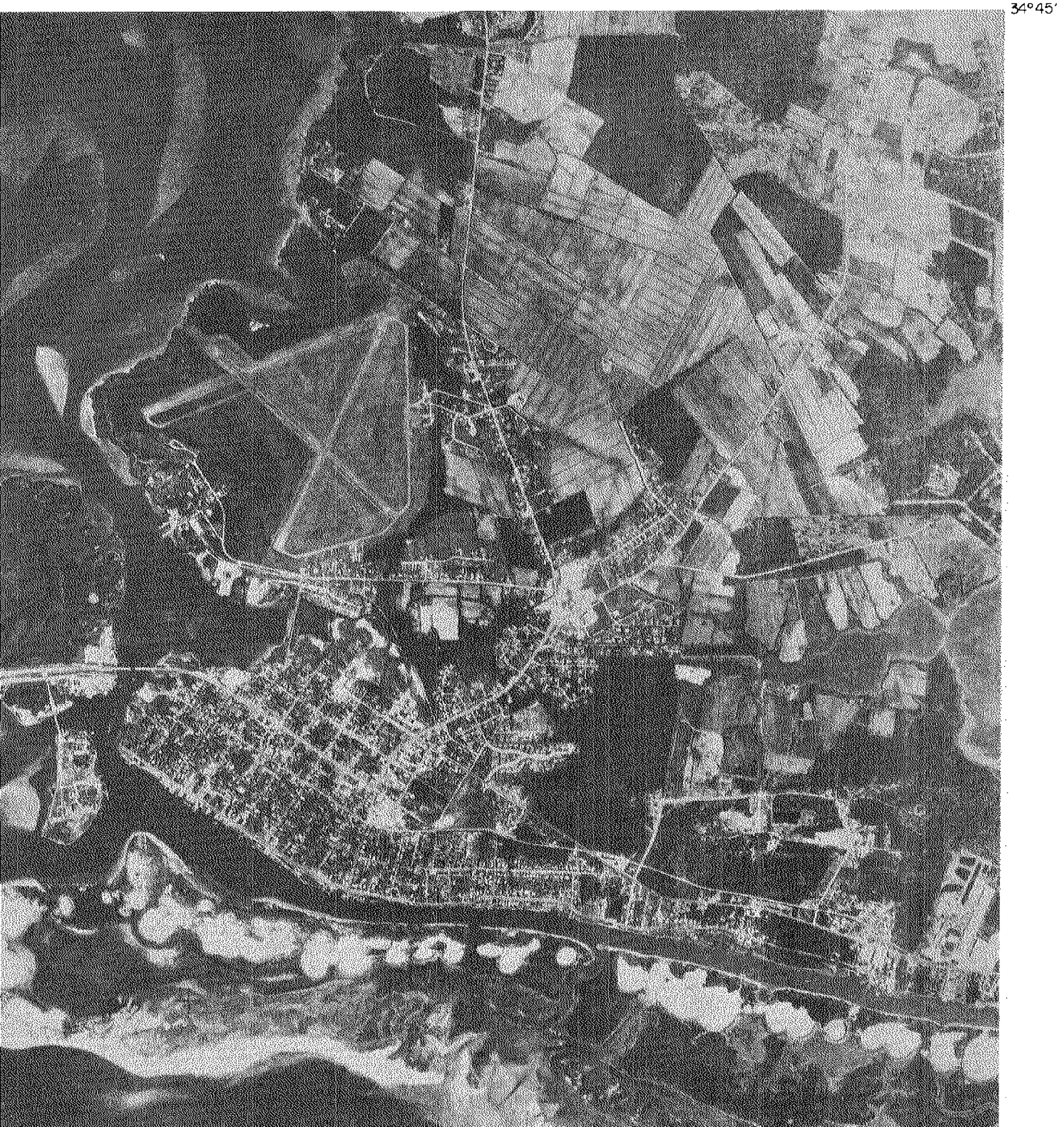
To meet National requirements the U. S. Geological Survey produces general-purpose base maps that serve widely ranging needs. Now, in addition to the existing series of conventional line maps at scales of 1:24,000 to 1:1,000,000 the Survey has begun production of a new series of photoimage maps which can be produced quickly, economically, and accurately. The new standard product is the 1:24,000 scale orthophotoquad.

What is an orthophotoquad?

An orthophotoquad consists of either an orthophotograph or a mosaic of orthophotographs in standard quadrangle format with little or no cartographic treatment. Perspective aerial photographs--preferably high-altitude and quadrangle-centered--are converted to orthophotographs by simple rectification for low-relief terrain or by differential rectification with an orthophotoprinter for hilly terrain. In the orthophotographs, displacements of images caused by ground relief and camera tilt are corrected within specified limits. The orthophotoquad is produced by bringing the orthophotograph (or mosaic) to a defined scale, relating it to a geodetic reference system, and providing a map border.

Because the user must interpret the photoimagery, procedures designed to produce optimum image quality must be used. Ticks denoting the latitude and longitude and the State plane coordinates of the map projection are shown only at the map neatline. The Universal Transverse Mercator (UTM) grid is fitted precisely to the plotted projection and is printed on the photoimagery as fine black lines without labels. For general orientation, the major highways and a few principal places or features are labeled on the photoimagery. The map collar is composed in much the same style as for standard topographic maps, but it is necessarily tailored to the individual orthophotoquad.

Figure 18, Segment of an orthophotoquad at the actual scale of 1:24,000.



How are the orthophotoquads reproduced?

Orthophotoquads are reproduced in black and white as photographic, diazo, or lithographic copies, or all of these, depending on the projected distribution or established demand. Diazo and lithographic orthophotoquads are sold at the prevailing price of 7.5-minute topographic maps; however, the price of photographic copies of orthophotoquads is governed by the current schedule of fees for photographic reproductions. In some cases, only the advance orthophotoquad--the rectified, scaled, and gridded photoimagery combined with the original, machine-plotted projection and minimal marginal information--is available.

What accuracy can be expected?

Orthophotoquads are prepared by methods designed to meet the National Map Accuracy Standards. Various accuracy tests are performed to verify that 90 percent of the well-defined points tested are within 40 ft. of true position--the horizontal accuracy standard for 1:24,000-scale maps. Published orthophotoquads meeting this accuracy requirement bear a statement of compliance.

In the production of the orthophotograph or the orthophotomosaic, discrepancies in image position--evident as mismatches or double images--sometimes result along orthophotoprinter scan lines or mosaic lines. Except in local areas (10 percent of the quadrangle or less) of extreme relief, such discrepancies do not exceed 0.04 inch (1 mm) on orthophotoquads bearing the accuracy statement.

What are the uses of orthophotoquads?

Orthophotoquads portray by photoimagery an abundance of detail not found on conventional line maps and have the same positional accuracy requirement as standard topographic maps. Furthermore, they can be produced quickly at low costs. Orthophotoquads are, therefore, useful interim map substitutes for unmapped areas and valuable complements to existing line maps.

Orthophotoquads are used for base maps by State and regional planners for land-use information; site selection for industries, utilities, and public transportation; urban renewal and urban-suburban growth studies; tax assessment; development and conservation of natural resources; and flood hazard, pollution, and coastal wetland studies. Data such as timber, soil, and crop inventories can be expeditiously plotted directly on the orthophotoquad, and reliable determination of acreages can be made. The orthophotoquad can be used to revise other maps or to serve as a base for making special-purpose maps. It is conceivable that, with the merits of a short production time and up-to-date information, orthophotoquad coverage of an area will serve as the basic source material for developing and maintaining digital data banks.

There are numerous examples of the usefulness of the photoimage base for hydrologic and geologic studies. Extensive flatlands--swamps, deserts, coastal beaches--are the types of terrain least suited to line-and-symbol representation and oftentimes the most difficult and costly to gain access to for fieldwork. Line maps of such areas appear grossly inadequate when compared with the wealth of information imaged in the orthophotoquads.

What is an orthophotomap?

By applying color to the photoimagery, using appropriate ink colors and masking techniques, ground features can often be enhanced in more recognizable colors than

nature provides. A variety of tones of green, blue, and brown accentuate such detail as salt-water encroachment, marshland limits, fault lines, and the physical character of prominent geologic features. The color-enhanced version of the orthophotoquad is called an orthophotomap, and many have been produced covering the Okefenokee Swamp, the Florida Keys, northern protected wilderness areas, Alaskan frozen marshlands, and the Great Salt Lake flats. For accurate rendition, the imagery is classified by field check. The orthophotomap is also enhanced with cartographic symbols--including contours, elevations, boundaries, and labels--tailored to suit the area and intended use of the map. The orthophotomap represents approximately the same production effort as the line map but the photoimagery is a decided advantage in the study of some areas of special interest to hydrologists and geologists.

Want more information?

To obtain additional information about the availability of orthophotoquads (and all U. S. Geological Survey maps) or to place an order for maps, contact the:

National Cartographic Information Center
U. S. Geological Survey
National Center, Stop 507
Reston, Virginia 22092
(703) 860-6045

North Carolina orthophotoquads are also held in the North Carolina Department of Natural and Economic Resources. Arrangements can be made to view and order the various products described above from:

North Carolina Department of
Natural and Economic Resources
Mineral Resources Section
Post Office Box 27687
112 West Lane Street
Raleigh, North Carolina 27611

FOOTNOTES

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4. Davis, Jeanne M., Uses of Airphotos for Rural and Urban Planning, Agriculture Handbook No. 315, Economic Research Service, U. S. Department of Agriculture, Washington, 1966.

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North Central Agriculture Handbook No. 384, Sept. 1970.
The East and South, Agriculture Handbook No. 406, April 1971.
The Mountains and Deserts, Agriculture Handbook No. 409, May 1971.
The Plains and Prairies, Agriculture Handbook No. 419, Oct. 1971.

7. Yearbook Issue, Photogrammetric Engineering and Remote Sensing, Vol. XLI, No. 7, July 1975.

ILLUSTRATION CREDITS

Cover	-	Agricultural Stabilization and Conservation Service photograph of Atlantic Beach, N.C. BUS-3EE-66, 1-21-64. Approximately 2X enlargement.
Figure 1	-	Simon Baker
Figure 2	-	Agricultural Stabilization and Conservation Service photograph of Bogue Banks, N.C. BUS-3EE-110, 1-21-64. 1:20,000
Figure 3	-	Agricultural Stabilization and Conservation Service photograph of Bogue Banks, N.C. BUS-3MM-89, 2-17-71. 1:20,000
Figure 4	-	From A Historical Review of Some of North Carolina's Coastal Inlets, Report No. 74-1, by Jay Langfelder, Tom French, Richard McDonald, and Richard Ledbetter. Published by The Center for Marine and Coastal Studies - North Carolina State University, January 1974.
Figure 5	-	From Advanced Map and Aerial Photograph Reading, War Department Field Manual FM21-26. Washington, 1944.
Figures 6 and 7	-	Simon Baker, South Florida
Figure 8	-	Courtesy of Wild Heerbrugg Instruments Inc. Farmingdale, N.Y.
Figure 9	-	From Mapping by David Greenhood. Published by The University of Chicago Press, Chicago, 1964. With permission of The University of Chicago Press.
Figure 10	-	From a brochure entitled "Aerial Photographic Reproductions" published by the U. S. Geological Survey.
Figure 11	-	Agricultural Stabilization and Conservation Service. Index sheet No. 3, Carteret County, N.C., 1964. 1:63,360.
Figure 12	-	National Ocean Survey - NOAA
Figures 13 and 14	-	From Aerial-Photo Interpretation in Classifying and Mapping Soils, Agriculture Handbook 294, Soil Conservation Service, U. S. Department of Agriculture, Washington, 1966.
Figure 15	-	North Carolina Department of Transportation
Figures 16 and 17	-	Simon Baker
Figure 18	-	North Carolina Department of Natural and Economic Resources.