

# **A SELECTED BIBLIOGRAPHY: REMOTE SENSING APPLICATIONS IN WILDLIFE MANAGEMENT**

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REMOTE SENSING APPLICATIONS IN  
WILDLIFE MANAGEMENT

By David M. Carneggie, Donald O. Ohlen,  
and Lawrence R. Pettinger

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A SELECTED BIBLIOGRAPHY: REMOTE SENSING APPLICATIONS  
FOR WILDLIFE MANAGEMENT

By D. M. Carneggie, U.S. Geological Survey,  
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Technicolor Graphic Services, Inc.<sup>1/</sup>

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ABSTRACT

Citations of 165 selected technical reports, journal articles, and other publications on remote sensing applications for wildlife management are presented in a bibliography. These materials summarize developments in the use of remotely sensed data for wildlife habitat mapping, habitat inventory, habitat evaluation, and wildlife census. The bibliography contains selected citations published between 1947 and 1979.

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## INTRODUCTION

Wildlife populations experience significant fluctuations as man's influence or encroachment into various wildlife habitats increases. These changes necessitate greater attention to management techniques for the protection of wildlife resources. Habitat analysis and population censusing have become important tools for wildlife managers. Habitat analysis provides a better understanding of wildlife needs within various habitat types, and censusing produces data that can be used to evaluate the status of wildlife populations. These techniques can be used to determine the relationship between wildlife populations and habitat, thus improving the management of wildlife resources.

Remotely sensed data can be applied to both habitat analysis and wildlife censusing. Historically, remote sensing techniques were restricted to visual observations from aircraft for the purpose of wildlife census or habitat assessment, but remote sensing techniques may now be applied through the use of aerial photographs, computer processing of satellite data, telemetry, and thermal infrared data. Habitat analysis involves inventorying and mapping habitat types from remotely sensed data such as color-infrared aerial photographs.

In recent years there has been a proliferation of documented applications of remote sensing to wildlife management. This bibliography presents a representative selection of these publications including technical reports and articles selected from major periodicals, and symposium proceedings. The bibliography, which has 165 citations published between 1947 and 1979, is organized by the following subject headings:

1. Wildlife Habitat Mapping, Inventory and Evaluation.--Papers addressing the use of remote sensing techniques to identify, map, and analyze wildlife habitats; it is subdivided into Terrestrial, Wetlands, and Aquatic applications.
2. Wildlife Censusing.--Presents articles that utilize remote sensing methodology in population studies; subheadings include General Methodology, Mammals, Birds, and Fish.
3. General Wildlife Applications.--Contains papers that address overviews of management applications or papers not relating to other specific categories in the bibliography.

## OBTAINING COPIES OF CITED DOCUMENTS

Publications, reports, and documents cited in this bibliography may be procured from a variety of sources. Authors will often provide copies or reprints of their published materials; institutions, corporations, and university departments or libraries can often provide copies of documents on loan or in exchange for copying costs.

Certain items in this bibliography are followed by an accession number with an NTIS prefix. This number is a purchase order number for documents available from the National Technical Information Service of the U.S. Department of Commerce. NTIS is a centralized source for the public sale of U.S. Government-sponsored research, development, and engineering reports and other analyses prepared by Federal agencies and their contractors or grantees. Documents are available in either paper copy or microfiche format. For current prices and ordering information, write to:

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## BIBLIOGRAPHY

### Wildlife Habitat Mapping, Inventory, and Evaluation

#### Terrestrial

- Best, R. G., and Sather-Blair, Signe, 1978, The interpretation of winter wildlife habitat in eastern South Dakota on Landsat imagery, in Pecora IV Symposium, Sioux Falls, S. Dak., 1978, Proceedings: Washington, D.C., National Wildlife Federation, Scientific and Technical Series 3, p. 50-56.
- Brabander, J., 1975, The evaluation of wildlife habitat on the Lake Carl Blackwell land use area utilizing ERTS [Landsat] satellite imagery: Oklahoma Wildlife Research Unit Quarterly Report, v. 28, no. 3.
- Bray, O. E., Knittle, C. E., Jack, J. R., and Bowman, R. L., 1978, Locating and identifying blackbird-starling roosts by multispectral remote sensing, in Pecora IV Symposium, Sioux Falls, S. Dak., 1978, Proceedings: Washington, D.C., National Wildlife Federation, Scientific and Technical Series 3, p. 194-196.
- Carnegie, D. M., 1969, Remote sensing applications to wildlife management and habitat control, in Welch, R. I., ed., The Use of Remote Sensing in Conservation, Development, and Management of the Natural Resources of the State of Alaska: Juneau, Alaska, Department of Economic Development, p. 91-97.
- 1972, Large scale 70 mm aerial photographs for evaluating ecological conditions, vegetational changes, and range site potential: Berkeley, University of California, Ph.D. thesis, 180 p.
- Craighead, J. J., 1976, Studying grizzly habitat by satellite: National Geographic, v. 150, no. 1, p. 148-158.

- Driscoll, R. S., and Reppert, J. N., 1968, The identification and quantification of plant species, communities, and other resource features in herbland and shrubland environments from large scale aerial photography: Fort Collins, Colo., U.S. Forest Service, U.S. Department of Agriculture, Rocky Mountain Forest and Range Experiment Station, Annual Progress Report, 52 p.
- Ffolliott, P. F., and Rasmussen, W. O., 1978, Use of remote sensing data to interactively simulate wildlife habitat quality, in Pecora IV Symposium, Sioux Falls, S. Dak., 1978, Proceedings: Washington, D.C., National Wildlife Federation, Scientific and Technical Series 3, p. 294-299.
- Fine, B. T., Dye, J. B., and Bosworth, John, 1978, Multilevel data acquisition and analysis for wildlife habitat inventories, in Pecora IV Symposium, Sioux Falls, S. Dak., 1978, Proceedings: Washington, D.C., National Wildlife Federation, Scientific and Technical Series 3, p. 300-305.
- Frentress, C. D., and Frye, R. G., 1975, Wildlife management by habitat units - a preliminary plan of action, in NASA Earth Resources Survey Symposium, Houston, Tex., 1975, Proceedings: Houston, National Aeronautics and Space Administration, NASA TMX-58168, v. 1-A, p. 245-262, NTIS N76-17487.
- Frye, R. G., Brown, Kirby, Frentress, C. D., McCarty, D. M., McMahan, C. A., and Anderson, Sue, 1978, Production of vegetation type-maps from Landsat digital data, 1978, in Pecora IV Symposium, Sioux Falls, S. Dak., 1978, Proceedings: Washington, D.C., National Wildlife Federation, Scientific and Technical Series 3, p. 57-64.



- George, T. H., Stringer, W. J., and Baldrige, J. N., 1977, Reindeer range inventory in western Alaska from computer-aided digital classification of Landsat data, in International Symposium on Remote Sensing of Environment, 11th, Ann Arbor, Mich., 1977, Proceedings: Ann Arbor, Environmental Research Institute of Michigan, v. 1, p. 671-682.
- Hagen, R. T., and Meyer, M. P., 1977, Remote sensing of vegetation as related to black bear habitat, spruce budworm damage, and plantation release appraisals on the Superior National Forest: St. Paul, University of Minnesota, Institute of Agriculture, Forestry and Home Economics, Remote Sensing Laboratory Research Report 77-4, 24 p.
- Hertz, Elizabeth, 1978, Application of small format aerial photography for wildlife habitat mapping, in Pecora IV Symposium, Sioux Falls, S. Dak., 1978, Proceedings: Washington, D.C., National Wildlife Federation, Scientific and Technical Series 3, p. 72-77.
- Hill, G. J. E., and Falconer, A., 1978, Relevance of Landsat to kangaroo management in Queensland, Australia, in Pecora IV Symposium, Sioux Falls, S. Dak., 1978, Proceedings: Washington, D.C., National Wildlife Federation, Scientific and Technical Series 3, p. 287-293.
- Katibah, E. F., and Graves, W. C., 1978, Remote sensing-aided assessment of wild turkey habitat, in Pecora IV Symposium, Sioux Falls, S. Dak., 1978, Proceedings: Washington, D.C., National Wildlife Federation, Scientific and Technical Series 3, p. 78-81.

- Keller, J. K., Heimbuch, Douglas, and Richmond, Milo, 1978, A method of horizontal habitat quantification for use in open canopy communities, in Pecora IV Symposium, Sioux Falls, S. Dak., 1978, Proceedings: Washington, D.C., National Wildlife Federation, Scientific and Technical Series 3, p. 82-88.
- Klaas, E. E., Anderson, W. H., and Frederick, R. B., 1978, Use of Landsat imagery for estimating food available to refuging lesser snow geese, in Pecora IV Symposium, Sioux Falls, S. Dak., 1978, Proceedings: Washington, D.C., National Wildlife Federation, Scientific and Technical Series 3, p. 89-94.
- LaPerriere, A. J., 1976, Use of Landsat imagery for wildlife habitat mapping in northeast and eastcentral Alaska: Fairbanks, University of Alaska, Alaska Cooperative Wildlife Reserve Unit, 54 p., NTIS N77-14553.
- Lent, P. C., 1975, Use of Landsat imagery for wildlife habitat mapping in northeast and east-central Alaska: Fairbanks, Alaska, University of Alaska, 19 p.
- Lent, P. C., and LaPerriere, A. J., 1974, Application of ERTS [Landsat] imagery to study of caribou movements and winter habitat: Fairbanks, University of Alaska, Alaska Cooperative Wildlife Reserve Unit, Final Report for National Aeronautics and Space Administration, Goddard Space Flight Center, Greenbelt, Md., NAS5-21833, 44 p., NTIS N74-28870.
- Merchant, J. W., Jr., and Waddell, B. H., 1974, The use of high altitude photography and ERTS-1 [Landsat-1] imagery for wildlife habitat inventory in Kansas, in American Society of Photogrammetry, Fall Meeting, Washington, D.C., 1974, Proceedings: Falls Church, Va., American Society of Photogrammetry, p. 220-231.

- Meyer, M. P., 1975, 35 mm aerial photography applications to wildlife population and habitat analysis, in Workshop on Remote Sensing of Wildlife: Quebec, Canada, Quebec Service of Biological Research, p. 31-45.
- Meyers, V. I., 1977, Application of remote sensing technology in South Dakota to access wildlife habitat change, describe meandering lakes, improve agricultural censusing, map aspen, and quantify cell selection criteria for spatial data: Brookings, S. Dak., South Dakota State University, Remote Sensing Institute, SDSU-RSI-77-17, 80 p.
- Mills, J. A., and Fowler, A. D. W., 1978, Use of multispectral aerial photography for assessing Takahe habitat, in Pecora IV Symposium, Sioux Falls, S. Dak., 1978, Proceedings: Washington, D.C., National Wildlife Federation, Scientific and Technical Series 3, p. 100-104.
- Mouat, D. A., and Johnson, R. R., 1978, An inventory and assessment of wildlife habitat in Grand Canyon National Park using remote sensing techniques, in Pecora IV Symposium, Sioux Falls, S. Dak., 1978, Proceedings: Washington, D.C., National Wildlife Federation, Scientific and Technical Series 3, p. 105-113.
- Pettinger, L. R., Farmer, Adrian, and Schamberger, Mel, 1978, Quantitative wildlife habitat evaluation using high-altitude color infrared aerial photographs, in Pecora IV Symposium, Sioux Falls, S. Dak., 1978, Proceedings: Washington, D.C., National Wildlife Federation, Scientific and Technical Series 3, p. 335-345.

- Poulton, C. E., 1975, Range resources; inventory, evaluation, and monitoring, in Reeves, R. G., ed., Manual of Remote Sensing: Falls Church, Va., American Society of Photogrammetry, v. 2, p. 1427-1478.
- Reeves, H. M., Cooch, F. G., and Munro, R. E., 1976, Monitoring arctic habitat and goose production by satellite imagery: Journal of Wildlife Management, v. 40, no. 3, p. 532-541.
- Rekas, Anthony M. B., 1978, Inventory of wildlife habitat: an approach and case study, in Pecora IV Symposium, Sioux Falls, S. Dak., 1978, Proceedings: Washington, D.C., National Wildlife Federation, Scientific and Technical Series 3, p. 346-352.
- Roller, N. E. G., 1978, Quantitative evaluation of deer habitat, in Pecora IV Symposium, Sioux Falls, S. Dak., 1978, Proceedings: Washington, D.C., National Wildlife Federation, Scientific and Technical Series 3, p. 137-146.
- Scheierl, Robert, and Meyer, M. P., 1977, Habitat analysis of the Copper River Delta Game Management Area (East Side), Alaska: St. Paul, University of Minnesota, Institute of Agriculture, Forestry, and Home Economics, Remote Sensing Laboratory Research Report 77-8, 104 p.
- Shanholtzer, G. F., and Alexander, L. D., 1975, The application of Landsat data to habitat mapping in site and route selection studies, in American Society of Photogrammetry and American Congress on Surveying and Mapping, Fall Convention, Phoenix, Ariz., 1975, Proceedings: Falls Church, Va., American Society of Photogrammetry, p. 483-494.
- Sugarbaker, L. J., 1978, Analysis of vegetation change following wildfire, and its effects upon wildlife habitat, in Pecora IV Symposium, Sioux Falls, S. Dak., 1978, Proceedings: Washington, D.C., National Wildlife Federation, Scientific and Technical Series 3, p. 153-158.

- Traylor, C. T., and Mealer, W. T., Jr., 1978, Landsat imagery for wildlife habitat inventory mapping, in Pecora IV Symposium, Sioux Falls, S. Dak., 1978, Proceedings: Washington, D.C., National Wildlife Federation, Scientific and Technical Series 3, p. 159-161.
- Treadwell, B. D., 1978, Wildlife habitat mapping from color aerial photography in central Arizona, in Pecora IV Symposium, Sioux Falls, S. Dak., 1978, Proceedings: Washington, D.C., National Wildlife Federation, Scientific and Technical Series 3, p. 377-384.
- Van Tries, W. J., 1973, Evaluation of space acquired data as a tool for management of wildlife habitat in Alaska, in Symposium on Significant Results Obtained from Earth Resources Technology Satellite-1 [Landsat-1], New Carrollton, Md., 1973, Proceedings: Washington, D.C., National Aeronautics and Space Administration Goddard Space Flight Center, NASA SP-327, v. 1, section A, p. 795-799.
- Varney, J. R., Craighead, J. J., and Summer, J. S., 1974, An evaluation of the use of ERTS-1 [Landsat-1] satellite imagery for grizzly bear habitat, in Third Earth Resources Technology Satellite-1 [Landsat-1] Symposium, Washington, D. C., 1973, Proceedings: Washington, D.C., National Aeronautics and Space Administration, Goddard Space Flight Center, NASA SP-351, v. 1, sec. B, p. 1653-1670, NTIS N73-28207.

#### Wetlands

- Anderson, R. R., Alsid, Linda, and Carter, Virginia, 1975, Comparative utility of Landsat-1 and Skylab data for coastal wetland mapping and ecological studies, in NASA Earth Resources Survey Symposium, Houston, Tex., 1975, Proceedings: Houston, National Aeronautics and Space Administration, NASA TMX-58168, v. 1-A, p. 469-477, NTIS N76-17487.

- Anderson, R. R., Carter, Virginia, and McGinness, John, 1974, Applications of ERTS [Landsat] data to coastal wetland ecology with special reference to plant community mapping and typing and impact of man, in Third Earth Resources Technology Satellite-1 [Landsat-1] Symposium, Washington, D.C., 1973, Proceedings: Washington, D.C., National Aeronautics and Space Administration, Goddard Space Flight Center, NASA SP-351, v. 1, sec. B, p. 1225-1255, NTIS N73-28207.
- Anderson, R. R., and Wobber, F. J., 1973, Wetlands mapping in New Jersey: Photogrammetric Engineering, v. 39, no. 4, p. 353-358.
- Arp, G. K., 1975, The rationale for attempting to define salt marsh mosquito-breeding areas in Galveston County by remote sensing the associated vegetation, in NASA Earth Resources Survey Symposium, Houston, Texas, 1975, Proceedings: Houston, National Aeronautics and Space Administration, NASA TMX-58168, v. 1-A, p. 289-299, NTIS N76-17487.
- Austin, A. P., and Adams, R. W., 1978, Aerial color and color infrared survey of marine plant resources: Photogrammetric Engineering and Remote Sensing, v. 44, no. 4, p. 469-480.
- Baumann, R. H., Johnston, J. B., and Gosselink, J. G., 1978, Habitat mapping and inventory in the Chenier Plain of Louisiana and Texas, in Pecora IV Symposium, Sioux Falls, S. Dak., 1978, Proceedings: Washington, D.C., National Wildlife Federation, Scientific and Technical Series 3, p. 44-49.
- Best, R. G., 1978, Utilization of color-infrared aerial photography to characterize prairie potholes, in Pecora IV Symposium, Sioux Falls, S. Dak., 1978, Proceedings: Washington, D.C., National Wildlife Federation, Scientific and Technical Series 3, p. 180-187.

- Best, R. G., and Moore, D. G., 1977, Inventory of wetlands using remote sensing for the proposed Oahe irrigation unit in eastern South Dakota: Brookings, South Dakota State University, Remote Sensing Institute, SDSU RSI-77-03, 30 p.
- Brown, W. W., 1978, Wetland mapping in New Jersey and New York: Photogrammetric Engineering and Remote Sensing, v. 44, no. 3, p. 303-314.
- Burge, W. G., and Brown, W. L., 1970, A study of waterfowl habitat in North Dakota using remote sensing techniques: Ann Arbor, University of Michigan, Willow Run Laboratories, Institute of Science and Technology, Technical Report No. 2771-7-F, 61 p., NTIS N73-11343.
- Carter, Virginia, and Schubert, Jane, 1974, Coastal wetlands analysis from Earth Resources Technology Satellite multispectral scanner, in International Symposium on Remote Sensing of the Environment, 9th, Ann Arbor, Mich., 1974, Proceedings: Ann Arbor, Environmental Research Institute of Michigan, v. 2, p. 1241-1260.
- Colwell, J. E., 1978, Use of Landsat data to assess waterfowl habitat quality: Ann Arbor, Environmental Research Institute of Michigan, 92 p.
- Colwell, J. E., Roller, N. E. G., Rebel, D. L., Work, E. A., and Gilmer, D. S., 1978, Quantitative evaluation of habitat conditions for effective waterfowl management by computer manipulation of Landsat classified data, in International Symposium on Remote Sensing of the Environment, Manila, 1978, Proceedings: Ann Arbor, Mich., Center for Remote Sensing Information and Analysis, Environmental Research Institute of Michigan, v. II, p. 845-855.
- Cowardin, Lewis, and Myers, V. I., 1973, Remote sensing for identification and classification of wetland vegetation: Journal of Wildlife Management, v. 38, no. 2, p. 308-314.

- Enslin, W. R., 1973, The use of color infrared photography for wetlands mapping with special reference to shoreline and waterfowl habitat assessment: East Lansing, Michigan State University, 33 p.
- Gilmer, D. S., Colwell, J. E., and Work, E. A., 1978, Use of Landsat for evaluation of waterfowl habitat in the prairie pothole region, in Pecora IV Symposium, Sioux Falls, S. Dak., 1978, Proceedings: Washington, D.C., National Wildlife Federation, Scientific and Technical Series 3, p. 197-203.
- Guss, Philip, 1972, Tidelands management mapping for the coastal plain region, in Coastal Mapping Symposium, Washington, D.C., 1972, Proceedings: Falls Church, Va., American Society of Photogrammetry, p. 243-262.
- Klemas, Vytautas, Batlett, David, and Rogers, R., 1975, Coastal zone classification from satellite imagery: Photogrammetric Engineering and Remote Sensing, v. 41, no. 4, p. 499-513.
- Klemas, Vytautas, Daiber, F. C., Bartlett, David, and others, 1974, Inventory of Delaware's wetlands: Photogrammetric Engineering, v. 40, no. 4, p. 433-439.
- Kerbes, R. H., 1978, Identification of Ross' goose colonies from Landsat imagery, in Pecora IV Symposium, Sioux Falls, S. Dak., 1978, Proceedings: Washington, D.C., National Wildlife Federation, Scientific and Technical Series 3, p. 212-213.
- LaPerriere, A. J., and Morrow, J. W., 1978, Use of Landsat data for the wetland inventory of Alaska, in Pecora IV Symposium, Sioux Falls, S. Dak., 1978, Proceedings: Washington, D.C., National Wildlife Federation, Scientific and Technical Series 3, p. 95-100.



- Lyon, J. G., 1978, An analysis of vegetation communities in the lower Columbia River Basin, in Pecora IV Symposium, Sioux Falls, S. Dak., 1978, Proceedings: Washington, D.C., National Wildlife Federation, Scientific and Technical Series 3, p. 321-327.
- Meyer, M. P., Eng, R. L., and Gejersing, F.N., 1974, Waterfowl management using color IR: Photogrammetric Engineering, v. 40, no. 2, p. 165-168.
- Reeves, H. M., 1978, Applications of satellite imagery to management of arctic nesting geese, in Pecora IV Symposium, Sioux Falls, S. Dak., 1978, Proceedings: Washington, D.C., National Wildlife Federation, Scientific and Technical Series 3, p. 219-226.
- Reimold, R. J., Gallagher, J. L., and Thompson, D. E., 1973, Remote sensing of tidal marsh: Photogrammetric Engineering, v. 39, no. 5, p. 477-488.
- Rodiek, J. E., and McCarthy, M. M., 1978, Riparian wildlife habitat analysis in the arid southwestern United States, in Pecora IV Symposium, Sioux Falls, S. Dak., 1978, Proceedings: Washington, D.C., National Wildlife Federation, Scientific and Technical Series 3, p. 353-359.
- Roller, N. E. G., and Colwell, J. E., 1978, Wetland inventory and condition evaluation techniques, in Pecora IV Symposium, Sioux Falls, S. Dak., 1978, Proceedings: Washington, D.C., National Wildlife Federation, Scientific and Technical Series 3, p. 227-234.
- Russell, Donald, Mossop, D. H., and Goodfellow, Carolyn, 1978, Remote sensing for waterfowl nesting and nesting habitat Old Crow Flats, Yukon Territory, Canada, in Pecora IV Symposium, Sioux Falls, S. Dak., 1978, Proceedings: Washington, D.C., National Wildlife Federation, Scientific and Technical Series 3, p. 147-152.

- Scheierl, Robert, and Meyer, Merle, 1976, Evaluation and inventory of waterfowl habitats of the Cooper River Delta, Alaska, by remote sensing: St. Paul, University of Minnesota, Institute of Agriculture, Forestry and Home Economics, Remote Sensing Laboratory Research Report 76-3, 46 p.
- Seher, J. S., 1972, Color and color infrared aerial photography for waterfowl habitat evaluation: Reno, University of Nevada, Nevada Agricultural Experimental Station, Technical Bulletin 16, 55 p.
- Seher, J. S., and Tueller, P. T., 1973, Color aerial photos for marshland: Photogrammetric Engineering, v. 39, no. 5, p. 489-499.
- Work, E. A., Jr., 1974, Application of the Earth Resources Technology Satellite [Landsat] for monitoring the breeding habitat of migratory waterfowl in the glaciated prairies: Ann Arbor, University of Michigan, Masters thesis, 107 p., University microfilm no. 13-06698.
- Work, E. A., Jr., Gilmer, D. S., and Klett, A. T., 1974, Utility of ERTS [Landsat] for monitoring the breeding habitat of migratory waterfowl, in Third Earth Resources Technology Satellite-1 [Landsat-1] Symposium, Washington, D.C., 1973, Proceedings: Washington, D.C., National Aeronautics and Space Administration, Goddard Space Flight Center, NASA SP-356, v. 2, p. 102-115, NTIS N73-83289.
- 1974, Utilization of Skylab (EREP) for appraising changes in continental migratory bird habitat: Houston, Tex., National Aeronautics and Space Administration, Type III final report, 105500-57-F, 111 p., NTIS N76-21653.

#### Aquatic

- Clarke, G. L., and Ewing, G. C., 1972, Remote spectroscopy of the sea for biological production studies, in Optical Aspects of Oceanography Symposium, Copenhagen, Denmark, 1972, Proceedings: New York, Academic Press, p. 389-413.

- Cuplin, Paul, 1978, The use of large scale color infrared photography for stream habitat inventory, in Pecora IV Symposium, Sioux Falls, S. Dak., 1978, Proceedings: Washington, D.C., National Wildlife Federation, Scientific and Technical Series 3, p. 207-211.
- Dobie, John, and Johnson, E., 1951, Pond mapping by aerial photographs: Journal of Wildlife Management, v. 15, no. 2, p. 221.
- Greentree, W. J., and Aldrich, R. C., 1976, Evaluating stream trout habitat on large-scale aerial color photographs: Berkeley, Calif., Pacific Southwest Forest and Range Experiment Station, U.S. Department of Agriculture, Forest Service Research Paper PSW-123, 21 p.
- 1978, Measuring trout habitat as an indication of population on large scale aerial color photographs, in Pecora IV Symposium, Sioux Falls, S. Dak., 1978, Proceedings: Washington, D.C., National Wildlife Federation, Scientific and Technical Series 3, p. 65-71.
- Moore, D. G., Wehde, M. E., and Martin, D. B., 1974, Evaluation of remotely sensed data for estimating water quality and fish habitat of the Missouri River reservoirs in central South Dakota: Brookings, South Dakota State University, Remote Sensing Institute, SDSU-RSI-74-11, 66 p.
- Olsen, H. F., 1978, Remote sensing of fish habitat areas, in Pecora IV Symposium, Sioux Falls, S. Dak., 1978, Proceedings: Washington, D.C., National Wildlife Federation, Scientific and Technical Series 3, p. 328-334.
- Pearcy, W. G., 1971, Remote sensing and the pelagic fisheries environment off Oregon, in Symposium on Remote Sensing in Marine Biology and Fishery Resources, 1971, Proceedings: College Station, Texas A and M University, Remote Sensing Center, p. 158-171.
- Work, E. A., Jr., and Gilmer, D. S., 1976, Utilization of satellite data for inventorying prairie ponds and lakes: Photogrammetric Engineering and Remote Sensing, v. 42, no. 5, p. 685-694.

## Wildlife Censusing

### General Methodology

- Biggins, D. E., and Pitcher, E. J., 1978, Comparative efficiencies of telemetry and visual techniques for studying ungulates, grouse, and raptors on energy development lands in southeastern Montana, in Pecora IV Symposium, Sioux Falls, S. Dak., 1978, Proceedings: Washington, D.C., National Wildlife Federation, Scientific and Technical Series 3, p. 188-193.
- Grimsdell, J. J. R., and Russell, H. T., eds., 1975, Counting animals: Nairobi, Kenya, African Wildlife Leadership Foundation, 105 p.
- Hegdal, P. L., and Gatz, T. A., 1978, Technology of radiotracking for various birds and mammals, in Pecora IV Symposium, Sioux Falls, S. Dak., 1978, Proceedings: Washington, D.C., National Wildlife Federation, Scientific and Technical Series 3, p. 204-206.
- Heyland, J. D., 1972, Vertical aerial photography as an aid in wildlife population studies, in First Canadian Symposium on Remote Sensing, Ottawa, Ontario, 1972, Proceedings: Ottawa, Ontario, Canada Centre for Remote Sensing, v. 1, p. 121-136.
- 1975, Increase the accuracy of your airborne censuses by means of vertical aerial photographs, in Workshop on Remote Sensing of Wildlife: Quebec, Canada, Quebec Service of Biological Research, p. 53-75.
- 1978, Imaging remote sensing systems for animal censuses, in Pecora IV Symposium, Sioux Falls, S. Dak., 1978, Proceedings: Washington, D.C., National Wildlife Federation, Scientific and Technical Series 3, p. 162-170.
- Marten, G. G., 1972, The remote sensing approach to censusing: Researches on Population Ecology, v. 14, no. 1, p. 36-57.

- Norton-Griffiths, M., 1974, Reducing counting bias in aerial census by photography:  
East Africa Wildlife Journal, v. 12, no. 3, p. 245-248.
- Richardson, W. J., 1978, Radar techniques for wildlife studies, in Pecora IV  
Symposium, Sioux Falls, S. Dak., 1978, Proceedings: Washington, D.C.,  
National Wildlife Federation, Scientific and Technical Series 3, p.  
171-179.

#### Mammals

- Bergerud, A., and Manuel, F., 1969, Aerial census of moose in central  
Newfoundland: Journal of Wildlife Management, v. 33, no. 4, p. 910-916.
- Brown, Darrell, and Dimeo, Art, 1976, Remote sensing for big game counts:  
Missoula, Mont., U.S. Department of Agriculture, Forest Service Equipment  
Development Center, ED and T 2612, 7 p.
- Buechner, H. K., Craighead, F. C., Jr., Craighead, J. J., and Cote, C. E.,  
1971, Satellites for research on free roaming animals: Bioscience, v. 21,  
no. 24, p. 1201-1205.
- Craighead, J. J., 1971, Satellite monitoring of black bear: Bioscience, v.  
21, no. 24, p. 1206-1211.
- Croon, G. W., McCullough, D. R., Olson, C. E., and Queal, L. M., 1968, Infrared  
scanning techniques for big game censusing: Journal of Wildlife Management,  
v. 32, no. 4, p. 751-759.
- Croze, Harvey, 1972, A modified photogrammetric technique for assessing age-  
structures of elephant populations and its use in Kidepo National Park:  
East Africa Wildlife Journal, v. 10, no. 2, p. 91-115.
- Dairon, L. N., and Wilson, R. T., 1974, Remote sensing techniques for wildlife  
inventories in the coastal marsh - the muskrat, in Shahrohki, Firouz,  
ed., Remote Sensing of Earth Resources: Tullahoma, The University of  
Tennessee, v. 3, p. 685-696.

- Driscoll, R. S., and Gill, R. B., 1972, Middle Park deer study - remote sensing of deer population parameters: Colorado Division Wildlife Game Section, Federal Aid Project W-38-R-14, Game Research Report, pt. 3, p. 253-265.
- Driscoll, R. S., and Watson, T. C., 1974, Aerial photography for pocket gopher populations, in Symposium on Remote Sensing and Photo Interpretation, Banff, Alberta, Canada, 1974, Proceedings: Ottawa, Ontario, Canada, Canada Centre for Remote Sensing, v. 2, p. 481-492.
- Garvin, L. E., Beatty, F. D., and Zanon, A. J., 1964, Infrared detection of moose: Rome, N.Y., Rome Air Development Center, Reconnaissance Data Extraction Branch, Interpretation and Analysis Section, 39 p.
- Graves, H. B., Bellis, E. D., and Knuth, W. M., 1972, Censusing white tailed deer by airborne thermal infrared imagery: Journal Wildlife Management, v. 36, no. 3, p. 875-884.
- Heyland, J. D., 1974, Aspects of the biology of Beluga (*Delphinapterus Leucas Pallas*) interpreted from vertical aerial photographs: Guelph, University of Guelph, 390 p.
- Huddleston, H. F., and Roberts, E. H., 1968, Use of remote sensing for livestock inventories, in Symposium on Remote Sensing of Environment, 5th, Ann Arbor, Mich., 1968, Proceedings: Ann Arbor, Environmental Research Institute of Michigan, p. 307-323.
- Isakson, R. E., Werner, H. D., and Schmer, F. A., 1975, White-tail deer census in selected areas of eastern South Dakota using remote sensing techniques: Brookings, South Dakota State University, Remote Sensing Institute, SDSU-RSI-75-04, 38 p.
- Lavigne, D. M., 1976, Counting Harp seals with ultra-violet photography: Polar Record, v. 18, no. 114, p. 269-277.

- Lavigne, D. M., and Oritsland, N. A., 1974, UV photography a new application for remote sensing of mammals: Canadian Journal of Zoology, v. 52, no. 7, p. 939-941.
- Marchinton, R. L., 1969, Portable radios in determination of ecological parameters of large vertebrates with reference to deer, in Johnson, P. L., ed., Remote Sensing in Ecology: Athens, University of Georgia Press, p. 148-163.
- McCullough, D. R., Olson, C. E., Jr., and Queal, L. M., 1969, Progress in large animal census by thermal mapping, in Johnson, P. O., ed., Remote Sensing in Ecology: Athens, University of Georgia Press, p. 138-147.
- Parker, H. D., Jr., 1972, Airborne infrared detection of deer: Fort Collins, Colorado State University, Ph.D. thesis, 186 p.
- Parker, H.D., Jr., and Driscoll, R. S., 1972, An experiment in deer detection by thermal scanning: Journal of Range Management, v. 25, no. 6, p. 480-481.
- Wride, M. C., and Baker, K., 1977, Thermal imagery for census of ungulates, in International Symposium on Remote Sensing of Environment, 11th, Ann Arbor, Mich., 1977, Proceedings: Ann Arbor, Environmental Research Institute of Michigan, v. 2, p. 1091-1099.
- Wyatt, C. L., Trivedi, Manmohan, and Anderson, D. R., 1978, Wildlife censusing using reflectance spectra, in Pecora IV Symposium, Sioux Falls, S. Dak., 1978, Proceedings: Washington, D.C., National Wildlife Federation, Scientific and Technical Series 3, p. 256-260.

## Birds

- Bartholomew, G. A., and Pennycuick, C. J., 1973, The flamingo and pelican populations of the Rift Valley Lakes in 1968-1969: East Africa Wildlife Journal, v. 11, no. 2, p. 189-198.
- Blokpoel, K., 1973, Radar studies of airborne bird movements, in Workshop on Remote Sensing of Wildlife: Quebec, Canada, Quebec Service of Biological Research, p. 127-133.
- Chattin, J. E., 1952, Appraisal of California waterfowl concentrations by aerial photography, in Transactions of the Seventeenth North American Wildlife Conference, Washington, D.C., 1952, Proceedings: Washington, D.C., Wildlife Management Institute, p. 421-426.
- Grzimek, Michael, and Grzimek, Bernhard, 1960, Flamingoes censuses in East Africa by aerial photography: Journal of Wildlife Management, v. 24, no. 2, p. 215-217.
- Henny, C. D., Anderson, D. R., and Pospahala, R. S., 1972, Aerial surveys of waterfowl production in North America, 1955-1971: U.S. Fish and Wildlife Service, Special Science Report - Wildlife No. 160, 48 p.
- Heyland, J. D., 1975, Monitoring nesting success of greater snow geese by means of satellite imagery, in Canadian Symposium on Remote Sensing, 3d, Edmonton, Alberta, Canada, 1975, Proceedings: Ottawa, Ontario, Canadian Aeronautics and Space Institute, p. 243-254.
- Kadlec, J. A., and Drury, W. H., 1968, Aerial estimation of the size of gull breeding colonies: Journal of Wildlife Management, v. 32, no. 2, p. 287-293.
- Kerbes, R. H., and Moore, H. D., 1975, Use of current satellite imagery to predict the nesting success of lesser snow geese, in Workshop on Remote Sensing of Wildlife: Quebec, Canada, Quebec Service of Biological Research, p. 99-112.



- Leonard, R. M., and Fish, E. B., 1974, An aerial photographic technique for censusing lesser sandhill cranes: Wildlife Society Bulletin, v. 2, no. 4, p. 191-195.
- Porter, W. F., Siniff, D. B., and Hamilton, D. A., 1978, Radio-telemetry techniques for the investigation of the behavior and demography of wild turkeys, in Pecora IV Symposium, Sioux Falls, S. Dak., 1978, Proceedings: Washington, D.C., National Wildlife Federation, Scientific and Technical Series 3, p. 214-218.
- Pospahala, R. S., Brazda, A. R., Hansom, R. C., and others, 1975, Aerial surveys of waterfowl breeding populations in North America, 1955-1973: U.S. Fish and Wildlife Service, Special Science Report--Wildlife Service, 48 p.

#### Fish

- Brucks, J. T., Butler, J. A., Faller, K. H., Holley, H. J., Kemmerer, A. J., Leming, T. D., Savastano, K. J., and Vanselous, T. M., 1977, Landsat menhaden and thread herring resources investigation: National Space Technology Laboratories Station, Mississippi, National Oceanic and Atmospheric Administration, and National Marine Fisheries Service, 254 p., NTIS N78-12500.
- Eicher, G. J., 1953, Aerial methods of assessing red salmon population in eastern Alaska: Journal of Wildlife Management, v. 17, no. 4, p. 521-527.
- Kelez, G. B., 1947, Measurement of salmon spawning by means of aerial photography: Pacific Fisherman, v. 45, no. 3, p. 49-51.
- Maughan, P. M., and Marmelstein, A. D., 1971, Operational use of remote sensors in commercial fishing, in Symposium on Remote Sensing in Marine Biology and Fishery Resources, College Station, Tex., 1971, Proceedings: College Station, Texas A and M University, Remote Sensing Center, TAMU-SG-71-106, p. 8-24.

- Midttun, Lars, 1971, Acoustic methods for estimation of fish abundances, in Symposium on Remote Sensing in Marine Biology and Fishery Resources, College Station, Tex., 1971, Proceedings: College Station, Texas A and M University, Remote Sensing Center, TAMU-SG-71-106, p. 218-226.
- Roithmayr, C. M., 1970, Airborne low-light sensor detects luminescing fish schools at night: Commercial Fisheries Review, v. 32, no. 12, p. 42-51.
- Saila, S. B., 1971, An application of the theory of games toward improving the efficiency of certain pelagic fishing operations, in Symposium on Remote Sensing in Marine Biology and Fishery Resources, College Station, Tex., 1971, Proceedings: College Station, Texas A and M University, Remote Sensing Center, TAMU-SG-71-106, p. 249-265.
- Savastano, K. J., and Leming, T. D., 1975, The feasibility of utilizing remotely sensed data to assess and monitor oceanic game fish, in NASA Earth Resources Survey Symposium, Houston, Tex., 1975, Proceedings: Houston, National Aeronautics and Space Administration, NASA TMX-58168, v. 1-C, p. 2023-2062, NTIS N76-14563.
- Scott, G. P., and Winn, H. E., 1978, Assessment of humpback whale (Megaptera novaeangliae) stocks using vertical photographs, in Pecora IV Symposium, Sioux Falls, S. Dak., 1978, Proceedings: Washington, D.C., National Wildlife Federation, Scientific and Technical Series 3, p. 235-243.
- Stevenson, W. H., Kemmerer, A. J., Atwell, B. H., and Maughan, P. M., 1973, A review of initial investigations to utilize ERTS-1 [Landsat-1] data in determining the availability and distribution of living marine resources, in Third Earth Resources Technology Satellite-1 [Landsat-1] Symposium, Washington, D.C., 1973: Washington, D.C., National Aeronautics and Space Administration, Goddard Space Flight Center, NASA SP-356, v. 2, p. 1317-1320, NTIS N73-83289.

### General Wildlife Applications

- Adams, G. D., 1978, Remote sensing for wildlife habitat analysis in Canada, an overview, in Pecora IV Symposium, Sioux Falls, S. Dak., 1978, Proceedings: Washington, D.C., National Wildlife Federation, Scientific and Technical Series 3, p. 3343.
- Asherin, D. A., Roelle, J. E., and Short, H. L., 1978, Characterization of terrestrial vertebrate habitats using remotely sensed imagery, in Pecora IV Symposium, Sioux Falls, S. Dak., 1978, Proceedings: Washington, D.C., National Wildlife Federation, Scientific and Technical Series 3, p. 274-279.
- Barr, B. G., and Martinko, E. A., 1978, The application of remote sensing to resource management and environmental quality programs in Kansas, annual report: Lawrence, University of Kansas Center for Research, 90 p., NTIS N78-27484.
- Carnegie, D. M., and Marmelstein, Allan, 1978, A perspective on remote sensing for wildlife management: The Pecora IV Symposium, in Pecora IV Symposium, Sioux Falls, S. Dak., 1978, Proceedings: Washington, D.C., National Wildlife Federation, Scientific and Technical Series 3, p. 392-397.
- Collins, R. L., and Harris, D. B., 1978, Use of remote sensing techniques on the Ohio River in West Virginia by the U.S. Fish and Wildlife Service, in Pecora IV Symposium, Sioux Falls, S. Dak., 1978, Proceedings: Washington, D.C., National Wildlife Federation, Scientific and Technical Series 3, p. 280-286.
- Colwell, R. N., 1978, Overview of remote sensing and its applications to wildlife management, in Pecora IV Symposium, Sioux Falls, S. Dak., 1978, Proceedings: Washington, D.C., National Wildlife Federation, Scientific and Technical Series 3, p. 11-21.

- Craighead, F. C., 1978, Assessment of needs for satellite tracking of birds and suggestions for expediting a program, final report: Moose, Wy., Environmental Research Institute, 81 p., NTIS N78-28146.
- Dornfeld, Rick, 1976, Operational uses of remote sensing by the Fish and Wildlife Service in North Dakota, in Dando, W. A., and Johnson, G. E., eds., Innovations in Land Use Management, 1976: Grand Forks, University of North Dakota Press, p. 123-128.
- Drennan, K. L., 1971, Some potential applications of remote sensing in fisheries, in Symposium on Remote Sensing in Marine Biology and Fishery Resources, College Station, Tex., 1971, Proceedings: College Station, Texas A and M University, Remote Sensing Center, TAMU-SG-71-106, p. 25-65.
- Francis, R. E., and Driscoll, R. S., 1978, Integrated resource inventory for the resources planning act, in Pecora IV Symposium, Sioux Falls, S. Dak., 1978, Proceedings: Washington, D.C., National Wildlife Federation, Scientific and Technical Series, 3, p. 269-273.
- Freidel, J. J., and Best, R. G., 1978, Remote sensing: a new tool in wildlife management: Brookings, South Dakota State University, Remote Sensing Institute, SDSU-RSI-J-78-06, 10 p.
- Grumstrup, P. D., and Meyer, M. P., 1977, Applications of large scale 35 mm color and color infrared aerial photography to analysis of fish and wildlife resources on disturbed lands: St. Paul, University of Minnesota, Institute of Agriculture, Forestry and Home Economics, Remote Sensing Laboratory Research Report 77-3, 70 p.
- Hawes, R. A., and Hudson, R. J., 1976, A method of regional landscape evaluation for wildlife: Journal of Soil and Water Conservation, v. 31, no. 5, p. 209-211.

- Herbst, R. L., 1978, Technology and decision making, in Pecora IV Symposium, Sioux Falls, S. Dak., 1978, Proceedings: Washington, D.C., National Wildlife Federation, Scientific and Technical Series 3, p. 388-391.
- Herrmann, Raymond, Stoneburner, D. L., Larson, G. L., Mathews, R. C., and Burge, R. E., 1978, Environmental monitoring for remote natural areas Great Smoky Mountains National Park, in Pecora IV Symposium, Sioux Falls, S. Dak., 1978, Proceedings: Washington, D.C., National Wildlife Federation, Scientific and Technical Series 3, p. 306-311.
- Howard, J. A., 1970, Aerial photo-ecology: New York, N.Y., American Elsevier Publishing Company, 325 p.
- Jacobsen, N. K., and Stuart, J. L., 1978, Telemetered heart rates as indices of physiological and behavioral status of deer, in Pecora IV Symposium, Sioux Falls, S. Dak., 1978, Proceedings: Washington, D.C., National Wildlife Federation, Scientific and Technical Series 3, p. 248-255.
- Kansas Applied Remote Sensing Program, Kansas Forestry, Fish and Game Commission, 1976, The application of remote sensing to wildlife management in Kansas: Lawrence, Kansas Applied Remote Sensing Program, The University of Kansas, 30 p.
- Khorran, Siamak, 1979, Topographic analysis at a wildlife area based on digital terrain data, in American Congress on Surveying and Mapping Annual Meeting, 39th, Washington, D.C., 1979, Proceedings: Falls Church, Va., American Congress on Surveying and Mapping, p. 284-297.
- Leedy, D. L., 1948, Aerial photographs, their interpretation and suggested uses in wildlife management: Journal of Wildlife Management, v. 12, no. 2, p. 191-210.

- 1953, Aerial photo use and interpretation in the fields of wildlife and recreation: Photogrammetric Engineering, v. 19, no. 1, p. 127-137.
- 1960, Photo interpretation in wildlife management, in Colwell, R. N., ed., Manual of photographic interpretation: Washington, D.C., American Society of Photogrammetry, p. 521-530.
- Low, B. S., 1978, Community preference and utilization strategies of a desert herbivore, in Pecora IV Symposium, Sioux Falls, S. Dak., 1978, Proceedings: Washington, D.C., National Wildlife Federation, Scientific and Technical Series 3, p. 312-320.
- Marmelstein, A. D., 1978, Remote sensing applications to wildlife management in the U.S. Fish and Wildlife Service, in International Symposium on Remote Sensing of Environment, 12th, Ann Arbor, Mich., 1978, Proceedings: Ann Arbor, Environmental Research Institute of Michigan, v. III, p. 284-297.
- Meyer, M. P., 1978, Application of remote sensing data for site-specific wildlife habitat analysis in the United States, in Pecora IV Symposium, Sioux Falls, S. Dak., 1978, Proceedings: Washington, D.C., National Wildlife Federation, Scientific and Technical Series 3, p. 26-32.
- Nelson, H. K., Klett, A. T., and Burge, W. G., 1970, Monitoring migratory bird habitat by remote sensing method, in Transactions of Thirty-fifth North American Wildlife and Natural Resources Conference, 1970, Proceedings: Washington, D.C., Wildlife Management Institute, p. 73-84.
- Nelson, H. K., Klett, A. T., and Johnston, J. E., 1971, Application of remote sensing techniques for appraising changes in wildlife habitat, in International Workshop on Earth Resources Survey Systems, Ann Arbor, Mich., 1971, Proceedings: Washington, D.C., United States Government Printing Office, v. II, p. 263-287.

- Nichol, J. E., 1975, Collection and processing of remote sensing data related to wildlife conservation in natural environments, in International Symposium on Remote Sensing of Environment, 10th, Ann Arbor, Mich., 1975, Proceedings: Ann Arbor, Environmental Research Institute of Michigan, v. 1, p. 369-372.
- O'Neil, C. P., deSteiguer, J. E., and North, G. W., 1978, Trend analysis of vegetation in Louisiana's Atchafalaya River Basin, in Pecora IV Symposium, Sioux Falls, S. Dak., 1978, Proceedings: Washington, D.C., National Wildlife Federation, Scientific and Technical Series 3, p. 114-136.
- Parker, D. H., 1978, Remote sensing for regional habitat analysis in the United States, in Pecora IV Symposium, Sioux Falls, S. Dak., 1978, Proceedings: Washington, D.C., National Wildlife Federation, Scientific and Technical Series 3, p. 22-25.
- Pipland, R. O., 1973, Remote sensing techniques for support of coastal zone resource management, in Approaches to Earth Survey Problems Through Use of Space Technology Symposium, Constance, Germany, 1973, Proceedings: Berlin, Germany, Akad-Verlag, p. 357-372.
- Reeves, H. M., Munroe, R. E., and Marmelstein, A. D., 1975, U.S. Fish and Wildlife activities in application of satellite imagery to goose management, in Workshop on Remote Sensing of Wildlife: Quebec, Canada, Quebec Service of Biological Research, p. 113-125.
- Rodgers, D. H., 1976, Remote sensing applications for fish and wildlife service: Washington, D.C., U.S. Fish and Wildlife Service, 62 p.
- Savastano, K. J., 1975, Application of remote sensing for fishery resources assessment and monitoring: Bay Saint Louis, Miss., National Marine Fisheries Service, 92 p.

- Schuerholz, G., 1974, Quantitative evaluation of edge from aerial photographs: *Journal of Wildlife Management*, v. 38, no. 4, p. 913-920.
- Sebesta, P. D., and Lund, G. F., 1978, Overview of NASA wildlife sensing projects, in Pecora IV Symposium, Sioux Falls, S. Dak., 1978, Proceedings: Washington, D.C., National Wildlife Federation, Scientific and Technical Series 3, p. 261-268.
- Thompson, M. D., 1977, Remote sensing in operational range management programs in western Canada, in International Symposium on Remote Sensing of Environment, 11th, Ann Arbor, Mich., 1977, Proceedings: Ann Arbor, Environmental Research Institute of Michigan, v. 2, p. 1101-1110.
- Tietjen, H. P., Glahn, J. F., and Fagerstone, K. A., 1978, Aerial photogrammetry: a method for defining black-tailed prairie dog colony dynamics, in Pecora IV Symposium, Sioux Falls, S. Dak., 1978, Proceedings: Washington, D.C., National Wildlife Federation, Scientific and Technical Series 3, p. 244-247.
- Tom, Craig, 1978, Image processing applications to western wildlife habitat inventory, in Pecora IV Symposium, Sioux Falls, S. Dak., 1978, Proceedings: Washington, D.C., National Wildlife Federation, Scientific and Technical Series 3, p. 360-376.
- Williamson, J. F., Jr., Whelan, J. B., and Mead, R. A., 1978, A computerized wildlife habitat information system, in Pecora IV Symposium, Sioux Falls, S. Dak., 1978, Proceedings: Washington, D.C., National Wildlife Federation, Scientific and Technical Series 3, p. 385-387.
- Wilson, H. L., and Berard, E. V., 1952, The use of aerial photographs and ecological principles in cover type mapping: *Journal of Wildlife Management*, v. 16, no. 3, p. 320-326.