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## Bibliography to Upper Mississippi River Aquatic and Wetland Plant Literature

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## Bibliography to Upper Mississippi River Aquatic and Wetland Plant Literature

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A comprehensive bibliography of 308 references by 270 authors was prepared to provide access to the literature on aquatic and wetland plants of the Upper Mississippi River. The references treated the taxonomy, floristics, ecology, wildlife biology, limnological role, and management programs on macrophytes present in the navigation channel, backwater, and floodplain of the Upper Mississippi River, which stretches from Minneapolis, MN, southward some 1,380 km to Cairo, IL. Articles, serials, books, agency reports, agency contracted studies, theses, and dissertations were included.

INDEX DESCRIPTORS: Aquatic vegetation, aquatic plants, Upper Mississippi River, wetland plants.

The extensive literature on aquatic and wetland plants of the Upper Mississippi River occurs in many diverse journals, serials, books, agency reports, contracted agency reports, theses, and dissertations. This bibliography provides a reference resource to that literature. For purposes of this paper, the Upper Mississippi River was defined as the navigation channel, backwater, and floodplain of the Mississippi River from Minneapolis, Minnesota, downstream some 1,380 km to Cairo, Illinois. This stretch of the Mississippi River includes portions of the states of Illinois, Iowa, Minnesota, Missouri and Wisconsin. Ownership includes private, municipal, county, state, and various federal agencies. Management of the resources has been varied and has depended on the concerns of the owner, but usually included aspects of wildlife management, navigation, or environmental quality concerns for river users. All three of these management concerns involve assessments of the aquatic and wetland plants. This bibliography, then, provides users and owners with a starting point in conducting assessments and in developing management plans.

The bibliography was compiled from 1977-1983. The search resulted in the location of 308 references prepared by 270 authors. The search considered standard botanical resources for each state, including theses, dissertations, state science journals, and regional or national botanical journals. State and federal agencies, along with private groups, which have supported research on the Mississippi River, were contacted to compile their references. Computer searches of the data bases of Selected Water Resources Abstracts, Madison, WI, and University of Florida Center for Aquatic Weeds, Gainesville,

FL, were conducted to check our manual efforts. It was relatively easy to decide whether a particular report was appropriate for inclusion. Reports which only discussed microscopic bacteria or algae were not included. All references which treated plant groups that are traditionally known as "macrophytes" were included. Plant groups were flowering plants, conifers, ferns, fern allies, bryophytes, and macroscopic algae. Some titles were annotated or expanded to clarify the agency which prepared a report and the agency for whom the report was prepared. Each citation we listed was inspected by one or both authors. Copies of each report were available to the public at institutional libraries, such as Iowa State University Library, agency publication offices, and in the files of our colleagues. Private or uncirculated documents were not included.

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### UPPER MISSISSIPPI RIVER AQUATIC AND WETLAND PLANT LITERATURE

- ALMON, L. 1930. Preliminary report on the flora of Wisconsin. XI. Ranunculaceae - Buttercup Family. Trans. Wis. Acad. Sci. 25:205-214.
- ANDERSON, H. G. 1959. Food habits of migratory ducks in Illinois. Ill. Nat. Hist. Sur. Bull. 27:289-344.
- ARGUS, G. W., and F. G. GOFF. 1964. Preliminary reports on the flora of Wisconsin. No. 51. Salicaceae. The Genus *Salix* - the willows. Trans. Wis. Acad. Sci. 53:217-272.
- BEAL, E. O. 1952. The distribution of aquatic monocotyledons in Iowa. M.S. Thesis, Univ. Iowa, Iowa City, IA.
- BEAL, E. O. 1954. Aquatic monocotyledons of Iowa. Proc. Iowa Acad. Sci. 60:89-91.
- BEAL, E. O., and P. H. MONSON. 1954. Marsh and aquatic angiosperms of Iowa. Univ. Iowa. Stud. Nat. Hist. 19(5):1-95.
- BELLROSE, F. C. 1941. Duck food plants of the Illinois River Valley. Bull. Illinois Nat. Hist. Surv. 21:237-280.
- BELLROSE, F. C., and H. G. ANDERSON. 1943. Preferential rating of duck food plants. Ill. Nat. Hist. Sur. Bull. 22:417-433.
- BELLROSE, F. E., F. L. PAVEGLIO, and D. W. STEFFECT. 1979. Waterfowl populations and the changing environment of the Illinois River valley. Ill. Nat. Hist. Sur. Bull. 32:1-54.
- BELLROSE, F. C., R. SPARKS, F. L. PAVEGLIO, R. C. THOMAS, D. W. STEFFECT, D. MOLL, and R. A. WEAVER. 1977. Wildlife habitat changes resulting from the construction of a nine-foot channel in the Illinois waterway from La Grange Lock and Dam to Lockport Lock and Dam. Illinois Natural History Survey, Urbana, Illinois. Report on file with U.S. Army Corps of Engineers NCE-CO, Chicago.
- BILTGEN, B. A. 1981. Aufwuchs and benthic macroinvertebrate community structure associated with three species of rooted aquatic macrophytes in Lake Onalaska, 1976-1977. M.S. Thesis, Univ. Wis.-La Crosse, La Crosse, WI. 136 p.
- BOYD, W., and J. HARBER, (eds.). 1981a. Effects of navigation and operation and maintenance on the Upper Mississippi River System 9-foot channel; Waterfowl populations. Report for Upper Mississippi River Basin Commission Master Plan, Minneapolis, MN.
- BOYD, W., and J. HARBER, (eds.). 1981b. Effects of fluctuating pool levels caused by normal operation of the Upper Mississippi River System 9-foot channel on wetland plants, waterfowl, muskrats, invertebrates and fish. Report for Upper Mississippi River Basin Commission Master Plan, Minneapolis, MN.
- BROWN, M. E., and R. G. BROWN. 1940. A preliminary list of plants of the sand mounds of Muscatine and Louisa counties, Iowa. Proc. Iowa Acad. Sci. 46:167-178.
- BUHL, K. J., and D. R. McCONVILLE. 1983. Heavy metal accumulation in selected sessile components of Fountain City Bay (Pool 5), of the Upper Mississippi River, p. 171-194. In J. G. Wiener, R. A.

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- Anderson and D. R. McConville, (eds.), Contaminants in the Upper Mississippi River, Ann Arbor Science, Ann Arbor, MI.
- BUILDER, J. M. 1976. The emergent aquatic vegetation of Weaver-Bottoms. Unpubl. B.S. Thesis. St. Mary's College, Winona, MN. 33 p.
- BUNNEL, L. H. 1897. Winona and its environs on the Mississippi in ancient and modern days. Jones & Kroeger, Winona, MN. 694 p.
- BUREAU OF OUTDOOR RECREATION. 1972. Lower St. Croix wild and scenic river study. Unpublished Report. U.S. Dept. Interior, Bur. Outdoor Recreation, Lake Central Region, Ann Arbor, MI.
- CARLSON, R. A., and J. B. MOYLE. 1975. Key to the common aquatic plants of Minnesota. Minnesota Department of Conservation, Special Publ. 53. St. Paul, MN. 64 p.
- CARON, L., J. MINOR, and M. MEYER. 1976. Upper Mississippi River underwater feature detection capabilities of water penetrating aerial photography. Institute of Agriculture, Forestry and Home Economics, Remote Sensing Laboratory, Univ. of Minnesota, St. Paul, MN. 15 p.
- CAWLEY, E. T. 1973. Final report environmental impact assessment study, Pool 10, of the Upper Mississippi River. North Star Research Institute, Minneapolis, Minnesota. Prepared for the U.S. Army Corps of Engineers, St. Paul, Minnesota.
- CLAFLIN, T. O. 1973a. Final report environmental impact assessment study, Pool 7, of the Northern Section of the Upper Mississippi River. North Star Research Institute, Minneapolis, Minnesota. Prepared for the U.S. Army Corps of Engineers, St. Paul, Minnesota.
- CLAFLIN, T. O. 1973b. Final report environmental impact assessment of the Northern Section of the Upper Mississippi River, Pool 8. North Star Research Institute, Minneapolis, Minnesota. Prepared for the U.S. Army Corps of Engineers, St. Paul, Minnesota.
- CLAFLIN, T. O. 1974a. Environmental assessment of the operation and maintenance of the 9-foot channel, Upper Mississippi River. Contr. 5, River Studies Center, Univ. Wis.-La Crosse, La Crosse, WI.
- CLAFLIN, T. O. 1974b. Revegetation study of Island 117, Navigation Pool No. 8, Upper Mississippi River. Contr. 8, River Studies Center, Univ. Wis.-La Crosse, La Crosse, WI. 46 p.
- CLAFLIN, T. O. 1975a. Revegetation study, Island 117, Navigation Pool No. 8, Upper Mississippi River. Submitted to the Environmental Resources Branch, USACE, St. Paul District, St. Paul, Minnesota. 37 p.
- CLAFLIN, T. O. 1975b. Environmental assessment, Navigation Pool 7. Mimeographed report to the Corps of Engineers. River Studies Center, Univ. Wis.-La Crosse, La Crosse, WI.
- CLAFLIN, T. O. 1975c. Environmental assessment, Navigation Pool 8. Mimeographed report to the Corps of Engineers. River Studies Center, Univ. Wis.-La Crosse, La Crosse, WI. 229 p.
- CLAFLIN, T. O. 1975d. Interim report on simulation model study Navigation Pool 8. Mimeographed report to the U.S. Corps of Engineers. River Studies Center, Univ. of Wis.-La Crosse, La Crosse, WI. 62 p.
- CLAFLIN, T. O., L. DAELLENBACH, and D. P. SWEETLAND. 1975. Environmental impact assessment, State Road Coulee-Ebner Coulee, La Crosse, Wisconsin. Submitted to USACE, St. Paul District, St. Paul, Minnesota. 46 p.
- CLAFLIN, T. O., and R. G. RADA. 1976. Regression model of Navigation Pool No. 8. Report submitted to GREAT I, USACE, St. Paul District, St. Paul, Minnesota.
- CLAFLIN, T. O., and R. G. RADA. 1977. Lake Onalaska rehabilitation feasibility study (Navigation Pool No. 7, Upper Mississippi River). Report submitted to the Lake Onalaska Rehabilitation District. 43 p.
- CLAFLIN, T. O., and R. G. RADA. 1979a. A field test of the regression simulation model in Fountain City Bay and a study of the effects of diverting water into Fountain City Bay, Wisconsin. Report submitted to GREAT I, Minneapolis, Minnesota. Vol. I. 170 p.
- CLAFLIN, T. O., and R. G. RADA. 1979b. Regression simulation model users manual. River Studies Center, Univ. Wis.-La Crosse, La Crosse, WI. Submitted to GREAT I, Minneapolis, MN. Vol. II. 45 p.
- CLAFLIN, T. O., R. G. RADA, M. M. SMART, and B. A. BILTGEN. 1981. A study on the effects of diverting water into Upper Burnt Pocket, Navigation Pool No. 18, Illinois and a field test of the regression simulation model previously developed on Navigation Pool No. 8. Final Report submitted to GREAT II, Minneapolis, MN. 109 p.
- CLAFLIN, T. O., R. G. RADA, M. M. SMART, D. N. NIELSEN, J. K. SCHEIDT, and B. A. BILTGEN. 1981. The effects of commercial and recreational navigation on selected physical and chemical variables in Navigation Pool No. 9, Upper Mississippi River. Final Report submitted to the Upper Mississippi River Basin Commission, Minneapolis, MN. 216 p.
- CLAFLIN, T. O., S. H. SOHMER, and D. J. GRIMES. 1971. Revegetation of dredge spoil material in Navigation Pool No. 8, Upper Mississippi River. Report submitted to USACE, St. Paul District, St. Paul, MN.
- CLARK, H. W. 1917. Dwarf shore floras. Trans. Illinois Acad. Sci. 10:149-159.
- CLARK, S. M. 1974. Determination of the relative state of eutrophy of Navigation Pool 7 in the Upper Mississippi River by means of an algal assay procedure. M.S. Thesis, Univ. Wis.-La Crosse, La Crosse, WI. 39 p.
- CLARK, W. R. 1981. Assessment of navigation effects on muskrats in Pool 9 of the Upper Mississippi River. Final report to the Upper Mississippi River Basin Commission. Minneapolis, MN. 45 p.
- COLBERT, B. K., J. E. SCOTT, J. H. JOHNSON, and R. C. SOLOMON. 1975. Environmental inventory and assessment of navigation pools 24, 25, and 26, Upper Mississippi River and Lower Illinois rivers: an aquatic analysis. U.S. Army Engineers Experiment Station, Technical Report Y-75-2. 361 pp.
- COLLINS, F. 1977. Quantitative and qualitative analysis of pre and post wildlife habitat conditions resulting from the nine-foot channel. U.S. Army Corps of Engineers, Rock Island, IL.
- COLINGSWORTH, R. F., B. J. R. GUDMUNDSON, W. L. K. SCHWARTZ, and C. W. RUDELIUS. 1973a. Final report, environmental impact assessment study St. Croix River Pool of the Northern Section of the Upper Mississippi River. Environmental Systems Div., North Star Research Institute, Minneapolis, MN.
- COLINGSWORTH, R. F., B. J. R. GUDMUNDSON, W. L. K. SCHWARTZ, and C. W. RUDELIUS. 1973b. Final report, environmental impact assessment study, Minnesota River Pool of the Northern Section of the Upper Mississippi River. Environmental Systems Div., North Star Research Institute, Minneapolis, MN.
- COLINGSWORTH, R. F., B. J. R. GUDMUNDSON, W. L. K. SCHWARTZ, and C. W. RUDELIUS. 1973c. Final report, environmental impact study of Upper and Lower St. Anthony Falls Pool, Northern Section of the Upper Mississippi River. Environmental Systems Div., North Star Research Institute, Minneapolis, MN.
- COLINGSWORTH, R. F., B. J. R. GUDMUNDSON, W. L. K. SCHWARTZ, and C. W. RUDELIUS. 1973d. Final report, environmental impact assessment study of Pool No. 1 of the Northern Section of the Upper Mississippi River. Environmental Systems Div., North Star Research Institute, Minneapolis, MN.
- COLINGSWORTH, R. F., B. J. R. GUDMUNDSON, W. L. K. SCHWARTZ, and C. W. RUDELIUS. 1973e. Final report, environmental impact study of Pool No. 2 of the Northern Section of the Upper Mississippi River. Environmental Systems Div., North Star Research Institute, Minneapolis, MN.
- COOK, C. D. K., B. J. GUT, E. M. RIX, J. SCHNELLER, and M. SEITZ. 1974. Water plants of the world: a manual for the identification of the genera of freshwater macrophytes. W. Junk, Hague.
- COOPER, W. S. 1947. Floodplain succession stations and supplementary material arranged in order of developmental state. Unpublished mimeographed manuscript. Dept. Botany, Univ. Minnesota, St. Paul, MN. 21 p.
- COOPERRIDER, T. S. 1958. The vascular plants of Clinton, Jackson, and Jones counties. Ph. D. Dissertation, Univ. Iowa, Iowa City, IA.
- COOPERRIDER, T. S. 1962. The vascular plants of Clinton, Jackson, and Jones counties. Univ. Iowa Stud. Nat. Hist. 20(5):1-80.
- COSTELLO, D. F. 1935. Preliminary reports on the flora of Wisconsin. XXIV. Salicaceae. Trans. Wis. Acad. Sci. 29:299-318.
- COURSOLLE, J. M. 1978. Determining means of enhancing and maintaining beach recreation areas with dredged materials. Final Review Draft, GREAT I Recreation Group, Corps of Engineers, St. Paul, MN.
- COWARDIN, L. M., V. CARTER, F. C. GOLET, and E. T. LAROE. 1979. Classification of wetlands and deepwater habitats of the United States. FWS/OBS-079/31, Washington, D.C. 103 p.
- CURTIS, J. T. 1959. The vegetation of Wisconsin. Wisconsin Press, Madison, WI. 657 p.
- DALEY, R. H. 1977. Biological issues and concerns on the Mississippi River mainstream from Cairo, Illinois, to Saverton, Missouri. Prepared for Upper Mississippi River Basin Commission, Minneapolis, MN.
- DAVIDSON, R. A. 1957. The flora of southeastern Iowa. Ph. D. Thesis. Univ. Iowa, Iowa City, IA.
- DAVIDSON, R. A. 1959. The vascular flora of southeastern Iowa. Univ. Iowa Stud. Nat. Hist. 20(2):1-102.
- DAVIDSON, R. A. 1960. Plant communities of southeastern Iowa. Proc. Iowa Acad. Sci. 67:162-173.
- DAVIS, G. J., and M. M. BRINSON. 1980. Responses of submerged vascular plant communities to environmental change. FWS/OBS-79/33. U.S. Department of the Interior, Fish and Wildlife Service, Kearneysville, West Virginia.
- DEXTER, R. N., S. P. PAVLOU, W. G. HINES, and D. A. ANDERSON. 1978. Dynamics of polychlorinated biphenyls in the Upper Mississippi River, Fish and Wildlife Service Report, 14-16-0009-78-026. 71 p.
- DIETERMAN, L. J., and D. R. MCCONVILLE. 1980. Environmental impact of nuclear plant on Mississippi River biota in an ecological recovery zone near Red Wing, Minnesota. Final Report submitted to the Office of Water Research and Technology. 269 p.
- DONNERMEYER, G. 1982. *Vallisneria americana* productivity, quality, and quantity in Navigation Pool No. 9, Upper Mississippi River. M.S. Thesis, Univ. Wis.-La Crosse, La Crosse, WI. 93 p.
- DOUGAL, M. D. 1969. Floodplain management: Iowa's experience. Proc. Sixth Water Resources Design Conference, Iowa State Univ. Extension. Iowa State Univ. Press, Ames, IA.
- ECKBLAD, J. W. 1973. Final report environmental impact assessment, Pool 9, of the Northern Section of the Upper Mississippi River. North Star Research Institute, Minneapolis, Minnesota. Prepared for

- U.S. Army Corps of Engineers, St. Paul, MN.
- ECKBLAD, J. W., N. L. PETERSON, and K. OSTLIE. 1977. Morphometry, benthos and sedimentation rates of a floodplain lake in Pool 9 of the Upper Mississippi River. *Amer. Midl. Nat.* 77:433-443.
- ECOLOGY CONSULTANTS, INC. 1979. Navigation effects on the biological components of the Upper Mississippi River aquatic ecosystem. Report for the Upper Mississippi River Basin Commission, Minneapolis, MN. 37 pp.
- EILERS, L. J. 1975. History of studies on the Iowa vascular flora. *Proc. Iowa Acad. Sci.* 82:59-64.
- EISENDRATH, E. R. 1978. Missouri wildflowers of the St. Louis area. *St. Louis Missouri Botanical Garden, St. Louis, MO.*
- ELLIS, M. M. 1936. Erosion silt as a factor in aquatic ecosystems. *Ecology* 17:29-42.
- ELSTAD, C. A. 1977. Macro-benthic survey of Navigation Pool No. 8 of the Upper Mississippi River, with special reference to ecological relationships. M.S. Thesis, Univ. Wis.-La Crosse, La Crosse, WI. 231 p.
- EMANUEL, J. P. 1977. Checklist of seed plants, ferns and fern allies for Winona County, Minnesota. Dept. Botany, Winona State Univ. Winona, MN. 23 pp.
- EMGE, W. P., H. H. ALLEN, G. H. HUGHES, G. S. WILHELM, and J. H. ZIMMERMAN. 1974. Environmental inventory and assessment, Illinois waterway 12-foot channel navigation project. Misc. Paper Y-74-1. U.S. Army Engineer Waterways Experiment Station, Vicksburg, MS.
- ENVIRONMENTAL SCIENCE AND ENGINEERING, INC. 1982a. Terrestrial ecology of ten potential dredged material placement sites within pools 8 and 9 of the Upper Mississippi River. U.S. Army Corps of Engineers, St. Paul, MN. 69 pp.
- ENVIRONMENTAL SCIENCE AND ENGINEERING, INC. 1982b. Aquatic survey of GREAT I Site 9-26 at Lansing, Iowa. U.S. Army Corps of Engineers, St. Paul, MN.
- ENVIRONMENTAL SYSTEM RESEARCH INSTITUTE (ERSI). No date. Upper Mississippi geographic information system pilot study. ERSI, Redlands, California. Prepared for Great River Environmental Action Team I: U.S. Fish and Wildlife Service, Region 3; and U.S. Army Corps of Engineers, St. Paul, Minnesota.
- EVANS, D. K. 1971. The vegetation of the Mississippi River and mud flats in Jackson County, Illinois. M.S. Thesis, Southern Illinois Univ., Carbondale, IL.
- EVANS, D. K. 1974. The flora and vegetation of a Mississippi River unprotected floodplain. *Assoc. Southeast. Biol. Bull.* 21:54.
- EVANS, D. K. 1975. Characteristics of flora and succession in the middle Mississippi River floodplain. *Proc. West Virginia Acad. Sci.* 47:7-13.
- EVANS, D. K. 1979. Floristics of the middle Mississippi River sand and mud flats. *Castanea* 44(1):8-24.
- FASSETT, N. C. 1929. Preliminary reports on the flora of Wisconsin. I. Juncaginaceae, Alismataceae. *Trans. Wis. Acad. Sci.* 24:249-256.
- FASSETT, N. C. 1930a. Preliminary reports on the flora of Wisconsin. VI. Pandales: Typhaceae, Sparganiaceae. *Trans. Wis. Acad. Sci.* 25:183-187.
- FASSETT, N. C. 1930b. Preliminary reports on the flora of Wisconsin. IX. Elatrinaceae - Waterwort Family. *Trans. Wis. Acad. Sci.* 25:199-200.
- FASSETT, N. C. 1930c. Preliminary reports on the flora of Wisconsin. X. Haloragaceae - Water Milfoil Family. *Trans. Wisc. Acad. Sci.* 25:201-203.
- FASSETT, N. C. 1932a. Preliminary reports on the flora of Wisconsin. XVI. Xyridales. *Trans. Wis. Acad. Sci.* 27:227-230.
- FASSETT, N. C. 1932b. Preliminary reports on the flora of Wisconsin. XXV. Arales. *Trans. Wis. Acad. Sci.* 30:17-20.
- FASSETT, N. C. 1932c. Preliminary reports on the flora of Wisconsin. XIX. Saxifragaceae. *Trans. Wis. Acad. Sci.* 27:237-246.
- FASSETT, N. C. 1946. Preliminary reports on the flora of Wisconsin. XXXIII. Ranunculaceae. *Trans. Wis. Acad. Sci.* 38:189-209.
- FASSETT, N. C. 1951. Grasses of Wisconsin; the taxonomy, ecology, and distribution of the Gramineae growing in the state without cultivation. Univ. Wis. Press, Madison, 173 p.
- FASSETT, N. C. 1957. A manual of aquatic plants. Univ. Wis. Press, Madison, WI. (With a revision appendix by E. C. Ogden).
- FASSETT, N. C. 1976. Spring flora of Wisconsin. 4th ed. (Revised and enlarged by Olive Thomson). Univ. Wis. Press, Madison, WI.
- FERNALD, M. L. 1950. Gray's manual of botany. Ed. 8. The American Book Co., NY.
- FITZPATRICK, T. J., and M. E. L. FITZPATRICK. 1902. A study of the island flora of the Mississippi River, near Sabula, Iowa. *Plant World* 5:189-201.
- FREMLING, C. R., and T. O. CLAFLIN. 1983. Ecological history of the Upper Mississippi River, p. 5-24. *In* J. G. Wiener, R. V. Anderson, and D. R. McConville, (eds.), *Contaminants in the Upper Mississippi River*, Ann Arbor Science, Ann Arbor, MI.
- FREMLING, C. R., D. V. GRAY, and D. M. NIELSEN. 1973a. Final report environmental impact assessment of the Northern Section of the Upper Mississippi River, Pool 4. North Star Research Institute, Minneapolis, Minnesota. Prepared for U.S. Army Corps of Engineers, St. Paul, MN.
- FREMLING, C. R., D. V. GRAY, and D. N. NIELSEN. 1973b. Final report environmental impact assessment of the Northern Section of the Upper Mississippi River, Pool 6. North Star Research Institute, Minneapolis, Minnesota. Prepared for U.S. Army Corps of Engineers, St. Paul, MN.
- FREMLING, C. R., D. V. GRAY, and D. N. NIELSEN. 1973c. Final report environmental impact assessment of the Northern Section of the Upper Mississippi River Pool 5. North Star Research Institute, Minneapolis, Minnesota. Prepared for U.S. Army Corps of Engineers, St. Paul, MN.
- FREMLING, C. R., D. V. GRAY, and D. M. NIELSEN. 1973d. Final report environmental impact assessment of the Northern Section of the Upper Mississippi River, Pool 5A. North Star Research Institute, Minneapolis, Minnesota. Prepared for U.S. Army Corps of Engineers, St. Paul, MN.
- FREMLING, C. R., D. N. NIELSEN, D. R. McCONVILLE, R. N. VOSE, and R. A. FABER. 1979. The feasibility and environmental effects of opening side channels in five areas of the Mississippi River: West Newton Channel, Fountain City Bay, Sam Gordy's Slough, Gruger Slough, and Island 42. U.S. Fish and Wildlife Service (2 vols).
- FULLER, G. D. 1945. A checklist of the vascular plants of Jo Daviess County, Illinois. *Trans. Illinois Acad. Sci.* 38:51-63.
- GALE, W. F. 1975. Bottom fauna of a segment of Pool 19, Mississippi River, near Fort Madison, Iowa, 1967-1968. *Iowa St. J. Res.* 47:353-372.
- GALTSOFF, P. S. 1924. Limnological observations in the Upper Mississippi River, 1921. *Bull. U.S. Bur. Fish.* 39:347-348.
- GEORGE, H. 1924. The plant succession of the floodplain of the Mississippi River with special reference to the pioneer stage. M.A. Thesis, Univ. Minnesota, St. Paul, MN. 91 p.
- GILBERTSON, D. E., and T. J. KELLY. 1981. Summary resource description Upper Mississippi River system. Vol. 4: Biology. Water Resources Research Center, Univ. of Minnesota, St. Paul, MN. 102 p.
- GILLY, C. L., and M. E. McDONALD. 1947. Preliminary report on the flora of southeastern Iowa, part 1. *Proc. Iowa Acad. Sci.* 54:107-126.
- GILLY, C. L., and M. E. McDONALD. 1948. Preliminary report on the flora of southeastern Iowa, part 2. *Proc. Iowa Acad. Sci.* 55:115-133.
- GLEASON, H. A. 1952. Illustrated flora of the northeastern United States, 3 vols. The New York Botanical Garden, N.Y.
- GODFREY, R. K., and J. W. WOOTEN. 1979. Aquatic and wetland plants of southeastern United States: I: monocots. Univ. of Georgia Press, Athens, GA.
- GODFREY, R. K., and J. W. WOOTEN. 1981. Aquatic and wetland plants of southeastern United States: II: dicots. Univ. of Georgia Press, Athens, GA.
- GREAT RIVER ENVIRONMENTAL ACTION TEAM I (GREAT I). 1979. Fish and wildlife work group appendix (FWWG). GREAT I, St. Paul, MN.
- GREAT RIVER ENVIRONMENTAL ACTION TEAM I (GREAT I). 1979. Sediment and erosion work group appendix (SEWG). GREAT I, St. Paul, MN.
- GREAT RIVER ENVIRONMENTAL ACTION TEAM II (GREAT II). 1980. Side channel work group appendix (SCWG). GREAT II, Rock Island, IL.
- GREAT RIVER ENVIRONMENTAL ACTION TEAM (GREAT II). 1980. Fish and wildlife management work group (FWWG). GREAT II, Rock Island, IL.
- GREENE, H. C. 1953. Preliminary reports on the flora of Wisconsin. XXXVII. Cyperaceae. *Trans. Wis. Acad. Sci.* 42:47-67.
- GREEN, W. E. 1947. Distribution of marsh and aquatic plants on the Upper Mississippi River Wildlife Refuge. U.S. Dept. Interior Bur. Sport Fisheries and Wildlife. Winona, MN.
- GREEN, W. E. 1949. Report on vegetation conditions of the Upper Mississippi River Refuge. 32 pp. (mimeographed) Branch of Wildlife Refuges, U.S. Dept. Interior, Fish and Wildlife Service, Bur. Sport Fisheries & Wildlife.
- GREEN, W. E. 1960. Ecological changes on the Upper Mississippi River Wildlife and Fish Refuge since the inception of the 9-foot channel. Branch of Wildlife Refuges, U.S. Dept. Interior, Fish and Wildlife Service, Bur. Sport Fisheries & Wildlife. 15 p.
- GREEN, W. E. 1970. Ecological change on the Upper Mississippi River Wildlife and Fish Refuge since inception of the 9-foot channel. U.S. Department of Interior, Fish and Wildlife Service, Bureau of Sport Fisheries and Wildlife. Winona, MN.
- GREEN, W. L. 1978. Wildlife of Weaver River Bottoms (River Mile 742.5-747.5). Unpublished M.S. Thesis, St. Mary's College, Winona, MN. 70 p.
- GREENBANK, J. 1949. Increased vegetation growth in the Upper Mississippi River. UMRCC Investigative Report No. 36. 7 p.
- GRUNWALD, G. 1977a. Mississippi River survey: Wiggle Waggle Slough, River Mile 752.3, Pool 5, Wabasha County, Minnesota. Unpublished. Minnesota Department of Natural Resources, Lake City, MN.
- GRUNWALD, G. 1977b. Mississippi River survey: Hershey Island, River Mile 759, Pool 4, Wabasha County, Minnesota. Unpublished. Minnesota Department of Natural Resources, Lake City, MN.
- GRUNWALD, G. 1978a. Mississippi River survey: Island Number 42, River Mile 749, Pool 5, Wabasha County, Minnesota. Unpublished. Minnesota Department of Natural Resources, Lake City, MN.
- GRUNWALD, G. 1978b. Mississippi River survey: Drury Island, River Mile 762, Pool 4, Wabasha County, Minnesota. Unpublished. Minnesota Department of Natural Resources, Lake City, MN.
- GRUNWALD, G. 1978c. Mississippi River survey: Wildcat Landing, River Mile 688.3, Pool 8, Houston County, Minnesota. Unpublished. Minnesota Department of Natural Resources, Lake City, MN.
- GULDNER, L. F. 1960. The vascular plants of Scott and Muscatine counties. Davenport Public Museum Botanical Publication #1. 228 p.
- HAGEN, A. M. 1932. Preliminary reports on the flora of Wisconsin. XX. Malvales. *Trans. Wis. Acad.*

- Sci. 27:247-249.
- HAGEN, R., L. WERTH, and M. MEYER. 1977b. Upper Mississippi River habitat inventory. IAFHE, RSL Res. Rept. 77-5, Phase I. U.S. Fish and Wildlife Serv. Contr. No. 14-16-0003-30, 686. 18 p.
- HALLER, W. T. 1976. *Hydrilla*: a new and rapidly spreading aquatic weed problem. IFAS, Univ. Florida, Gainesville, FL, Cir. 2-245.
- HARTLEY, T. G. 1957. A comparison of the floras of southwestern Wisconsin and northeastern Iowa. Proc. Iowa Acad. Sci. 64:199-204.
- HARTLEY, T. G. 1957. A preliminary report on the flora of the "driftless area." M.S. Thesis, Department Botany, State Univ. of Iowa, Iowa City, IA. 282 p.
- HARTLEY, T. G. 1960. Plant communities of the La Crosse areas in northwestern Wisconsin. Proc. Iowa Acad. Sci. 67:174-188.
- HARTLEY, T. G. 1962. The flora of the "driftless area." Ph.D. Dissertation, Dept. Botany, Univ. Iowa, Iowa City, IA. 932 p.
- HARTLEY, T. G. 1966. The flora of the "driftless area." Univ. of Iowa Stud. Nar. History 21:1-174.
- HAUKE, R. L. 1965. Preliminary reports on the flora of Wisconsin. No. 54. Equisetaceae. Horsetail Family. Trans. Wis. Acad. Sci. 54:331-346.
- HAZELTON ENVIRONMENTAL CORP. 1979. Fish and wildlife management work group annotated bibliography. Vol. I and II., GREAT II, Rock Island, IL. 820 p.
- HELD, J. W. 1976. Environmental impact of upland disposal of dredged material at Island 117, Pool 8, Upper Mississippi River. Report submitted to Waterways Experiment Station, Vicksburg, Mississippi. 80 p.
- HELMS, D. R. 1968. Aquatic habitat of the Mississippi River Navigation Pools 11 and 18. Iowa Cons. Comm. Quart. Biol. Rept. 20(2):19-23.
- HELMS, D. R. 1968. Aquatic habitat of the Mississippi River bordering Iowa. Iowa Cons. Comm., Quant. Biol. Repts. 20:11-14.
- HELMS, D. R. 1969. Projected changes in aquatic habitats of the Mississippi River associated with pool level raises. Iowa Cons. Comm. Quart. Biol. Rept. 21(2):46-58.
- HELMS, D. R., and T. L. BOLAND. 1972. Upper Mississippi River Natural Resources Bibliography. Upper Mississippi River Conservation Committee, 62 p.
- HOLT, B. 1974. Forest vegetation of Maple and Ellis Islands. Barland, Bartholomew, and Associates, St. Louis. 12 pp.
- HOTCHKISS, N. 1972. Common marsh, underwater, and floating-leaved plants of the United States and Canada. Dover Pub., NY.
- HUS, H. T. A. 1908. An ecological cross section of the Mississippi River in the region of St. Louis, Missouri. Ann. Rept. Missouri Bot. Gard. 19:127-258.
- HUTCHINGSON, G. E. 1975. A treatise on limnology. Vol. III. Limnological Botany. John Wiley and Sons, Inc., New York. 660 p.
- JACKSON, G. A., C. A. KORSCHGEN, P. A. THIEL, J. M. BESSER, D. W. STEFFECK, and M. H. BOCKENHAUER. 1981. A long-term resource monitoring plan to the Upper Mississippi River system. Report for Environmental Work Team, Upper Mississippi River Basin Commission Master Plan, Minneapolis, MN. Vol. I and II, 966 p.
- JOHNSON, J. H., R. C. SOLOMON, C. R. BINGHAM, B. K. COLBERT, W. P. EMGE, D. B. MATHIS, and R. W. HALL. 1974. Environmental analysis and assessment of the Mississippi River nine-foot channel project between St. Louis, Missouri, and Cairo, Illinois. Vicksburg, Mississippi, United States Army Engineers Waterways Experiment Station. 145 pp.
- JOHNSON, R. R., and J. F. McCORMICK. 1979. Strategies for protection and management of floodplain wetlands and other ecosystems. U.S. Dept. Agriculture, Forest, Service, Washington, D.C. General Technical Report WO-12. 410 p.
- JONES, G. N. 1945. Flora of Illinois. Univ. Press, Notre Dame, IN. 317 p.
- KAWATSKJ, J., and D. SCHALL. 1980. The macrophyte and macroinvertebrate populations of three areas of Lake Onalaska (Pool 7, Mississippi River) following the mechanical harvesting of aquatic macrophytes. Dept. of Biology, Viterbo College, La Crosse, WI.
- KLEIN, W. M., R. H. DALEY, and J. WEDUM. 1974. The floodplain vegetation of middle Mississippi above St. Louis and the lower Illinois River. Missouri Botanical Garden, St. Louis. 42 p.
- KLEIN, W. M., R. H. DALEY, and J. WEDUM. 1975. Environmental inventory and assessment of Navigation Pools 24, 25 and 26 Upper Mississippi and Lower Illinois Rivers: a vegetational study. U.S. Army Engineer Waterways Experiment Station, Vicksburg, Mississippi. 114 p.
- KORDIYAK, D. 1981. A vegetational analysis of the floodplain forests and a floristic survey of Van Loon Wildlife Area. M.S. Thesis, Univ. Wis.-La Crosse, La Crosse, WI. 110 p.
- KUNSHIEK, R. J. 1971. Vegetational studies of two Mississippi River floodplains in west-central Illinois. M.S. Thesis, Western Illinois Univ. 126 p.
- LAMMERS, T. G. 1977. The vegetation of the Mississippi River floodplain in southeastern Iowa. Contr. Herb. Univ. Wis.-La Crosse 17:1-11.
- LAMMERS, T. G. 1981. The vascular flora of Des Moines County, Iowa. M.S. Thesis, Univ. Northern Iowa, Cedar Falls, IA.
- LAMMERS, T. G. 1983. The vascular flora of Des Moines County, Iowa. Proc. Iowa Acad. Sci. 90:55-71.
- LAMMERS, T. G., and A. G. van der VALK. 1977. A checklist of the aquatic and wetland plants of Iowa: I. Ferns, fern allies, and dicotyledons. Proc. Iowa Acad. Sci. 84:41-88.
- LAMMERS, T. G., and A. G. van der VALK. 1979. A checklist of the aquatic and wetland vascular plants of Iowa: II. Monocotyledons, plus a summary of the geographic and habitat distribution of all aquatic and wetland species in Iowa. Proc. Iowa Acad. Sci. 85:121-163.
- LARSON, D. L. 1974. Vegetation of dredge spoil in the Lost Island area of Pool 5. Prepared for U.S. Army Corps of Engineers, St. Paul District by Winona State Univ., Winona, MN.
- LEDGERWOOD, M. 1931. The American Bottom and the characteristic plants of the region. Missouri Bot. Gard. Bull. 19:99-100.
- LEISMAN, G. A. 1959. Spring Lake archeology, the vegetation of the Spring Lake area. Sci. Mus. St. Paul Inst. Sci. Bull. No. 3. 13 p.
- LOW, J. B., and F. C. BELLROSE. 1944. The seed and vegetative yield of waterfowl plants in the Illinois River Valley. J. Wildl. Manage. 8:7-22.
- LUBINSKI, K. S., H. H. SEAGLE, JR., N. G. BHOWMIK, J. R. ADAMS, M. A. SEXTON, J. BUHNERKEMP, R. L. ALLGINE, D. K. DAVIE, and W. FITZPATRICK. 1981. Information summary of the physical, chemical and biological effects of navigation. Submitted to the Upper Mississippi River Basin Commission by Illinois Natural History Survey and Illinois State Water Survey. 131 p.
- LUTTENTON, M. 1982. Factors affecting the distribution and abundance of phytoplankton in Navigation Pool No. 5, Upper Mississippi River (1978-1981). M.S. Thesis, Univ. Wis.-La Crosse, La Crosse, WI. 118 p.
- MAHONY, K. L. 1932. Preliminary reports on the flora of Wisconsin. XV. Polygonaceae. Trans. Wis. Acad. Sci. 27:207-225.
- MANN, G. E. 1955. Wetlands inventory in Iowa. Office River Basins Studies Report, U.S. Fish and Wildlife Service, Region IV. Minneapolis, MN. 41 pp. plus appendices.
- MARCKS, B. G. 1974. Preliminary reports on the flora of Wisconsin. No. 66. Cyperaceae II - Sedge Family II. The genus *Cyperus* - The umbrella sedges. Trans. Wis. Acad. Sci. 62:261-284.
- MASON, C. T., and H. H. ILTIS. 1965. Preliminary reports on the flora of Wisconsin. No. 53. Gentianaceae and Menyanthaceae - Gentian and Buckbean Families. Trans. Wis. Acad. Sci. 54:295-329.
- McCONVILLE, D. R., G. PALESH, and P. RITTER. 1982a. Aquatic biological survey, GREAT I Site 4.02, Pool 4, Upper Mississippi River. U.S. Army Corps of Engineers, St. Paul, MN.
- McCONVILLE, D. R., G. PALESH, and P. RITTER. 1982b. Aquatic biological survey, side channel access, GREAT I Site 4.25, Pool 4, Upper Mississippi River, U.S. Army Corps of Engineers, St. Paul, MN.
- McCONVILLE, D. R., G. PALESH, and P. RITTER. 1982c. Aquatic biological survey, GREAT I Site 7.06, Pool 7, Upper Mississippi River, U.S. Army Corps of Engineers, St. Paul, MN. 6 pp.
- McDONALD, D. B., and J. L. KONEFES. 1977. Pre- and post-habitat conditions resulting from 9-foot navigation channel, Upper Mississippi River, Pools 11-22. Univ. Iowa Institute Hydrologic Research, Iowa City, IA.
- McDONALD, D. B., and M. P. McDONALD. 1973. Environmental assessment of the proposed 12-foot navigation channel on the Upper Mississippi River. Report No. 73-1, Dept. Civil Engineering, Univ. Iowa, Iowa City, IA.
- McINTOSH, J. M. 1950. Preliminary reports on the flora of Wisconsin. XXXIV. Liliales. Trans. Wis. Acad. Sci. 40(1):215-242.
- McLAUGHLIN, W. T. 1931. Preliminary reports on the flora of Wisconsin. XIV. Hypericaceae. Trans. Wis. Acad. Sci. 26:281-288.
- McMAHON, G., and J. W. ECKBLAD. 1975. The impacts of dredge spoil placement on the Upper Mississippi River. Final report to the National Science Foundation. Student originated study grant number EPT 750-8419. Luther College, Decorah, IA. 180 p.
- MIDWEST AQUATIC ENTERPRISES. 1975. Biological inventory of the Kaskaskia Island project area, Randolph County, Illinois, and Ste. Genevieve and Perry County, Missouri. Midwest Aquatic Enterprises, Mahomet, Illinois.
- MILLER, E. F., and K. KRUMM. 1973. Final report, environmental impact study Pool 3 of the Northern Section of the Upper Mississippi River, St. Mary's College, Winona, MN.
- MILLER, R. C. 1976. Habitat correlation of wildlife to selected emergent vegetation in Weaver Bottoms, Minn. and Fountain City Bay, Wisc. on the Upper Mississippi River. B.S. Thesis, St. Mary's College, Winona, MN. 64 p.
- MILLS, H. G., W. C. STARRETT, and F. C. BELLROSE. 1966. Man's effect on fish and wildlife of the Illinois River. Illinois Natural History Survey Biological Notes No. 57. Urbana, IL. 24 p.
- MINOR, J. M. L., L. M. CARON, and M. P. MEYER. 1977a. Upper Mississippi River habitat inventory. Research Report 77-7. Institute of Agriculture, Forestry and Home Economics, Univ. Minn., St. Paul, MN.
- MINOR, J. M., L. M. CARON, and M. P. MEYER. 1977b. Upper Mississippi River habitat inventory. IADHW RSL Res. Rept. 77-7, Phase III. U.S. Fish and Wildlife Serv., Contr. No. 14-16-0003-30-686.
- MOHLENBROCK, R. H. 1967. The illustrated flora of Illinois. Ferns. Southern Illinois Univ. Press, Carbondale, IL.
- MOHLENBROCK, R. H. 1970. The illustrated flora of Illinois. Flowering plants. Flowering rush or rushes. Southern Illinois Univ. Press, Carbondale, IL.
- MOHLENBROCK, R. H. 1972. The illustrated flora of Illinois. Flowering plants. Grasses: Bromus to Paspalum. Southern Illinois Univ. Press, Carbon-

- dale, IL.
- MOHLENBROCK, R. H. 1973. The illustrated flora of Illinois. Flowering plants. Grasses: *Panicum* to *Danthonia*. Southern Illinois Univ. Press, Carbondale, IL.
- MOHLENBROCK, R. H. 1975a. Guide to the vascular flora of Illinois. Southern Illinois Univ. Press, Carbondale, IL.
- MOHLENBROCK, R. H. 1975b. Inventory of rare or endangered vascular plants occurring in the floodplain of the Mississippi River between Cairo, Illinois, and St. Paul, Minnesota, and the floodplain of the Illinois River between Grafton, Illinois, and Chicago. Appendix R, U.S. Army Engineer District, St. Louis. 89 p.
- MOHLENBROCK, R. H. 1975 c. Vegetation in the floodplain adjacent to the Mississippi River between Cairo, Illinois, and St. Paul, Minnesota, and in the floodplain of the Illinois River between Grafton, Illinois, and Chicago, and the possible impacts that will result from the construction of L&D 26 and the associated increase in barge traffic. Appendix P. U.S. Army Engineer District, St. Louis. 61 p.
- MOHLENBROCK, R. H. 1976a. The illustrated flora of Illinois. Flowering plants. Sedges. Southern Illinois Univ. Press, Carbondale, IL.
- MOHLENBROCK, R. H. 1976b. The illustrated flora of Illinois. Flowering plants. Sedges: *Cyperus* to *Scleria*. Southern Illinois Univ. Press, Carbondale, IL.
- MOHLENBROCK, R. H. 1978. The illustrated flora of Illinois. Flowering plants. Hollies to loasas. Southern Illinois Univ. Press, Carbondale, IL.
- MOHLENBROCK, R. H. 1980a. Forest trees of Illinois. Dept. Conservation, Division of Forestry, Springfield, IL.
- MOHLENBROCK, R. H. 1980b. The illustrated flora of Illinois. Flowering plants. Willows to mustards. Southern Illinois Univ. Press, Carbondale, IL.
- MOHLENBROCK, R. H. 1980c. Spring woodland wildflowers of Illinois. Dept. Conservation, Division of Forestry, Springfield, IL.
- MOHLENBROCK, R. H. 1981. The illustrated flora of Illinois. Flowering plants. Magnolias to pitcher plants. Southern Illinois Univ. Press, Carbondale, IL.
- MOHLENBROCK, R. H. 1982. The illustrated flora of Illinois. Flowering plants. Basswoods to spurge. Southern Illinois Univ. Press, Carbondale, IL.
- MOHLENBROCK, R. H., and D. M. LADD. 1978. Distribution of Illinois vascular plants. Southern Illinois Univ. Press, Carbondale, IL.
- MOHLENBROCK, R. H., and J. W. VOIGHT. 1959. A flora of southern Illinois. Southern Illinois Univ. Press, Carbondale, IL.
- MONSERUD, W., and B. G. OWNBEY. 1979. Common wildflowers of Minnesota. Univ. of Minnesota Press, Minneapolis, MN.
- MONSON, P. H. 1952. The marshland aquatic dicotyledonous flora of Iowa. M.S. Thesis, Iowa State Univ. Ames, IA.
- MONSON, P. H. 1953. A preliminary report on the marsh and aquatic dicotyledonous flora of Iowa. Proc. Iowa Acad. Sci. 60:200-201.
- MOORE, J. W. 1968. A provisional list of the flowering plants, ferns and fern allies of Houston County, Minnesota. Dept. Botany, Univ. Minnesota, St. Paul, MN. 22 p.
- MORLEY, T. 1969. Spring flora of Minnesota. Univ. of Minnesota Press, Minneapolis, MN.
- MORMON, D. N. 1971. A survey of the species of fish and major forest, marsh, meadow and aquatic flora of a Mississippi River backwater. B.A. Thesis, St. Mary's College, Winona, MN. 37 p.
- MORTON, J. W. 1977. Ecological effects of dredging and dredge spoil disposal: A literature review. Technical Paper 94. U.S. Fish and Wildlife Service. 33 p.
- MOYLE, J. B. 1945. Some chemical factors influencing the distribution of aquatic plants in Minnesota. Amer. Midl. Nat. 34:402-420.
- MOYLE, J. B. 1961. Aquatic invertebrates as related to larger plants and waterfowl. Invest. Rept. 233, Minn. Deprt. Cons. 24 p.
- MOYLE, J. B. 1966. Northern non-woody plants, a field guide to the most common ferns and flowering plants of Minnesota and adjacent regions. Burgess Publishing Co., Minneapolis, MN.
- MOYLE, J. B., and N. HOTCHKISS. 1945. The aquatic and marsh vegetation of Minnesota and its value to waterfowl. Minnesota Dept. Cons. Tech. Bull. 3:1-122.
- MOYLE, J. B., and E. W. MOYLE. 1977. Northland wild flowers, a guide for the Minnesota region. Univ. of Minnesota Press, Minneapolis, MN.
- MUENSCHER, W. C. 1944. Aquatic plants of the United States. Comstock Publishing Company, Inc., Ithaca, NY.
- NELSON, W. J., and L. S. PALMER. 1939. Nutritive value and general chemical composition of certain freshwater plants of Minnesota. I. Nutritive value and general chemical composition of species of *Elodea*, *Myriophyllum*, *Vallisneria*, and other aquatic plants. Minn. Agr. Exp. Sta., Tech. Bull. 136:1-34.
- NICKLAUS, R. A., and E. M. MERZ. 1976. An assessment of diving duck food resources in the Mississippi River Navigation Pool 7 and selected areas of Pools 8 and 9. Mississippi River Work Unit, Wisconsin Department of Natural Resources, La Crosse, WI.
- NIELSEN, D. N., R. G. RADA, and M. M. SMART. 1983. Sediments of the Upper Mississippi River: Their character, distribution, and transport, *In* J. G. Wiener, R. V. Anderson, and D. R. McConville (eds.), Contaminants in the Mississippi River, Ann Arbor Science, Ann Arbor, MI.
- NIELSEN, D. N., R. N. VOSE, C. R. FREMLING, and D. R. MCCONVILLE. 1978. Phase I study of the Weaver-Belvidere Area, Upper Mississippi River, Final Report. U.S. Fish and Wildlife Service, St. Paul, MN. 281 p.
- NONTELLE, D. M. 1972. The flora of La Crosse County. M.S. Thesis, Univ. Wis.-La Crosse, La Crosse, WI. 135 p.
- O'KEEFE, M., D. DRALLE, and J. SMITH. 1983. Terrestrial resource survey. Potential dredged material placement sites within Pool 3 of the Upper Mississippi River. U.S. Army Corps of Engineers, St. Paul, MN. 25 pp.
- OLSON, K. N. 1980. Assessment of Upper Mississippi River floodplain changes with sequential aerial photography. Ph.D. Thesis, Univ. of Minnesota, Minneapolis, MN.
- OLSON, K. N., M. S. JENSEN, and M. MEYER. 1974. Vegetation, land and water surface changes in the upper navigable portion of the Mississippi River Basin over the period 1939-1973. Annual report. Army Corps of Engineers, St. Paul District, St. Paul, MN. 34 p.
- OLSON, K. N., and M. MEYER. 1976a. Vegetation, land, and water surface changes in the upper navigable portion of the Mississippi River basin over the period 1939-1973. Remote Sensing Laboratory, Institute of Agriculture, Forestry and Home Economics, Univ. of Minnesota, St. Paul, MN. Research Report No. 76-4.
- OLSON, K. N., and M. MEYER. 1976b. Vegetation, land, and water surface changes in the upper navigable portion of the Mississippi River basin over the period 1929-1973. Remote Sensing Laboratory, Institute of Agriculture, Forestry and Home Economics, Univ. of Minnesota, St. Paul, MN. Research Report No. 76-5.
- OSTDIEK, J. L., G. H. SCHNEIDER, and A. F. POGGE. 1971. Ecological habitats in Pool 21, Upper Mississippi River. Report to Dept. of Army Corps of Engineers, North Central Div., Chicago, IL. 67 p.
- PALMER, E. J., and J. A. STEYERMARK. 1935. An annotated catalogue of the flowering plants of Missouri. Ann. Missouri Bot. Gar. 22:375-758.
- PAMMEL, L. H. 1891. Forest vegetation of the Upper Mississippi. Proc. Iowa Acad. Sci. 1(2):82-86.
- PAMMEL, L. H. 1898. Some ecological notes on the Muscatine Flora. Plant World 2:189-186. (Includes slough, shore, and wetland plants).
- PAMMEL, L. H. 1905. A comparative study of the vegetation of swamp, clay, and sandstone areas in western Wisconsin, southeastern Minnesota, northeastern, central, and southeastern Iowa. Proc. Davenport Acad. Nat. Sci. 10:32-126.
- PAMMEL, L. H. 1918. Notes on some plants in the proposed Mississippi Valley National Park. Iowa State Hort. Soc. Rept. 53:379-382.
- PAMMEL, L. H. 1921. Trees of the proposed Mississippi Valley National Park. Proc. Iowa Acad. Sci. 28:256-267.
- PAMMEL, L. H., and C. M. KING. 1902. The vascular cryptograms of Iowa and the adjoining parts of southeastern Minnesota and western Wisconsin. Proc. Iowa Acad. Sci. 9:134-151.
- PAVEGLIO, F. L., and D. W. STEFFECK. 1978. The relationship of aquatic plants and mollusca to the food habits and population levels of diving ducks on the Keokuk Pool (Pool 19), Mississippi River, 1977. Unpublished report for the U.S. Fish and Wildlife Service, Northern Prairie Wildlife Research Center, Jamestown, ND. 41 p.
- PECK, J. H. 1976. Pteridophyte flora of Iowa. Proc. Iowa Acad. Sci. 84:143-160.
- PECK, J. H. 1979. Compilatory list of the rare, threatened, and endangered plants of the five states of the Upper Mississippi River: Illinois, Iowa, Minnesota, Missouri, and Wisconsin. Contr. Herb. Univ. Wis.-La Crosse, La Crosse, WI. 26:1-48.
- PECK, J. H. 1980. Additions to the pteridophyte flora of Iowa. Proc. Iowa Acad. Sci. 87:39-40.
- PECK, J. H. 1980. *Equisetum X litorale* in Illinois, Iowa, Minnesota, and Wisconsin. Amer. Fern. J. 70:33-38.
- PECK, J. H. 1982. Ferns and fern allies of the Driftless Area of Illinois, Iowa, Minnesota, and Wisconsin. Contr. Geol. Biology, Milwaukee Public Museum 53:1-140.
- PECK, J. H. 1983. Additions to the pteridophyte flora of Iowa - II. Proc. Iowa Acad. Sci. 90:28-31.
- PECK, J. H., T. G. LAMMERS, B. HAGLAN, D. M. ROOSA, and L. J. EILERS. 1981. Vascular flora of Lee County, Iowa. Proc. Iowa Acad. Sci. 88:159-171.
- PECK, J. H., and D. M. ROOSA. 1983. Bibliography of Iowa aquatic and wetland plant literature. Proc. Iowa Acad. Sci. 90:72-77.
- PECK, J. H., D. M. ROOSA, and L. J. EILERS. 1980. A checklist of the vascular flora of Allamakee County, Iowa. Proc. Iowa Acad. Sci. 87:62-75.
- PECK, J. H., and W. C. TAYLOR. 1980. Ferns and fern allies of Wisconsin. Mich. Bot. 19:251-268.
- PETERSEN, A. M. 1961. The Midway Prairie scientific area, La Crosse County, Wisconsin. Publ. by author, Onalaska, WI.
- POHL, R. W. 1975. Keys to Iowa vascular plants. Kendall-Hunt Pub. Co., Dubuque, IA.
- RADA, R. G., M. M. SMART, T. O. CLAFIN, B. A. BILTGEN, D. N. NIELSEN, and J. K. SCHEIDT. 1980. A characterization of Navigation Pool No. 9, Upper Mississippi River, and site selections to determine impacts of commercial and recreational navigation. Final report submitted to the Upper Mississippi River Basin Commission, Minneapolis, MN. 114 p.
- RASMUSSEN, J. L., Ed. 1979. A compendium of fishery information on the Upper Mississippi River. 2nd Ed. Upper Mississippi River Conservation Committee, Rock Island, Illinois.
- ROGERS, J. P. and L. J. KORSCHGEN. 1966. Foods of lesser scaup on breeding, migration, and wintering areas. J. Wildl. Manag. 30:258-264.
- ROOSA, D. M., and L. J. EILERS. 1978. Endangered and threatened Iowa vascular plants. Spec. Rept. 5, State Preserves Advisory Board, Iowa Conservation

- Commission. Des Moines, IA. 93 p.
- ROSENDAHL, C. O., and F. K. BUTTERS. 1951. A guide to the spring flowers of Minnesota. 8th ed. Burgess Publishing Co., Minneapolis, MN.
- ROSS, J. G., and B. M. CALHOUN. 1951. Preliminary reports on the flora of Wisconsin. XXXIII. Najadaceae. *Trans. Wis. Acad. Sci.* 40(2):93-110.
- SCHNICK, R. A., J. M. MORTIN, J. C. MOCHALSKI, and J. T. BEALL. 1981. Mitigation/enhancement handbook for the Upper Mississippi River system and other large river systems. Report for Environmental Work Team, Upper Mississippi River Basin Commission Master Plan, Minneapolis, MN. 580 p.
- SCHUYLER, E. 1980. Aquatic and wetland plants, Pool 19, Mississippi River. Unpublished. On file at Upper Mississippi River Conservation Committee, Rock Island, IL.
- SCHWARTZ, G. M., and G. A. THIEL. 1963. Minnesota's rocks and waters, a geological story. *Bull. Minn. Geol. Sur.* #37. Univ. Minnesota Press, Minneapolis, MN.
- SCOTT, S. I., and J. A. OSBORNE. 1981. Benthic macroinvertebrates of a *Hydrilla* infested central Florida lake. *J. Freshwater Ecology* 1:41-49.
- SCULTHORPE, C. D. 1967. The biology of aquatic vascular plants. Edward Arnold, Ltd., London. 610 pp.
- SEFTON, D. F. 1976. Biomass and productivity of aquatic macrophytes in Navigation Pool 8 of the Upper Mississippi River. M.S. Thesis, Univ. Wis.-La Crosse, La Crosse, WI. 175 p.
- SEFTON, D. F. 1977. Productivity and biomass of vascular hydrophytes on the Upper Mississippi River, p. 53-61. *In* C. B. DeWitt and E. Soloway (eds.), *Wetlands ecology, values and impacts*. Proc. Waubesa Conf. Wetlands, 2-5 June 1977. Institute for Environmental Studies, Univ. Wis., Madison, WI.
- SHAW, S. P., and C. G. FREDINE. 1956. Wetlands of the United States. U.S. Dept. Interior. Fish Wildl. Serv. Circ. 39. 67 p.
- SHELFORD, V. E. 1954. Some lower Mississippi valley floodplain biotic communities: their age and elevation. *Ecology* 35:126-142.
- SHEVIAK, C. J., and R. H. THOM. 1981. Endangered and threatened vertebrate animals and vascular plants of Illinois. Natural Land Institute and Illinois Dept. of Conservation, Springfield, IL.
- SHIMEK, B. 1948. The plant geography of Iowa. *St. Univ. Iowa Stud. Nat. Hist.* 18(4):1-178.
- SHULL, C. A. 1944. Observations of general vegetational changes on a river island in the Mississippi River. *Amer. Midl. Nat.* 32:771-776.
- SMART, M. M. 1977. Nitrogen and phosphorus cycling by *Nymphaea tuberosa* and *Ceratophyllum demersum* in Lake Onalaska, Navigation Pool 7 of the Upper Mississippi River. M.S. Thesis, Univ. Wis.-La Crosse, La Crosse, WI. 149 p.
- SMART, M. M. 1980. Annual changes of nitrogen and phosphorus in two aquatic macrophytes (*Nymphaea tuberosa* and *Ceratophyllum demersum*). *Hydrobiologia* 70:31-35.
- SMART, M. M., R. G. RADA, and G. D. DONNERMEYER. 1983. Determination of total nitrogen in sediments and plants using persulfate digestion. An evaluation and comparison with the kjeldahl procedure. *Water Research* 17:1207-1211.
- SMITH, W. A. 1977. The Potamogetonaceae in the Upper Mississippi River floodplain (Navigation Pools 7 and 8). 18 pp. (Mimeographed) Wisconsin Scientific Areas Board, Department of Natural Resources, Madison, WI.
- SOHMER, S. H. 1975. The vascular flora of transects across Navigation Pools 7 and 8 on the Upper Mississippi River. *Trans. Wis. Acad. Sci.* 63:221-226.
- SOHMER, S. H. 1976. Flora of the Upper Mississippi River floodplain, summary and status report 1. *Contr. Herb. Univ. Wis.-La Crosse* 14:1-10.
- SOHMER, S. H. 1977. Aspects of the biology of *Nelumbo pentapetala* (Walter) Fernald, the American Lotus, on the Upper Mississippi. *Trans. Wis. Acad. Sci.* 65:258-273.
- SOHMER, S. H., and D. F. SEFTON. 1978. The reproductive biology of *Nelumbo pentapetala* (Nelumbonaceae) on the Upper Mississippi River. II. The insects associated with the transfer of pollen. *Brittonia* 30:355-364.
- SOHMER, S. H., and S. D. SWANSON. 1977. The flora of the Upper Mississippi River floodplain project, status report II. (Including an outline for a manual to the flora of this region.) *Contr. Herb. Univ. Wis.-La Crosse* 18:1-12.
- SOLOMON, R. C., D. R. PARSON, D. A. WRIGHT, B. K. GOLBERT, C. FERRIS, and J. E. SCOTT. 1975. Environmental inventory and assessment of Navigation Pools 24, 25, and 26, Upper Mississippi and Lower Illinois Rivers: Summary report. Vicksburg, U.S. Army Engineering Waterways Experiment Station, 97 p.
- SPARKS, R. E., F. E. BELLROSE, F. L. PAVEGLIO, M. J. SANDUSKY, D. W. STEFFECK, and C. M. THOMPSON. 1979. Fish and wildlife habitat changes resulting from construction of a nine-foot channel on Pools 24, 25, 26 of the Mississippi River and the Lower Illinois River. Illinois Natural History Survey, Havana, IL. 217 p.
- STARRETT, W. C. 1972. Man and the Illinois River, p. 131-169. *In* R. T. Oglesby, C. A. Carlson, and J. A. McCann (Eds.), *River ecology and man*. Academic Press, New York.
- STERNBERG, R. B. 1971. Upper Mississippi River habitat classification survey: Hastings, Minnesota to Alton, Illinois. Upper Mississippi River Conservation Committee Fish Technical Section, Rock Island, Illinois and U.S. Army Corps of Engineers, St. Paul, Minnesota.
- STEYERMARK, J. A. 1940. Spring flora of Missouri. Missouri Botanical Garden, St. Louis, MO.
- STEYERMARK, J. A. 1963. Flora of Missouri. Iowa State Univ. Press, Ames, IA.
- STRODTHOFF, K. M. 1978. Nitrogen and phosphorus exchanges between water, sediment and macrophytes in Lake Onalaska of Pool No. 7, Upper Mississippi River, 1975-1976. M.S. Thesis, Univ. Wis.-La Crosse, La Crosse, WI. 112 p.
- SWANSON, S. D. 1976. The vascular flora and phytosociology of Navigation Pool No. 8 of the Upper Mississippi River. M.S. Thesis, Univ. Wis.-La Crosse, La Crosse, WI. 133 p.
- SWANSON, S. D. 1977. The flora of the Upper Mississippi River floodplain project, status report III. *Contr. Herb. Univ. Wis.-La Crosse* 19:1-17.
- SWANSON, S. D. 1978. The flora of the Upper Mississippi River floodplain project, status report IV. *Contr. Herb. Univ. Wis.-La Crosse* 23:1-32.
- SWANSON, S. D., and S. H. SOHMER. 1978. The vascular flora of Navigation Pool 8 of the Upper Mississippi River. *Proc. Iowa Acad. Sci.* 85:45-61.
- TAYLOR, H. J. 1927. The history and distribution of yellow nelumbo, water chinquapin, or American lotus. *Proc. Iowa Acad. Sci.* 34:119-124.
- TERPENING, V. A., L. J. HUNT, D. K. EVANS, S. J. BLEIWEISS, and R. C. ZOANETTI. 1973. A survey of the fauna and flora occurring in the Mississippi River floodplain between St. Louis, Missouri, and Cairo, Illinois. U.S. Army Engineer District, St. Louis, 338 p.
- TERPENING, V. A., L. J. HUNG, D. K. EVANS, S. J. BLEIWEISS, and R. C. ZOANETTI. 1974. A survey of the fauna and flora occurring in the Mississippi River floodplain between St. Louis, Missouri, and Cairo, Illinois. U.S. Army Engineer Waterways Experiment Station, Vicksburg, Mississippi. 391 p.
- THOMPSON, D. 1969. Feeding behavior of diving ducks on Keokuk Pool, Mississippi River. M.S. Thesis, Iowa State Univ., Ames, IA.
- THOMPSON, D. 1973. Feeding ecology of diving ducks on the Keokuk Pool, Mississippi River. *J. Wildl. Manage.* 37:367-381.
- THOMPSON, D. H., and M. C. LANDIN. 1978. An aerial survey of water bird colonies along the Upper Mississippi River and their relationship to dredged material deposits. U.S. Army Engineer Waterways Experiment Station, Vicksburg, Mississippi.
- THOMSEN, J. W. 1940. Preliminary reports on the flora of Wisconsin. XXVII. Lentibulariaceae. *Trans. Wis. Acad. Sci.* 32:85-89.
- TRYON, R. M. 1980. The ferns of Minnesota. Univ. Minnesota Press, Minneapolis. 165 p.
- TRYON, R. M., N. C. FASSETT, D. W. DUNLOP, and M. E. DIEMER. 1940. The ferns and fern allies of Wisconsin. Dept. Botany, Univ. Wis., Madison. 1st ed. 158 p.
- TRYON, R. M., N. C. FASSETT, D. W. DUNLOP, and M. E. DIEMER. 1953. The ferns and fern allies of Wisconsin. Univ. Wis. Press, Madison, 2nd ed. 158 p.
- UGENT, D. 1962. Preliminary reports on the flora of Wisconsin. No. 47. The orders Thymelaeales, Myrtales, and Cactales. *Trans. Wis. Acad. Sci.* 51:83-134.
- UPPER MISSISSIPPI RIVER BASIN COMMISSION. 1981. Comprehensive master plan for the management of the Upper Mississippi River system, Technical Report D: Environmental Report. Minneapolis, MN.
- UPPER MISSISSIPPI RIVER BASIN COMMISSION. 1982. Comprehensive master plan for the management of the Upper Mississippi River system. Minneapolis, Mn. 193 p. + technical reports.
- U.S. ARMY ENGINEER DISTRICT (USAED), Chicago, Rock Island, St. Paul. 1977. Summary report of fish and wildlife habitat changes resulting from the construction of a nine-foot channel in the Mississippi River. USAED, Chicago, Rock Island, St. Paul.
- U.S. ARMY ENGINEER DISTRICT, North Central Division (USAED, NCD). 1975. Final environmental impact statement on the operation and maintenance of a nine-foot channel in the Illinois waterway. USAED, NCD, Chicago. 290 p.
- U.S. ARMY ENGINEER DISTRICT, St. Louis (USAED, SL). 1975a. Final environmental impact statement on the Kaskaskia Navigation Project, ILLINOIS. USAED, SL.
- U.S. ARMY ENGINEER DISTRICT, St. Louis (USAED, SL). 1975b. Draft environmental statement on the operation and maintenance, Pools 24, 25, and 26, Mississippi and Illinois Rivers. USAED, SL.
- U.S. ARMY CORPS OF ENGINEERS. 1976. Quantitative and qualitative analysis of pre and post wildlife habitat conditions resulting from nine-foot navigation channel, Upper Mississippi River (Pools 11-22). Rock Island District, Rock Island, Illinois.
- U.S. ARMY ENGINEER DISTRICT, St. Louis (USAED, SL). 1976. Final environmental impact statement on the Mississippi River between the Ohio and Missouri Rivers. USAED, SL.
- U.S. ARMY ENGINEER DISTRICT, St. Louis (USAED, SL). 1980. Quantitative report on Upper Mississippi and Lower Illinois Rivers, Pools 24, 25 and 26: terrestrial and aquatic land use and habitat change as a result of the nine-foot channel project. USAED, SL.
- UTECH, F. H. 1970. Preliminary reports on the flora of Wisconsin. No. 60. Tiliaceae and Malvaceae - Basswood and Mallow families. *Trans. Wis. Acad. Sci.* 58:301-323.
- UTECH, F. H., and H. H. ILLIS. 1970. Preliminary reports on the flora of Wisconsin. No. 61. Hypericaceae - St. John's-wort family. *Trans. Wis. Acad. Sci.* 58:325-351.
- VOIGHT, J. W., and R. H. MOHLENBROCK. 1964. Plant communities of southern Illinois. Southern Illinois Univ. Press, Carbondale, IL.
- WELLER, M. W. 1981. Freshwater marshes: ecology and management. Univ. Minnesota Press, Minneapolis, MN.
- WHEELER, W. A. 1900. A contribution to the

- knowledge of the flora of southeastern Minnesota. *Minn. Bor. Stud.* 2:353-416.
- WIEBE, A. H. 1927. Biological survey of the Upper Mississippi River with special reference to pollution. *Bull. U.S. Bur. Fish.* 43:137-167.
- WIENER, J. G., R. A. ANDERSON, and D. R. McCONVILLE, Eds. 1983. Contaminants in the Upper Mississippi River. *Ann Arbor Science, Ann Arbor, MI.*
- WINTERRINGER, G. S., and A. C. LOPINOT. 1966. Aquatic plants of Illinois. III. *St. Mus. Popl. Sci. Ser. VI.*
- YEAGER, L. E. 1949. Effect of permanent flooding in a river timber area. *Bull. Illinois Nat. Hist. Surv.* 25:33-65.
- ZEIGLER, S. R. 1976. Floristic analysis and vascular plant succession of dredge material in Navigation Pool 8 on the Upper Mississippi River with respect to age and elevation. M.S. Thesis, Univ. Wis.-La Crosse, La Crosse, WI. 141 p.
- ZIEGLER, S. R., and S. H. SOHMER. 1976. The flora of dredge material sites in Navigation Pool 8 of the Upper Mississippi River. *Contr. Herb. Univ. Wis.-La Crosse* 13:20 p.
- ZIEGLER, S. R., and S. H. SOHMER. 1977. Flora of dredged material sites in Navigation Pool 8 of the Upper Mississippi River. U.S. Army Engineer Waterways Experiment Station, Vicksburg, Mississippi. 97 p.

### Book Review

IOWA BIRDS — by James J. Dinsmore, Thomas H. Kent, Darwin Koenig, Peter C. Petersen, and Dean M. Roosa. Iowa State University Press, Ames. 356 pp. \$27.95.

Despite considerable ornithological research and increasing birding activity in Iowa, a revision of a major book on Iowa birds has been long overdue. This Iowa State Press publication by five experienced and competent ornithologists/birders/ecologists finally brings together what is known in a precise and thorough manner that will be useful to anyone interested in midcontinent birds.

Objectives of the work are stated in the Preface and infer a desire to put together in one volume what is known of the Iowa avifauna, its geographic and temporal distribution, its relationship to adjacent faunas, as well as the status and habitat of each species. As with any effort of this sort, these goals are accomplished at varying levels.

The emphasis of the work on birding is set in line one of the first Chapter entitled "The state list" which states that "The current number of species accepted as having occurred in Iowa is 362 . . ." The focus of this chapter is historical in recounting lists, times, groups and individuals who have contributed major lists of birds. But by page 2 of the main text, a major block of space is devoted to predicting what future additions to the list might be expected on the basis of ranges and records nearby, and the chapter culminates with a parenthetical statement that two of the previously mentioned species have indeed been seen since the chapter had been typed.

Chapter two on the "Definition of species status" is an enigma. It covers both the categories of occurrence and breeding records, as well as a detailed analysis of the ways in which reliability of records has been established by the Iowa Ornithologists' Union (IOU) and utilized in the book. Again, it addresses part but not all of the sources of data used as the basis for the text. Species are placed in classes which indicate whether a listing is supported by a specimen, photograph, or observations, and whether or not it has the vote of the IOU's Records Committee. One is left with the impression that the job has been taken seriously, and that questionable records have been eliminated.

The third chapter interrupts the trend of thought with a discussion of "The relationship of birds to Iowa Geography." I don't feel that the inferred goal was accomplished, and the stress on descriptive geology seems to come at the sacrifice of the more meaningful vegetational ecology of Iowa. There is some information on climate but its implications for Iowa birds are not elaborated. Regions, towns, reservoirs and surface features are shown on maps, but there are no maps of the forests, wetlands and lakes, or the original vegetation of Iowa, which are available. There is some effort within the discussion of natural regions to fill in on vegetation patterns and bird use, but the descriptive aspect of geology dominates the chapter. Although 75% of the state is farmed, relicts of the original vegetation form an important part of the avian habitat, and general patterns of forest and wetlands still remain and strongly influence bird migration and nesting. Statements on habitat loss and human activities are scattered here and there, but there is no integrated effort to relate the history of human development to habitat availability or avifaunal composition.

Returning to bird lists and records again in Chapter 4 on "Breeding and endangered species", we find the opening statement that "There is evidence of nesting for 188 species in Iowa . . ." There are some historical records (chronology) of discovery, but no mention of the tools, or the data from the Breeding Bird Counts, which have been taken since 1967.

Chapter 5 brings another switch in subject matter to the "History of Iowa Ornithology", which is quite interesting and useful but emphasizes people and organizations rather than events. But surveys also are included, so the basis for some of the following species accounts comes here, quite divorced from the other sources of data. There is only indirect reference to conservation issues, loss of habitat, exotic introductions, impacts of human development, etc. I would have found part of this chapter better associated with other sources of data for the book placed immediately before the species accounts; the remainder could have been in an appendix on people and places. But each person will react differently to this ordering of ideas dependent upon interest or need.

The species accounts are subdivided by taxonomic order, family or subfamily with a general introductory statement about the group that may include data on the number of species and their general distribution worldwide. Some indication of habitat and nest sites is given in most of these. The accounts occupy 280 pages of the 356-page book, and the order is taxonomic, regardless of the status of the species (i.e. regular or accidental) which is given. This order is convenient ornithologically, but perhaps more confusing for the beginner. The "regular" species (276) are listed in an appendix. Both scientific and common names are accurate and current. As is common to many state bird books, accidentals often are given more space than regulars, and usually have a map even when few records exist. Maps for common species often are missing, even though density data are available for at least some of the game species. It's nice to have numerous black and white photos of birds as "fillers", many by Fred Kent who has photographed most Iowa birds with their natural backgrounds. Unfortunately, many are reproduced poorly by the printing process. The literature citations for each account are not included in the literature cited section at the end of the book; the latter includes only those from the five general chapters, but both listings seem very complete and up-to-date.

The printing was done from camera-ready copy, and utilizes an excessive variety of type sizes and styles. Nevertheless, an italics type must have been missing as scientific names are given in boldface type instead. The overall format and "polish" leaves something to be desired. The price is \$27.95 for the hard-backed, well-bound book.

Although I missed a flow of ideas in the general chapters, what I missed even more was an analysis of the avifauna — an avifauna at the crossroads of the continent with a fascinating mix of species and groups, and a dynamism brought about by climate, geography and man. This book will serve well the audience for which it was designed, but it leaves room for additional analyses and interpretations of the Iowa bird fauna. — Milton W. Weller, Dept. of Wildlife & Fisheries Sciences, Texas A & M University, College Station, TX 77843.