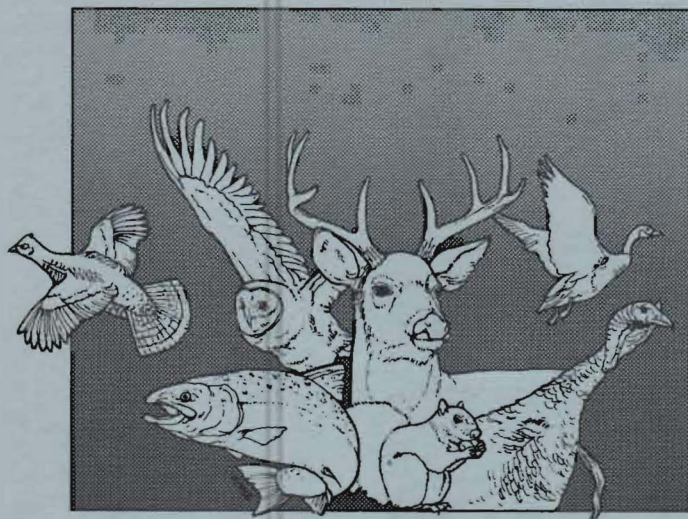


50th Midwest



Fish & Wildlife Conference

December 4-7, 1988

Columbus, Ohio

Bibliography 1935-1988

50th Midwest Fish and Wildlife Conference Bibliography

This bibliography was prepared as a historical document to commemorate the 50th Midwest Fish and Wildlife Conference in Columbus, Ohio, December 4-7, 1988. The 50 Conference programs are listed chronologically beginning with the 1st North Central States Fish and Game Conference in Urbana, Illinois on December 5-7, 1935. Except for the war years, annual Conferences have been held in central states and Canadian provinces each year. This document is historical rather than a reference source because formal transactions of the Conferences were never published. In the early years of the Conference, authors brought mimeographed copies of their papers for distribution and, on occasion, the host state or province assembled these and mailed them to the participants. The Midwest Fish and Wildlife Conference has no formal organization; continuity is maintained by an informal meeting of a Time and Place Committee at each Conference. The meetings have been well attended, the papers of very high caliber, and authors have been willing to share in preliminary results that may or may not have been published subsequently in refereed journals.

The bibliography provides some insight into the growth and changes in the profession of fisheries and wildlife biology and management. Many of the earliest participants in the Midwest Conference were noted contributors to the profession. In one session of the 1st Conference Ira N. Gabrielson, Aldo Leopold, J.N. Darling, and Seth Gordon participated.

We dedicate the bibliography to the hundreds of biologists, managers, and administrators who have participated in making the Midwest one of the foremost technical fish and wildlife conferences in North America. We hope the spontaneity and enthusiasm of the organizers and participants will continue and that a bibliography of the 100th Centennial Conference will show continued growth and acceptance of our profession dedicated to the maintenance of the fish and wildlife resources for the people.

Tony J. Peterle

FIRST NORTH CENTRAL STATES FISH AND GAME CONFERENCE

Urbana-Lincoln Hotel
Urbana, Illinois
December 5-7, 1935

General Sections

- The Need for an Annual North Central States Fish and Game Conference, **T.H. Frison**
- The Wildlife Program of the Soil Conservation Service in the North Central States, **Ernest G. Holt**
- The Wildlife Program of the Forest Service in the National Forests of Region Nine, **Leslie Bean**
- The Program of the U.S. Bureau of Fisheries in the North Central States Region, **Max M. Ellis**
- Saving Wildlife for Science: Check Areas for Practical Game Study, **Victor E. Shelford**
- The Training of Wildlife Technicians, **Samuel A. Graham**
- A Suggested Policy for an Organization of Conservation Research Workers in the Midwestern States, **Milton B. Trautman**
- The Role of Biological Stations and Educational Institutions in Fisheries Research, **Will Scott**

Fisheries Sections

- Status of Fish Disease Investigations, **T. H. Langlois**
- Studies of Rates of Growth of Game Fishes, **Chancey Juday**
- Growth of the Muskellunge in Different Lakes and Drainage Areas of Northern Wisconsin, **Clarence L. Schloemer**
- An Appraisal of the Upper Mississippi Wildlife and Fish Refuge as Influencing Fish Yields, **C. F. Culler**
- Population Densities and Fish Production in Illinois, **David H. Thompson**

Game Sections

- Game Surveys and Census Methods: Objectives and Results, **R. E. Yeatter**:
 - Michigan, **H.D. Ruhl**
 - Minnesota, **Ralph T. King**
 - Missouri, **Rudolf Bennitt**
 - Ohio, **Lawrence E. Hicks**
 - Wisconsin, **Aldo Leopold**
- Upland Game Bird Population as Influenced by Experimental Shooting Areas or Complete Closed Seasons:
 - Quail, **Paul L. Errington** and **Lawrence E. Hicks**
 - Pheasants, **E. L. Wickliff**
- Refuges as a Management Practice, **Gill Gigstead**
- Preliminary Aspects of Southern Wisconsin Game Demonstration Areas, **Douglas E. Wade**
- Management Areas: Their Organization, Objectives and Results:
 - Indiana, **Kenneth M. Kunkel**
 - Michigan, **Farley F. Tubs**
 - Ohio, **E. L. Wickliff**

Wildlife Motion Pictures

- Features of the Kellogg Bird Sanctuary (in color), **Miles D. Pirnie**
- Pheasant Management in Wood County, Ohio, **E.L. Wickliff**
- Illinois Natural History Survey Fish and Game Activities, **Illinois Natural History Survey**
- Rabbit Work on Lake Alexander Area, Minnesota, Showing Trapping and Banding Techniques, **Robert G. Green**
- Wildlife Pictures (Untitled), **H.M. Wight**

Game Sections

- Worm Parasites in Relation to Wildlife Investigations, **Harley J. Van Cleave**
- Studies on Game and Fur Animal Diseases, **Robert G. Green**
- The Role of Cycles in Conservation, **Leonard W. Wing**
- Ecological Factors Limiting or Influencing Fish and Game Production, **W. C. Allee**
- The Biology of the Illinois River, **David H. Thompson**
- Fisheries Sections
 - Color Vision in the Largemouth Black Bass, **F.A. Brown, Jr.**
 - The Use of Ecological Factors in Stocking Ohio Fishes, **E.L. Wickliff**
- Hatchery Practices and Stocking Policies:
 - Indiana, **A. E. Andrews**
 - Minnesota, **T. Surber**
 - Ohio, **T. H. Langlois**
- Stream Improvement for Fish: Its Limitations, Demonstrated Values and Possibilities:
 - National Forests, Region Nine, **Harry E. Adams**
 - Iowa, **W. W. Aitken**
 - Michigan, **Milton B. Trautman**
- Artificial Lakes: Their Construction, Development and Management for Fish and Game Production:
 - Iowa, **W. W. Aitken**
 - Ohio, **Lee Roach**
- Glacial Lakes: Their Management and Improvement for Fish and Game:
 - Minnesota, **T. Surber**
 - Michigan, **Milton B. Trautman**
 - Wisconsin, **Chancey Juday**
- Great Lakes: Their Proper Management for Fish Yields, **John Van Oosten**
- Game Sections
 - Management Practices: A Comparison:
 - Illinois Upland Game Birds, **R. E. Yeatter**
 - Indiana Upland Game Birds, **Kenneth M. Kunkel**
 - Iowa Upland Game Birds, **Paul L. Errington**
 - Michigan Farm Game, **H. M. Wight**
 - Michigan Forest Game, **George Saunders**
 - Missouri Wild Turkey, **H. L. Blakey**
 - Minnesota Upland Game Birds, **Ralph T. King**
 - Ohio Upland Game Birds, **E. L. Wickliff**
 - Wisconsin Upland Game Birds, **Aldo Leopold**
 - Iowa, Summer Studies of Cottontail Rabbit, **George O. Hendrickson**
 - Iowa, Squirrel, **Floyd B. Chapman**
 - Michigan, Deer, **I. H. Bartlett**
 - Wisconsin, **R. E. Trippensee**
 - Predators of Quail, **Paul L. Errington**
 - Predators of Ruffed Grouse, **Ralph T. King**
 - Predators of Pheasants, **H. M. Wight**
 - Predators of Hungarian Partridge, **Lawrence E. Hicks**, **R. E. Yeatter**, and **Miles D. Pirnie**
 - Migratory Waterfowl:
 - Duck Nesting Requirements in the Prairie Area, **Logan J. Bennett**
 - Population Status, **Frederick C. Lincoln**
 - Federal Projects for Restoration of Breeding and Resting Areas in the North Central States, **J. C. Sayler, II**
 - Legislative Needs, **Miles D. Pirnie**
 - Miscellaneous Investigations in Progress

SECOND CENTRAL STATES WILDLIFE CONFERENCE

Michigan Union
Ann Arbor, Michigan
December 10-12, 1936

General Session

Welcome, President **Ruthven**
Real and Imaginary Conflicts in Wildlife Management;
The Problem of Harmonizing Conflicting Interests:
Established Practices vs. New Techniques
Maximum Populations vs. Healthy Stock
Clean Agricultural Practices vs. Wildlife
Game Laws vs. Sustained Yield Cropping
Timber Stand Improvement vs. Wildlife
Timber Production vs. Wildlife
Private Rights vs. Public Interests
Beaver vs. Trout
Water Courses and Swamps for Timber or Wildlife
Recreational Demands vs. Wildlife
Summary by Chairman or His Appointee

Present and Future in Wildlife Management on Agricultural Areas

Farmer-Sportsman Relationship
Function of and Dangers Inherent in Sanctuaries in Agricultural Districts
Technique in Farm Wildlife Census
Providing Proper Food and Cover Conditions on Farms for Wildlife
Regulating the Take of Game and Fur Species
Research Projects That Are Urgently Needed
Summary by Chairman or His Appointee

Inventory of Lakes and Streams, Open Discussion

Do We Need a Water Classification as the Basis for Fisheries Survey and Management?
Methods and Scope of Stream and Lake Surveys
Limnological Studies of Type Waters
Population Studies of Type Waters: Densities, Migrations, Growth, Yields

The Philosophical Basis of Wildlife Inventory

Direct vs. Indirect Inventory
Practicable Limits of Inventory, Cost of Inventory, Frequency of Inventory, Intensity of Inventory
Application of Inventory Information in Management
Inventory of Fish and Fish Habitats
Inventory of Birds and Mammals and Their Habitats
Summary by Chairman or His Appointee

Management Practices on Lakes and Streams

Stocking Needs and Policies
The Great Lakes: Inland Lakes, Non-Trout Streams, Trout Waters
Predators and Competitors: Predacious and "Obnoxious" Fish, Birds, Mammals, Reptiles
Pollution Control
Environmental Improvement: Stream Improvement-Trout Waters, Non-Trout Waters; Lake Improvement

Status, Objectives and Limitations of Wildlife Management on Forest Lands

Supply and Demand for Forest Wildlife, Present and Future
Measuring Forest Wildlife Populations, Food and Cover
Carrying Capacity Determinations
Management of Wildlife on a Sustained Yield Basis
Importance and Feasibility of Attaining Adequate Type Interspersion for Wildlife in Timber Forests
Application of the Rotation Principle to Wildlife Management
Regulation of Hunting: Regulating Kill - Distribution of Hunters
Regulation of Trapping
Possible Sources of Income from Forest Wildlife
Where, When, How, Snowshoe Rabbit Control
Summary by Chairman or His Appointee

THIRD MIDWEST WILDLIFE CONFERENCE

Memorial Union Building-Great Hall
University of Wisconsin
Madison, Wisconsin
November 11-13, 1937

Waterfowl, **P. L. Errington**, Chairman

Restocking, Predation, and Cover Experiments on the Kellogg Sanctuary, **Miles D. Pirnie**
Redhead and Ruddy Duck Nesting Requirements in Iowa, **L. J. Bennett**
Crippling Losses in Minnesota Waterfowl, **Gustav Swanson**
Waterfowl Census on the Chippewa National Forest, **J. H. Stoudt**

Fur and Forest Game, **W. T. Cox**, Chairman

Michigan Deer Herd Statistics, **I. H. Bartlett**
Deer Tagging and Population Studies in Minnesota, **Herman F. Olsen**
Muskrat Studies in Iowa, **P.L. Errington**
Present Distribution and Yield of Illinois Fur-Bearers, **Carl O. Mohr**

The Woodland Caribou in Minnesota, **Jack Manweiler**

Fish and Aquatics

Difficulties in the Use of the Scale Method as Applied to Carp, **David G. Frey**
Scale Studies in Relation to Productivity, **Samuel Eddy**
Recent Contribution to the Knowledge of Furunculosis, **W. W. Smith**
The Rate of Growth and Seasonal Changes in the Condition Factor of the White Crappies of Lake Decatur, **Donald F. Hansen**
A Creel Census on Crater Lake, Oregon, **Arthur D. Hasler**
A Fish Census, **W. W. Aitken**
Fisheries Research by the New Biological Division of the Wisconsin Conservation Department, **E. Schneberger**
Vital Statistics on the Black Crappies of the Illinois River, **David H. Thompson**

Results from Planting Trout of Various Sizes in Five Michigan Streams, **A. S. Hazzard** and **David Shetter**
Comparative Growth Rates of the Large- and Smallmouthed Black Bass in Wisconsin Waters, **George Bennett**

Impounding Advances in Fish Management, **C. L. Hubbs**
The Effect of Farm Fertilizers on the Rate of Growth of Fish, **Chancey Juday**

Farm Game, **Rudolf Bennitt**, Chairman

Cottontail Studies in Michigan, **Durward L. Allen**
Nesting Studies in Southern Wisconsin, **A. S. Hawkins**
The Wisconsin Food and Cover Nursery, **W.F. Grimmer**
The Ohio System of Pheasant Refuges and Restocking with Wild-Trapped Pheasants, **L. E. Hicks** and **D. L. Leedy**

Illinois Prairie Chicken Study, **R. E. Yeatter** and **W. H. Leigh**

Banquet

Toastmaster, **W.F. Grimmer**

The Sandpile Hypothesis: A Study of Toxicity in Conservation Education, **P.S. Lovejoy**

General Session, **Aldo Leopold**, Chairman

Physiological Studies on Pheasant, **Wm. H. Long, Jr.**

Abundance of Lemming, **V. E. Shelford**

The Discovery and Exploration of Shock Disease, **R. G. Green**

Research Opportunities in Wildflower Management, **John T. Curtis**

Coordinating Agricultural Practices and Land Use for the Benefit of Wildlife, **W. W. Chase**

FOURTH ANNUAL MIDWEST WILDLIFE CONFERENCE

Southern Hotel
Columbus, Ohio
December 8-9, 1938

Fish Management, **Albert H. Hazzard**, Chairman

The Ohio Fisheries Program, **T. H. Langlois**
Fish Distribution in Ohio, **Harold Wascko**
Analysis of Labor Expenditure in Six Indiana Fish Hatcheries, **John Gottshalk**

Survey of Recent Work and Current Problems in Feeding Trout in Michigan Hatcheries, **James T. Wilkinson**

Tentative Conclusions Concerning the Success of Planting Fingerling Trout as Demonstrated by Marking Experiments and Creel Census, **David S. Shetter**

Ecological Distribution of Fish Parasites, **Ralph V. Bangham**

Studies of Fish Predators, **Karl F. Lagler**

Summary of Work on Date of Annulus Formation in the Centrarchids, **Donald F. Hansen**

Some Observations on the Spawning Habits of Centrarchid Fishes in Deep Lake, Oakland County, Michigan, **W. F. Carbine**

Returns from Fish Tagged in Ohio, **E. L. Wickeliff**

Fish Populations and Fish Management in Small Artificial Lakes, **David H. Thomson** and **George W. Bennett**

A Fish Census on Artificial Lakes, **W. W. Aitken**

Test Net Operations in Ohio, **George Messerly**

Proposed Winter Mapping of Michigan Lakes, **C. J. D. Brown**

Wayne County Stream Survey, **Ralph V. Bangham**

Minnesota Lake Studies and Management Problems, **Samuel Eddy**

Man-Made Modifications in Lost and Gordon Creeks (Ohio) During the Past 50 Years, and Subsequent Changes in the Fish Fauna, **Milton B. Trautman**

Uses of Rotenone in Fisheries Management, **J. W. Leonard**
Fox Ridge Lake: An Illinois Natural History Survey Fisheries Management Project, **T. H. Frison**

The Stream Easement and Small Dam Projects, **William E. Owens**

Forest Game, **R. R. Hill**, Chairman

The Woodland Caribou in Minnesota, **W. T. Cox**

The Deer Situation in Minnesota, **Gordon Fredine**

Methods of Increasing Deer Browse, **Laurits W. Krefling**

Snowshoe Hare Investigations in Minnesota, **Deane W. Mather**

Sharptailed Grouse in Northern Wisconsin, **R. D. Sanders**

The Kentucky Woodlands Wildlife Refuge, **D. H. Janzen**

Beaver Trapping Studies in Minnesota, **Shaler E. Aldous**

Abandoned Strip Mines as Game Areas, **Lee Yeager**

Short-Time Effects of Forest Fires on Wildlife in the Central States and the Significance of Deer Licks and Artificial Salting in Deer Management, **Floyd B. Chapman**

Roundtable Discussions:

Deer Management Problems

Integration of Efforts of Different Agencies in Wildlife Management

Economic Justification for Forest Game Management

Farm Game Birds, **Lawrence E. Hicks**, Chairman

Prairie Chickens:

Agricultural Features of Missouri Prairie Chicken Range, **Rudolph Bennitt**

Wisconsin Prairie Chickens, **Arthur S. Hawkins**

In Wisconsin, **W. E. Scott** and **Frederick N. Hamerstrom**

Hungarian Partridges:

Nesting Studies at Faville Grove, **Arthur S. Hawkins**

Illinois Status, **R. E. Yeatter**

Ohio Status, **Lawrence E. Hicks**

Waterfowl:

Waterfowl Studies in Michigan, **M.D. Pirnie**

Waterfowl Studies at Pymatuning, **John M. Anderson**

Duck Foods and the Duck Flight Along the Illinois River, **Frank Bellrose**

Bobwhite:

Rudolph Bennitt

John C. Kase

Pheasants:

H. M. Wight

Lawrence E. Hicks

Daniel L. Leedy

Parasite Studies on Ring-Necked Pheasants:

In Minnesota, **O. Wilford Olsen**

In Ohio, **Clarence A. Woodhouse**

Food Habits Studies of the Ring-Necked Pheasant in Minnesota, **Louis A. Fried**

Central Illinois Pheasant Nesting Studies in 1937-38, **R.E. Yeatter**

Game Bird-Land Use:

- Natural Pheasant Production as Related to Agricultural Land-Use, **Daniel L. Leedy**
- Agricultural Land-Use as Related to the Production of Other Game Species, **John C. Case** and **Ralph M. Kriebel**
- Wildlife Agricultural Land-Use in Missouri, **Rudolph Bennett**
- Wildlife Agricultural Land-Use in Michigan, **Farley F. Tubbs**

Management

- Winter Feeding
- Development of Nesting Cover
- Management of Roadsides and Fencerows
- The Management Function of Drainage Ditches
- Pheasant Refuges of Northwestern Ohio, **Daniel L. Leedy**
- Small Farm Refuges or Safety Zones, **W. E. Scott**, **Merrill Gilfillan**, and **Jack Sun**
- Wildlife Management of Stream Bottom Areas, **T. J. Roche**
- Wildlife Management in the Muskingum Conservancy District, **Carl Wachenschwanz**
- Controlled Hunting, **Lawrence E. Hicks**
- Summary of Supervised Hunting in 1938 in Ohio, **J.R. Benjamin**
- Some Aspects of Supervised Hunting Projects, **D. R. Atzenhoefer**

General and Mammals

- Research, the Foundation for Wildlife Management, **Harry D. Ruhl**
- How the Pittman-Robertson Funds Can Further Research on Farm Game Problems, **Albert M. Day**
- Research on Farm Game Problems at the Ten Research Units at Land Grant Colleges, **H.H.T. Jackson**

- Fur Animals of Agricultural Areas, **Paul Hickie**, **H.H.T. Jackson**, **Floyd B. Chapman**, and **John C. Kase**
- Raccoon Nutrition-Disease-Genetics-Propagation-Conditioning-Tagging, **E. D. Martin**
- Skunk
- Muskrat
- Trappers' Reports as Revealing Furbearer Trends, **C.O. Mohr**

Rabbits:

- The Rabbit and Ecological Successions in Southern Ohio, **F.B. Chapman**
- Rabbit Studies in Michigan, **M.D. Pirnie** and **Paul Hickie**
- Nesting-Tagging-Food Preference-Disease Studies in Northern Ohio, **E. D. Martin**
- The Ohio Fox Squirrel Investigation, **Luther L. Baumgartner**

New Techniques

- New Research Techniques, **Rudolph Bennett**
- New Census Techniques, **Rudolph Bennett**, **R.E. Yeatter**, and **Daniel L. Leedy**
- New Techniques for Measuring Game Harvests, **W.E. Scott**, **Rudolph Bennett**, and **Lawrence E. Hicks**
- New Management Techniques, **Ray L. Nesbit**
- New Techniques of Wildlife Extension to Farmer-Landowners, **Ralph Harrod**, **Russell C. Hill**, and **Ralph M. Kriebel**
- New Techniques of Wildlife Management Education, **Eugene Schwall** and **Russell G. Hill**
- Farmer-Sportsmen Relationships, **A. W. Short**, **Russell G. Hill**, **Glenn W. Bradt**, and **Arthur S. Hawkins**

FIFTH ANNUAL MIDWEST WILDLIFE CONFERENCE

Hotel St. Paul
St. Paul, Minnesota
December 1-2, 1939

Gordon Fredine, Chairman

Game Section, **Gustav Swanson**, in Charge

- Bureau of Biological Survey, **Ray C. Steele**
- Waterfowl in Colored Motion Pictures, **T. C. Main**
- The Effect of the Nine-Foot Channel Upon Waterfowl and Furbearers, **Albert van S. Pulling**
- Spring Versus Fall Trapping of Muskrats in the North Central States, **Paul Errington**
- Waterfowl Population of Western Canada Exclusive of British Columbia, **B. W. Cartwright**
- Lead Shot in Minnesota Lakes - Its Dangers to Waterfowl, **Thomas L. G. Osmer**
- Delta (Manitoba) Duck Studies, 1939, **H. A. Hochbaum**

Fish Section, **Samuel Eddy**, in Charge

- Minnesota Lake Surveys and Application, **Samuel Eddy**
- Minnesota Fish Propagation, **T. Surber**
- Fingerling Production of the Yellow Pike Perch (Walleyed Pike), **E. B. Speaker**

Game Section, **Rudolf Bennett**, in Charge

- Wisconsin Prairie Chicken Investigations, **F. N. Hamerstrom**
- Illinois Fur Animal Resource Survey, **Louis G. Brown, Jr.**

- The Effects of Fluctuating Water Levels on Waterfowl Breeding Populations in the Chippewa National Forest during 1937, 1938 and 1939, **Jerome Stoudt**
- Distemper in Wild Animals, **Robert G. Green**
- Irrigated Rice as a Food and Cover Plant in Illinois, **Lee E. Yeager**
- Censusing Drumming Ruffed Grouse, **S. A. Graham**
- Snowshoe Hare Control, **Dean W. Mather**
- Water Development in Wildlife Areas, **W. T. Cox**
- Preliminary Report on a Jacksnipe Study, **Arnold B. Erickson**

Fish Section

- Breeding Experiments with Muskellunge, **Samuel Eddy**
- Commercial Fishing Problem at Lake of the Woods, **Kenneth Carlander**
- Winter and Summer Creel Censuses on Certain Minnesota Lakes, **Samuel Eddy**
- Pollution Problems in Relation to Minnesota Fish, **Theodore Olson**
- Some Problems on Fish Parasites in Minnesota, **F. G. Wallace**
- Studies on the Chemical Content of Minnesota Waters, **John B. Moyle**
- Studies on Feeding Habits of Fish, **Walter Moore**

Banquet

Wildlife Futures in the Lake States, **Aldo Leopold**
 Special Meeting Following the Banquet, **T.H. Frison**,
 Presiding; Round Table Discussion of Federal Aid
 Activities

Big Game Section, Harry D. Ruhl, Presiding

Deer Management Study, **Winston A. Elkins**
 Deer-Proof Fencing Experiments, **I. H. Bartlett**
 Big Game Refuges, **H. F. Olson**
 The Effect of Logging Operations in Winter Deer Yards,
Walter T. Early
 Caribou Studies and Restoration, **J. Manweiler**
 Territories of Wolves and Coyotes in Michigan, **Adolph**
Stebler

Fish Section

Applications of Endocrinology to Fish Management,
Arthur D. Hasler, Roland K. Meyer, and Howard M.
Field
 Comparison of Effects of Summer and Winter Fishing
 on Michigan Lakes, **Albert S. Hazzard and O.H. Clark**
 Summary of Results from Planting Legal-Sized Trout,
David Shetter
 The Relation of Cropping to Legal-Sized Fish in Small
 Artificial Lakes, **G. W. Bennett**
 A Coordinated Fish Stocking Program in the National
 Forests in Michigan, **George C. Frisbie**
 Fish Parasites of Algonquin Park Lakes, **R. V. Bangham**
 Movements of Introduced Channel Catfish in the Scioto
 River, Ohio, **E. L. Wickliff**

Game Section, Gustav Swanson, Presiding

Wildlife Relationships in a Flood Control Program, **R.**
Dale Sanders
 Planning for Wildlife Needs in a Forest Planting Program,
Arthur G. Horn

An Analysis of Game Management Cooperatives in
 Michigan, **R. G. Hill**

The Effect of Arsenic, as Used in Poisoning Grasshoppers,
 upon Pheasants, **John H. Lilly**

The Control of Small Streams and Resulting Improvement
 in Wildlife Habitat, **Warren W. Chase**

The Reproductive Cycle in Cottontails, **Charles W.**
Schwartz

Field Borders in Relation to Birds and Insects, **S. L. Smith**
 Iowa Cottontail Investigation, **George O. Hendrickson**

Analysis of Hunting Records for the Prairie Farm Project,
 Saginaw County, Michigan, 1937, 1939, **R. D.**
Burroughs

The Part Ohio Youth is Taking in State-Wide Wildlife
 Management Program and How Accomplished, **A. W.**
Short

Fish Section, Samuel Eddy, Presiding

A Possible Correlation Between Meteorological
 Conditions and Annual Fluctuations in the Growth Rate
 and the Strength of Year Classes of the Rock Bass in
 Northeastern Wisconsin, **Ralph Hile**

Experimental Work on Fishways and Migration of Fish,
W.W. Aitken

Great Lakes Fishery Investigations, **John Van Oosten**
 Studies on the Age and Growth Rate of Minnesota
 Walleyed Pike, **Kenneth Carlander**

Age, Growth, and Condition of the Walleyed Pike, Yellow
 Perch, and Goldeye of Lower Red Lake, Beltrami and
 Clearwater Counties, Minnesota, **John Van Oosten and**
H. J. Deason

Factors Affecting Hook-and-Line Fishing in Rinaker
 Lake, 1932-1939, **David H. Thompson**

Efficiency of Traps and Seines in Determining Fish
 Populations, **Lee S. Roach**

Factors Affecting Hook-and-Line Fishing in Rinaker
 Lake, 1932-1939, **David H. Thompson**

Efficiency of Traps and Seines in Determining Fish
 Populations, **Lee S. Roach**

SIXTH ANNUAL MIDWEST WILDLIFE CONFERENCE

Gregory Hall
University of Illinois
Urbana, Illinois
November 14-16, 1940

General Session, T. H. Frison, Chairman

Wild Lands for Wildlife, **H. L. Shantz**
 Landscape Versus People, **Charles G. Sauers**

Symposium on Unifying Conservation Activities, Rudolf Bennitt, Chairman

The Need for Unification and the Search for Ways, **Rudolf**
Bennitt

The Biotic View of Land as a Unifying Idea, **Aldo Leopold**
 The Biotic Idea in Relation to a Coordinated State
 Conservation Program, **Lisle Jeffrey**

Discussion:

What Does the Biotic Idea Mean in Terms of Land Uses
 and Land Users?

Wildlife Management and Habitat Restoration, Ira N. Gabrielson, Chairman

Habitat Restoration on the Illinois Prairie, **Charles S.**
Spooner, Jr.

Natural Approach to Seed Propagation of Plants for Soil
 Conservation and Wildlife Cover, **Hugh A. Steavenson**
 Some Problems Incident to Establishing Woody Plantings
 for Wildlife and Erosion Control, **Charles A. Dambach**

Practical Stream and Ditch Bank Control, **Warren W.**
Chase

The Refuge for Restocking: Its Development and
 Management, **Leon W. Hornkohl**

Wildlife Management on Forest Lands in Missouri, **Paul**
D. Kelleter

The Forest Program in Relation to Wildlife, **R. R. Hill**
 The Supervised Hunting Program in Ohio, **A. W. Short**

Restoring Wildlife on a Lawrence County, Indiana Farm,
Charles F. McGraw

The Missouri Deer-Browse Studies, **Paul D. Dalke**

Fish Research and Management, Walter H. Chute, Chairman

Ohio's Fisheries Program in 1940, **Thomas H. Langlois**
 Comparisons of Summer and Winter Fishing on Several
 Michigan Lakes, **Orton H. Clark**

Minnesota Fish Yield Studies for 1940, **Samuel Eddy**
 Population Studies of Some Southeastern Ohio Streams,
Lee S. Roach

Observations on Missouri Ozark Streams and Game
 Fishes, **George A. Turney**

Use of Statistical Methods in Fisheries Work, **John Van**
Oosten

Record of Atlantic Salmon, **W. E. Dickinson**

Lake Investigation and Management Methods Employed
by the Michigan Institute for Fisheries Research, **Albert
S. Hazzard**
Demonstration of Fisheries Equipment, **David H.
Thompson**

Annual Banquet

Soil Conservation Control and Its Relation to Wildlife
and Conservation, **H.H. Bennett**

Prairie Chicken Clinic, following Banquet and Address,
Chairman, **F.N. Hamerstrom, Jr.**

Deer Clinic, following Banquet and Address, Chairman, **W.A.
Elkins**

Upland Game and Fur Animal Studies, **Warren W. Chase,**
Chairman

Missouri Wild Turkey Studies, **Starker Leopold**

Evaluation of Artificial Quail Stocking in Southern Illinois,
Dennis Hart

The Life Equation of the Ring-Necked Pheasant,
Lawrence E. Hicks and **Daniel L. Leedy**

Population Recovery of the Muskrat, **Paul L. Errington**
Small Mammal Studies as Applied to Game Management,
William H. Burt

Resume of the Pennsylvania Fur Animal Program,
Douglas E. Wade

First Steps in the Raccoon Management Program in
Missouri, **Carl R. Noren**

Ponds as a Factor in Fish, Game and Fur Animal
Restoration, **George W. Bennett**

Nesting Cover of the Mearns Cottontail, **George O.
Hendrickson**

Home Range of the Cottontail Rabbit in Central Missouri,
Charles W. Schwartz

Economics of the Live Rabbit Trade in West-Central
Missouri, **Kenneth C. Rowe**

Fish Research and Management, **Arthur D. Hasler**, Chairman
Controlling Populations of Noxious Fishes, **Karl F. Lagler**
The Time of Annulus Formation on the Scales of Certain
Michigan Game Fishes, **William C. Beckman**
Waterfowl and Fish Parasites, **Lyell J. Thomas**
Further Observations on the Spawning Habits of
Centrarchid Fishes in Deep Lake, Oakland County,
Michigan, **W. F. Carbine**
Breeding Habits of Sunfishes in the Vicinity of New York
City, **Charles M. Breder, Jr.**
The Food of the Black Crappie, *Pomoxis nigro-maculatus*,
in Wisconsin Waters, **Willard A. Van Engel**
Yield Studies on Aquarium Fishes, **Hurst H. Shoemaker**
A Consideration of the Factors Operative in Regard to
Plankton Production in Streams, **James B. Lackey**
The Use of Fish Otoliths in Food and Life History Studies,
Leverett A. Adams
Additions to the Known Fish Fauna of Illinois, **Aden C.
Bauman**

Sportsmen's Clinic, **H. Ray Myers**, Chairman

Are We Getting Anywhere in Conservation?, **Kenneth
A. Reid**

Waterfowl Research and Management, **Miles D. Pirnie,**
Chairman

Secrets of Success in Growing Aquatic Food Plants, **Clyde
B. Terrell**

Waterfowl Studies at the Delta Duck Station, **Lyle K.
Sowls**

After Nine Years, **Miles D. Pirnie**

The Illinois Waterfowl Program, **Arthur S. Hawkins** and
Frank C. Bellrose, Jr.

Duck Hunters' Clinic

Field Trips

Fish, Public Recreation, Upland Game, **David H.
Thompson**, Leader

Waterfowl and Upland Game, **Arthur S. Hawkins**, Leader

SEVENTH ANNUAL MIDWEST WILDLIFE CONFERENCE

Hotel Savery

Des Moines, Iowa

December 5-6, 1941

General Session, **F. T. Schwob**, Chairman

Wildlife and National Defense, **Ira N. Gabrielson**

The Scientist and the Administrator, **Edward Schneberger**

Place of Refuges in Wildlife Management on Public Lands,
Robert R. Hill

Wildlife in American Culture, **Aldo Leopold**

Fish Management in Artificial Lakes, **George W. Bennett**
Feeding Experiments for Bluegills, **David H. Thompson**
and **Louis A. Krumholz**

The Iowa Fisheries Research Unit, **Reeve M. Bailey**

Recent Developments in Lake and Stream Improvement,
Orton H. Clark and **Lee S. Roach**

Farm Game Management, **Harry D. Ruhl**, Chairman

Pheasant Management, **Lawrence E. Hicks**, Leader; **H.
M. Wight**, **Thomas S. Baskett**, **Urban C. Nelson**, **Daniel
L. Leedy**, **Irven O. Buss**, and **William Barnes**

Muskrat Management, **Paul L. Errington**, Leader; **Louis
G. Brown**, **Clyde B. Terrell**, **Paul R. Highby**, and **Elery
R. Becker**

Cottontail Management, **Ralph E. Yeatter**, Leader; **David
H. Thompson**, **Paul F. Hickie**, **Thomas G. Scott**, **Paul
D. Dalke**, and **George O. Hendrickson**

General Session, **J.D. Lowe**, Chairman

The Part of Youth Organizations in Conserving Wildlife,
A. W. Short

Multiple Use of Waters in Recreation, **I. T. Bode**

Soil Conservation and Wildlife, **Warren W. Chase**

Effects of High Dams on Aquatic Resources, **Kenneth
A. Reid**

Wildlife Management, **Arthur L. Clark**, Chairman

Waterfowl Management, **Miles D. Pirnie**, Leader; **H.A.
Hochbaum**, **Jessop B. Low**, **D. E. C. O'Roke**, and **Ray
C. Steele**

Management of Other Game Birds, **Rudolph Bennitt**

Mourning Dove, **H. Elliot McClure**

Bob-White, **David Damon**

Fisheries Research and Management, **Thomas H. Langlois**,
Chairman

Fish Tagging and Population Studies, **Samuel Eddy**

Snipe and Woodcock, **Arnold B. Erickson**
 Prairie Chicken, **Charles W. Schwartz** and **Levi L. Mohler**
 Sharp-Tailed Grouse, **Wallace Grange**
 Cover Management, **Harry E. Gearhart**, Leader; **Hugh A. Steavenson**, **Truman G. Engelking**, and **F. R. Zimmerman**

Fisheries Research and Management, **John Van Oosten**,
 Chairman

Recent Advancements in Fishway Design, **W. Lane** and
A.M. McLeod

Practical Application of Survey Data and New Survey
 Techniques, **Albert S. Hazzard** and **David S. Shetter**
 Methods of Effecting Desirable Fish Ratios in Lakes, **T. H. Langlois**
 Symposium on Unifying Fishery Activities - Roundtable
 Discussion

EIGHTH MIDWEST WILDLIFE CONFERENCE

Tiger Hotel
Columbia, Missouri
December 5-7, 1946

General Session, **I.T. Bode**, Chairman

Adventures of a Conservation Commissioner, **Aldo Leopold**
 The Administrator Looks at Research, **J. H. Stephenson**
 Some Needed Improvements in Wildlife Research, **Clarence Cottam**
 Progress in Soil Conservation Biology, **Wallace L. Anderson**
 A Farmer Looks at Wildlife Management, **E. M. Poirot**
 Applying Wildlife Knowledge to the Land, **Ira N. Gabrielson**

General Session, **Warren W. Chase**, Chairman

Hunters' and Trappers' Report Card Systems in Minnesota, **Paul R. Highby**
 Comments on Aerial Census of Muskrats in Minnesota, **David B. Vesall**
 Trends in Upland Game Populations as Determined by
 Hunting Success, **William B. Barnes**
 Census Techniques Used in Iowa, **L. F. Faber**
 The Relation of Field Trials to Wildlife Management, **Clarke Venable**
 Methods and Value in Game Kill Reports, **W. E. Scott**
 Pheasant Investigations in Minnesota, **C. Edward Carlson**

Group Discussion

Deer, **Aldo Leopold**
 Pheasant and Hungarian Partridge, **Thomas S. Baskett**
 Quail, **Maurice C. Reeves**
 Waterfowl and Marsh Management, **Frank C. Bellrose, Jr.**
 Furbearers and Predators, **Carl O. Mohr**
 Farm Ponds and Other Impoundments, **A. D. Aldrich**
 Fish Management, **Albert S. Hazzard**
 Education and Extension, **Walter A. Gresh**

Special Session, **Irven O. Buss**, Chairman

Productivity of Ohio Muskrat Habitat, **Merrill C. Gilfillan**
 A Tentative Waterfowl Pattern for Minnesota, **J. Donald Smith**
 The Prevention of Crop Damage by Pheasants, **Charles A. Dambach** and **Daniel L. Leedy**
 Seven Seasons of Duck Banding in Cook County, **John Jedlicka** and **Roberts Mann**
 Deer Harvest and Data from the 1945 Nebraska Season, **Levi L. Mohler**

Special Session, **David H. Thompson**, Chairman

New Slants on Population Mechanism in Bobwhite, **Cyril Kabat**
 Cottontail Management, **George O. Hendrickson**

The Value of Stocking Walleye Pike Fry in Iowa Lakes, **E. T. Rose**
 Some Factors Involved in the Production of Fish Stocks, **W. E. Ricker**
 The Relation of Fish Home-Areas to the Problem of
 Estimating Populations, **Hurst H. Shoemaker**
 A Fish Population Study of an Artificial Lake, **E. B. Speaker**
 Trout Water Management, **Albert S. Hazzard**
 Aquatic Vegetation Control, with Special Reference to
 Water Primrose and American Lotus, **Aden C. Bauman**
 How Droughts Aid Waterfowl Habitats, **Miles D. Pirnie**

General Session, **Melvin O. Steen**, Chairman

The Use of Farm Ponds by Wildlife, **Guy A. Greenwell**
 Ohio's Farm Pond Program, **K. N. Morse**
 The Development of the Farm Pond Program in Missouri, **Cecil N. Davis** and **A. R. Mottesheard**
 Fox Food Requirements in Relation to Other Species of
 Wildlife, **H. T. Hier** and **Larry Gale**
 Specific Relationships Between Soils and Wildlife, **Bill T. Crawford**
 Aging and Sexing Ducks at the Pointe Mouillee Marsh, **Herbert J. Miller**
 Results of Releasing Game Farm Pheasants, **Donald W. Douglass**
 Progress Report on the West Ashland Quail Project, **George L. Quinn**
 The Economic Value of Aquatic Wildlife, **Frank C. Bellrose, Jr.**

Conference Banquet

E. Sydney Stephens, Chairman, Missouri Conservation
 Commission;
 Honorable **Phil M. Donnelly**, Governor of the State of
 Missouri;
 President **Frederick A. Middlebush**, University of
 Missouri
 The Soil as the Basis for Wildlife Management, **William A. Albrecht**

Special Session, **William H. Marshall**, Chairman

Pheasant Census by Crowing Count, **James W. Kimball**
 Population Characteristics of South Dakota Pheasants, **Bernard A. Nelson**
 Analysis of Weight Data on Cook County Ducks, **David H. Thompson** and **John Jedlicka**
 Reading Breeding History from Pheasant Ovaries, **Irven O. Buss**
 Further Studies in Pheasant Population Turnover, **Robert A. McCabe**

Deer Range Carrying Capacity and Land Use Policy, **W. S. Feeney**

Waterfowl Research on a Private Hunting Club, **John M. Anderson**

Special Session, **Edward Schneberger**, Chairman

Fish Grub Control Studies on Carrol Lake, Wisconsin, **L. O. Nolf**

Experimental Infection of Sunfish (*Lepomis gibbosus* Linn.) with *Cercaria louisana* Miller 1935 and Its Occurrence in the Blood, **Glenn L. Hoffman**

Seasonal Variation in Hoopnet Performance, **Donald F. Hansen**

The Great Lakes Fishery Treaty, **John Van Oosten**
Missouri River Commercial Fisheries, **Herbert J. Fisher**
Management of a Public Fishing Lake in Cook County, **David H. Thompson**

Some Factors Influencing Wildlife Populations on Ohio Farm Ponds, **Merrill C. Gilfillan**

NINTH MIDWEST WILDLIFE CONFERENCE

Purdue Memorial Union
Lafayette, Indiana
December 9-11, 1947

General Session, **Byron C. Kennedy**, Chairman

The Needs of Wildlife Conservation, **Albert M. Day**
Depletion by Overfishing - Fact or Fancy?, **John Van Oosten**

Ten Years in a Research Unit, **Rudolf Bennitt**
Problems in Waterfowl Population Research, **Gustav A. Swanson**

The Problem of Chemical Control and Fertilizers in Lakes, **Arthur D. Hasler**

The Journal and the Society, **Harlow B. Mills**

Special Session, **Walter E. Scott**, Chairman

Interpreting Goose Flock Counts, **William H. Elder**
Some Observations on Deer Range Management, **W. S. Feeny**

Deer Inventories, Results, and Application in Management Practices, **I. H. Bartlett**

Wild Animal Pathology, **Earl C. O'Roke**
Zoogeographic Regions of Indiana, **Wm. B. Barnes**
The Kill of Larger Animals on Cook County Highways, **John Jedlicka** and **David H. Thompson**

Special Session, **Rudolf Bennitt**, Chairman

Teaching Appreciation and Conservation of Natural Resources, **Roberts Mann**

A Nature Study Course for Teachers, **John Klotz**
Outdoor Techniques for Teaching Nature, **Roland Eisenbeis**

The Failure of Wildlife Research from the Sportsman's Viewpoint, **P. A. Herbert**

Photography in the Conservation Program, **Rex G. Schmidt**

The Function of the Wildlife Conservation Extension Program in Ohio, **A. W. Short**

Group Discussions

Deer, **I. H. Bartlett**

Pheasant, Quail and Other Farm Game, **Willett N. Wandell**

Grouse, **G. A. Amman**

Waterfowl and Marsh Management, **Gustav A. Swanson**
Furbearers, **F. W. Stuewer**

Training at the College Level, **Warren W. Chase**
Methods of Estimating Abundance and Mortality of Fish Populations, **W. E. Ricker**

Special Session, **William H. Elder**, Chairman

Aging Cottontail Rabbits by Bone Growth, **James B. Hale**
Reproductive Potential and Populations of Foxes, **H. T. Gier**

Waterfowl Movements in Illinois, **Frank Bellrose**

Lake Erie Waterfowl Populations and Kill, **John M. Anderson**

Improvement of Sub-Marginal Waterfowl Habitat, **R. E. Griffith**

A Comparison of Predator Control Methods Used in Missouri, **Frank W. Sampson**

Special Session, **R. W. Eschmeyer**, Chairman

Fish Home-Areas in Beaver Dam Lake, Macoupin County, Illinois, **H. H. Shoemaker**

Promoting Vegetation Growth on Barren Marl Soils of Lakes, **E. E. Wohlschlag**

Differential Survival of Marked and Unmarked Fish, **W. E. Ricker**

Characteristics of the Fish Populations of Some Small Streams, **S. D. Gerking**

Indirect and Diving Observations of Diurnal Movements of Perch, **John Bardach**

The Use of Lamp Black on Freeze-Out Lakes, **D. John O'Donnell**

The Role of the Sense of Smell in Fish for Orientation Among Aquatic Plants, **Theodore J. Walker**

The Ecological Relationship of Some Parasites of Wisconsin Fishes, **Ralph V. Bangham**

Special Session, **Frederick N. Hamerstrom**, Chairman

Methods of Controlled Hunting in the United States, **Walter E. Scott**

Importance of Competition in Regulating Bird Populations, **S. Charles Kendeigh**

A Three-Year Analysis of the Sharptail Harvest on Drummond Island, **G. A. Ammann**

Range Improvement for Ruffed Grouse in Ohio, **Floyd B. Chapman**

Recent Population Trends of Ohio Game Species, **Daniel L. Leedy**

Artificial Dens for Raccoons, **Frederick W. Stuewer**
Observations on Bobwhite Quail in Ohio, **Eugene E. Schwall**

River Basin Session, **Rudolph Diffenbach**, Chairman

The Corps of Engineers' Concept of River Developments in Relation to Fish and Wildlife, **Lieut. General R. A. Wheeler**

Investigations by the Fish and Wildlife Service on River Basin Developments, **James O. Stevenson**

Fish in Relation to River Development Programs, **E. L. Wickliff**

- Wildlife in Relation to River Development Programs, **Frank Bellrose**
 Economic Aspects of Fish and Wildlife Resources, **Robert G. Ohlman**
 A State's Approach to Wildlife-Flood Control Considerations, **Carl R. Noren**
- Conference Banquet, **Kenneth A. Reid**, Toastmaster
 The Management of Man, **H. Albert Hochbaum**
- Special Session, **Charles A. Dambach**, Chairman
Rosa multiflora as a Living Fence, **Hugh Steavenson**
 Results of a Two-Year Study on a Typical Illinois Pheasant Range, **Archibald B. Cowan**
 A Discussion of Bobwhite Quail Requirements on the Nebraska Perimeter of Its Range, **David Damon**
 A Method for the Determination of Cottontail Rabbit Food Habits by Plant Histology, **Julian L. Dusi**
- Pheasant Restocking Investigations in Indiana, **W. E. Ginn**
 Vitamin A as a Survival Factor in Ohio Bobwhites During the Winter of 1946-47, **Vincent Schultz**
- Special Session, **George L. Bennett**, Chairman
 The Fisheries Picture in TVA Impoundments, **R. W. Eschmeyer**
 Use of Rotenone for Killing Fish, **Louis A. Krumholz**
 Special-Regulation Trout Ponds, **A. S. Hazzard**
 Results of an Analysis of Farm Ponds in the Midwest, **Wallace L. Anderson**
 Researches on Minnows, **John C. Neess**
 Fish Grub Control Studies in Northern Wisconsin Lakes, **L. O. Nolf**
 Oxygen and Temperature Profiles in the Niagara Arm of the Lake of the Ozarks as a Background for Fish Distribution Studies, **Milton H. Borges**

TENTH MIDWEST WILDLIFE CONFERENCE

Ann Arbor, Michigan
 December 9-11, 1948

- Research Man vs. Administrator—The Research Man's Viewpoint, **Justin W. Leonard**
- Further Needs in Wildlife Research, **Clarence Cottam**
- Effects of DDT and Other Insecticides on Fish and Wildlife, Summary of Investigations During 1947, **United States Department of the Interior, Fish and Wildlife Service**
- Water Levels: Tendencies and Effects, **Charles H. Bechert**
- Beaver-Trout-Waterfowl Problems, **Thomas R. Evans**
- Pheasant Population Characteristics During Years of High and Low Productivity, **D. L. Leedy** and **E. H. Dustman**
- Status of Pelee Island Pheasants, **Allen W. Stokes**
- Pheasant Management Under Pressure, **Lester F. Faber**
- Pheasant Hunting in Illinois On a Put and Take Basis, **Joe B. Davidson**
- Limnology of the Lower Missouri River, **Lester M. Berner**
- Electronic Recording of Fish Movements Over 24-Hour Periods, **J. E. Bardach** and **A. D. Hasler**
- Mast Production and Squirrel Crops, **John M. Allen**
- Reproduction in Illinois Cottontails, **Dean E. Ecke**
- Migration Tendencies of the Mourning Dove in Northeastern Indiana, **Wm. E. Ginn**
- Brood-Trapping Quail Chicks—A Technique in Population Studies, **Jack A. Stanford**
- Habitat Development for Bob-White Quail in Southern Illinois, **Henri D. Crawley**
- Management Practices for the European Partridge in Ohio and Denmark and Remarks On General Decline Factors, **Kaj Westerkov**
- Beaver-Trout Investigations in Michigan, **Arthur E. Adams**
- The Population of Yellow Pikeperch in Spirit Lake as Determined by the Tagging Method, **E. T. Rose**
- Fish Population of West Shade River, **Lee S. Roach**
- Forest Density and Rotation in Relation to Game Production, **P. A. Herbert**
- The Wildlife Program on the National Forests, **Herman F. Olson**
- The Reproductive Cycle of the Muskrat in Wisconsin, **James Beer**
- Some Effects of Current Regulations Upon Duck Shooting Along Southwestern Lake Erie, **John M. Anderson**
- Habitat Management at an Ohio Duck Club, **Miles D. Pirnie**
- Aging and Sexing Ruffed Grouse by Wing and Tail Feathers, **G. A. Ammann**
- Efficiency of the Fyke Test Net in Determining Fish Populations of Mt. Gilead Lake, **Ray E. Riethmiller**
- Use of Fish for the Olfactory Assay of Odors in Water Supplies, **Arthur D. Hasler** and **Warren J. Wisby**
- The Former and Present Distribution of the Woodland Caribou (*Rangifer caribou*) in Northern Ontario, with Suggestions for Its Management, **A. deVos**

ELEVENTH MIDWEST WILDLIFE CONFERENCE

Memorial Union
Madison, Wisconsin
December 15-17, 1949

General Session, E. F. Swift, Chairman

Welcome, **William J. P. Aberg**
Grassland Agriculture as a Factor in Wildlife Management, **Henry L. Ahlgren**
Developing Human Resources Through Nature Recreation, **Kenneth Beers**
Pounding the Conservation Story Home, **Arthur H. Carhart**

General Session, E. L. Wickliff, Chairman

Recent Wildlife Developments in River Basin Management, **Thomas A. Schrader**
Wildlife and Land Use Relationships in Midwest Soil Conservation Districts, **Wallace L. Anderson**
Recent Developments in Fish Management, **Karl F. Lagler**
The Wisconsin Public Hunting Ground System, **J. R. Smith**
The National Wildlife Refuge Program, **William T. Krummes**

Upland and Migratory Game, Charles M. Kirkpatrick, Chairman

Meaning of Observed Sex Ratios in Pheasants, **Paul J. Moore** and **John C. Calhoun**
Refinement and Practical Application of the Crowing Count Pheasant Census, **Eldon H. Smith**
Manitoba Waterfowl Brood Movement Studies, **Charles D. Evans**
Roadside Drumming Count of Ruffed Grouse, **Walter H. Petrabor**
Northern Doves and Southern Hunting, **George C. Moore**
Cloquet, Minnesota Woodcock Populations, **Edgar W. Dangler** and **William H. Marshall**
Hatching Dates of Quail in Wisconsin, **Donald R. Thompson**
An Improved Projection-Type Banding Trap, **Herbert H. Dill**

Fish and Aquatic Habitats, Donald F. Hansen, Chairman

The Effects of the Removal of Stunted Perch on a Small Northern Wisconsin Lake, **Warren S. Churchill**
Long Term Effects of the Electric Fish Shocker on Some Sunfishes, **Shelby D. Gerking**
Natural Reproduction in Minnesota Gamefish Lakes During 1949, **Raymond E. Johnson**
A Report on Fisheries Research at the University of Illinois, **Hurst H. Shoemaker**
The Technical Movie in Conservation Education (Movie: "Save Those Fish"), **Elmer F. Herman**

Habitat Development and Management, Paul L. Errington, Chairman

Wildlife Losses From Forest Fires in Ohio, **Floyd B. Chapman**
Problems in the Development and Maintenance of Farm Ponds and Their Importance to Wildlife, **Kermit N. Morse** and **Merrill C. Gilfillan**
The Background Radioactivity Survey of the Argonne National Laboratory, **John G. Feldes**
Habitat and Shelterbelt Development and Game Cover Plantings, **Jack Farley**
Viability and Germination of Smartweeds and Millets, **Lee Richard Crail**
The Control of Injurious Rodents, **Milton Caroline**

Fish and Aquatic Habitats, Everett B. Speaker, Chairman

Fishing Census, Mississippi River, Lock and Dams 1 through 10, **Harry E. Adams**
Sport Fishing in Fertilized and Unfertilized Ponds, **Donald F. Hansen** and **George W. Bennett**
Panfish to Rainbows, **Leon D. Johnson**
A Comparative Productivity Study of the North and South Forks of the Provo River at Stewart's Ranch, Utah, **Arden Gaufin**
Trends in Wisconsin Fish Management, **Charles N. Lloyd**
Developments in Fisheries Research at the University of Wisconsin, **Arthur D. Hasler**

Water Pollution, Clarence M. Tarzwell, Discussion Leader

The Role of the Aquatic Biologist in the Pollution Abatement Program, **Clarence M. Tarzwell**
The Role and Value of Bio-Assays of Toxic Wastes in the Pollution Abatement Program, **John Greenbank**
Industrial Wastes Disposal and Wildlife, **Loring F. Oeming**
The Effects of Pollution on Recreational Use, **Raymond E. Johnson**
The Effects of Pollution on Fisheries, **Kenneth M. Mackenthun**
Water Pollution Legislation, **Robert O. Beatty**

General Discussion

Upland Game Birds, **G. A. Ammann**, Discussion Leader
A Collapsible Cock and Hen Quail Trap, **Maurice C. Reeves**
The Purchase of Nesting and Winter Cover as a Technique in Pheasant Management, **Daniel R. Atzenhoefer** and **William B. Hendershot**
Fur Bearers, **James R. Beer**
Deer, **William H. Marshall**
Waterfowl, **John M. Anderson**
Habitat Development, **William B. Barnes**
Federal Aid, **Lester F. Faber**
Conservation Education and Opportunities, **Clay A. Schoenfeld**

Mammals, William H. Elder, Chairman

Suggestions for the Development of Cottontail Rabbit Areas, **Cleon E. Webb**
Timber Wolf Movements in Sibley Provincial Park, **Antoon DeVos**
Present Condition of the Winter Deer Range in the Superior National Forest, **Laurits W. Krefling**
Report on the Reproduction and Winter Food of Kansas Coyotes, **Otto W. Tiemeier**
Managed (?) Deer Hunting - North Manitou Island, **J. I. Bartlett**
The Timber Wolf-Whitetailed Deer Relationship in Northeastern Minnesota, **M. H. Steenlund**
Minnesota Raccoon Food Habits, **Lyle J. Schoonover**

Fish and Aquatic Habitat, Shelby D. Gerking, Chairman

The Wisconsin Rough Fish Control Program, Its Effect on a Lake or Lakes, **C. W. Threinen**
Parasites of Fish at Jackson Hole, Wyoming, **Ralph V. Bangham**
Iowa Trout Program - 1873 to 1949, **R. B. Cooper**
Studies on Smallmouth Black Bass in Iowa Streams: Reproduction, Migration, and Yield to Angler, **William Tate**
The Need for and Methods of Regulation of Harvest of Commercial Fish, **John Greenbank**

TWELFTH MIDWEST WILDLIFE CONFERENCE

Neil House Hotel
Columbus, Ohio
December 14-16, 1950

Group Discussion, Mississippi Waterfowl Committee, **John M. Anderson**, Discussion Leader

General Session, **A. W. Marion**, Chairman
Welcome, **Louis Bromfield**, Ohio Wildlife Council
Symposium: Human Population Pressure and the Maintenance of the Sport of Hunting and Fishing, **Ernest Swift**, **Harlow B. Mills**, and **Albert M. Day**

General Session, **Emory Beetham**, Chairman
Greetings, **Harlan Hatcher**
Symposium: Where Are We Headed in Federal Aid?, **Robert Rutherford**, **H. D. Ruhl**, **Hayden W. Olds**, **R. W. Eschmeyer**

Group Discussion
Evaluation of Waterfowl Census Methods, **Miles D. Pirnie**, Discussion Leader
Upland Game, **Edward L. Kozicky**, Discussion Leader
Great Lakes Fisheries Problems, **James W. Moffitt**, Discussion Leader
Farm Pond Problems, **H. S. Swingler**, Discussion Leader

Game, **Joseph J. Hickey**, Chairman
Grit Demand of Mallards and Its Effect on Ingested Shot Pellets, **James S. Jordon**
Significance of Age Ratios in Illinois Ducks, **Frank C. Bellrose**
The 1949-1950 Waterfowl Breeding Seasons in Manitoba Pothole Habitat, **William H. Kiel**
Some Dynamics of Waterfowl Populations, **Joseph J. Hickey**
The Sharptail Experiment on Beaver Island, Michigan, **George A. Ammann**
Mourning Dove Investigations in the Northern States, **Harold S. Peters**
The Bounty System in Indiana, **Frank D. Haller**

Fish, **Kenneth D. Carlander**, Chairman
Preliminary Report on Results of Experimental Regulations on Twelve Michigan Lakes, **Kenneth E. Christensen**
Changes in Fish Populations and Their Probable Causes as Indicated by Intensive Creel Census, **C. W. Threinen**
Variation in Fishing Pressure and Catch During Various Portions of the Trout Season on Michigan Trout Waters, **David S. Shetter**
Ten Years of Management and Fishing on an Oklahoma Farm Pond, **Edgar M. Leonard**
Can We Establish a Standard System of Measuring Lengths and Weights of Fishes?, **Hurst H. Shoemaker**
Parasites of Fish of Upper Snake River, Wyoming, **Ralph V. Bangham**

Game, **Fred N. Hamerstrom**, Chairman
Winter-Spring Movements of the Ring-Necked Pheasant in Northern Iowa, **Henry G. Weston**
Anticipating Fall Pheasant Kill from Summer Brood Surveys, **Ralph A. MacMullan**

Productivity and Juvenile Mortality of the Ring-Necked Pheasant on Pelee Island, 1950, **Allen W. Stokes**
Hunting Pressure and Wildlife Population Trends During the Past Decade in Indiana, **William B. Barnes**
A Sampling Procedure Applicable to State Wide Habitat Evaluations and Wildlife Surveys, **Vincent Schultz**
Old Orchards Spell More Rabbits, **Thomas L. G. Osmer**

Fish, **Peter I. Tack**, Chairman
Some Factors in Rotenone Poisoning, **Robert Moorman** and **Eugene Ruhr**
The Effects of Insecticides on Fish and Fish Food Organisms, **Clarence M. Tarzwell**
Embryology and Larval Development of the Bluegill at Buckeye Lake, **George D. Morgan**
Ecological Succession in Central Missouri Strip Mine Lakes, **John R. Heaton**
Succession in Fertilized and Non-Fertilized Ponds, **Peter Tack**
Development of a Small Fish Population in a Newly Formed Reservoir, **Robert G. Martin**

Group Discussions
Mississippi Waterfowl Committee, **John M. Anderson**, Discussion Leader
Great Lakes Deer Group, **Lauritis W. Krefting**, Discussion Leader
Furbearers and Wet-Lands, **Harold A. Mathiak**, Discussion Leader
Publicity and Education, **Nancy E. Worsham**, Discussion Leader
Dingell-Johnson Bill Projects, **O. Lloyd Meehan**, Discussion Leader

Game, **John M. Allen**, Chairman
Histological Determination Compared with Gross Estimation of Male Fox Squirrel Breeding Status, **Charles M. Kirkpatrick**
Deer Damage and Repellent Studies in the Michigan Grand Traverse Fruit Region, **Arlo P. Boyce**
Some Field Methods in Deer Lungworm Research, **Earl C. O'Roke**
Experimental Ditching for Muskrat Management, **Harold A. Mathiak**
Preliminary Studies of the Movements of Marten, **Antoon De Vos**

Fish, **David H. Thompson**, Chairman
Benthos of Black River, Missouri: Productivity and Utilization by Fishes, **Timothy R. O'Connell**
Control of Turbidities Due to Suspended Clays, **William H. Irwin**
Experiments in Largemouth Bass Production and Cropping in Artificial and Natural Lakes of Small Size in the North, **Karl F. Lagler** and **Gerardus C. de Roth**
Determination of Sexual Maturity and Growth of the Bluegill from the Study of Scale Annuli, **Paul Chanley**

THIRTEENTH MIDWEST WILDLIFE CONFERENCE

**Nicollet Hotel
Minneapolis, Minnesota
December 12-14, 1951**

General Session, **Chester S. Wilson**, Chairman

- The Future of the Wildlife Profession, **Ira N. Gabrielson**
- Water Conservation - Today and Tomorrow, **G. M. Schwartz**
- Trends in Agricultural Land Use, **O.B. Jesness**

Game

- Wildlife Habitat Development Programs, **William B. Barnes**, Chairman
- An Appraisal of Wildlife Habitat Development, **C. A. Dambach**
- Habitat Development for Deer in Michigan, **Ilo H. Bartlett**
- Habitat Development for Pheasants in Iowa, **Joseph Hopkins**
- Habitat Development for Farm Game in Missouri, **Harold V. Terrill**
- A Comparative Study of Plant Succession in Clear-Cut Strips on Various Woodlot Border Exposures, **Roy Hooker**
- Use of 2-4-D in Relation to Availability of Game Bird Food, **Harold Jameson** and **James Wheeler**

Fish

- Factors Influencing the Size and Structure of Fish Populations, **Everett Speaker**, Chairman
- Studies of Fish Populations in Ohio, **John Z. Pelton**
- Typical Game-Fish Populations and Their Probable Mortality Rates, **C. W. Threinen**
- Electric Seine Studies of Fish Populations in Two West Virginia Smallmouth Bass Streams, **Eugene W. Surber** and **E. A. Seaman**
- Increase of Game-Fish Populations Following Intensive Rough Fish Removal, **E. T. Rose** and **Tom Moen**
- A Review of Fish Management Techniques on Stunted Panfish Lakes in Northeast Wisconsin, **Warren Churchill**
- Factors Influencing the Production of Smallmouth Bass in Iowa Streams, **Robert E. Cleary**

Special Group Discussions

- Waterfowl, **John M. Anderson**, Leader
- Upland Game, **George Petrides**, Leader
- Big Game, **Anton DeVos**, Leader
- Fur-Bearers and Wet Lands, **Thomas G. Scott**, Leader
- Mourning Dove Studies, **Harold Peters**, Leader
- Great Lakes Fishery Problems, **Edward Schneberger** and **James Moffett**, Leaders
- Stream Biology and Surveys, **Kenneth Carlander**, Leader

Game

- Big Game Management, **Ilo H. Bartlett**, Chairman
- 3000 Whitetails Can Be Wrong, **John Allen**
- Deer Range Appraisal in the Missouri Ozarks, **Robert Dunkeson**
- The Necedah Refuge Deer Irruption, **Frank Martin** and **L. W. Krefting**
- Reproduction Capacity of the Minnesota Deer Herd Based on Hunting Statistics, **V. E. Gunvalson**
- Reproduction and Aging Studies of Wisconsin Deer, **Ralph C. Guettinger**
- Black Hills Deer Management and Techniques, **Lester Berner**

Fish

- Yield of Waters and Factors Influencing Catch of Fish, **Edward Schneberger**, Chairman

Creel Census Studies in Michigan, **F. G. Fukano**

- Experimental Trout Lakes in Northeast Wisconsin, **Milton Burdick**
- Preliminary Report on an Intensive Creel Census Conducted at Clearwater Lake, Missouri, **Joseph Kathrein**
- Non-Commercial Fishing in the Upper Mississippi River, **H. Gordon Hanson**
- Dark House Spearing in Minnesota, **John G. Appelget**

Game

- Upland Game Management, **James W. Kimball**, Chairman
- Results of Sharp-Tailed Grouse Plantings in Michigan, **George Ammann**
- Ruffed Grouse Population Inventory Methods, **James B. Hale**
- Prairie Grouse Population Trends in South Dakota, **Reuel Janson**
- Fluctuations in Bobwhite Populations in Decatur County, Iowa, **E. L. Kozicky** and **G. O. Hendrickson**
- Wisconsin Woodcock Population Studies: Population Trends, **Robert McCabe**; Sex and Age Criteria, **Fred Greeley**
- Recent Pheasant Stocking Studies, **Cyril W. Kabat**

Fish

- Special Problems in Water Management, **Eugene Surber**, Chairman
- Some Influences of Beaver Dams Upon Michigan Trout Streams, **Arthur K. Adams**
- Water Weed and Algal Control in Wisconsin, **Kenneth W. Mackenthun**
- Problems on Fish Disease in Michigan, **L. N. Allison**
- Length-Weight Relationships on Yellow Perch With a Discussion of Coefficients of Condition, **Kenneth D. Carlander**
- Overwinter Survival of Hatchery Brown Trout in Sawyer Creek, Washburn County, Wisconsin, **John Brasch** and **Wallace Niemuth**

Waterfowl Management, **Jerome Soudt**, Chairman

- Small Water Areas - Their Role as Waterfowl Habitat, **Warren Nord** and **Charles Evans**
- Production of Waterfowl on Prairie Stock Ponds, **Ingalf Bue** and **Lytle Blankenship**
- A Controlled Waterfowl Hunting Plan for Iowa, **James G. Treer**
- The Place of Research in the Waterfowl Management Program, **H.A. Hochbaum**
- North Dakota Water Problems, **Roy Bach**
- Management of Goose Hunting in Allegan County, MI, **Orland Haugen**

Special Problems in Water Management, **David G. Frey**, Chairman

- Siltation of Reservoirs, **Thomas Schrader**
- Movements of Walleye Pike in Red Lake, Minnesota, **Lloyd L. Smith, Jr.**
- Practical Management of Minnow Ponds in Minnesota, **John Dobie**
- A Trapping Experiment to Estimate Fish Population in a Farm Pond, **John M. Lawrence**
- Oxygen Levels and Fish Distribution in Lake Okoboji, Iowa, **John E. Bardach**

FOURTEENTH MIDWEST WILDLIFE CONFERENCE

Hotel Savery
Des Moines, Iowa
December 17-19, 1952

General Session, **Bruce F. Stiles** and **George O. Hendrickson**
Federal-State Cooperation in the National Waterfowl
Program, **John Findlay**
Fish and Wildlife Management in Present Day
Agriculture, **Floyd Andre**
Objectives in Fish and Game Management, **Albert S.
Hazzard**
Water Resources Planning, **Robert L. Smith**

Fisheries Research and Management, **Dr. Cooper** and **John
Moyle**, Co-Chairmen

The Fishes of Crab Orchard Lake, Illinois, **Maurice A.
Whitacre**

A Push-Seine, Its Advantages and Disadvantages,
Anthony Bodola

Estimating Fish Population in Iowa Lakes, **Tom Moen**
and **Earl T. Rose**

Experimental Removal of Crappies with Commercial
Devices at Lake Chautauqua, Illinois, **William C.
Starrett**

Control of Stunted Panfish Population by Predatory
Fishes, **Warren Churchill**

Influence of Carp Upon Normal Aquatic Habitat, **C. W.
Threinen**

The Blue-Green Algae Problem in Iowa Lakes, **E. T. Rose**

Upland Game Birds, **William C. Barnes**, Chairman

Some Effects of DDT on the Ring-Necked Pheasant,
James Wheeler, **Howard Jameson**, and **Charles T. Black**
Bag vs. Kill Per Gun Hour in Evaluating Pheasant Kill
Statistics, **Gordon L. Zorb** and **Charles T. Black**

Variations in Two Spring Indices of Male Pheasant
Population in Story County, Iowa, **Eugene Klonglan**
and **Edward L. Kozicky**

The Value of Planted Sweet Clover Plots as Winter Cover
in Pheasant Management, **Arnold B. Erickson**

Some Hatching Curves from Different Areas of Michigan's
Pheasant Range, **Ralph I. Blouch** and **Lester L.
Eberhardt**

Sample Township Studies on Pheasant Populations,
Harvest and Hunting Pressure for Possible Use in
Projecting These Factors on a State-Wide Basis, **Donald
H. Ledin**

Progress of the Cooperative Mourning Dove Study, **Harold
S. Peters**

Special Sessions

Big Game, **L. W. Krefting** and **A. de Vos**, Co-Chairmen
Upland Game, **Cyril Kabat** and **Arnold Erickson**, Co-
Chairmen

Waterfowl and Marshes, **Frank Bellrose** and **Ted Shanks**,
Co-Chairmen

Fish Management, **E. L. Wickliff** and **P. G. Barnickol**,
Co-Chairmen

Fisheries Research and Management, **John Funk** and **Ray
Johnson**, Co-Chairmen

Physio-Chemical Characteristics of the Big Muddy River
and Tributaries with Special Emphasis on Pollution,
Charles Walker

Bottom Fauna Studies in Pollution Surveys and
Interpretation of the Data, **George R. Wimmer** and
Eugene W. Surber, Co-Chairmen

Seasonal Fluctuations of Experimental Trap Net Catches
from the Mississippi River, **D. W. Kelley**

Public Access to Lakes and Stream Fishes in Michigan,
Floyd Faneslow

A Continuing Inventory of Some Stream Fishes in Iowa,
R. E. Cleary and **Harry M. Harrison**, Co-Chairmen

An Intensive Creel Census of Two Similar Smallmouth
Bass Streams in the Missouri Ozarks, **George G. Fleener**

Recovery Studies of Fish Populations in the Skunk River
Following Severe Winter Kill, **H.M. Harrison** and **K.M.
Madden**, Co-Chairmen

Home Range and Territory in Stream Fishes, **Shelby
Gerking**

Game Mammals, **Tom G. Scott** and **Glen Sanderson**, Co-
Chairmen

A Refuge Squirrel Population in Southern Illinois, **Richard
Morgan**

Criteria for Estimating Fall Fox Squirrel Populations,
Charles E. Friley, Jr.

Experimental Trap Lines in Northern Ontario, **A. de Vos**
Recent Experience with the Bounty System in Michigan,
David A. Arnold

A New Deer Census Technique Based on Highway Kill,
Merrill Gilfillan

Classification of Minnesota Deer Yards, Based on Ground
and Aerial Surveys, **Vernon E. Gunvalson**

Notes on the Estimation of Survival Rates from Age
Distributions of Deer, **Don W. Hayne** and **Lester L.
Eberhardt**

Fisheries Research and Management, **William C. Starrett** and
Kenneth D. Carlander, Co-Chairmen

Nebraska's Reservoirs, **Walter Kiener**
Growth Rate of Largemouth Bass in a New Flood Control
Reservoir, **Hudson M. Nichols**

Length-Weight Relationships of Trout in New York Farm
Ponds, **Saul B. Salla**

Production of Minnesota's Walleye Ponds, 1940-1950,
Norman L. Moe

Fish Population Changes in Some Iowa Farm Ponds,
Robert Moorman

Age and Growth of the Bluegill in Clearwater Reservoir,
Charles E. Lane

Upland Game Birds, **Edward L. Kozicky**, Chairman

Bobwhite Production in Indiana, **Maurice C. Reeves**
Seasonal Movement of Quail in Central Missouri, **John
B. Lewis**

Projected Net Traps for Capturing Sharptailed Grouse,
Tony J. Peterle

A Red Pine Pruning Technique to Prolong Ground Cover,
Arnold Haugen

Audio Census of Some Wisconsin Game Birds, **Donald
R. Thompson**

The Rural Mail Carriers' Survey of Wildlife Populations,
W. E. Ginn

A Method of Estimating Confidence Limits and Adequate
Sample Size for Strip Census Data, **Aelred D. Geis**

Fisheries Research and Management, **Justin Leonard** and **Herbert Fisher**, Co-Chairmen

Year-Round Quantitative Creel Census on 23 Minnesota Lakes, **Don Franklin**

Watershed and Stream Improvement in Wisconsin, **D. John O'Donnell**

Comparative Mortality Between Fly-Hooked and Bait-Hooked Trout, **David S. Shetter** and **Leonard N. Allison**

Echo Location of Lake Fishes, **Arthur D. Hasler** and **J.R. Villemonte**

Some Problems of Estimating Fish Populations in Michigan Lakes, **Gerald P. Cooper**

Trout Production in Artificially Alkalized Bog Lakes, **Waldo E. Johnson** and **Arthur D. Hasler**

Waterfowl and Marsh Wildlife, **F. H. Davis** and **Joe B. Davidson**, Co-Chairmen

The Waterfowl Story in Iowa, **James Sieh**

Rail Production in Northwest Iowa, **Ward D. Tanner**

Waterfowl Nesting Success as an Index to Production, **Jerome Stoudt**

A Horicon Marsh Muskrat Refuge Study, **Harold A. Mathiak**

Wood Duck Breeding Ground Surveys in Indiana, 1949-1952, **James D. McCall**

Trapping, Banding and Recovery of Flightless Ducks, **Gerald T. Bue**

FIFTEENTH MIDWEST WILDLIFE CONFERENCE

Morrison Hotel
Chicago, Illinois
December 9-11, 1953

General Session

The Value of the Out-of-Doors, **Olaus J. Murie**

Dividends from Wildlife Research, **Durward L. Allen**

Dividends from Fisheries Research, **W. F. Carbine**

Research, Where to Now, **Justin W. Leonard**

Upland Game Birds, **T. S. Baskett** and **D. W. Douglass**, Co-Chairmen

Sharp-Tailed Grouse Management on Wisconsin's Sandy Soils, **Frederick** and **Frances Hamerstrom**

The Experimental Use of Herbicides to Control Game Cover Succession In Northern Michigan, **A. P. Boyce**, **S. DiAngelo**, **B. Jenkins**, and **H. Miller**

An Analysis of Deer-Ruffed Grouse Relationship Data in Michigan, **Walter L. Palmer**

Trapping Techniques and Movements of Banded Ruffed Grouse, **Robert S. Dorney** and **Helmer Mattison**

Factors Influencing Bob-White Quail Distribution on a Large Refuge Area, **Ross J. Miller**

Factors Influencing the Fall Roadside Pheasant Census in Iowa, **Eugene D. Klongian**

Changes in Pheasant Populations and Land Use on the Prairie Farm, **R. I. Blouch** and **L. L. Eberhardt**

Streams and Small Rivers, **David S. Shetter** and **Shelby Gerking**, Co-Chairmen

Bio-Assay Procedures for the Evaluation of Fish Toxicants with Particular Reference to Rotenone, **Saul B. Salla**
Some Effects of Plating Plant Wastes on Stream Fishes, **Quentin Pickering**

The Fishery of Black River, Missouri, **Robert S. Campbell**
A Comparative Limnological Study of Two Small Streams, **Keith V. Slack**

An Appraisal of the Fishery of a Missouri Prairie Stream, **Charles A. Purkett**

Development of Four Pieces of Fishery Equipment for Stream Work, **R. Weldon Larimore**

Minnow Productivity in a Small Stream, **R. Weldon Larimore**

Observations on Stream Conditions and Smallmouth Black Bass Reproduction in Northeast Iowa, **Robert E. Cleary**

Natural Lakes and Large Impoundments, **Arthur Witt, Jr.**, and **Leonard S. Joeris**, Co-Chairmen

Fluctuations in Population Abundance of Walleye and Perch in Red Lakes, Minnesota, **Lloyd L. Smith, Jr.**

Tagging Study of Walleyes at Clear Lake, Iowa, **Richard R. Whitney**

A Daybreak Mortality of Fish in the Western End of Lake Erie, **Thomas H. Langlois**

Fishes of Horseshoe Lake, Illinois, **Gerald E. Gunning**
Factors Influencing Survival of Cisco Fry in Lakes, **Kenneth R. John** and **Arthur D. Hasler**

The Walleye Population of Escanaba Lake, Wisconsin, **Warren Churchill**

An Analysis of the Creel, Clear Lake, Iowa, for the Summer of 1953, **Charles DiCostanzo**

Movements of Echo-Locatable Fishes in Lake Mendota, **Arthur D. Hasler**, **J. James Tibbles**, and **J. R. Villemonte**

Game and Furbearing Mammals, **Paul L. Errington** and **Bill T. Crawford**, Co-Chairmen

Population Mechanisms in the Current Lemming Cycle at Point Barrow, Alaska, **Daniel Q. Thompson**

Incidence and Effect of Warbles on Michigan Cottontails, **Aelred D. Geis**

Autumnal Decimation of Mearns Cottontail, Decatur County, Iowa, 1952, **George O. Hendrickson** and **Paul D. Kline**

Food Habits of the Muskrat and Other Mammals in Lake Erie Marshes, **Karl Bednarik**

Eight Years of Extension Predator Control In Missouri, **Frank W. Sampson**

Recent History of Ohio Deer and Deer Hunting, **Merrill C. Gilfillan**

Missouri's Deer Herd, Reproduction and Weight Station Data, **Robert L. Dunkeson** and **Dean A. Murphy**

Results of Controlled Deer Hunts on the Tamarac National Wildlife Refuge, **L. W. Krefting**, **A. B. Erickson**, and **V. E. Gunvalson**

Wildlife Techniques, **Robert A. McCabe** and **Willard D. Klimstra**, Co-Chairmen

Objectives and Design in Statewide or Regional Game Surveys, **Paul Moore**

Method for Comparing the Mobility of Animals, **David H. Thompson**

Developing Wildlife Habitat on State-Owned Lands in Southern Michigan, **Lewis C. Ruch**

Evaluating Amounts of Deer Browse in Recently Cut-Over Aspen Stands, **Casey E. Westell, Jr.**

- Trapping Waterfowl with a European Decoy Trap, **Robert A. McCabe**
 A Suggested Method of Capturing Gallinaceous Birds During Winter Time with a Narcosis Producing Drug, **Howard M. Wight**
 A Method for Determining Breeding Conditions in Hen Pheasants in Early Spring, **Cyril Kabat** and **Frank Kozlik**
 The Use of Brood Routes for Measuring Pheasant Reproduction Success, **Eldon H. Smith**
- Fisheries Techniques, **Thomas H. Langlois** and **William C. Starrett**, Co-Chairmen
 Use of Pituitary in Propagation of Minnows, **Robert C. Ball**
 Scales from Lake Trout of Known Age, **Louella E. Cable**
 Pertinence of Certain Routine Lake Survey Operations in Fish Management, **Karl F. Lagler** and **John E. Bardach**
 Some Population Estimates of Young Northern Pike Reared in a Marsh, **Kenneth D. Carlander** and **James G. Erickson**
 A Spaced-Disc Self-Cleaning Fish Screen, **Kenneth R. John**
 Aging Channel Catfish Through the Use of Vertebral Bones and Spines, **Ricard Marzolf**
 The Use of a Cold Roller Press in the Making of Scale Impressions in Plastic, **Stanford H. Smith**
 The Movement and Recovery of Walleyes Tagged in Michigan, 1929-1952, **Paul H. Eschmeyer** and **Walter R. Crowe**
- Discussion Groups
 Habitat Development, **Joe B. Davidson** and **Lewis C. Ruch**, Leaders
 Waterfowl, **Laurence R. Jahn** and **George S. Hunt**, Leaders
 Big Game, **Frank D. Haller** and **S. C. Whitlock**, Leaders
 Great Lakes Fisheries, **James W. Moffett** and **Ed W. Schneberger**, Leaders
- Trout, **A. S. Hazzard** and **D. John O'Donnell**, Leaders
 Limiting Factors:
 Black Bass, **P.G. Barnickol** and **R. E. Cleary**, Leaders
 Walleye, Northern Pike, Muskellunge, **John B. Moyer** and **Paul H. Eschmeyer**, Leaders
 Upland Game, **Eugene H. Dustman** and **Charles M. Kirkpatrick**, Leaders
 Furbearers, **Harold A. Mathiak** and **David A. Arnold**, Leaders
 Preparation of Technical Papers, **James S. Ayars** and **Ruth L. Hine**, Leaders
- Fish Ponds, Small Artificial Lakes, and Techniques, **Robert C. Ball** and **K. D. Carlander**, Co-Chairmen
 Observations of Limiting Factors Affecting Eggs and Fry of Northern Pike, **William R. Schmitz** and **Arthur D. Hasler**
 Feeding Habits of Adult Largemouth Bass as Revealed by a Gastroscope, **Harry Dubets**
 Sampling Techniques Used in the Michigan Creel Census, **Howard D. Tait**
 Response of Salmonoid Fishes to Netting in Small Lakes, **Thomas E. Kruse**
 Use of the Electric Shocker in Impoundment Studies, **Arthur Witt, Jr.**
 Use of Two Rates of Stocking as Measured by Angling Success, **Donald F. Hansen**
 Carp-Largemouth Black Bass Relations, **Donald Mraz**
- Waterfowl, **James G. Sieh** and **James D. McCall**, Co-Chairmen
 Marsh Waters - Wealth or Waste?, **W. J. Breckenridge**
 Duck Clubs in the Research Program, **Miles D. Pirnie**
 Ecological Changes on the Upper Mississippi River Wildlife and Fish Refuge Since Inception of the Nine-Foot Channel, **William E. Green**
 Productivity of Black Ducks on Some Islands in Chesapeake Bay, **Vernon D. Stotts**
 Comparison of Methods of Estimating Duck Brood Production, **Maurice Anderson**
 Grazing or Grain; Ducks or Ditches, **James W. Kimball**

SIXTEENTH MIDWEST WILDLIFE CONFERENCE

Statler Hotel
 St. Louis, Missouri
 December 1-3, 1954

- General Session, **Irvin T. Bode** and **Thomas S. Baskett**
 Looking Ahead in Resources Conservation and Development, **Irving K. Fox**
 The Planning and Development of the Market for Furs, **John R. Lyman**
 New Models in Conservation Clubs, **Charles H. Callison**
 Evaluating Habitat Development - How and Why, **Thomas R. Evans**
- Big Game and Furbearers, **Lester Berner** and **Thomas R. Evans**, Co-Chairmen
 A Brief Summary of Iowa's First Deer Season in Recent Years, **Glen C. Sanderson** and **E. B. Speaker**
 Herd Management Principles Applicable to the Ohio Deer Herd, **Merrill C. Gilfillan**
 The Effects of Chemical Pulpwood Debarking on Wildlife, **James B. Hale**
 Toxicity of Arsenite Debarks to Deer in Michigan, **A.P. Boyce** and **L. J. Verme**
 Raccoon-Age and Sex Ratios and Resulting Problems in the Interpretation of Harvest Data, **George P. Dellinger**
- The Recent Epizootic among Michigan Beavers, **William H. Lawrence** and **Dale L. Fay**
 Predator Control Through Education in Iowa, **Thomas L. Berkley**
- Fish Population Dynamics, **Shelby D. Gerking** and **Weldon R. Larimore**, Co-Chairmen
 Fishes of Lake Winnebago, **Thomas L. Wirth**
 Movement of Stream Fishes in Missouri, **John L. Funk**
 Reestablishment of a Stream Population Destroyed by Drought Conditions, **Weldon R. Larimore**, **William Childers**, and **Carlton Heckrotte**
 An Increase in the Population of Walleyes in Spirit Lake, **Earl T. Rose**
 A Preliminary Evaluation of the Effects of Removal of Rough Fish Upon Crappies in a Large Ohio Lake, **William M. Zarbock**
 Trout Population of Lawrence Creek, **Bert J. Apelgren**
 Numerical Abundance of a Spawning Run of Walleyes, **Walter R. Crowe**

Discussion Groups, **Arthur Witt, Jr.**, Chairman for Fisheries and General Discussion Groups

Popular Writing, **Durward L. Allen** and **Werner O. Nagel**, Co-Chairmen

Waterfowl, **Delmar Handley** and **J. Bernard Gollop**, Co-Chairmen

Habitat Development, **William H. Marshall** and **Jack A. Stanford**, Co-Chairmen

Big Game, **Lauritz W. Krefting** and **Robert L. Dunkeson**, Co-Chairmen

Upland Game, **Frederick H. Wagner** and **Aelred D. Geis**, Co-Chairmen

Furbearers, **Harold D. Mathiak** and **Glenn C. Sanderson**, Co-Chairmen

Drought and Water Resources, **Carl Noren**, Chairman
Water Fertilization, **John Dobie** and **George Washburn**, Co-Chairmen

Great Lakes Fisheries Research, **James Moffett** and **Ralph Hile**, Co-chairmen

Proposal to Establish a Midwest Region of the American Fisheries Society, **Shelby Gerking** and **R. S. Campbell**, Co-Chairmen

Upland Game, **Edward L. Kozicky** and **Maurice C. Reeves**, Co-Chairmen

Hunting Pressure and Kill of Pheasants in Six Minnesota Townships, **Gerald T. Bue**

Nesting Behavior and Cover Preferences of Pheasants in a 40 Acre Farmland Enclosure, **William R. Edwards**
Breeding Season Mortality in the Hen Pheasant, **Frederick H. Wagner**

Winter Mortality Rates in the Unshot Quail Populations of Ohio, **James N. Wright**

An Extensive Study of Wildlife Habitat Restoration Areas in Indiana, **Clayton Bushong**

A Preliminary Report on the Ohio Wild Turkey Reintroduction Project, **C. Eugene Knoder**

Regional Planning Can be the Bridge Between Research and Management, **Paul Moore**

Fishery Management, **Edwin L. Cooper** and **Mercer Patriarche**, Co-Chairmen

Walleye Pike Pond Management, **John Dobie**

Statewide Undesirable Fish Control, **K.M. Madden**

The Decline of Egyptian Inland Fisheries, **Salah El-Zarka**
Fish Removal Project - Guilford Lake, **Daniel C. Armbruster**

Symposium: What Use Are We Making of Age and Growth Data?, **Kenneth Carlander** and **William Lewis**, Moderators

Wildlife Techniques, **Ralph I. Blouch** and **Ralph E. Yeatter**, Co-Chairmen

Estimating Fall Quail Populations in Iowa, **Edward L. Kozicky**

Nature of the Bias of Estimates Computed from Voluntary Reports, **Don W. Hayne** and **Lee Eberhardt**

Problems in the Analysis of Ruffed Grouse Age Ratios, **Robert S. Dorney**

Pelage Patterns of the Mearns Cottontail and Their Use in Aging, **Norman C. Negus**

Cottontail Rabbit Trap Response and Its Effect Upon Censusing, **Aelred D. Geis**

Techniques in the Estimation of a Mearns Cottontail Population, **George O. Hendrickson** and **George W. Crunden**

An Improvement to the Lowther Planter Providing Better Fertilizer Placement, **Leonard Spiegel**

Fishery Techniques, **Eugene Surber** and **Paul H. Eschmeyer**, Co-Chairmen

A New Two-Way Fish Trap for Streams, **M. J. Whalls**, **K. E. Proshek**, and **D. S. Shetter**

Notes from an Investigation of the Use of Inorganic Fertilizers in Missouri Farm Ponds, **Charles Walker**
Muskellunge Culture in Ponds, **Leon D. Johnson**

Experimental Propagation of Northern Pike at the St. Marys Fish Farm, **Clarence F. Clark**

Interpretation of Age from the Scales of Pike (*Esox lucius* L.) - A Preliminary Report, **John E. Williams**

The Relative Merit of Three Kinds of Markers as Used on a Fish Tagging Project in Lake Erie, **Robert Cummins, Jr.**

Migratory Birds, **Frank C. Bellrose** and **Herbert H. Dill**, Co-Chairmen

Trends in the Construction of Artificial Impoundments in Ohio and Their Importance in Waterfowl Management, **Delmar Handley**

An Evaluation of Eight Years of Artificial Mallard Propagation in Wisconsin, **Richard A. Hunt**

Management of Captive Goose Flocks on the National Wildlife Refuges in the North Central States, **J. Donald Smith**

Post-Breeding Dispersal of the Redhead in Manitoba, **Milton Weller**

Migration of the Mourning Dove in the Midwest, **Howard Wight**

Seasonal Food-Habits of the Mourning Doves in Missouri, **Leroy J. Korschgen**

Fish Stocking Combinations and Life History Studies, **Clarence F. Clark** and **Earl T. Rose**, Co-Chairmen

An Evaluation of the Stockings of Yearling Muskellunge, **John H. Klingbiel**

Notes on the Life History of the Black Redhorse in Missouri, **Milton L. Bowman**

Observation of the Largemouth Black Bass Population of Back Bay, Virginia, **Dean A. Roseberry**

The Breeding Season and Size at Sexual Maturity of the Bullfrog in Missouri, **Yuell L. Willis**

Food and Feeding Habits of the Yellow Bass in a Dredged Lake - North Twin Lake, Iowa, **Joseph H. Kutkuhn**

Concluding General Session, **Bill T. Crawford**, Chairman

SEVENTEENTH MIDWEST WILDLIFE CONFERENCE

Memorial Union Building
Purdue University
Lafayette, Indiana
December 12-14, 1955

General Session, **E.R. Martell**

- The Job of Organized Sportsmen in the Conservation Movement, **Ernest F. Swift**
Wildlife Policies and Programs of the U.S. Forest Service in the North Central Region, **H. Dean Cochran**
Agricultural Practices and the Impact of Federal Subsidies on the Drainage of South Dakota Wetlands, **J. H. Shaeffer**

Farmland Wildlife, **Glen C. Sanderson** and **Frederick H. Wagner**, Chairmen

- Predation Found on 1000 Miles of Fox Trail, **David A. Arnold**
Preliminary Report on Experimental Quail Management in Southern Illinois, **Edward Triner**
Preliminary Report on Evaluation of Cock Stocking Through the Day-Old Chick Program in Wisconsin, **C. D. Besadny**
A New Look at Farmer Hunter Problems, **Robert K. Davis**
Use of Rearing Cover by Mearns Cottontail, Decatur County, Iowa, 1954, **George O. Hendrickson** and **Raymond L. Linder**
Age Ratios as Indices of Fall Rabbit Abundance, **Aelred Geis**
Effects of Extension of Ohio Pheasant Season on Hunting Pressure and Kill, **William R. Edwards**

Exploitation, **John Neess** and **William C. Starrett**, Chairmen

- Survival of Tagged, Fin-Clipped, and Unmarked Rainbow Trout Fingerlings in Hunt Creek, Montmorency County, Michigan, **Marvin J. Whalls** and **David Shetter**
Exploitation of Brook Trout Population in Lawrence Creek During 1955 Season, **James McFadden**
Comparisons of Creel Returns from Incomplete and Completed Fishing Trips, **Charles J. Di Costanzo**
The Harvest of Lake Sturgeon by Spearers in Lake Winnebago and Connecting Waters, Wisconsin, **Clarence Cline**
Efficiency of a Large Carp Seine as Used in Wisconsin, **W. T. Helm**, **J. C. Neess**, and **C. W. Threinen**
Some Simple Mathematical Models as an Aid in Interpreting the Effect of Fishing, **Kenneth D. Carlander**

Discussion Groups

- Game, **Laurits W. Krefting** and **I. H. Bartlett**, Chairmen
Waterfowl, **Harold C. Hanson** and **Arnold B. Erickson**, Chairmen
Furbearers and Predators, **Allen Brohn** and **Willard D. Klimstra**, Chairmen
Upland Game, **R. A. MacMullan** and **Donald R. Thompson**, Chairmen
Fish, Annual Lake Survey, **Charles B. Burrows**, Moderator
Public Acceptance of Advances in Fisheries Management, **Gerald P. Cooper** and **Clarence F. Clark**, Moderators
Discussion of By-Laws of the Proposed North Central Division of the American Fisheries Society, **Shelby D. Gerking** and **Raymond Johnson**, Moderators
Conservation Education, **B. K. Barton**, **Robert Finlay**, **Arthur Jorgenson**, **H.H. Michaud**, and **Farley Tubbs**

Wildlife of Forest Habitats, **D. F. Switzenberg** and **Floyd B. Chapman**, Chairmen

- Ten Year Record of Deer Numbers and Kill on an Intensively Managed Forest Area, **Donald Burcalow** and **William H. Marshall**
Deer Range Ecology in a 647-Acre Enclosure in Northern Michigan, **Robert C. Van Etten**
Sex and Age Characteristics of a Declining Ruffed Grouse Population, **Robert S. Dorney**
Results of a Large Scale Dead Deer Survey, **Lee Eberhardt**
Use of Herbicides in Inducing Regrowth of Mountain Maple for Deer Browse, **L. W. Krefting**, **H. L. Hansen**, and **M. H. Stenlund**
A New Disease of Deer, **L.D. Fay** and **A.P. Boyce**
Evaluation of the Strip Census Method for Ruffed Grouse, **Walter L. Palmer**

General Fish Biology, **Lee S. Roach** and **K. M. Madden**, Chairmen

- Toxicity of Coal Mine Slag Drainage to Fishes, **William M. Lewis** and **Charles Peterson**
Experiments on Color Vision of Fish, **H. K. Chadwick**
A Bass Training Experiment, **David N. Heller**
Rainbow Trout Production in a Lake with a Varying Standing Crop of Largemouth Bass, **William R. Schmitz** and **Arthur D. Hasler**
The Problem of Sampling a Bluegill Population in a Small Inland Lake for Age and Growth Studies, **Gerald P. Cooper**

New Methods

- Advancing Spawning Time of Domesticated Brown Trout by Control of Illumination, **Richard I. Stevens**
Effect of Various Types of Marks on Walleyes, **Warren S. Churchill**
The Rolling Gillnet, a Tool for Depth Distribution Studies, **J.J. Tibbles** and **R.M. Horrall**

Wildlife of Wetlands, **J. Don Smith** and **David B. Vesall**, Chairmen

- The Great Plains Muskrat in the Sandhill Region of Nebraska, **J. Henry Sather**
A Track Technique Used in a Study of the Habits and Activities of Raccoons, **Howard J. Stains**
A Suggested Technique for Making Waterfowl Neck-Bands Using Rubber-Styrene, **W.J. Rudersdorf** and **R.D. Van Duesen**
Waterfowl Production Habitat in Fish and Wildlife Service Region III, **Burton W. Rounds**
Save Minnesota's Wetlands Program, **David B. Vesall**
A Survey of Wisconsin's Remaining Wetlands, **Laurence R. Jahn**
Drainage and Its Effect on Duck Production, **Kenneth E. Black**

Game Habitat Studies and Development, **Wallace L. Anders** and **William C. Ryder**, Chairmen

- Habitat as a Governing Factor in Deer and Wolf Numbers on the Superior National Forest, **Milt Stenlund**
Intensive Game Management: Has It a Place in the United States?, **Tony J. Peterle**

The Soil Bank Plan and Conservation, **Joe Valentine**
 The Indiana Multiflora Rose Program, **Clayton Bushong**
 The Effect of Timber Stand Improvement on the Amount
 of Deer Browse in Oak-Aspen Stands in Northern
 Michigan, **Leslie W. Gysel**
 Ten Years of Experience in Planting Shrubs for Habitat
 Development, **E.J. Gordinier**
 Forest Game Management Practices in Indiana, **Maurice
 C. Reeves**

Banquet: Major Problems in Conservation, **C. R. Gutermuth**,
 Speaker

Wildlife Status and Surveys, **Edward L. Kozicky** and **Howard
 M. Wight**, Chairmen

Status of the San Juan Rabbit in the Mid-West, **William
 B. Barnes**

Mourning Dove Production; Lewis, Iowa 1940 versus
 1955, **Edward L. Kozicky**

Gray Squirrel Bacula and Long Bones in Relation to Sexual
 Development, **Edward M. Barnett**

The Effect of Intense Hunting Pressure on Game
 Populations and Hunter Turnover, **Morrison D. Ismond**
 Recent Trends in Federal Aid Projects, **Winston A. Elkins**
 Game Inventory, a Practical Research Base, **Paul Moore**
 Forest Preserve Wildlife, **David H. Thompson**

Fish, **Frank F. Hooper** and **Harold McReynolds**, Chairmen
 Some Tests of Seining as a Method of Sampling Fish
 in Small Streams, **Andreas A. Paloumpis**

Fish Escapement Over Spillways, **Darrell Louder**
 Control of Carp Reproduction by Manipulating Water
 Level at Fort Randall Reservoir, South Dakota, **James
 T. Shields**

Recent Developments in Walleye Management in
 Minnesota, **C.R. Burrows**

A Survey of Routine Procedures Used in Lake Surveys,
C.S. Long

Two Fish Winterkill Alleviation Trials, **William R.
 Schmitz**

The Status and Value of the Great Northern Pike in North
 America, **D.B. McCarraher**

EIGHTEENTH MIDWEST WILDLIFE CONFERENCE

Civic Center
 Lansing, Michigan
 December 10-12, 1956

General Session, **Justin W. Leonard**, Chairman
 Agency Research vs. Contract Research, **F.E.J. Fry, S.C.
 Whitlock**, and **F.H. Dale**

Game, **Arthur S. Hawkins** and **C.J. Henry**, Chairmen
 Report on Tests of the Rubber-Styrene Neck Marker and
 a New Nostril-Marking Technique, **Forest B. Lee** and
John P. Lindmeier

Blood Parasites of Canada Geese at Kellogg Bird
 Sanctuary, **D. T. Clark**, **W.J. Rudersdorf**, and **R.D.
 Van Deusen**

Effects of High Water Levels on Breeding of Muskrats
 at Delta, Manitoba, **Peter F. Olsen**

Fur Management in Ontario, **A.T. Cringan**

Progress Report on Waterfowl Management on the Seney
 National Wildlife Refuge, **C.J. Henry**

Report on Mississippi Flyway Management Plan, **Arthur
 S. Hawkins**

Fish, **Robert S. Campbell** and **Paul Eschmeyer**, Chairmen
 A Preliminary Study of Biological and Limnological
 Conditions of Some Western Nebraska Reservoirs, **O.E.
 Orr**

The Bottom Fauna Techniques for Sampling Coarse
 Rubble Bottoms of Streams, **David I. Foster**

Growth Rate of Fish Following Lime Application to a
 Soft-Water Lake in Northern Michigan, **Thomas F.
 Waters**

The Relationship Between Natural Food Supply and
 Condition of Wild Brown Trout in a Michigan Stream,
Robert Ellis and **Howard Gowing**

Temperature Sensitivity of Some Fresh-Water Fishes,
Richard Bjorklund

Special Discussion Sessions

Big Game, **Herman F. Olson** and **Louis J. Verme**,
 Chairmen

Upland Game, **Edward L. Kozicky** and **Ralph I. Blouch**,
 Chairmen

Waterfowl, **William B. Barnes** and **George S. Hunt**,
 Chairmen

Habitat Management, **David B. Vesall** and **John Piazza**
 Professional Standards and Status for Fishery Workers,
Karl F. Lagler

Game, **William R. Hanson** and **Archibald B. Cowan**, Chairmen
 Are Ruffed Grouse Drum Transects Any Good?, **Robert
 S. Dorney** and **Donald R. Thompson**

Blood Parasites of Ruffed Grouse in Michigan, **D.T. Clark**,
L.D. Fay, and **W. Palmer**

Wisconsin Prairie Chicken Populations, **Frances
 Hamerstrom**

A Plan for Prairie Chicken Management, **F.N.
 Hamerstrom, Jr.**

Working Agreements for Wildlife Work on Public Forests,
R.B. Hovind

Our Growing Need—A Place to Produce and Harvest
 Wildlife, **Jack H. Berryman**

Fish, **Shelby Gerking** and **Gerald P. Cooper**, Chairmen
 Spawning and Movement of the Smallmouth Bass at
 Waughoshance Point, Lake Michigan, **William C. Latta**
 Effects of Capture on Susceptibility to Recapture of Carp
 and Various Game Fishes, **Warren J. Wisby**

Food Habits of the Northern River Carpsucker, *Carpionodes
 c. carpio* Raf., **Jerome Brezner**

Smallmouth Bass Production in an Ohio Headwater
 Stream—Part I, Limiting Factors at the Spawning Level,
Edward H. Brown

Fish Population Studies in the Humboldt Area of the Des
 Moines River, Iowa, **Harry M. Harrison**

Movements of Large and Small Channel Catfish in the
 Des Moines River, Iowa, **Robert J. Muncy**

Game, **Paul J. Moore** and **William E. Ginn**, Chairmen
 "Red 14" Film, Wisconsin Conservation Department
 Pheasant Production on an Intensively Farmed Area in
 East-Central Illinois, **Ronald F. Labisky**
 Analysis of Pheasant Age Ratio Study in Iowa, **Richard
 C. Nomsen**

Consumption of Some Food Items by Pen-Reared Bob-
 Whites, **Jack A. Ellis**

- Relationships Between Bob-White and Cover Types During a Six-Year Period, **William R. Hanson**
 The Potential of Checking Stations for Collecting Biological Information, **Frank B. Golley**
- Fish, **Eugene Roelofs** and **C.W. Threinen**, Chairmen
 Seasonal Variation in the Incidence of Lymphocystis in the White Crappie from the Niangua Arm of the Lake of the Ozarks, Missouri, **Arthur Witt, Jr.**
 Overwinter Mortality and Contribution to the Creel of Fall Stocked Catchable-Size Trout in Minnesota, **Robert E. Schumacher**
 The Relation between Spring Water Levels and Water Level Drop and Northern Pike (*Esox lucius*) Year Class Strength in Ball Club Lake, Itasca County, Minnesota, **Fritz Johnson**
 Michigan's Program for the Reduction of Populations of Stunted Bluegills, **John E. Williams** and **Wayne H. Tody**
 Saginaw Bay Yellow Perch in 1929-1930 and 1943-1955, **Salah El-Zarka**
- Game, **Vernon E. Gunvalson** and **John Byelich**, Chairmen
 Seasonal Movements and the Influence of Dogs on Central Missouri Deer, **D. R. Progulskie**
- Deer Disease Studies in Missouri, **Dean A. Murphy**
 Fawn Production on the George Reserve, **Hewlette S. Crawford**
 Estimating Deer Kill from Counts of Deer on Automobiles, **Don W. Hayne** and **Lee Eberhardt**
 Black Bear Live-Trapping Techniques, **Albert W. Erickson**
- Fish, **Warren J. Wisby** and **Stanford H. Smith**, Chairmen
 A Preliminary Report on the Ecological Requirements and Lengths of Larval Life of Sea Lamprey Ammocoetes, **Thomas M. Stauffer** and **Martin J. Hansen**
 Fish Populations in a Mississippi River Backwater Area, **Lyle M. Christenson**
 Growth of Stocked, Marked Fingerling Walleyes, **C.W. Threinen**
 Walleye Management in Michigan, **Walter R. Crowe**
 Further Studies on Hooking Mortality in Michigan Trout Streams, **David S. Shetter** and **Leonard N. Allison**
 Some Factors of Abundance in a Grayling Population, **Thomas E. Kruse**

NINETEENTH MIDWEST WILDLIFE CONFERENCE

Hotel Pfister
Milwaukee, Wisconsin
December 9-11, 1957

- General Session, **L.P. Voigt**, Chairman
- The Relation of Law Enforcement to Resource Management, **Charles A. Dambach**, **A.B. Cook, Jr.**, and **George Hadland**
- Fish, Chairman, **Jerome H. Kuehn**; Leader, **Lyle Christenson**
 An Electric Seine for Sampling Young-of-the-Year Fish, **Lloyd L. Smith, Jr.**, **D. R. Franklin**, and **R. H. Kramer**
 Trawling Equipment Used in Research at the University of Wisconsin, **William T. Helm**
 Trawling in Inland Lakes, Its Advantages and Limitations as a Fish Sampling Method, **Thomas Wirth**
 The Effectiveness of the Latex Marking Techniques on Redear Sunfish, **Shelby D. Gerking**
- Game, Chairman, **Robert S. Ellarson**; Leader, **Durward L. Allen**
 Wildlife and the Soil Bank, **H. R. Morgan**
 Sexing Live-Trapped Juvenile Ruffed Grouse, **Walter L. Palmer**
 Movements and Population Turnover of Male Ruffed Grouse, Cloquet Experimental Forests, **Robert Eng**
 Ruffed Grouse Introductions on Michigan Islands, **G. A. Ammann** and **W. L. Palmer**
 A Non-Cyclic Ruffed Grouse Population Near Ann Arbor, Michigan, **Samuel A. Graham** and **George S. Hunt**
 Wisconsin's Sharptail Management Program, **Burton L. Dahlberg**
 Trends in Wild Turkey Populations in the Missouri Ozarks, **John B. Lewis**
 Guide to Determining Age of Coturnix Embryos, **William R. Edwards**
 Growth and Plumage Development of Pen-Reared Coturnix Quail, **David L. Lyon**
 A Mist-Net Technique for Capturing Nesting Doves, **Stanley Harris**
 Problems in Bird Control, **W. A. Elkins**
- Fish, Chairman, **William Starrett**; Leader, **William Schmitz**
 Evidence of Aging in Natural Fish Populations, **Shelby D. Gerking**
 Sense Orientation in Fishes and Its Relations To Homing, **A.D. Hasler**, **R. M. Braemer**, and **W.J. Wisby**
 Laboratory and Field Experiments Dealing With Temperature Perception, **John E. Bardach**
 A C₁₄ Productivity Study, **Charles Goldman**
 Some Problems Concerning the Use of Aquatic Herbicides in Minnesota, **Bernard R. Jones**
 Some Factors Influencing the Effectiveness of Toxaphene When Used for Fish Eradication, **F.F. Hooper** and **K.G. Fukano**
 A Two Year Census on Four Southeastern Minnesota Trout Streams, **Jerome H. Kuehn** and **Robert W. Schumacher**
- Game, Chairman, **Harold C. Jordahl**; Leader, **Herman F. Olson**
 Factors Influencing Summer Roadside Counts of the Cottontail, **George O. Hendrickson** and **John C. Voris**
 Factors Influencing the Winter Roadside Census of the Cottontail Rabbit in South-Central Iowa, **Duane E. Newman**
 The Research Values of Statewide Rabbit Population Data in Missouri, **Howard M. Wight**
 Differences in Cottontail Sex and Age Ratios From Live-Trapping and Hunting, **Tony J. Peterle**
 Age Determination of Young Fawns, **Arnold O. Haugen** and **Daniel W. Speake**
 Oak Management and Acorn Crop Forecast for Deer in Michigan's Lower Peninsula, **Jerry P. Duvendeck**
 Seventeen Years of Succession on an Overbrowsed Missouri Deer Range, **Robert L. Dunkeson**
 Controlled Deer Hunting in a 647-Acre Enclosed Area, **Robert C. Van Etten**

A Deer Range Management Program, **John M. Keener**
The Use of Acetylene Gas Exploders as a Deer Frightening
Device in Orchards, **Marius Mores**

Fish, Chairman, **Frank Hooper**; Leader, **Oscar Brynildson**
Artificially Induced Circulation of Thermally Stratified
Lakes, **William R. Schmitz**
Experimental Transportation of Game and Panfish in
Plastic Containers, **Clarence F. Clark**
Some Factors Affecting Estimates of Growth of Young-
of-the-Year Fishes in a Lake, **Richard L. Ridenhour**
Limnology of the Middle Mississippi River, III, Physical
and Chemical Conditions, **Tory C. Dorris**
The Fishery of an Alkaline Sand Hill Lake, Nebraska,
Bruce McCarraher
Preliminary Report of Migration of Sea Lamprey
Ammocoetes in the Great Lakes Region, **Thomas M.
Stanffer**
Conservation Department Metropolitan Area Sub-Offices,
Their Purpose and Value, **Herbert S. Schwartz**

Game, Chairman, **Frederick Greeley**; Leader, **Arnold O.
Haugen**

Resistance of Japanese Quail To Ulcerative Enteritis of
Bobwhite, **Charles M. Kirkpatrick** and **Harold E.
Moses**
Field and Laboratory Methods for the Study of Infectious
Diseases, **R. P. Hanson** and **Lars Karstad**
Zoogeography of Coccidia in North American Wild
Geese, **Harold C. Hanson**
A Study of Muskrat Reproduction in Areas of Controlled
and Uncontrolled Water Levels, **Robert Donohoe**
Aerial Control of Cattail with Dalapon, **Robert G. Heath**
and **Lewis C. Ruch**
Control of Sedge and Leatherleaf on Flooding Projects
with Herbicides, **Elsworth M. Harger**
The History and Effects of Experimental Waterfowl
Feeding Programs on Depredations at Delta, Manitoba,
and Lower Souris, North Dakota, **Mike Milonski**
Flight Activity of Wood Ducks in Relation to Sunrise
and Sunset, **Dale N. Martin**
Aerial Census of Waterfowl Breeding Populations as an
Index to Habitat Utilization, **Robert L. Jessen**

Special Panel Discussion: Selling Research Findings, Leader,
Clay Schoenfeld; **Russell Lynch**, **William Harth**, **Les Woerpel**,
and **Ben McGivern**

Fish, Chairman, **Clarence F. Clark**; Leader, **William Helm**
Length Frequency Distributions of Ancient and Recent
Freshwater Drum, **Arthur Witt, Jr.**
Channel Catfish Movements in Lake Erie, **Robert
Cummings, Jr.**
The Channel Catfish Fishery at Lake Chautaugua, Illinois,
William C. Starrett and **Arnold W. Fritz**
The Rate of Exploitation of Native and Stocked Adult
Walleyes in High and Fishtrap Lakes, Vilas County,
Wisconsin, **John Klingbiel**
The Statistics on a Walleye Fishery, **Donald E. Olson**
Rate of Exploitation of Stocked and Native Walleyes in
Escanaba Lake, Wisconsin, **Warren Churchill**

Game, Chairman, **Robert C. Van Etten**; Leader, **John B. Lewis**
Recent Studies of Woodcock in Michigan, **Lytle H.
Blankenship**
Recent Studies of Woodcock in Wisconsin, **Robert A.
McCabe**
Recent Studies of Woodcock in Minnesota, **William H.
Marshall**
Some Uses of Stratified Sampling in Wildlife
Investigations, **Lee Eberhardt**
A Mail Questionnaire Regarding Fox Populations, **Charles
W. Lemke** and **Donald R. Thompson**
Evaluation of Habitat Restoration Work in Indiana,
Clayton Bushong
Private Forests in Wisconsin - Their Contributions To
Public Recreation, Present, and Future, **Ralph B. Hovind**
Response of Small Game Populations to an Intensive Food
Patch Program, **Gordon L. Zorb**
Bowhunting Problems on the Necedah National Wildlife
Refuge, **Carl Pospichal**
Economic Status of the Jackrabbit in Iowa, **Paul D. Kline**

TWENTIETH MIDWEST WILDLIFE CONFERENCE

Neil House
Columbus, Ohio
December 15-17, 1958

Quantity vs. Quality in Outdoor Recreation, Chairman, **Herbert
B. Eagon**

Guide Lines from European Experience for American
Wildlife Management, **Lloyd W. Swift**
The Role and View of Private Enterprise, **Edward L.
Kozicky**
The Role and View of the Ecologist, **Paul B. Sears**

Fish, Chairman, **Gerald Cooper**

Creel Census and Population Estimate Figures from 180-
Acre Murphy Flowage With Special Reference to the
Northern Pike Population, **Howard E. Snow**
Some Factors Associated with the Success of Year Class
Strength in Northern Pike, **L.L. Smith, Jr.**, and **D. R.
Franklin**
Muskellunge Growth in Wisconsin, **Leon D. Johnson**
Some Vital Statistics on Young Walleye in Wisconsin,
with Special Reference to Methods of Collection,
William T. Helm

Walleye and Sauger Studies in the Mississippi River in
Iowa, **R.E. Cleary**

Survival and Growth of Tagged Lake Trout Planted in
Lake Huron, **John Budd**
A Seasonal Study of Food Consumption and Growth of
the Bluegill, **Richard O. Anderson**

Game, Chairman, **Joseph J. Hickey**

Factors in Whistling Swan Management, **Harvey K.
Nelson**
Duck Nesting Success Versus Land-Use in a Prairie
Pothole Area, **Norman J. Ordal**
Notes on the Upland Feeding Behavior of Black and
Mallard Ducks, **Robert W. Winner**
A Study of Canvasback Total Annual and Shooting
Mortality, **Aelred D. Geis**
Preliminary Analysis of Mourning Dove Nestling Banding,
W. H. Keil, Jr.

Progress Report on Goose Management Areas in Ohio,
Karl E. Bednarik
The Use of Paper Disc Absorbed Whole Blood Samples
in Wildlife Serological Surveys, **Donald O. Trainer, L.**
Karstad, and R.P. Hanson
The Forecast and Advent of Mass Migrations of
Waterfowl, **James G. Sieh**

Fish, Chairman, Dr. John Funk

Failure of Yellow Bass to Form Annuli in Later Years
of Life, **Marvin M. Buchholz**
The Abstraction of One Parameter From a Complex
Visual Stimulus by Fish, **Jerald Berstein**
Photosynthesis Under Completely Natural Conditions,
Jacob Verduin
Seasonal Changes in Harvest and Fishing Effort on a
Section of the Des Moines River, Iowa, **James C.**
Schmulbach
Mayflies and Caddis Flies as Food of Several Species
of Fish in the Mississippi River, **David T. Hoopes**
A Resurvey of the Fish Parasites of Lake Erie, **R.W.**
Bangham

Game, Chairman, Ralph L. Blouch

A Mailed Questionnaire on Pheasant Populations, **Charles**
W. Lemke
Effect of Date of Hatching on Weights of Juvenile
Bobwhite Quail, **Donald R. Thompson and Cyril Kabat**
Status of Two Attempts to Establish Pheasants in Vacant
Habitat in Illinois, **Jack A. Ellis**
Some Correlations of Weather Factors with Behavioristic
Patterns and Hatching Success of the Coturnix Quail,
Vernon C. Stevens
Nitrate Poisoning in Captive Ringneck Pheasants, **Arthur**
C. Sickels
Management of State-Owned Waterfowling Area in Ohio,
Karl E. Bednarik

Fish, Chairman, John Z. Pelton

Factors Affecting Periodic Fish-Kill in the Hocking River,
Henri C. Seibert
Spawning Activities of Gizzard Shad in a Southern Iowa
Reservoir, **Dale Stufflebeam**
Problems in Alaskan Fisheries Research, **Karl F. Lagler**
Kinescopes of Fish Subjects, **Karl F. Lagler**

Game, Chairman, Rexford D. Lord, Jr.

A Flexible Plastic Ear Marker for Rabbits, **Ronald F.**
Labisky and Rexford D. Lord
A Technique of Marking Deer for Nocturnal Studies,
Donald C. Duerre
Biological Investigations of Traplines in Northern Ontario,
Antoon de Vos and T.K. Reynolds
One Thousand Miles of Fox Trails in Michigan's Ruffed
Grouse Range, **Raymond D. Schofield**
The Home Range of the Swamp Rabbit, **John E. Toll**
and **Thomas S. Baskett**
A Preliminary Report on Synchronal Rabbit Populations
in the Midwest and East, **Howard M. Wight**
Michigan's Island Game Research, **Ralph I. Blouch**
Availability of Deer Browse Through Winter Logging in
Coniferous Yards in Northern Michigan, **Louis J. Verme**
and **Laverne A. Davenport**

Fish and Game, Chairman, Carl L. Mosley, Jr.

Slides for Conference Papers, **Oscar Warbach, William**
C. Youatt, and Dean Armstrong
Uniform Game Laws, Interpretations and Enforcement,
F.H. Davis
High Spots of Inland Fishery Research in Western Europe,
Karl F. Lagler
Are We Missing an Important Bet?, **B.H. Popov**
Closing Remarks, **Lee S. Roach**

TWENTY-FIRST MIDWEST WILDLIFE CONFERENCE

Leamington Hotel
Minneapolis, Minnesota
December 7-9, 1959

General Session, William Marshall

Welcome, **George A. Selke, Winston A. Elkins, and James**
W. Kimball
Pesticide-Wildlife Research in the Bureau of Sport
Fisheries and Wildlife, **E. H. Dustman**
Rules of Law in Wildlife Management, **Raymond W. Haik**
Scandinavian Waterfowl Problems, **Paul L. Errington**

Wildlife, General, Frank Irving, Chairman

Aerial Application of 2,4-D to Improve the Browse Supply
for Deer, **L. W. Krefting, R.W. Hunt, and H.L. Hansen**
Surveys of Deer Pellet Groups on an Area of Known
Herd Size, **Lawrence A. Ryel**
Capturing and Marking Barrenground Caribou in
Northern Manitoba, **Eugene F. Bossenmaier**
The Use of X-Ray in Studies of Deer Productivity, **L.J.**
Verme, L. D. Fay, and U. V. Mostoskey
A Preliminary Estimate of Songbird Mortality Resulting
from Municipal Spraying for Dutch Elm Disease, **J.**
J. Hickey and L.B. Hunt
Songbird Breeding Populations in DDT-Sprayed Dutch
Elm Disease Communities, **L. B. Hunt**
A Laboratory Comparison of the Toxic Effects of DDT
and Methoxychlor on Robins, **R.J. Sacho, J.J. Hickey,**
and **L.B. Hunt**

Salt Poisoning in Wisconsin Wildlife, **D.O. Trainer and**
Lars Karstad

Fish, Ancil D. Holloway, Chairman

Progress on the Upper Mississippi River Survey, **Robert**
C. Nord
Life History Observations on Important Caddis Flies of
the Mississippi River, **Calvin R. Fremling**
Allocreadiid Flukes in Mayflies of the Mississippi River,
Clarence Carlson and Fred Meyer
Biological Investigation of the Upper Fox River, **Daniel**
Q. Thompson
Trout Unlimited—A New Conservation Organization,
Casey E. Westell, Jr.
Effects of Flies-Only and a Higher Size Limit on Trout
in Test Streams in Michigan, **Gerald P. Cooper**

Game, Arthur S. Hawkins, Chairman

Waterfowl Merry-Go-Round in Canada, **W.G. Leitch**
Midwest Wetlands Need Help, **Hiram Southwick**
A 1959 Look at the Drainage, Duck and Drouth Picture
of the Prairie Pothole Country, **Grady Mann**
Drouth and Its Effects on South Dakota Wetlands, **H.M.**
Reeves

What Are the "Best Buys" in Waterfowl Real Estate Today?, **J.D. Smith**
 Artificial Potholes and Ditches for Waterfowl Habitat, **M.C. Hammond** and **C. H. Lacy**

Game, Laurence R. Jahn, Chairman

A Simple Method for Recording Waterfowl Nesting Activity, **Alex Dzubin**
 Waterfowl-Habitat Relations in Northwestern Minnesota, **John P. Lindmeier**
 Studies of the American Goldeneye in Minnesota, **Leon Johnson**
 Mallard Age and Sex Determination from Wings, **Samuel M. Carney** and **Aelred D. Geis**
 Breeding Pair Distribution in the Pintail, *Anas acuta*, **Robert I. Smith**
 Effects of Various Oxygen Levels on Early Development and Germination of Wild Rice, **Carl W. Svare**
 Changes in the Mandibular Teeth in Beaver as Indicators of Age, **V.H.H. Williamson** and **C.D. Fowle**
 Flesh Patterns in Muskrat Pelts and Their Relation to Hair Growth and the Primeness Process, **A.F. Linde**

Fish, Warren J. Scidmore, Chairman

A Qualitative Creel Census on a Large Minnesota Lake, **Dennis H. Schupp**
 On Reading Walleye Scales, **Kenneth D. Carlander**
 On the Validity of Mark-and-Recapture Population Estimates in Small Trout Lakes, **Thomas F. Waters**
 Applications of Boat-Rigged, A.C. and D.C. Shockers in West Central Wisconsin Waters, **Ludwig Frankenberger**
 Some Potential Errors in the Collection and Handling of Age and Growth Data, **James T Shields**
 Evaluation of the Liberalized Regulations on the Largemouth Bass of Browns Lake, Racine County, Wisconsin, **Donald Mraz**
 Some Results from Wintertime Use of Compressed Air in Two Shallow Michigan Lakes, **Mercer H. Patriarche**

Game, Morris Johnson, Chairman

The Soil Bank and Pheasants, **Thomas A. Schrader**
 An Evaluation of South Dakota's Pheasant Populations Surveys, **Robert B. Dahlgren**
 Ruffed Grouse Movements Studies at the Cloquet Forest Research Center, **Gordon W. Gullion** and **W.H. Marshall**
 Progress Report on an Intensive Bob-White Quail Management Program, **W. D. Klimstra**
 A Progress Report on Gray and Fox Squirrel Population Studies in Ohio, **Robert Donohoe**
 Age Specific Reproduction of Cottontail Rabbits, **Rexford D. Lord, Jr.**

Recovery Rates of Fox Squirrels on a Public Hunting Area, **Tony J. Peterle** and **William R. Fouch**
 A Place to Hunt Pheasants in Southern Michigan, **Gordon Zorb**
 Effects of Calcium Deficiency on Hen Pheasants, **Frederick Greeley**
 Blowfly Larvae as a Source of Botulism Toxin on a Pheasant Game Farm, **Sti Krishna Vadlamudi**

Fish, Samuel Eddy, Chairman

Some Notes on the Life History and Ecology of the Crayfish *Orconectes virilis*, with Suggestions for Management, **C.W. Threinen**
 Some Factors Associated with the Success of Year-Class Formation in Largemouth Bass, **Robert H. Kramer** and **Lloyd L. Smith**
 Effect of Perch Removal on the Angler's Catch of Walleyes, **Merlyn L. Wesloh**
 Freshwater Fisheries of Cambodia, **John E. Bardach**
 The Results of Four Years of Fish Eradication Work with Toxaphene in Nebraska, **Jack L. Dean**
 Behavior of Muskellunge, **Leon D. Johnson**
 The Effects of Elimination of Carp on the Submerged Vegetation in Shallow Lakes, **Robert L. Jessen** and **Jerome H. Kuehn**

Banquet Toastmaster, Winston A. Elkins

Speaker, **Rolph von Zeitel**, Effects of Radioactive Materials on Wildlife

Game, A.B. Cowan, Chairman

Game Management Problems in Finland, **Matti O. Helminen**
 Problems in the Control of Birds in Ohio, **Maurice L. Giltz**
 Protecting a Banding Station from Raptor Predation, **Frances Hamerstrom** and **Daniel D. Berger**
 An Evaluation of Fox Calling as a Hunting Technique, **Marius Morse**

Fish, Karl F. Lagler, Chairman

Studies in the Use of Fertilizers in Experimental Ponds, **John Dobie**
 Preliminary Observations on the Movements of Radiosodium in a Meromictic Lake, **Gene Likens**
 First-Year Growth of Walleyes and Related Environmental Factors, **Lloyd L. Smith**
 Some Aspects of the Life History of the Smelt, *Osmerus mordax*, in Western Lake Superior, **John G. Hale**
 Surface Schooling and Feeding Behavior in the White Bass, *Roccus chrysops*, **Donald C. McNaught**
 Responses of a Marl Lake to a Chelating Agent (Versenol), **C.L. Schelskie** and **Frank F. Hooper**

TWENTY-SECOND MIDWEST FISH AND WILDLIFE CONFERENCE

Royal York Hotel
 Toronto, Ontario
 December 5-7, 1960

General Session, Chairman, C.H.D. Clarke

Comparative Productivity of Land and Water in the Midwest, Chairman, D.L. Allen

The Wildlife Productivity of Wetlands in the Midwest, **P. L. Errington**
 Fish Productivity of Midwestern Waters, **P. Cooper**
 The Productivity of Big Game Ranges in the Midwest, **G. De Boer**

The Productivity of Small Game Ranges in the Midwest, W.T. Crawford

Dynamics of Fish Populations in Small Waters, Chairman, F.E.J. Fry

Some Effects of Angler Exploitation on the Fish Populations in Four Michigan Lakes, **M. H. Patriarche**
 Angler Exploitation of Estimated Fish Populations in Wisconsin Lakes, **T. L. Wirth**

Estimates of Mortality of the Maskinonge in a Small Ontario Impoundment, **B. S. Muir**
 A History of an Intensive Fishery on Heming Lake, Manitoba, **G.H. Lawler**
 The Next Ten Years on Heming Lake, **G.F.M. Smith**
 The Effects of Maskinonge Stocking on the Resident Fish Populations of 2 Dystrophic Lakes, **J.R. Gammon**

Species Problems in Waterfowl Management, Chairman, D.A. Munro

Wood Duck Management Problems, **F. Bellrose, Jr.**
 Canvasback Management Problems, **J. Stoudt**
 Mallard Management Problems, **A. D. Geis**
 Aerial Inventory Techniques in Waterfowl Management, **W. F. Crissey**
 Some Changes in the Status of the Mallard in Southern Ontario, **A.T. Cringan**
 A National Mourning Dove Research and Management Programme, **F.H. Wagner**

Game Technical Session, Chairman, E.F. Bossenmaier

Age Composition of Illinois Deer Populations by the Lens Technique, **R. D. Lord, Jr.**
 Capture of Deer in Indiana with Nicotine Salicylate, **R. Hamilton**
 Moose-Rabbit Browsing Pressure in the Gogama Forest District, **G.E. Vozeh** and **H.G. Cumming**
 Experimental Goose Management on a Northern Peat Bog, **R.B. Hovind**
 The Use of Tape Recordings of Wolf Howls in the Location of Timber Wolf and Coyote Groups, **D.H. Pimlott**
 Fish & Wildlife Programmes of Conservation Authorities, **R.M. Mayall** and **M.G. Johnston**

Dollar Value of Fish and Wildlife, Chairman, K.H. Loftus

An Attempt to Place a Monetary Value on the Hunting Potential of Land, **D.N. Omand**
 Evaluation of a Commercial Fishery, **J.B. Rutherford**
 Beyond the Dollar Value of Fish and Wildlife, **Z.W. Sazmetz**
 A Fresh Look at the Value of Fish and Wildlife Resources, **K.B. McKerracker**
 Fishery Problems in Liberia, **P.D. Youn**
 Inland Fisheries in Southeast Asia, **J.E. Bardach**
 Vegetation and Wildlife in the High Arctic, **J.H. Soper**

Wildlife and Fish Diseases, Chairman, **A.B. Cowan**
 Epizootics in Wild Animals in Relation to Populations, **C.M. Herman**
 Wild Animal Reservoirs and Epidemiology, **R.P. Hanson**
 Tularemia and Animal Populations: Ecology and Epizootiology, **W.L. Jellison, R. Owen, J.F. Bell, and G.M. Kohls**
 Arthropod-Borne Encephalitis in Ontario, **M. MacLean**

Fishery Technical Session, Chairman, E. Schneberger

Limnology of Sulphate-Bicarbonate Lakes in Nebraska, **D.B. McCarraher**
 Some Aspects of Increased Angling Pressure for Lake Trout in Four Northeastern Minnesota Lakes, **R.E. Schumacher**
 The Problem of Gill Net Selectivity in Harvesting Lake Huron Whitefish, **A.McCombie**
 The Intelligence of Fishes, **J.E. Bardach**

Fish Toxicants in Fisheries Management, Chairman, Hugh R. McCrimmon

The Testing, Evaluation, and Application of Fish Toxicants in Quebec, **G. Prevost**
 The Development of Stomach Poisons for the Control of Carp, **H.A. Loeb**
 Preliminary Results of Experimental Reclamation with Thiodan, **J.P. Cuerrier**
 Research Methods and Findings on Fish Toxicants and Their Application, **I. Brooks**
 The Use of Fish Toxicants in Managing Small Waters in West-Central Wisconsin, **G. Brash**
 Standing Crops of Fish in an Upper Mississippi River Back Water Area, **L.M. Christenson**

Fish and Wildlife Diseases, Chairman, A.B. Erickson

Leptospirosis in Wisconsin Deer, **D.O. Trainer**
 Diseases in Woodchucks in Relation to Population, **D.E. Davis**
 Diseases in Cottontails, **D.H. Ferris**
 Bacterial Diseases of Ontario Freshwater Fish, **L.A. McDermott**
 Film - "The Big Four" - **Minnesota Conservation Department**
 "Do It Yourself" Resource Agency Planning, **J.A. Lee**
 Super-Parasitism as a Suggested Factor in Winter Waterfowl Mortality on the Lower Detroit River, **G. Cornwell** and **A.B. Cowan**

TWENTY-THIRD MIDWEST WILDLIFE CONFERENCE

**Center for Continuing Education
 Lincoln, Nebraska
 December 4-6, 1961**

Making Wildlife Motion Pictures, Charles W. Schwartz

General Session, Chairman, E.F. Frolik

Origin and Traditions of the Midwest Wildlife Conference, **Edward Schneberger**
 Look Ahead, **M.O. Steen**
 Research Contributions of the Federal Aid in Fish and Wildlife Restoration Programs in the Midwest, **S.E. Jorgensen**
 The Role of State Conservation Departments in the Small Watersheds Program, **C. Dale Jaedicke**

Panel Discussion: Some Aspects of the Use of Insecticides in the Decade Ahead, Chairman, Thomas G. Scott

Some Wildlife Aspects of the Use of Insecticides in the Decade Ahead, **W.W. Dykstra**
 Some Fisheries Aspects of the Use of Insecticides in the Decade Ahead, **C.M. Tarzwell**
 Some Public Health Aspects of the Use of Insecticides in the Decade Ahead, **William F. Durham**
 The Decade Ahead in Agricultural Insect Control, **Bob Roselle**

- Some Agricultural Chemical Aspects of the Use of Insecticides in the Decade Ahead, **J.E. Johnson**
- Wetlands Resources, Chairman, **Harvey Miller**
 New Approaches in Canada Goose Management, **Harvey K. Nelson**
 Progress of the Bureau's Waterfowl Habitat Acquisition Program, North-Central Region, **J.D. Smith**
 The Management of Pin Oak in a Duck Shooting Area, **Robert W. Merz**
 Use of Minnesota Ponds and Pits by Wildlife, **Hans G. Uhlig**
- Fisheries Technical Session, Chairman, **Kenneth D. Carlander**
 Feeding Habits and Food Intake as Related to Growth and Survival of Fish, **Keith G. Seaburg**
 A Comparison of Estimates of the Fish Population in Verdon Lake, Nebraska, **David J. Jones**
 The Ionic Composition of Wisconsin Lake Waters, **Ronald Poff**
 A Shift in White and Black Crappie Abundance in Clear Lake, Iowa, **Richard A. Neal**
 The Abundance of Benthos in Wyland Lake, Indiana, **Shelby D. Gerking**
- Management of Small and Large Impoundments, Chairman, **Goodman K. Larson**
 Planning for Multiple Purpose Use of Government Lands along the Upper Mississippi River Navigation Pool-Reservoirs, **F.W. Collins**
 Coordinated Planning for Fish and Wildlife Development on Missouri River Reservoirs, **Dudley D. Rehder**
 Some Effects of the Missouri River Navigation and Flood Control Project on the Fish and Wildlife Resources of Iowa and Nebraska, **Delmar Robinson**
- Limnological Effects of Introducing Oil Field Brine into Farm Ponds to Reduce the Turbidity, **Dee Keeton**
 The Effect of Drawdown on the Vegetation of a Waterfowl Impoundment, **John A. Kadlec**
 Management of Waterfowl Impoundments in Michigan, **Merrill L. Petoskey**
 An Appraisal of Spatial Aspects of Aquatic Recreation, **C.W. Threinen**
- Fish and Wildlife Diseases and Game Technical Session, Chairman, **A.B. Cowan**
 A Check for Blood Parasites in Iowa Game Birds, **David J. Roslien**
 Diseases of the Wisconsin White-Tailed Deer, **Daniel O. Trainer**
 Parasites of Wild Turkeys from the Black Hills of South Dakota, **Ernest J. Huggins** and **Carl F. Dauman**
 The Zoogeographical Affinities of Trematodes of South American Freshwater Fishes, **H.W. Manter**
 The Use of Vaccine to Control *Aeromonas* Infections in Centrarchids, **Robert G. Piper**
 Social Behavior in the Cottontail Rabbit, **Halsey M. Marsden**
 A Study of Minnesota Gray Squirrels, **William H. Longley**
- Game Technical Session, Chairman, **Bill T. Crawford**
 Reproduction in Iowa's Deer, **Arnold Haugen**
- Research Data from Special Areas in Missouri, **Dean Murphy**
 Hunter Bias in Reporting, **Karl E. Bednarik**
 Results of Two Spring Turkey Seasons in Missouri, **John B. Lewis**
 Estimating Wood Duck Populations by Roosting Flight Counts, **Dale Hein**
 Population Turnover of Male Ruffed Grouse, **Gordon W. Gullion**, **Robert L. Eng**, and **William H. Marshall**
 Bobwhite Inventory Methods, **Karl Menzel**
 The Count of Whistling Quail as an Index to the Population, **M.E. Stempel**
- Fisheries Technical Session, Chairman, **Everett B. Speaker**
 Day-Night Differences in the Seine Capture of Shore Fishes About the Bass Islands, Western Lake Erie, **Karl F. Lagler**
 The Biological Effects of Sodium Arsenite, **Edwin A. J. Barkley**
 A Progress Report on the Development of an All-Dry Trout Food, **Harvey Willoughby** and **Oliver B. Hawkins**
 Fish as Test Animals in Toxicity Bio-Assay, **W.H. Irwin**
 Techniques of Intensive Trout Management in the Black Hills of South Dakota, **Charles L. Sowards**
 Artificial Hybridization of the Muskellunge and Grass Pickerel in Ohio, **Donald L. Tennant** and **George Billy**
- Farm Game Session, Chairman, **Laurence R. Jahn**
 Effects and Reaction of the Statewide Quail and Sportsmen's Population to the Catastrophic Winter-Spring Weather Conditions in 1960, **Jack Stanford**
 Influence of Production on Iowa Cottontail Rabbit Populations, **Paul D. Kline**
 Studies on the Phenomenon of Carrying Capacity in South-Central Nebraska Pheasants, **Ray Linder**
 Survival of Game Farm and Wild-Trapped Pheasants Released in Southern Illinois, **William L. Anderson**
 1961 Winter-Spring Weights of Ring-Necked Pheasants in Ohio, **William R. Edwards**, **Peter J. Mikolaj**, and **Edward A. Leite**
 Land-Use and Cover Considerations on Shooting Preserves, **H. Granville Smith**
 An SCS Program for Wildlife Conservation, **C.V. Bohart**
 Overlay Mapping as a Technique for Improved Management of Upland Game, **Robert H. Giles**
- Fisheries Technical Session, Chairman, **O.E. Orr**
 A Study of pH Problems in Fish Hatchery Ponds, **Howard M. Jackson**
 Supplemental Feeding of Fingerling Channel Catfish, **Otto W. Tiemeier**
 Experimental Raising of Channel Catfish in Ponds, **B.A. Simco** and **F.B. Cross**
 Some Results of Machine Analysis of Lake Data, **LaVerne Sather**
 A Creel Census of Skindivers in Reservoirs and Streams in Missouri, **Richard L. Poole**, **Donald R. Kuester**, and **Arthur Witt, Jr.**
 Hormone Effect on Guppies to Control Reproduction, **Robert J. Boles**
 Aspects of the Life History of the Longnose Gar in Missouri, **Norval F. Netsch** and **Arthur Witt, Jr.**
 A Test of the Compressed Air Method for Marking Fish, **W.J. Scidmore**

TWENTY-FOURTH FISH AND WILDLIFE CONFERENCE

**Hotel Fort Des Moines
Des Moines, Iowa
December 3-5, 1962**

General Session, Chairman, **Edward Schneberger**

Ten Years of Sport Fish Restoration, **E.E. Hueske**
A 25-Year Summary of P-R Activities with Special
Emphasis for the Scandinavia Region, **John R. Langenbach**
The Red Deer of Scandinavia, **Ingemar Ahlen**
The Establishment and General Objectives of the New
Bureau of Outdoor Recreation, **Evan Haynes**
Wetland Acquisitions Program - Breakthroughs-
Roadblocks, **W. P. Schafer**

Farm and Upland Game, Chairman, **Tom Evans**; Discussion Leader, **Kenneth Johnson**

Wisconsin Farm Income for Recreation, **Ross J. Miller**
The Nutritional Value of Certain Bobwhite Foods, **Charles
Newlon**
The Influence of Field Size and Shape on Pheasant
Nesting, **Robert B. Dahlgren**
Some Aspects of Southern Iowa Pheasant Production,
Eugene D. Klenglan
Calcium Content of Grit Consumed by Juvenile Pheasants
in Illinois, **James A. Harper**
Red Blood Cell Antigens of Pheasants - A Progress Report,
Paul A. Vohs, Jr.
Adjusting the Cottontail Lens Weight Histogram, **William
R. Edwards**
A Cottontail Rabbit Movement and Density Study in
Central Missouri, **Kenneth C. Sadler** and **Clifford
Caldwell**
Social Behavior of the Swamp Rabbit, **Nicholas R. Holler**
Reproduction of the Swamp Rabbit in Captivity, **N. R.
Holler**, **Thomas S. Baskett**, and **John P. Roberts**.

Wildlife Diseases, Chairman, **Carlton M. Herman**; Discussion Leader, **Daniel O. Trainer**

Epizootic Hemorrhagic Disease of Deer in the Midwest,
Daniel O. Trainer
Determination and Measurement of Leptospiral Foci in
Southern Illinois Wildlife, **D.H. Ferris**, **Richard
Andrews**, and **Manford Mansfield**
White-Tail Deer Epizootic in North Dakota Badlands,
Stephen H. Richards
Prevalence of Serum Antibodies to Seven Zoonoses in
Persons Attending Our Iowa Wildlife and Fisheries
Seminar, **W.F. McCulloch**, **I.H. Borts**, and **A.O. Haugen**
Midwest Wildlife Rabies, **Stanley L. Hendricks**
Seasonal Changes in the Incidence of Rabies in Striped
Skunks, **B.J. Verts**
Some Relationships Between Mourning Dove Production
and Levels of Trichomonad Infection, **John M. Allen**
Experimental Shopes Fibroma in Young Cottontail
Rabbits, **Thomas M. Yuill**
Losses of Wildlife on an Area Treated for Control of
Japanese Beetles, **D.W. Douglas**, **L.L. Eberhardt**, and
L.A. Ryel
Ecological Relationships of Mammals in an Investigation
of Leptospiral Focality in Southern Illinois, **Richard
Andrews** and **D.H. Ferris**
Evidence of Arthropod-Borne Virus Activity in Wisconsin
Small Mammals, **Lloyd H. Lauerman, Jr.**, **Merle L.
Kuns**, and **Robert P. Hanson**

Migratory Birds, Chairman, **Donald V. Gray**; Discussion Leader, **Charles E. Shanks**

A Closer Look at the Bird-Aircraft Strike Problem, **Elwood
A. Seaman**
The Cooing Behavior of Wild Mourning Doves, **Gary L.
Jackson**
Effect of Drought on Lesser Scaup Reproduction, **John
P. Rogers**
Waterfowl Nesting Densities and Success, Union Hough
National Wildlife Refuge, Iowa, **Harold H. Burgess**
Non-Hunting Mortality in Ducks; Its Measurement,
Causes and Significance, **George Cornwell** and **H.
Albert Hochbaum**
Canada Geese of the Eastern Prairie Flock and Its
Relationship to Swan Lake National Wildlife Refuge,
Leo Kirsch and **Richard W. Vought**

Forest Wildlife and Big Game, Chairman, **Herman Olson**; Discussion Leader, **L.W. Krefling**

Composition of Milk and Blood in White-Tailed Does
and Fawns, **Louis J. Verme**, **William G. Youatt**, and
Duane E. Ullrey
Needs and Opportunities for Coordinating Timber
Management and Forest Game Management, **Lawrence
L. Sluzalis**
Forage Production of National Forest Lands in Missouri,
Dean A. Murphy, **Roger Kirman**, and **John Ehrenreich**
A Study of Deer Mobility in the Missouri Ozarks, **George
P. Dellinger**
Antelope Restoration in Nebraska, **John Mathisen**
Present Status of the Moose Range on Isle Royale, Lake
Superior, **L.W. Krefling**
The Restocking of Fisher in Lake States Forests, **George
W. Irvine**, **Bernard Bradle**, and **Lester T. Magnus**
The Sandhill Wildlife Demonstration Area - Problems
and Plans for Its Management as a State-Owned Public
Area, **Stanley G. DeBoer**
Recent Wild Turkey Introductions in Nebraska, **Harvey
Y. Suetsugu** and **Karl E. Menzel**
Ruffed Grouse Studies Using Radio Telemetry
Techniques, **William H. Marshall**

Techniques and Fish Culture, Chairman, **K.M. Madden**; Discussion Leader, **William Harth**

Advances in Instrumentation in Fisheries, **Richard H. van
Haagen**
A Survey of Fish Transportation by Use of Polyethylene
Containers, **David Bruhn**
Economical Distribution of Bass Fry to Iowa Farm Ponds,
Dale Stufflebeam and **Ronald Johnston**
Fatty Metamorphosis of Livers in Fed Channel Catfish,
Frank B. Cross and **Bill A. Simco**
Trough Rearing of Young Channel Catfish, **Tom Moen**
and **Ernest Thune**
Blood Lactic Acid, Fatigue and Mortality in Relation to
Muscular Activity in Some Warm-Water Fishes,
Charles W. Caillouet
Survival of Walleye Fingerlings Marked by Fin Removal,
Warren Churchill
The Effect of Direct Sunlight on Hatchery Lake Trout,
Leonard N. Allison

Fish Population Relationships, Discussion Leader, **Shelby Gerking**

- Fluctuations in Turbidity Levels at Lake Bloomington, Illinois, **Andreas A. Paloumpis**
- Observations on Stockings of Catchable-Size Warm-Water Fish in a Lake with an Established Fish Population, **William M. Lewis, Robert C. Summerfelt, and Alvin Lopinot**
- The Collection of Young Freshwater Fish in the Open Water of a Small Lake, **Daniel J. Faber**
- Observations on the Environmental and Species Associations of the Walleye in Lake Winnibigoshish and Connection Waters, **Fritz H. Johnson**
- Studies of the Relationship Between the Walleye and Tullibee Populations of Lake Vermillion, Minnesota, **John Dobie**

Cooperative Programs, Discussion Leader, **James T. Shields**

- Two Years of Cooperative Pollution-Caused Fish Kill Reports, **James R. Harlan**
- Cooperation Between U.S. Army Corps of Engineers and Conservation Agencies Within the Rock Island District, **Francis W. Collins**
- The Role of Cooperation in Wildlife Habitat Development Programs, **Sylvan Runkel**
- Fisheries Research on Missouri River Impoundments, **Norman G. Benson**

Special Fisheries Sessions, Chairman, **Gerald P. Cooper**

Stream Fisheries, Chairman, **John Funk**; Discussion Leader, **Weldon Larimore**

- The Fish Populations of Two Ozark Streams, **Otto F. Fajen and John Funk**
- A Quantitative Creel Census of Two Small Missouri Streams, **George G. Fleener**
- The Smallmouth Bass in Missouri, **John L. Funk**
- Age and Growth of the Northern Hog-Sucker, *Hypentelium nigricans* (Le Sueur), in the Des Moines River, Iowa, **Dee Keeton**
- Fish Management in Warm-Water Streams in Michigan, **John A. Scott**
- The Influence of Beaver on Trout Streams with Special Reference to Streams of the Minnesota North Shore of Lake Superior, **John G. Hale**
- Changing Fish Populations During 100 Years of Drainage Improvements, **R. Weldon Larimore and Phillip W. Smith**

TWENTY-FIFTH (SILVER ANNIVERSARY) MIDWEST WILDLIFE CONFERENCE

Sheraton-Jefferson Hotel

St. Louis, Missouri

December 9-11, 1963

General Session, Chairman, **Bill T. Crawford**

- Challenges of the Twenty-Five Years Ahead, **E.L. Cheatum**
- Panel Discussion: Recent Advances in the Study of Animal Movements, Chairman, **Ralph MacMullan**
- Birds, **Frank C. Bellrose**
- Fish, **Francis Henderson**
- Mammals, **Glen C. Sanderson**

Migratory Birds and Wetlands, Chairman, **Milton Weller**; Discussion Leader, **Harvey Nelson**

- A Waterfowl Nesting Study in Alfalfa Fields of the Southwest Lake Erie Region, **Donald W. Thompson**
- Lead Poisoning of Waterfowl in Wisconsin, **Daniel O. Trainer and Richard Hunt**
- The Use of Ammonium Nitrate for Marsh Improvement, **John Mathisen, John Byelich, and Robert E. Radtke**
- The Effect of Drawdown Date on Plant Succession - A Seven Year Ecological Study of Four Southwestern Lake Erie Marsh Units, **Robert L. Meeks**
- Propagation of Tub Nesting Geese, **George Brakhage**
- Results of Wisconsin Goose Hunting Regulations, **Richard Hunt, D.R. Thompson, A.J. Rusch, and G.E. Martz**
- Reproduction of a Semi-Wild Flock of Giant Canada Geese (*Branta canadensis maxima*), **Glen Smart**
- An Evaluation of Duck Nesting Structure in Colorado, **Richard M. Hopper**

The Lotic Environment, Chairman, **David I. Foster**; Discussion Leader, **Larry A. Morris**

- The Upper Mississippi River Conservation Committee, **Robert C. Nord**

Commercial Fishing in the Upper Mississippi River, **William C. Starrett**

- Walleye and Sauger Tagging Studies in the Iowa Waters of the Mississippi River, **Roger Schoumacher**
- Development of the Tennessee Fish Protection and Surveillance System, **John M. Stubbs**
- Distribution of Minnows and Darters in Boone County, Iowa, 1963 Compared with 1946-1947, **Richard L. Noble and Earl E. Kelling**
- Spawning Paddlefish by Means of Pituitary Material, **Robert G. Needham**
- Fertilization of Drainable Ponds, **John Dobie**

Upland Game and Furbearers, Chairman, **James Hale**; Discussion Leader, **Tony Peterle**

- Manipulation of Roadside Cover for Nesting Pheasants, **G. Blair Joselyn**
- Bobwhite Quail: Production Season Indexes and Weather, **Jack A. Stanford**
- Land-Use Trends and Prairie Grouse in the Nebraska Sandhills, **Lawrence J. Blus**
- Environmental Influence on Cottontail Litter Size, **Kenneth R. Russell**
- Weather and Pheasant Populations in Southwestern North Dakota, **R. Kahler Martinson**
- Mobility of Sharptail Grouse on a Sandhills Refuge, **Gerald D. Kobriger**
- A Modification of the Placental Scar Technique, **Keith D. Larson**
- Effects of Colored Markings on Dove Behavior, **W. Reid Goforth**

Fishery Methods and Techniques, Chairman, **Richard O. Anderson**; Discussion Leader, **Al Lopinot**

Vulnerability, Its Role in the Predator-Prey Relationship in Fish Populations, **William M. Lewis** and **Don R. Helms**

Biological Aquatic Weed Control in Experimental Ponds, **William H. Tate**

Paper Chromatograms of Body Mucus of Castostomid Genera of Iowa Fishes, **Gene Huntsman**

Experimental Growth Studies of the Bowfin and Spotted Gar, **Joe G. Dillard**

Population Structure in Bullfrogs, **Eugene Schroeder**

Modern Trends in Fish Netting and Materials, **William F. Nichols**

Use of Fish Skeletons in the Identification of Fish Remains for Food Habits Studies, **Andreas A. Paloumpis**

Public Hunting and Fishing Potentials Resulting from Interstate Highway Construction in Nebraska, **Frank O. Foote**

Wildlife Disease and Nutrition, Chairman, **Dean H. Ferris**; Discussion Leader, **Clinton H. Conaway**

Radio Tracking Rats in Malaya for Disease Studies, **Glen C.** and **Beverly C. Sanderson**

Seasonal Sudanophilic Variation in the Cottontail Adrenal Cortex and Its Relation to Population Structure, **Douglas R. Fichess**

Some Preliminary Insecticide Toxicity and Tissue Residue Findings in Prairie Grouse, **Lowell C. McEwen**

The Influence of Calcium on the Distribution of Pheasants in Illinois, **James A. Harper** and **Ronald F. Labisky**

Ulcerative Enteritis in the Cottontail Rabbit, **V.C. Pederson** and **C.H. Conaway**

Facts and Fiction About Leptospirosis in Wildlife, **Donald C. Blenden** and **H.S. Goldberg**

Great Lakes Fisheries, Chairman, **James W. Moffett**; Discussion Leader, **Kenneth H. Loftus**

Introductory Remarks, **James W. Moffett**

Limnology of the Great Lakes, **A.M. Beeton**

Status of Sea Lamprey Control, **Leo F. Erkkila**

Recent Changes in the Lake Trout Populations of Lake Superior, **Richard L. Pycha**

Year Class Contributions of Walleyes to the Commercial Fishery of Lake Erie, 1942-1962, **John Parsons**

Big Game and Forest Habitat, Chairman, **Donald Progulskis**; Discussion Leader, **Dean A. Murphy**

Illinois Net Trapping for Deer, **Jack Calhoun**

Wisconsin's Deer Registration System, **Arthur D. Doll**

Reproduction Studies on Penned White-Tailed-Deer, **Louis J. Verme**

Effect of Natural and Simulated Deer Browsing on Mountain Maple, **L.W. Krefting**, **M. Stenlund**, and **R.K. Seemel**

Trends in European Wildlife Management and Research, **William H. Marshall**

Multiple Use or Multiple Abuse, **W. D. Klimstra**

Trends in Twenty-Five Years of Pittman-Robertson Research in the North Central Region, **Arthur B. Eustis**

Community Conservation, **Thomas L.J. Osmer**

The Lentic Environment, Chairman, **Roger W. Bachmann**; Discussion Leader, **Willis D. Hanson**

Some Environmental Factors Affecting Dominance by Smallmouth Bass Over Walleyes in Some Northeastern Minnesota Lakes, **Fritz H. Johnson** and **John G. Hale**

Fish Population Changes in Clear Lake, Iowa, 1946-1963, **Kenneth D. Carlander**

Flathead Catfish as a Predator in Black Bullhead Ponds, **Earl R. Kendie**

A Comparison of Dissolved Solids in Lakes of Different Types in a Northern Wisconsin County, **C.W. Threinen** and **L.M. Andrews**

Chemical Characteristics of Ontario Lakes as Related to Glacial History and Fish Production, **R.A. Ryder**

The Experimental Addition of Molybdenum to Castle Lake, California, **Roger W. Bachmann** and **Charles R. Goldman**

Interaction of Effects by Environmental Factors on Primary Productivity in Farm Ponds and Laboratory Microecosystems, **John L. Butler**

Measuring Limnological Conditions in Missouri River Mainstem Reservoirs, **George A. Swanson**

Development of a Fish Sampling System for Missouri River Mainstem Reservoirs, **Charles H. Walburg**

TWENTY-SIXTH ANNUAL MIDWEST WILDLIFE CONFERENCE

Indiana University Union
Bloomington, Indiana
December 7-9, 1964

Panel Discussion: Wildlife and Pesticides - Present and Future, Chairman, **Woodrow Flemings**

Fish and Wildlife Stake in the Pesticide Problem, **Lansing Parker**

Some Aspects of Pesticidal Effects on Fish, **Donald Mount**

Pest Control Outlook, **Robert Anderson**

Farm Game, Chairmen, **Eugene D. Klonglan** and **C.D. Besadny**

The Effect of Long Term Land Use Trends and the Feed Grain Program on Pheasants in Minnesota, **Maynard M. Nelson** and **Robert A. Chesness**

Management Practices and Problems Encountered on Privately Owned Pheasant Farms in Iowa, **David J. Roslien**

An Evaluation of Habitat Manipulation for Scaled Quail, **Warren D. Snyder**

Estimation of Squirrel Population Parameters from Trap-Retrapping Data, **Charles M. Nixon** and **William R. Edwards**

Starvation and Weights of Cottontails, **Paul D. Kline**

Interstate Traffic of Wild Rabbits, **Herald A. Demaree**

An Examination of the Lens-Aging Technique in the Cottontail Rabbit, **Orrin J. Rongstad**

The Onset of Reproduction and Litter Sizes in Cottontails in the Central U.S., **Kenneth C. Sadler** and **Clinton H. Conway**

Forest and Range Game, Chairmen, **Walter L. Palmer** and **Dunbarr Robb**

Studies of the Moose of Isle Royale, **Peter A. Jordan**

Wildlife Management on Hoosier National Forest, **Robert K. Landes**

Wildlife Populations within the Buck Creek Plantation, Huron National Forest, **Laverne C. Stricker**

A Practical Examination Method for Forest Land Managers, **Brian Stout**, **George Dellinger**, and **John Lewis**

- Landowner Attitudes Toward Deer in Areas of Hunted and Non-Hunted Deer Populations, **Richard J. McNeil** and **Leland M. Queal**
- Mirrors to Reduce Deer-Auto Collisions, **Kenneth Nettles**
- Controlled Deer Hunts on Military Reservations in Indiana, **Rex Hamilton**
- Land Use Studies of Central Wisconsin Prairie Chicken Range, **Ronald L. Westemeier**
- The Value of Soil Bank Lands to Breeding Prairie Grouse, **Leo Kirsch**
- Special Reports, Chairmen, **John M. Allen** and **E.E. Good**
- The Epidemiology of Rocky Mountain Spotted Fever in Eastern United States, With Particular Reference to Virginia, **Earl L. Attwood**, **John T. Lamb**, and **Daniel E. Sonenshine**
- S³⁵ Residues in a Forest Fauna One Year after Treatment with Malathion S³⁵, **Tony J. Peterle**
- Development of the Northern Prairie Wildlife Research Center, **Harvey K. Nelson**
- Current Activities in the Bureau of Outdoor Recreation, **Hayden W. Olds**
- Significance of Fish and Wildlife Values in the Missouri River Basin Water Resources Development Program, **Harrell F. Mosbaugh**
- Waterfowl and Furbearers, Chairmen, **John M. Anderson** and **William E. Madden**
- Waterfowl Productivity in the Rain Basin Area of Nebraska, 1958-1964, **Carl W. Wolfe**
- An Attempt to Establish New Waterfowl Populations, **Karl E. Bednarik**
- A Successful Reintroduction of the Trumpeter Swan to Its Former Prairie Breeding Range, **James B. Monnie**
- Ecological Studies of Beavers in Isle Royale National Park, **Phillip C. Shelton**
- Movements and Longevity of Transplanted Beaver in Wisconsin, **George J. Knudsen** and **James B. Hale**
- Activity Studies of Red Foxes, **Ernest D. Ables**
- Search for Black-Footed Ferret, **Walter H. Kittams**
- Behavior of a Captive Black-Footed Ferret, **Donald R. Progulsk**
- Plans for Field Study of the Black-Footed Ferret, **Paul F. Springer**
- Stream and Pond Fishes, Chairman and Discussion Leader, **R. Weldon Larimore**
- Limnological Investigations of the Missouri River, **Larry A. Morris**
- Effects of Channelization on Growth and Food Habits of the Flathead Catfish in the Missouri River, **Ralph N. Langemeier**
- Age, Growth and Food Habits of Channel Catfish in Channelized and Unchannelized Portions of the Missouri River, Nebraska, **Thomas R. Russell**
- Sublethal Effects of Pulpmill Wood Fiber on the Minnow *Pimephales promelas*, **J. Cameron MacLeod** and **Lloyd L. Smith, Jr.**
- Some Influences of Stocking Ratios and Fishing Pressure on a Pond Fish Combination, **James P. Fry**
- Observations on the Vulnerability of Largemouth Bass to Angling, **Richard O. Anderson** and **M. LeRoy Heman**
- A Pollution Control Program for the Illinois River - Effects on Fish and Game, **William Q. Kehr** and **Grover W. Cook**
- Engineering-Biology Cooperation on Trout Streams, **Ross J. Miller**
- Stream Improvement Techniques, **Robert Heding**
- Physiological Ecology, Chairman and Discussion Leader, **John E. Bardach**
- Hybridization of Four Species of Sunfishes (Centrarchidae), **William F. Childers**
- Intraovarian Similarity of Mature Eggs of the Bluegill Sunfish, *Lepomis macrochirus*, **Dale Toetz**
- Digestion Rates of Cannibal Brown Trout at Lower Water Temperatures, **G.R. Alexander** and **D.S. Shetter**
- Rates of Digestion of the Bluegill Sunfish, *Lepomis macrochirus*, **J.T. Windell**
- Preliminary Studies in the Development of Gastric Battery for Fish, **Earl R. Kendle** and **Larry A. Morris**
- Serological Differentiation of White Bass, *Roccus chrysops*, **Thomas D. Wright**
- Extra-Oral Taste Responses in Fishes, **John E. Bardach**
- The Early Life History of the White Crappie, *Pomoxis annularis* Rafinesque, in Lewis and Clark Lake, South Dakota, **Richard E. Siefert** and **Lloyd L. Smith, Jr.**
- Food Habits of the Bluegill as Influenced by Season and Size-Class, **Gary Duxtater**
- Fisheries Management, Chairman and Discussion Leader, **Donald Leedy**
- The Effect of Turbidity on the Efficiency of A.C. and D.C. Electrofishing in Ponds, **David I. Foster** and **Richard O. Anderson**
- Two Computer Programs for Age and Growth Studies, **Shelby D. Gerking**
- Results of Recent Introductions of the Sacramento Perch, *Archopites interruptus*, in Alkaline Waters of Nebraska and North Dakota, **D.B. McCarraher**
- A Ten-Year Study of a Shallow 1,500 Acre Impoundment, **David L. Weaver**
- Tuttle Creek Fisheries Research Laboratory, **Otto W. Tiemeier**
- Effect of Partial Poisoning on a Flood Control Reservoir, **Richard E. Bass**
- Limnology, Chairman and Discussion Leader, **Thomas F. Waters**
- The Zooplankton Populations of a Reservoir Ecosystem, **Bruce C. Cowell**
- Size of *Daphnia* as it Affects Their Availability to Rainbow Trout and Yellow Perch, **Merle G. Galbraith, Jr.**
- Limnology of a Borrow-Pit Lake, **Ronald J. Poff** and **Oscar M. Brynildson**
- Partial Chemical Treatment of Bugh's Lake and Its Effect on the Fish Population, **Michael Primising**
- Production Rate, Population Density, and Drift of a Stream Invertebrate, **Thomas F. Waters**
- Variations in Productivity Within a Large Hypereutrophic Reservoir, Sylvan Lake, Indiana, **Robert G. Wetzel**
- Life History and Ecology of Western Blacknose Dace, *Rhinichthys atratulus meleagris* (Agassiz), Boon County, Iowa, **Richard L. Noble**
- Life History of Smallmouth Bass in Des Moines River, Iowa, **James B. Reynolds**
- The Effect of Soil Moisture and Water Depth on an F₁ Hybrid of *Typha latifolia* and *Typha angustifolia*, **John W. Bedish**

TWENTY-SEVENTH ANNUAL MIDWEST FISH AND WILDLIFE CONFERENCE

Jack Tar Hotel
Lansing, Michigan
December 5-8, 1965

General Session: Symposium - Hunting and Fishing - Major Values in Outdoor Recreation Planning, **Roman H. Koenings**, **Richard H. Stroud**, and **David H. Jenkins**

Chemicals and Parasites, Chairman, **John Brasch**

- Some Advances in Fish Control, **Robert E. Lennon**
- Investigations in Fish Control: The Toxicity of MS-222 to Selected Fishes, **Leif L. Marking**
- Some Effects of Sublethal Concentrations of Sodium Arsenite on Bluegills and the Aquatic Environment, **Philip A. Gilderhaus**
- Investigations in Fish Control: The Efficacy of MS-222 as an Anesthetic on Four Salmonids, **Richard A. Schoettger**
- Destruction of Algae with Ultrasonic Vibrations, **Earl R. Kendle**
- Effects of *Sphaerotilus natans* on Hatching of Fish Eggs, **Lloyd L. Smith**, **Robert Kramer**, and **Gene Heyerdahl**
- Indirect Effects of Detergents on Primary Production, **Fred Kent**
- Some Histochemical Observations on Fish Tissues, **Gerald R. Bouck** and **Robert C. Ball**
- Contributions to the Biology of *Pomphorhynchus bulbocollis* in the bluegill, *Lepomis macrochirus*, of Gull Lake, Kalamazoo and Barry Counties, Michigan, **Charles W. Huver**

Fish Management, Chairman, **Shelby D. Gerking**

- Protection of the Littoral, **C.W. Threinen**
- Fishing and Boating on Segments of the Au Sable River, Michigan, 1960-1963, **Gaylord R. Alexander** and **David S. Shetter**
- Manipulation of Fish Populations Through Reservoir Drawdown, **M. LeRoy Heman**
- Some Economic Considerations Involved in Rough Fish Removal, **John K. Sullivan**
- An Improved Method of Measuring Trout Growth in Hatcheries, **Galen L. Buterbaugh**
- Ecological Survey of a Southern Michigan Trout Stream, **Raymond E. Reilly**
- Length of the Growing Season of the Bluegill Sunfish in the Northern Indiana Lake District, **Shelby D. Gerking**
- Living Herbicide, **William F. Childers** and **George W. Bennett**
- The Effect of Environment on the Food, Growth, Reproduction and Survival of Ouananiche (Land Locked Salmon) in Eastern Canada, **William C. Leggett**

Cold Water Fishes and Great Lakes, Chairman, **Eugene W. Roelofs**

- Sports Fisheries in Two Great Lakes Bays, **Wilbert C. Wagner** and **Thomas M. Stauffer**
- The Introduction of Exotic Fish Species to the Great Lakes, with Particular Reference to the Kokanee, **Frank P. Maher**
- The Great Lakes Fishery — Back When, **William D. Marks**
- Population Fluctuations of the Cisco in Birch Lake, Michigan, **Michael Clady**
- Upstream Movement of Crayfish in an Intermittent Oklahoma Stream, **Walter T. Momot**
- The Fisheries of Lake Cariba, Rhodesia, **Leonard S. Joeris**

Fish Biology, Chairman, **Jerome H. Kuehn**

- Life History of the Grass Pickerel, *Esox americanus vermiculatus*, in Pleasant Lake, Walworth County, Wisconsin, **Stanton J. Kleinert** and **Donald Mraz**
- Movement Patterns and Population Sizes of Flathead Catfish in the Missouri River, **Larry A. Morris**
- Bluegill Growth in Sandpits in Nebraska, **Jerry W. Morris**
- Observations on the Feeding and Growth of Fingerling Northern Pike at Different Temperatures, **Richard O. Anderson**
- Movement of Marked Channel Catfish in the Little Sioux River, Iowa, **Bill Welker**
- Fisheries in the Unmanaged State, **Karl F. Lagler**
- Effects of Behavior of Prey Species on Their Vulnerability to Predation by Bowfin and Spotted Gar, **Gerald Herting**
- Winter Limnology of a Small Iowa Lake, **Thomas G. Huggins** and **Roger W. Bachmann**
- Movements of Bluegill Fry in a Small Eutrophic Lake, **Robert G. Werner**
- Hybridization and Isolating Mechanisms Between *Catostomus commersoni* and *Catostomus macrocheilus*, **Joseph S. Nelson**

Recreation and Forest Wildlife, Chairman, **Robert Radtke**

- Wildlife Biologist — Opportunity Unlimited, **H.W. DeBruin**
- Demographic and Socio-Economic Characteristics of Southern Michigan Hunters, **Walter L. Palmer**
- Recreation on the National Wildlife Refuges, **Edgar W. Trecker, Jr.**
- A Reconsideration of the "Edge-Effect" Concept, **Leslie W. Gysel**
- Selective Maintenance of Edge Areas on National Forest Lands in Indiana and Ohio, **Robert K. Landes**
- Reestablishment of Ruffed Grouse on the Ashland Wildlife Area in Missouri, **Jerry D. McGowan**
- A Mobility Study of the Wild Turkey in Missouri, **James E. Ellis**
- The Family Relationships of the Deer on the Crab Orchard National Wildlife Refuge, **Robert E. Hawkins**
- Michigan's First Controlled Elk Hunt, **Richard J. Moran**

Upland Game, Chairman, **Theodore A. Bookhout**

- Population Dynamics of Bobwhites on an Intensively Managed Area, **W.D. Klimstra**
- Nesting Ecology of Prairie Chickens in Illinois, **Ralph J. Ellis**
- Movements and Behavior of Greater Prairie Chickens in Kansas, **R.J. Robel** and **J.J. Cebula**
- Reproduction and Development of Confined Swamp Rabbits, **Michael F. Sorensen**
- Comparative Study of the Population Dynamics of Two Species of Cottontail Rabbits in Massachusetts, **Raymond J. Salo**
- Results of Feeding Trials with Young Cottontails, **James A. Bailey**
- Cover Preferences of Penned Cottontail Rabbits, **Roger J. Siglin**
- A Snowshoe Hare Index, **Donald R. Thompson**
- Preliminary Studies of the Use of a Chemo-Sterilant (SC-12937) in the Control of Feral Pigeon Populations, **James E. Wofford**

Wildlife Disease, Chairman, **Robert P. Hanson**

Disease Conditions of Interest Recently Found in Ontario

Wildlife, **Lars Karstad**

The Prevalence of Some Infectious Diseases Among

Canada Geese, **Daniel O. Trainer** and **Judith Bradshaw**

Fowl Cholera Outbreak in Northwest Missouri Snow

Geese, **H.C. McDougle**

Canada Goose Mortality at Crab Orchard National

Wildlife Refuge, **G.A. Wise**The DDT Cycle from Elms to Eagles, **George J. Wallace**Effects of Various Drugs on White-Tailed Deer, **Elliot
Piperno**Migratory Birds, Chairman, **Frank C. Bellrose**

Public Hunting Area Game Management in Kansas —

Upland Game, **Richard O. Hager**

Public Hunting Area Game Management in Kansas —

Waterfowl, **Robert E. McWhorter**

The Breeding Population of Waterfowl on the Chippewa

National Forest, Minnesota, **John Mathisen**

Factors Affecting Age Ratios of Cannon-Net Trapped

Canada Geese, **Dennis G. Raveling**

Kill and Migration Patterns of the Seney Goose Flock,

Glen A. Sherwood

Factors Affecting Nesting Success of the Canvasback in

the Aspen Parklands, **Jerome H. Stoudt**Wildlife Values of Small Pothole Concentrations, **H.A.****Mathiak**Migratory Behavior of Pinned Mourning Doves, **Charles****Newlon** and **Thomas S. Baskett**

Study of the Reliability of Censuses of Singing Male

Woodcock, **Gary E. Duka**

TWENTY-EIGHTH ANNUAL MIDWEST FISH AND WILDLIFE CONFERENCE

Conrad Hilton Hotel

Chicago, Illinois

December 11-14, 1966

Seminar: Some Recent Advances in Our Knowledge of
Biological Clocks, **Frank A. Brown**General Session, Chairman, **George W. Bennett**Facts from Foreign Fisheries and Other Interesting Papers,
Chairman, **R.W. Larimore**Fisheries of Ghana, **John Vanderpuye**Fisheries in the United Arab Republic, **K.D. Carlander**

Elimination of Fish in the Gian Grebe Refuge, Lake

Atitlan, Guatemala, Using the Fish Toxicant Antimycin,

Anne La Bastille Bowes and **James E. Powers**The Distribution of Sex in the American Eel, *Anguilla*
rostrata, **Charles W. Huber**Deep-Water Ninespine Sticklebacks, *Pungitius pungitius*,from Mississippi Drainage in Indiana, **Joseph S. Nelson**Analysis of Diatom Colonization, **Richard D. Brown**The Minnesota Watershed Survey Program, **Howard Hope**Leasing of Hunting and Fishing Rights on Private Lands,
Charles M. SmithUpland Game, Chairmen, **Gary L. Jackson** and **Ronald F.
Labisky**Starch Gel Electrophoresis of Pheasant Serum, **Paul A.
Vohs, Jr.**Responses of Wild Pheasants to Solid-Block Applications
of Aldrin, **Ronald F. Labisky** and **Richard W. Lutz**

Toxicity of the Organophosphates Malathion,

Azinphosmethyl (Guthion) and Diazinon to Pinned
Pheasants, **Gordon L. Zorb**Regionwide Fluctuations in Cottontail Abundance, 1950-
1965, **James A. Bailey**Primary Wing Molt in Adult Mourning Doves, **Kenneth
C. Sadler**, **Roy E. Tomlinson**, **Howard M. Wight**, and**Glenn D. Chambers**Spatial Relationships Among Quail Coveys as a Measure
of Management Effectiveness, **Jack A. Ellis** and **Ronald
L. Westemeier**The Effects of Nest Searching and Visitation on the Fate
of Pheasant Nests, **Raymond D. Evans** and **Carl W.****Wolf**Small Impoundments, Chairman, **Milton L. Bowman**Successful Renovation of a Small, Natural Iowa Lake,
Terry JenningsRotenone and Fish Population Estimations, **Richard O.
Parker, Jr.**A Study of Bluegill Reproduction in Ohio Farm Ponds,
Frederick Stevenson and **Walter T. Momot**

Observations on Spawning Behavior of the White Crappie,

Pomoxis annularis (Rafinesque), Egg Mortality, andFood Selection of Larval Offspring, **Richard E. Siefert**Splenic Variation in the Bluegill, *Lepomis macrochirus*,
from Iowa Ponds, **John H. Grover**

Observations on the Growth and Feeding Rates of

Largemouth, Smallmouth, and Spotted Bass, **H. Stephen****Mohler** and **Richard O. Anderson**Production Obtained by Supplemental Feeding of Channel
Catfish at Various Intervals, **Frank B. Cross** and **Fred****H. Busey**Management of Reclaimed Lakes for Stream Trout in
Northern Minnesota, **Merle W. Johnson**Great Lakes, Chairman, **Paul H. Eschmeyer**The Role of the Bureau of Sport Fisheries and Wildlife
in the Great Lakes and Illinois River Basin Studies,**William M. Zarbock**A Review of Lake Huron Research Activities at the South
Baymouth Fisheries Research Station, **F.P. Maher**The Relationship of Gull Mortalities to Yellow Perch
Mortalities in Lake Erie, **Doris Hensen**An Economic Review of the Alewife Fishery in the Great
Lakes, **William G. Gordon**Problems Related to Migration and Bathymetric
Distribution of Alewife in Southern Lake Michigan,**James Ellis**Notes on the Parasite Fauna of Fish and Crustacea from
Lake Michigan and Lake Huron, **Dominic DeGuisti**Forest Game, Chairmen, **G.W. Irvine** and **G.G. Montgomery**The Ecological Position of the Spruce Grouse in Upper
Michigan, **William L. Robinson**Distribution of Deer and Moose in Minnesota in Relation
to the Round Worm *Pneumostromylus tenuis*, **Patrick****Karns**Cannon-Netting of White-Tailed and Fallow Deer, **Robert
E. Hawkins**Feasibility of Censusing Deer by Remote Sensing of
Infrared Radiation, **Richard M. Bartholomew** and **R.M.****Hoffer**

- Spring Dispersal of Deer in East-Central Minnesota, **Orrin J. Rongstad**
 Aspects of the Behavior and Home Range of the Red Fox, **Alan B. Sargeant** and **Dwain W. Warner**
 Laboratory and Field Tests of Chemo-Sterilants in Mammals, **Gerald L. Storm** and **Glen C. Sanderson**
 Geographical Aspects of the Canadian Wild Fur Harvest, **Charles E. Williams**
- Large Impoundments, Chairman, **William M. Lewis**
 Factors That Influence Muskellunge Egg Mortalities in Lakes, **Leon D. Johnson**
 Factors Affecting Trapnet Catches in Oahe Reservoir, South Dakota, **James B. Reynolds**
 Limnological Changes Resulting from Artificial Destratification and Aeration of an Impoundment, **Thomas L. Wirth** and **Russell C. Dunst**
 Some Vital Statistics of a Walleye Population, **N.R. Payne**
 The Concepts of Limnetic and Littoral Fry, **Daniel J. Faber**
 Molluscicide Field Trials for Swimmers' Itch Control, **Carlos M. Fetterolf, Jr.**, and **Michael E. Newton**
 A Geochemical Basis for Water Quality Studies in Wisconsin, **Ronald J. Poff**
- People and Populations, Chairman, **Tony J. Peterle**
 Panel: The Role of Public Information in Resources Management
 The Need for Public Understanding, **William J. Mullendore**
 The Role of Colleges and Universities in Training Resource Technicians, **Robert W. Burwell**
 The Role of the Board of Education (State or Local) in Teaching Resource Management, **Laurence R. Jahn**
 The Role of the Agency Employee in Public Relations on Resource Management, **Merrill L. Petoskey**
- Panel: Aspects of Population Dynamics in Mammals
 A Definition of Terms and Some Aspects of Population Dynamics in Cyclic Northern Mammals, **Lloyd B. Keith**
 Synchrony in the Dynamics of Small Mammals, **Daniel Q. Thompson**
- Intraspecific Relationships Between Adult Female Snowshoe Hares and Their Progeny, **Orrin J. Rongstad**
 Endocrine Mechanisms of Population Regulation, **Gary L. Jackson**
- Great Lakes, Chairman, **Daniel J. Faber**
 Eutrophication and Fish Production in the Great Lakes, **Norman S. Baldwin**
 Some Preliminary Observations on the Early Culture of Lake Whitefish with the Use of Brine Shrimp (*Artemia* sp.), **Jack Chrisite**
 The Seasonal Distribution and Summer Diet of Yearling Smelt in Eastern Lake Erie, **Robert Ferguson**
 Age, Growth, and Fecundity of the Alewife in Lake Michigan, **Carroll R. Norden**
 Status of Great Lakes Alewife Stocks in Respect to Important Life History Considerations, **J.W. Moffett**
 Stimulus and Response in a Lake Trout Gill Net Fishery, **Andy Lawrie**
 Function of the Research Vessell Siscowet in Lake Superior Trout Rehabilitation, **Merryl Bailey**
- Waterfowl and Wetlands, Chairmen, **Nolan G. Perret** and **Alex T. Cringan**
 Canada Wetlands Inventory and Classification, **R.D. Jakimchuck**
 The Place of Private Holdings in Waterfowl Management, **Karl E. Bednarik**
 Private Waterfowl Marshes in Southwestern Ontario, **J.E. Bryant**
 Habitat Factors Influencing Duck Brood Use of Prairie Potholes in North Dakota, **David L. Trauger**
 Incidence of Lead Shot on a Duck Hunting Area, **George K. Brakhage**
 Botulism: A Cause of Mortality in Great Lakes Birds, **L.D. Fay**
 Newcastle Disease in Canada Geese, **Steve Palmer** and **D.O. Trainer**
 Probable Causation, Prevalence and Significance of "Gang" Broods of Canada Geese, **Dennis G. Raveling**

TWENTY-NINTH MIDWEST FISH AND WILDLIFE CONFERENCE

Park Motor Inn
 Madison, Wisconsin
 December 10-13, 1967

- General Session, **C.D. Besadny**, Chairman
 Symposium - The Resource Biologist vs. the Resource Planner: What is the Role of the Resource Specialist in the Quest for Environmental Quality?, **Clay A. Schoenfeld**, **Grant Cottam**, **Gerald A. Rohlich**, and **Philip H. Lewis, Jr.**
- Fish Resource Planning and Programming, **C.E. Ruhr**, Chairman
 Commercial Fisheries Research and Development in the Mid-West, **Leslie E. Whitesel**
 Methods and Problems Associated with Comprehensive River Basin Studies, **William M. Zarbock**
 The Economics of Dredging a Lake, **C.W. Threinen** and **Ronald Poff**
 Planning, Programming and Budgeting (PPB) for the Fish and Wildlife Administrator, **William G. Gordon**
- Resume of a Computer Tape System for Processing Fisheries Data, **J.J. Keleher**
 Some Socio-Economic Characteristics of Ohio Licensed Fishermen, **James T. Addis** and **Clarence F. Clark**
 A Proposed Solution to the Alewife Problem, **Charles W. Huver**
- Game Session: General Interest, **George Sprugel, Jr.**, Chairman
 Responses of Avians to Methyl Parathion in a Hayfield, **William R. Edwards** and **R.R. Graber**
 Microclimate of Pheasant Habitats, **William J. Francis**
 Neutron Activation Analyses to Determine Natal Areas of North American Waterfowl, **Tony J. Peterle** and **Terry Devine**
 Mortality and Movements of Deer from a Nebraska Canal, **Karl E. Menzel** and **Milo J. Shult**

- Wisconsin Fox Population Considerations, **C.W. Lemke, Ernest Ables, and John Gates**
- The Hunting Behavior of the Canada Lynx, **Carl H. Nellis**
- Plans and Progress in Research and Management at McGraw, **George V. Burger**
- Game Techniques, **Arnold O. Haugen**, Chairman
- Measuring Deer Use of Forest Openings, **Keith R. McCaffery, William A. Creed, and Donald R. Thompson**
- Helminth and Protozoan Infections in White-Tailed Deer from Wisconsin, **William M. Samuel**
- Movements of Translocated Deer Determined by Telemetry, **R.E. Hawkins and G.G. Montgomery**
- Radio Tracking of Prematurely Dislodged Nestling Herons, **Joseph S. Hammerslough and Richard G. Bjorklund**
- The Lens Technique - Some Variables to Consider, **Milton Friend**
- Color Photography as a Recording Technique for Monitoring Aquatic Vegetation Changes on Fish and Game Management Areas, **Arlyn F. Linde**
- Fisheries Session: Pesticides and General Biology, **John Funk**, Chairman
- Effects of Various Temperatures on Digestive Enzymes of the Channel Catfish, *Ictalurus punctatus*, **O.W. Tiemeier, C.W. Deyoe, and S.A. Asadi**
- Nutritional Requirements of Channel Catfish Fingerlings, **C.W. Deyoe and O.W. Tiemeier**
- Some Effects of Light and Diet Upon the Incidence of Cataract in Hatchery-Reared Lake Trout, *Salvelinus namaycush*, **Erwin W. Steucke, Jr., Leonard H. Allison, Robert G. Piper, and Russell Robertson**
- An Evaluation of Strip-Mine Ponds in Southeastern Ohio, **S.H. Taub, R.A. Tubb, and R.E. Deis**
- Comparative Population Dynamics of the Crayfish *Orconectes virilis* in 3 Marl Lakes, **Walter T. Momot and Howard Gowing**
- F₁ Hybrids Between Largemouth Bass and Five Species of Sunfishes, **William F. Childers**
- Studies of DDT and Dieldrin Residues in Wisconsin Fish, **Stanton J. Kleinert, Paul E. Degurse, Thomas L. Wirth, Donald R. Thompson, and Linda C. Hall**
- Chronic Effects of Dieldrin on the Bluegill, *Lepomis macrochirus*, **Joseph A. Kawatski**
- Game Management, **F.M. Baumgartner**, Chairman
- A Report on the Effectiveness of Van de Ree Mirrors, **David F. Gordon**
- Recent Pheasant Decline in Relation to May and June Rain Deficiencies, **Kenneth R. Russell**
- Management Considerations for Ruffed Grouse, **Alfred Berner and L.W. Gysel**
- Easement Purchases - A New Dimension in Wisconsin's Public Hunting Grounds Program, **Lewis E. Myers**
- The Effects of Special Hunting Regulations and Management on Lesser Snow Geese Harvest, **Harold H. Burgess**
- Coordination of Timber and Waterfowl Management on the Oakwood Bottoms Greentree Reservoir in Southern Illinois, **Jerry P. McIlwain**
- Floating Islands for Ringnecks, **John E. Mathisen**
- An Evaluation of Certain Types of Artificial Nesting Structures for Ducks, **Forrest B. Lee and Arnold B. Kruse**
- Fisheries Management, **Robert E. Lennon**, Chairman
- Farm Ponds in Wisconsin, **L. Stricker**
- Artificial Feeding of Yearling and Adult Largemouth Bass, **Roy Heidinger, William M. Lewis, and Mark Knonikoff**
- Loss of Fishes Over the Spillway of a Lake, **William M. Lewis, Roy Heidinger, and Mark Konikoff**
- Some Effects of Continual Hypolimnion Discharge Upon a Downstream Channel, **Paul D. Uttormark**
- Multiple Purpose Marsh Management in Minnesota, **Oliver M. Jarvenpa**
- Evaluation of Creel Census, Rotenone Embayment, Gill Net, Traps and Electro-Fishing Gear Samples, by Complete Drainage of Lenape and Bischoff Reservoirs, **James J. Barry**
- Observations on the Toxicology of Thiodan in Several Fish and Aquatic Invertebrates, **Richard A. Schoettger**
- Bayluscide as a Fish Toxicant, **Bernard L. Berger**
- Salicylanilides and Their Recent Developments in Fish Control, **Leif L. Marking**
- Game Population Biology, **Harvey Nelson**, Chairman
- Ruffed Grouse in Northeast Iowa, **Wayne R. Porath**
- Brood Behavior of Spruce Grouse in Northern Michigan, **Donald E. Maxwell**
- Comparison of Male Bobwhite Quail from the Interior and Perimeter of an Uncropped Refuge in Southern Indiana, **Thomas W. Hoekstra**
- Age Related Mortality of Illinois Pheasants in Fall and Winter, **Stanley L. Etter**
- The Mallard in Minnesota, **Robert L. Jessen**
- Some Possible Parameters of Condition in Nesting Blue-Winged Teal, **H.J. Harris**
- Reproduction in the White-Tailed Jackrabbit in North Dakota, **Ted R. James and Robert W. Seabloom**
- Some Regulatory Parameters Influencing Fox Actions, **Alan B. Sargeant, Donald B. Siniff, and Dwain W. Warner**
- Fisheries Life History and Great Lakes Studies, **Kenneth H. Loftus**, Chairman
- Interpretation of Slope in Length-Weight Regression, **Kenneth D. Carlander**
- Sex Ratios of Young-of-the-Year Walleyes in Rearing Ponds and Lakes, **Donald E. Olson**
- Observations on the Reproductive Cycle of Yellow Bass from Clear Lake, Iowa, **Ross V. Bulkley**
- Feeding Habits of the Young-of-the-Year Longnose Gar from Lake Mendota, Wisconsin, **Bruce L. Haase**
- Differential Mortality and Its Implications in Growth Analysis in the Brook Silverside, *Labidesthes sicculus*, in Crooked Lake, Indiana, **Joseph S. Nelson**
- Age, growth and maturity of the longnose sucker, *Catostomus catostomus*, of Western Lake Superior, **Merryl M. Bailey**
- A Study of Migratory Lake-Run Trout in the Brule River, Part I - Brown Trout, **Wallace E. Niemuth**
- Parasites of Michigan Fish, **Dominic L. DeGiusti**
- Informal Discussion on the Control of Undesirable Fishes, Moderator, **Robert E. Lennon**
- Canada Goose Symposium, **Eugene F. Bossenmaier and Calvin J. Barstow**, Chairmen
- Recent Changes, Current Problems and Future Prospects for Continental Populations:
- Eastern Canada and Atlantic Flyway, **C.E. Addy and J.D. Heyland**
- Central and Western Canada, **F. Graham Cooch and Alex Dzubin**
- Mississippi Flyway, **Richard W. Vaught**
- Central Flyway, **Jack R. Grieb**

Goose Harvest Problems:

Informational Needs for Goose Management Programs,
Walter F. Crissey

The Impact of Season Limits on Great Basin Goose
Harvests, **John E. Nagel** and **George Wrakestraw**
Shell Limits and Other Restrictions in Managed Goose
Hunting, **Richard A. Hunt**

Problems in the Distribution of Geese:

Transplanting Migrant Geese to Southern Management
Areas, **Donald J. Hankla**

An Eight-Year Summary of Goose Populations at
Mattamuskeet, **Otto Florschutz**

A Case History in Canada Goose Management: The
Mississippi Valley Population, **A.S. Hawkins**, **H.M.
Reeves**, and **H. Dill**

Recent Work in Goose Biology:

Giant Canada Geese Wintering at Rochester,
Minnesota, **Nick Gulden** and **Leon Johnson**

Factors Limiting Production by Local Breeding
Populations of Canada Geese, **Glen A. Sherwood**

Can Group Size Counts of Canada Geese Reveal
Population Structure?, **Dennis G. Raveling**

Behavior and Composition of a Local Population of
Canada Geese, **Charles D. MacInnes**

Symposium Summary, **Laurence R. Jahn**

THIRTIETH MIDWEST FISH AND WILDLIFE CONFERENCE

The Neil House
Columbus, Ohio
December 8-11, 1968

Symposium: Animal Communication, **Tony J. Peterle**,
Chairman

Acoustic Senses, **Donald Borror**

Visual Senses, **Peter Marler**

Chemical Senses, **Morley Kare**

Fish Management and Other Interesting Papers, **Dale Henegar**,
Chairman

Owning Your Own Fish Pond: Many Benefits, **Elwood
A. Seaman**

Causes for Fluctuations in Year Class Strength of Sauger
in Lewis and Clark Lakes, **Charles H. Walburg**

Using Arsenous Acid to Examine the Stomach Contents
of Walleye, **Frank Jernejcic**

Survey of Pesticide Residues in the Lake Poinsett
Ecosystem, **Yvonne A. Greichus**, **Michael R. Hannon**,
and **Richard L. Applegate**

Age, Growth, and Reproduction of the Northern Mottled
Sculpin in Mt. Vernon Creek, Wisconsin, **Gerald M.
Ludwig** and **Carroll R. Norden**

An Operational Functional Classification of Fishery
Management Techniques, **Kenneth D. Carlander**

Sex Discrimination by Olfaction in the Black Bullhead,
Ictalurus melas, **Earl R. Kendle**

Sound Production by the Black Bullhead, *Ictalurus melas*,
Charles R. Wallace

Mechanisms Regulating Abundance of Yellow Perch Year
Classes in Oneida Lake, **John L. Forney**

Water Quality and Related Papers, **Robert J. Muncy**, Chairman
Uptake and Degradation of DDT in Farm Ponds, **Jerry
Hamelink** and **Ronald Waybrant**

Aquatic Thermal Effects of Nuclear Power Plants,
Kenneth R. Roberts

Muskingum River Basin Benthic Biology, **Ronald Preston**
Aquatic Insect Abatement for a New Island City at
Montreal, **R. Fremling**

Response of Stream Fish Populations to Pollution by
Inorganic Sediments, **J.R. Gammon**

Chemical Variables Associated With Confinement of
Channel Catfish in Sealed Containers, **Peter Howe**

Survey Methods for Assaying the Nutrient Status of Lakes,
Ronald J. Poff

Chronic Toxicity of Cadmium to the Fathead Minnow,
Pimephales promelas, **Quentin H. Pickering**

Water Quality Criteria and Standards, **Kenneth R. Roberts**,
Chairman

Research Program at the National Water Quality
Laboratory, Duluth, Minnesota, **William A. Brungs**

Using the Benthic Community to Establish Water Quality
Criteria, **Jerry L. Wilhm**

Using Water Quality Criteria to Establish Techniques for
Treating Waste Waters, **J. Floyd Byrd**

Fish Management and Related Papers, **C.W. Threinen**,
Chairman

Some Observations on the Biology of the Anchor Parasite,
Lernaea cyprinacea, **Wilbur M. Tidd**

Factors Influencing the Vulnerability of Largemouth Bass
to Angling and the Problem of Excess Bass Harvest,
Richard O. Anderson

Feeding Out Channel Catfish in Cages, **William M. Lewis**
and **Peter Howe**

Digestion Rate of the Clear Lake Black Bullhead, **Richard
J. Baur**

Effects of Baiting on Angler Success for Carp, **Darryl
Christensen**

Results of Stocking Northern Pike in a 180-Acre
Wisconsin Impoundment, **Howard E. Snow**

Movement of Tagged Carp in the Upper Fox River and
Connecting Waterways, **Douglas W. Morrisette**

The Future of Ohio's Fresh Water Mussel Resources, **John
M. Bates**

Symposium: White-Tailed Deer in the Midwest, **Louis J.
Verme**, Chairman

Appraisal of Deer Range and Its Use by Midwestern Deer,
Dean A. Murphy

Deer Population Levels in the Midwest, **Charles M. Nixon**
Management of Deer Range in the Midwest, **Hewlette
S. Crawford**

Harvest Regulations and Population Control for
Midwestern Deer, **David H. Jenkins**

Population Biology, **Raymond Linder**, Chairman

Influence of Inorganic Ions on the Distribution of
Pheasants in Illinois, **William L. Anderson** and **Peggy
L. Stewart**

Deer-Vegetation Interaction on Garden Island, Michigan,
Dennis King

- Food Habits of White-Tailed Deer in the Northern Black Hills, **James C. Schneeweis**
 Dispersal of Red Foxes in Iowa and Illinois, **Robert L. Phillips** and **Gerald L. Storm**
 Flight Behavior of the Red-Winged Blackbird, **Melvin I. Dyer** and **P.H. Albers**
 Behavioral Ecology of Hunting in Cheetah, **Randall L. Eaton**
 Movements and Flock Stratification in a Population of Blackcocks in Scotland, **Robert J. Robel**
 Results of a Deer Removal Project, **Patrick D. Karns** and **Howard Sheppard**
 Some Aspects of Deer Data Interpretation, **Keith D. Larson**
- Waterfowl and Wetlands, **Richard A. Hunt**, Chairman
 Eleven Years of Waterfowl Nesting Structure Research at Winous Point, Ohio, **Robert L. Meeks**
 Ecology of Raccoons on a Managed Waterfowl Marsh, **David Urban**
 Predation, Movements, and Homing by Black Rat Snakes on a Wood Duck Nesting Area, **James L. Hansen**
 Simulated Nests in Wildlife Management, **Merrill C. Hammond**
 A Resident Canada Goose Population in South Dakota, **Robert R. Johnson** and **Rod C. Drewien**
 Qualifying to Hunt Waterfowl, **Gerald F. Martz**, **Gordon L. Zorb**, and **Marvin K. Johnson**
- Snapping Turtle Life History on Lacreek Refuge, South Dakota, **Donald A. Hammer**
 Association of Macroinvertebrates with Submerged Aquatic Plants, **John N. Krull**
 Population Dynamics of the Common Goldeneye, **Nathan P. Johnson**
 Brood Habitat of the Hooded Merganser, **David W. Kitchen** and **George S. Hunt**
- Pesticides and Techniques, **Arthur B. Eustis**, Chairman
 Soil-Food Chain-Pesticide Wildlife Relationships in Aldrin Treated Fields, **Leroy J. Korschgen**
 Effects of Dieldrin on Reproduction in Captive Raccoons, **John E. Morris**
 Hunter Reporting Accuracy on Big Game Harvest Questionnaires, **Karl E. Menzel**
 Experimental Mass Stocking of Ring-Necked Pheasants in Sparsely Occupied Habitat in Southeastern Iowa, **Eugene D. Klonglan**
 Practical Aspects of Managing Roadside Cover for Nesting Pheasants Over a Large Area, **G. Blair Joselyn** and **G.I. Tate**
 Land Capability Rating for Wildlife Production, **R.D. Thomasson**
 Physiological Telemetry from Unrestrained Nestling Egrets and Herons, **Joseph S. Hammerslough**, **Richard G. Bjorklund**, and **David L. Sering**
 Conservation Education Via ETV, **Rodney R. Smith**

THIRTY-FIRST MIDWEST FISH AND WILDLIFE CONFERENCE

Saint Paul Hilton
 St. Paul, Minnesota
 December 7-10, 1969

- Game Session, Chairman, **Tony Peterle**
 Aspen-Ruffed Grouse Relationships, **P. V. Vandershaegen**
 Behavioral Ecology of Prairie Chickens as It Relates to Management, **R.L. Westemeier**
 The Influence of Holding Time on Hatchability of Pheasant, Chukar, and Quail Eggs, **R.D. Kealy**, **J.M. Vandepopuliere**, and **D.E. Green**
 Effects of Interstate Right-of-Way Mowing on Wildlife, Snow Build-Up, and Motorists' Opinions in North Dakota, **R.B. Oetting** and **J.F. Cassel**
 Insecticide Residue Levels in Eggs of Wild Pheasants in Illinois, **R.E. Greenberg** and **W.R. Edwards**
 Hematological Alterations Produced by Wholebody Irradiation of the Ring-Necked Pheasant, **D.J. Roslien**
 Techniques for Capturing Pheasants with Alpha-Chlorolose, **D.H. Johnston**
 Migration Routes and Mortality of Mourning Doves in Missouri, **D.L. Henry**
- Fisheries Session, Chairman, **R. Weldon Larimore**
 Recreational Aspects of the Salmon, Lake Trout, and Rainbow Trout Sport Fishery in Michigan, **Gale C. Jansen** and **James R. Ryckman**
 Results of a Pilot Urban Fishing Program in St. Louis, Missouri, **Delmar J. Robinson**
 Fisheries of the Volta Reservoir, Ghana, **Charles Asafo**
 Thermal Power - Friend or Enemy?, **George J. Eicher** and **Paul R. Maranian**
 Effects of Pollution on the Mussel Fishery of the Illinois River, **William C. Starrett**
- Phytoplankton Trends in the Discharge of Two Missouri River Reservoirs, 1964-1967, **Danny B. Martin**
 Water Quality Changes Under Ice Cover in Northern Prairie Lakes, **Steven P. Gloss** and **John G. Nickum**
 Some Effects of Hypolimnetic Discharges on Temperatures Downstream, **Paul Uttormark**
- Game Session, Chairman, **John B. Lewis**
 Aspergillosis in Waterfowl, **W.G. Winkler** and **D.O. Trainer**
 Diseases in Captive Waterfowl, **Lars Karstad**
 A Fluorescent Erythrocyte Test for Lead Poisoning in Waterfowl, **Morley Barrett** and **Lars Karstad**
 Lesser Snow Goose Colony, La Perouse Bay, Manitoba, Assortative Mating Patterns and Their Interpretation, **F. Cooke** and **M.B. Seiger**
 The Phenology of the 1968 Hudson Bay Blue Goose Fall Migration, **Harold H. Burgess** and **Gerald E. Cummings**
 Canvasback Populations and Habitat Utilization, **Jerome H. Stoudt**
 A New Capture Technique for Flightless Young Goldeneyes, **Leon L. Johnson**
 Food Habits of Opossums in Southern Wisconsin, **George J. Knudsen** and **J.B. Hale**
 Reproductive Cycle of the Male Gray Fox in Southern Illinois, **Erich Follmann** and **W.D. Klimstra**
- Fisheries Session, Chairman, **Richard Tubb**
 Effects of Temperature, Body Weight, and Starvation on Utilization of Body Protein for Energy in Bluegills, **Jan Savitz**

Application of Osmometry to Freshwater Fish Pathology, **Sue D. Lewis**

Surgically Induced Sterility in Male Bluegills, **Jerry W. Morris**

Food Habits and Growth of Channel Catfish Fry, **D.L. Bonneau, John McGuire, O.W. Tiemeier, and C.W. Deyoe**

The Reliability of Age Determination Assigned to Known Age Muskellunge from Scales and Fin Sections, **Leon D. Johnson**

An Evaluation of Largemouth Bass Utilizing Crayfish as a Primary Source of Forage, **Stephen H. Taub**

Bluegill Predation by Three Fish Species, **William J. Gulish**

Compensatory Embryonic Development of Walleye Eggs from Seven Populations, **Wilbur L. Hartman**

Game Session, Chairman, **Robert Seabloom**

Food Habits of Red Foxes with Reduced Prey Diversity, **W.J. Johnson**

Movements, Behavior and Ecology of Wolves in Northeastern Minnesota, **L.D. Mech, L.D. Frenzel, R.H. Ream, and J.W. Winship**

Post Fledging Activities of Great Horned Owls as Determined by Telemetry, **T.C. Dunstan**

Changes in Relative Abundance of White-Tailed and Mule Deer in Nebraska, **Karl Menzel and Bob Havel**

Movement and Harvest of White-Tailed Deer on a Group of Mississippi River Islands, **James F. Gillett**

Dispersal of Deer from Crab Orchard National Wildlife Refuge, **R.E. Hawkins, W.D. Klimstra, and D.C. Autry**

Minnesota's Emergency Browse Cutting Project, **Roger Holmes and Milton Stenlund**

Canopy Area and Volume Relationships to Weight of Current Year's Growth in Three Browse Species, **J.M. Peek**

Movements and Home Range of Northeastern Minnesota Moose, **Victor Van Ballenberghe**

Fisheries Session, Chairman, **Richard O. Anderson**

Exchange Equilibria Proposed to Control Biological Magnification of Chlorinated Hydrocarbons in Lentic Environments, **Jerry Lee Hamelink**

The Toxicity and Degradation of New, Potential Fish Toxicants Under Diverse pH Conditions, **Leif L. Marking**

A Synergic Mixture of MS-222 and Quinaldine Sulfate as an Anesthetic for Freshwater Fish, **Bernard L. Berger**

The Winter Chemical Treatment of Streams with Antimycin, **Vern Hacker and William Selbig**

Using Sonar to Assist Under-Ice Rough Fish Seining, **Robert Strand**

Fish Populations of Two Ponds in Northeastern South Dakota, **William C. Thorn and John G. Nickum**

Fish Population Trends in Lake Sharpe, South Dakota, 1964-1969, **Joseph Elrod**

Factors Influencing Reproductive Success of White Bass in Lewis and Clark Lake, **Richard Ruelle**

Game Symposium, Chairman, **Albert W. Erickson**: History and Philosophy of the Predator in Wildlife Management; Chairman, **Frederick W. Stuewer**; Leader, **Glen C. Sanderson**

Historical Review of the Predator in Wildlife Management, **Roger Latham**

Mechanisms and Theory of Predation, **Dave Pimentel**

Predator Biology, Chairman, **Charles Kirkpatrick**; Leader, **Melvin I. Dyer**

Intensity of Barred Owl Habitat Use as Determined by Radio-Telemetry, **T. Nicholls**

Red Fox Spatial Characteristics in Relation to Waterfowl Predation, **A. Sargeant**

Dispersal and Mortality of Red Foxes in Iowa and Illinois, **R.L. Phillips, R. Andrews, G.L. Storm, and R.A. Bishop**

Reproduction and Population Structure of Wolverines in Alaska and the Yukon Territory, **R.A. Rausch and Art Person**

Pesticides and Raptor Populations in California, **S.G. Herman, M.N. Kirven, and R. Risebrough**

Predator-Prey Interactions, Chairman, **Donald R. Progulske**; Leader, **L. David Mech**

Twenty Years of Avian Predator-Small Mammal Relationships in Missouri, **L. Korschgen and Henry B. Stuart**

Lynx-Prey Interactions in Central Alberta, **C. Nellis, S. Wetmore, and L. Keith**

Wolf Movement, Activity and Predator Impact on a Wintering Deer Population in East Central Ontario, **G. Kolonosky**

Estimating Predator Impact on Prey Population as Illustrated by Woodpecker Predation on Engelmann Spruce Beetles, **J.R. Koplin**

Ecology of Coyotes in Northern Utah and Southern Idaho, **Frank W. Clark and Frederic H. Wagner**

Predator Management, Chairman, **A.T. Cringan**; Leader, **Forest Stearns**

Some Management Implications from Preliminary Modeling of Coyote Populations, **Fred Knowlton**

The Current Status of Bounties and Their Influence on Predator Populations, **H.C. Laun**

A Scientific Position on Predator Management, **R. McCabe, Edward L. Kozicky, and Robert Lennon**

Predator Control: How, When, Where, Extent and Cost, **Jack H. Berryman**

Symposium Summary, **Maurice Hornocker**

Fisheries Symposium, Chairman, **John E. Williams**

Age and Growth of Northern Pike, **John Casselman**

Natural Marshes vs. Controlled Spawning Ponds, **Buddy Jacob**

Spawning Marsh Area Requirements, **Duane Shodeen**

Impact of Shore Development on Northern Pike Spawning, **C.W. Threinen**

Symposium Summary, **Chairman Williams**

THIRTY-SECOND MIDWEST FISH AND WILDLIFE CONFERENCE

**Hotel Fort Garry
Winnipeg, Manitoba
December 6-9, 1970**

Fisheries Session, Chairman, **Kenneth H. Loftus**

- An Economic Evaluation of Michigan's Anadromous Fish Program, **Paul V. Ellefson** and **Gale C. Jansen**
- Chinook Salmon in the Great Lakes, **David P. Borgeson** and **John A. Scott**
- Factors Affecting the Harvest and Abundance of Northern Pike in Murphy Flowage, Wisconsin, **Howard E. Snow**
- Walleye Movements in Leech Lake, Cass County, Minnesota, **Dennis H. Schupp**
- Seasonal Estimates of Number, Survival and Recruitment for Walleye in West Blue Lake, Manitoba, 1969-70, **John R.M. Kelso**
- Taxonomy of the Ciscoes in Waskesiu Lake, Saskatchewan, **Burt H. Kooyman**
- The Effects of Commercial Fishing on the Flathead Catfish and Channel Catfish Populations in the Missouri River, **Daniel "V" Ragland**
- Economic Rent of Boat Access Sites and Acceptable Charges for Public Sites, **C. William Threinen**
- Positive Bias from a Postal Card Survey of a Sport Fishery, **Robert F. Carline**

Fisheries Symposium, Chairmen, **Lionel Johnson** and **Kazimierz Patalas**

- A Resume of the Winterkill Problem, **Mercer H. Patriarche** and **James W. Merna**
- Limnology of Winterkill Lakes in South Dakota, **John G. Nickum**
- Chemical Rehabilitation of Chronic Winterkill Lakes, **William Selbig**
- Mixing and Aerating Systems in Wisconsin Lakes, **Thomas L. Wirth**
- Using Winterkill to Advantage, **Warren J. Scidmore**

Fisheries Symposium, Chairman, **Lloyd L. Smith, Jr.**

- Management of Winterkill Lakes in the Sandhill Region of Nebraska, **William Schoenecker**
- Practical Application of Methods to Control Winterkill, **Dale Henegar**
- Rainbow Trout Production in Winterkill Lakes, **Leif Sunde**, **John Whitaker**, and **G. Herbert Lawler**
- Potential Influence of Fish-Rearing Programs on Waterfowl Breeding Habitat, **George A. Swanson** and **Harvey K. Nelson**
- Symposium Summary, Chairman **Johnson**

Fisheries Session, Chairman, **Jack F. Uthe**

- Genetics of Malate Dehydrogenase in Walleye, **James W. Clayton**, **Daniel N. Tretiak**, and **Burt H. Kooyman**
- Live Recovery of Fish from Iowa Nursery Ponds Utilizing Sodium Cyanide, **Terry Jennings** and **Jerry M. Conley**
- Ecological Effects of Aquatic Herbicides, **Charles R. Walker**
- Serum Amino Acids and Liver Transaminases in Rainbow Trout as Affected by Chronic Exposures of Dieldrin, **Paul M. Mehrle**
- Pesticide Combination Studies: Significance to Fish in the Natural Environment, **Foster L. Mayer**
- Pesticide Influence in Channel Catfish Culture, **Blake F. Grant**
- The South Basin of Lake Winnipeg - An Assessment of Pollution, **Jo-Anne M.E. Crowe**

Some Recent Observations of the Limnology of Lake Victoria, Africa, **D.B. McCarraher**

A Seven Year Summary of a Giggling Fishery, a Unique Ozark Sport, **George G. Fleener**

Wildlife General, Chairman, **Keith W. Harmon**

- Potential of Technicians in Resource Management, **Elwood D. Wessman**, **Charles R. Widmark**, and **John A. Gill**
- Emerging Environmental Management Curricula in Minnesota, **Michael J. Naylor**
- Documenting Needs for Fish and Wildlife Expenditures, **Dale N. Martin**
- Waterfowl Status Report for Manitoba, 1970, **Arthur S. Hawkins**
- The Nature of the Manitoba Hunter, **Kip Park**
- Determination of Shooting Distances, **D. Alan Davenport**, **Glen A. Sherwood**, and **H.W. Murdy**
- Effects of Parathion on Juvenile Ring-Necked Pheasants, **Carl W. Wolfe** and **William L. Baxter**
- Breast Muscle Biopsy Technique and Pesticide Content of Nestling Bald Eagles in Minnesota, **Thomas C. Dunstan**, **Yvonne Greichus**, and **John E. Mathisen**
- Toxic Chemicals in Western Canadian Wildlife, **Richard W. Fyfe**

Upland Game, Chairman, **Robert J. Robel**

- Improvements in Mourning Dove Trapping Techniques, Emphasizing Trap Design, **Spencer R. Amend** and **F.C. Kniffen**
- Hunting Results on C.A.P. Land in Northwestern Indiana, **Wayne Machan** and **Robert Feldt**
- Evaluation of Proximal Primary Criteria for Age-Class Separation of Wild Illinois Pheasants, **Robert E. Greenberg**, **Stanley L. Etter**, and **William L. Anderson**
- Reliability and Usefulness of Pheasant Roadside Census Data in Minnesota, **Alfred Berner**, **Earl D. Kopischke**, and **Maynard M. Nelson**
- Vegetational and Topographic Characteristics of Sharp-Tailed Grouse Habitat in Nebraska, **Leonard H. Sisson**
- The Functional Significance of the Autumn Display of the Sharp-Tailed Grouse, **Robert Brown**
- Spring and Summer Movements and Habitat Usage by Female Sharp-Tailed Grouse, **Joseph W. Artmann** and **James R. Beer**
- Some Vital Statistics of a Sharp-Tailed Grouse Population, **Philip G. Watt**
- A Hybrid Population of Prairie Grouse on Manitoulin Island, Ontario, **Harry G. Lumsden**

Big Game, Chairman, **George B. Kolenosky**

- An Evaluation of Tooth Wear as a Criterion of Aging White-Tailed Deer, **David W. Kuehn** and **Patrick D. Karns**
- Wildlife Utilization and Management of Sumac in the Lower Peninsula of Michigan, **Hanley K. Smith**
- Aspen Stand Management and Its Impact on Deer Populations, **James S. Fralish** and **Orie L. Loucks**
- The Significance of Age Distributions of Exploited White-Tailed Deer Populations, **Keith D. Larson**
- Home Range and Habitat Use Patterns of Moose in Northwestern Minnesota, **William E. Berg**

Further Notes on Polar Bear Denning Habits, **Charles Jonkel** and **Richard J. Robertson**

Physical Characteristics of Summer-Trapped Minnesota Timber Wolves, **Victor Van Ballenberghe** and **Albert W. Erickson**

Food Habits of the Timber Wolf in Northeastern Minnesota, **David Byman**, **Victor Van Ballenberghe**, and **Albert W. Erickson**

The Red Fox and Its Relationship to Nesting Waterfowl, **Alan B. Sargeant**

Waterfowl, Chairman, **F. Graham Cooch**

Effects of Ditching on Numbers of Breeding Ducks in Waterhen Marsh, Saskatchewan, **Edward G. Hennen**

Eye Coloration of Lesser Scaup in Relation to Age, **David L. Trauger**

Response of Wood Ducks to Nest Boxes at Max McGraw Wildlife Foundation, **S. Tenison Dillon**

A Successful Technique for Producing More Wood Ducks from Wetland Habitats, **Harold A. Doty** and **Arnold D. Kruse**

Responses of Wild Geese to the Addition of Fertilizer to Arctic Vegetation, **Bernard C. Lief**

Some Biological Factors Underlying Annual Fluctuation in Hunting Mortality of Tall-Grass Prairie Canada Geese, **Charles D. MacInnes**

Distribution of "Large-Type" Canada Geese Molting in the Northwest Territories, **Tomas Sterling**, **Ernest Kuyt**, and **Alex Dzubin**

Identifying Natal Areas of Ohio-Hatched Canada Geese by Neutron Activation Analysis, **John W. Neth** and **Theodore A. Bookhout**

A New Approach to Waterfowl Species Management, **Walter F. Crissey**

THIRTY-THIRD MIDWEST FISH AND WILDLIFE CONFERENCE

Hilton Hotel
Omaha, Nebraska
December 12-15, 1971

General Session, Presiding, **Stanley A. Matzke, Jr.**

Welcome, **Eugene A. Leahy**

Introductory Remarks, **Willard R. Barbee**

Special Presentations, Chairman, **J. Henry Sather**

Ideological Crises in the Wildlife Profession and the Environmental Revolution, **John E. Skinner**

The Harvest Concept, **Roland C. Clement**

Fisheries Session, Chairman, **Mercer Patriarche**

The Effect of Thermal Effluents Upon the Fish and Invertebrates of the White River near Petersburg, Indiana, **Robert S. Benda**

Response of Cultured Fishes to Synthetic Hormones and Other Growth-Promoting Substance Used as Feed Additives, **Ross V. Bulkley**

Effects of Three Calcium and Phosphorus Levels in Supplemental Feeds on Growth and Mineral Retention in Channel Catfish, *Ictalurus punctatus*, **G. R. Dove**, **O.W. Tiemeier**, and **C.W. Deyoe**

Temperature Preference of the Freshwater Alewife, *Alosa pseudoharengus* (Wilson), **Edward W. Carroll** and **Carroll R. Norden**

Some Physiological Effects of Handling and Transportation of Juvenile Muskellunge, **Harry M. Miles**

The Effects of Depressed Dissolved Oxygen Concentrations on the Embryo and Larvae Stages of the Northern Pike, White Sucker, and Coho Salmon, **Richard E. Siefert** and **William A. Spoor**

Wildlife Session, Chairman, **James Salyer**

Survival and Movement of Adopted Fox Pups, **Ronald D. Andrews** and **R.L. Phillips**

An Inventory and Classification of Open Areas in the Forest Environment, **John E. Mathisen** and **Lawrence Seidel**

Ecology of the Sandhill Crane Along the Platte River in South-Central Nebraska, **Charles R. Frith**

Colony Site Selection in Franklin's Gull, **Joanna Burger**

Ecological Relations of Waterfowl and Snapping Turtle Populations, **Donald A. Hammer**

The Present Status of Bounties in the United States and Canada, **James S. Fralish** and **Larry Theivagt**

Fisheries Session, Chairman, **R.A. Ryder**

The Plains Steelhead of Western Nebraska, **Rodney C. Van Velson**

An Evaluation of Stream Drift as Food for Warm-Water Fishes, **Morgan E. Sisk** and **Richard A. Tubb**

History of Salmon in the Great Lakes, **John W. Parsons**

Relative Abundance and Distribution of Young-of-Year Fishes in Lake Sharpe, South Dakota, 1967-1971, **Lance G. Beckman**

Oklahoma City Urban Fishing Program - Summer 1971, **Thomas L. Perkins** and **Robert C. Summerfelt**

An Experimental Electrical Weir for Removing Nongame Fish from a Large Midwestern Reservoir, **Monte L. Madsen**

Wildlife Session, Chairman, **C.D. Besadny**

Infrared Remote Sensing Applied to Problems in Wildlife Biology, **R.D. Curnow**

Comparative Survival of Radio-Marked and Non-Radio-Marked Pen-Reared Juvenile Cock Pheasants Released into the Wild, **Roger N. Johnson**

A Technique for Hatching and Rearing Artificially Propagated Mallards in Isolation, **Robert Montgomery**, **G.V. Burger**, and **R.C. Oldenburg**

High Survival and Homing Rate of Hand-Reared Wild Strain Mallards, **Forrest B. Lee** and **Arnold D. Kruse**

Wild Breeding for Pheasant Production in Areas of Deficient Nesting Cover, **Michael R. Grode**

Habitat Selection by Spruce Grouse Hens During the Spring and Summer, **George Haas**

Symposium, Stream Channelization, Chairman, **John L. Funk**

Channel Improvements-A Middle Ground, **Jack E. Kepler**

Channel Modification and Its Place in Resource Conservation and Development, **J. Vernon Martin**

Effect of Stream Channelization on Fishes and Bottom Fauna in the Little Sioux River, Iowa, **Douglas R. Hansen**

Fish Populations of Channelized and Unchannelized Sections of the Chariton River, Missouri, **James C. Congdon**

A Recreational Use Study of the Platte River, Missouri, a Stream Threatened by Channelization, **George G. Fleener**

Impact of Channelization on Wetland Habitat in the Obion-Forked Deer Basin, Tennessee, **Calvin Barstow**

Wildlife Session, Chairman, **Harvey Miller**

The Number of Ross' Geese in Central North America, **J. P. Prevett and C.D. MacInnes**

Fall Movements of Canada Geese near Southwestern Lake Erie, **John W. Koerner and Theodore A. Bookhout**

Environmental Factors Influencing Historical Distributional Changes of Prairie Chickens, **Roger S. Sharpe**

Bioenergetics of the Bobwhite (*Colinus virginianus*), **Ronald M. Case and Robert J. Robel**

Mercury Residues in Liver Tissue and Eggs of Pintails Breeding in North Dakota, **Gary L. Krapu, George A. Swanson, and Harvey K. Nelson**

Breeding Success of Lesser Scaup in Subarctic Taiga, **David L. Trauger**

General Session, Chairman, **Keith Harmon**

Wildlife Management and the Vocational Agriculture Student, **Carl E. Vogt and Michael J. Naylor**

Long-Range Fish and Wildlife Planning - State of the Art, **David F. Riley**

The Nebraska Fish and Wildlife Plan and Its Relationship to the Total Resource Planning Effort, **Arnold J. Sohn and Robert M. Fenemore, Jr.**

Impacts of Fish and Wildlife Management Measures on Environmental Quality - Good and Bad, **Raymond E. Johnson**

Environmental Impact Statements - Have They Been Acceptable?, **Larry C. Holcomb**

THIRTY-FOURTH MIDWEST FISH AND WILDLIFE CONFERENCE

Savery Hotel
Des Moines, Iowa
December 10-13, 1972

Welcome, Chairman, **Harry M. Harrison**

Introductory Remarks, **Fred A. Priedwert**

Iowa Awareness, **James Sinatra**

Welcome to Iowa, **Robert D. Ray**

The Challenge to the States, **Daniel A. Poole**

A Coming of Age, **William J. Horvath**

Wildlife Management in the Early Seventies, **Edward L. Kozicky**

The Socio-Political Challenge to Resource Management, General **Maxwell E. Rich**

Upland Game, Chairman, **Alfred Berner**

Land Use Factors in Tall Grass Prairie Region Which Affect Prairie Chickens, **Gerald J. Horak**

Some Ruffed Grouse-Nutrient Relationships from Minnesota, **Dan E. Hugg and Gordon W. Gullion**

Habitat and Selection by Brood Rearing and Juvenile American Woodcock, **William P. Wenstrom**

Energetics of Food Plots for Bobwhites in Kansas, **Robert J. Robel**

Adaptability of the Korean Pheasant in Missouri, **Larry L. Wollard**

Michigan's Plans for a Pheasant Put-Take Program, **Victor Janson**

Pheasants and Land Use Trends in Southwestern North Dakota, **Gerald D. Kobriger**

Pheasant Nesting and Production in "Set Aside" Fields, **Richard C. Nomsen**

Predation on Artificial Nests in Eight Habitat Types in Central Minnesota, **Wayne Enger and John Gill**

Wildlife Programs, Problems, and Evaluations, Chairman, **John M. Gates**

Fish and Wildlife Considerations in PL 566 Projects in Wisconsin, **Robert L. Ruff, Edward J. Frank, and James R. Huntoon**

Some Economic Potentials of USDA Land Retirement in South Dakota, **James E. Wiebe and Ronald E. Erickson**

Federal Cropland Diversion Programs and Farm Game - A Time for Action, **Maynard Nelson, Keith Harmon, and Alfred Berner**

Effect of Water Resource Projects on Missouri Wildlife, **Rollin D. Sparrowe**

A Non-Game Bird Survey of Indiana on Selected Portions of Natural and Channeled Streams, **Jim New**

Wildlife Problems in an Urban-Rural Ecotone in Ozaukee County, Wisconsin - A Case History, **Paul E. Matthiae and Forest W. Stearns**

Landowner Education and Assistance Programs, **Douglas C. Keran and John A. Gill**

Programs in Natural Resources Management at Technical Schools and Two-Year Colleges, **John A. Gill and Douglas C. Keran**

Youth Involved in Natural Resources and Environmental Protection, **W.J. Kortesmaki**

Big Game and Predators, Chairman, **John R. Tester**

Home Range and Territoriality of Coyotes in North Central Minnesota, **Robert A. Chesness**

Movements and Population Characteristics of an Exploited Wolf Population in Northeastern Minnesota, **Victor VanBallenberghe and Albert W. Erickson**

Minnesota's 1971 Moose Season, **Patrick D. Karns and Stephen L. Judd**

Activity Patterns of Moose as Determined by an Automatic Recorder, **Robert L. Phillips and William E. Berg**

Fall Ecology of White-Tailed Deer in North Central Minnesota, **Bruce H. Waddell**

Winter Habitat of the White-Tailed Deer in North Central Minnesota, **Jack J. Mooty**

A Correlation of Deer Movements with Snowmobile Activity in Central Minnesota During Winter 1972, **Dan E. Huff and Patrick J. Savage**

Artificial Feeding Problems of White-Tailed Deer in Northern Michigan, **Robert G. Strong**

Physiological Baselines for White-Tailed Deer, **Patrick D. Karns and Charles Kinsey**

Non-Game Wildlife, Chairman, **Robert A. McCabe**Non-Game and Endangered Species Management in Nebraska, **Ross A. Lock**Some Recent Research on Chemical Pollutants in Birds, **J.J. Hickey, D.W. Anderson, and T.C. Grubb**Eggshell Thinning, Chlorinated Hydrocarbons, and Mercury in Inland Aquatic Bird Eggs, **Raymond A. Faber and Joseph J. Hickey**Habitat Evaluation of Selected Bald Eagle Nest Sites, **B. Gregory Juenemann and L. Daniel Frenzel**Post-Fledging Activity of Bald Eagles, **Joel Kussman and L.D. Frenzel**Effects of Brown-Headed Cowbird Control on the Fledging Success of the Kirtland's Warbler, **Nicholas L. Cuthbert and Bruce E. Radabaugh**Effects of Diethylstilbesterol on Reproduction in the Black-Tailed Prairie Dog, **Donald G. Pfeiffer**Territorial Behavior of the Plains Pocket Gopher, **Wayne C. Faatz**A Study of the Swallows of Monticello, Minnesota, **Steven V. Thrune and A.J. Hopwood**Symposium: Project Sanguine - Its Status and Significance, Chairman, **Daniel O. Trainer**Sanguine Objectives, Status, and Impact, Commander **W.K. Hartell**Sanguine's Electric-Magnetic System, **D. Novotny**Sanguine's Biological Significance and Implications, **C. Kabat**Sanguine's Significance to the Public, **L. Klessig**Waterfowl, Chairman, **David L. Trauger**Population Studies of Lesser Snow Goose, **Fred Cooke and George Finney**Migration and Mortality of Wood Ducks Banded in Western Minnesota, **Robert I. Benson**Mobility and Habitat Use of Wood Duck and Mallard Broods in a Forested Habitat, **I. Joseph Ball, David J. Gilmer, John H. Reichmann, and Lewis M. Cawardin**Duck Nesting in Grass Legume Cover on Idled Cropland in South Dakota, 1971-72, **Harold Duebbert and John Lokemoen**Feeding Ecology of Gadwalls on Saline Wetlands in North Dakota, **Jerome R. Serie and George A. Swanson**Nesting of the Hooded Merganser in Southeastern Missouri, **James L. Hansen, Leigh H. Fredrickson, and John P. Rogers**Estimating Survival Rates When Both Adults and Immatures are Banded, **Douglas H. Johnson**Some Field and Court Case Experiences with Waterfowl and Electrical Power Lines, **Richard A. Hunt**Reproduction, Growth, and Development of Four Mallard Strains, **Raymond J. Greenwood**Wildlife Management and Techniques, Chairman, **C. Phillip Agee**Management of Corps Lake Lands in Missouri, **William Phillips**Forest Wildlife Habitat Management Guide for the Missouri Ozarks, **Ray Evans**Prescribed Burning of Aspen-Hardwood Stands for Wildlife Habitat Improvement, **Rodney Sando**Hunter Walking Trails for Wildlife, **Duane K. Wenzel**
Characteristics of Hunters Opposed to Michigan Deer Management, **Marvon H. Watson**Uses of Remote Sensing for Identification and Classification of Wetland Vegetation in a Forested Region, **Lewis M. Cawardin**Oxytetracycline as a Time-Specific Biomarker of Mammalian Tooth Cementum, **David H. Johnston**Estimation of Total Number of Different Hunters Using a Public Hunting Area During a Season, **Douglas S. Robson and Vernon L. Wright**One-Year Survey of Public Use of State Game Management Areas in Iowa, **Eugene D. Klonglan and Vernon L. Wright**Fish Management Techniques, Chairman, **Clayton Lakes**Iowa Channel Catfish Cage Rearing Program, **Joseph Schwartz**Northern Pike and Walleye Tagging Studies in North Dakota Impoundments, **James Ragan**Impact of Overwinter Drawdowns on the Aquatic Vegetation in Murphy Flowage, Wisconsin, **Thomas D. Beard**Fishing and Associated Recreation Survey in North Dakota, **Donald Duerre**Lake Michigan Creel Census Techniques, **Ron Poff**The Importance of Food in the Survival of Larval Walleyes, *Stizostedion vitreum* (Mitchell), in Presque Isle Pond, Vilas County, Wisconsin, **Donald W. Tills and Carroll R. Norden**Commercial Food Fish - Research and Development, Chairman, **Dale Henegar**The P.L. 88-309 Program in the Inland States of the Southeast Region, NMFS, **William R. Turner**Age and Growth of Shovelnose Sturgeon from the Mississippi River, **Don R. Helms**Population Dynamics of Three Species of Bullheads and Their Differential Vulnerability to Exploitation by a Commercial Hoop Net Fishery, **Donald Olson**Effectiveness and Potential of the Whip-Set Trammel Net in Various State Reservoirs in Oklahoma, **Kim E. Erickson**Potential Yield of Bigmouth Buffalo in Coralville Reservoir, Iowa, **Larry Mitzner**Dynamics of the Bigmouth Buffalo Commercial Fishery in Lake Oahe, 1964-70, **Thomas E. Moen**Dynamics of Fish Populations, Chairman, **Harold E. Claassen**Exploitation of Yellow Perch Stocks in Saginaw Bay, Lake Huron, **Randy L. Eshenroder**Some Biological Changes Associated With the Final Years of Filling and Early Years of Impoundment of Lake Oahe, North and South Dakota, **Fred C. June**Fish Population Changes in Lewis and Clark Lake and Lake Francis Case and Some Relations to Water Management, **Charles H. Walburg**Interspecific Relationships of the Walleye and White Sucker and Associated Species in a Northeastern Minnesota Lake, **Fritz H. Johnson**Movement of Channel Catfish in the Republican River in South Central Nebraska, **Larry Messman**Fish Populations of Channelized and Unchannelized Sections of the Platte River, Missouri, **Stanley M. Michaelson**Fisheries Potpourri - Hatchery and Food Habits, Chairman, **Ross Bulkley**Rathbun Hatchery Development - An Intensive Warmwater Hatchery Facility, **Terry Jennings**The Use of Artificial Diets to Rear Hybrid Muskellunge, **John M. Robertson**Striped Bass, *Morone saxatilis* (Walbaum), Culture in Oklahoma, **Jack Harper**Food Intake of the Largemouth Bass, **William M. Lewis, Roy Heidinger, William Kirk, Wayne Chapman, and Danny Johnson**

Food Habits and Selectivity of Fishes in a Multispecies Farm Pond, **John G. Nickum** and **Thomas W. Gengerke**
 Food Selectivity of the Shovelnose Sturgeon (*Scaphirhynchus platyrhynchus*) in the Missouri River, **Tim Modde**

Symposium: Largemouth Bass Overharvest - Fact or Fiction, Chairman, **Robert Martin**

Production and Harvestable Surplus of Largemouth Bass Populations, **Richard O. Anderson**

Ecology and Management of Largemouth Bass, *Micropterus salmoides* (Lac.), **George W. Bennett**

Some Aspects of Harvest Management in Missouri Farm Ponds, **Kim Graham**

Initial Overharvest of Largemouth Bass in Certain Missouri Impoundments and a Summary of Attempts to Prevent It, **Lee C. Redmond**

Discussants, **Don Bonneau** and **Peter Hackney**

Thermal and Chemical Pollutants, Chairman, **Earl Kendle**

Thermal Effects Studies on the Quad-Cities Station, Cordova Power Plant, Mississippi River, **Miles P. Locke**
 Fisheries and Power Production on the Mississippi River at Monticello, Minnesota, **A.J. Hopwood**

Population Data of Fishes in the Missouri River, **Norman P. Stucky**

Gonosomatic Indices and Lipid Metabolism of White Crappie (*Pomoxis annularis*) as Altered by Thermal Additions, **Robin F. Knox** and **Arthur Witt, Jr.**

Significance and Occurrence of Contaminants in Fishery Resources, **James W. Hogan**

Effect of Simazine on Aquatic Ecosystems, **Bill Mauck** and **Foster L. Mayer**

Fish Population Management by Renovation and Stocking, Chairman, **A.C. Lopinot**

Considerations for Walleye Stocking in Wisconsin, **John Klingbiel**

An Evaluation of Northern Pike Introduction to Kansas Reservoirs, **Frank Schryer**, **Leo Dowlin**, and **Verlyn Ebert**

Evaluation of Fisheries Provided by Quantitative Stocking of Yellow Perch in Winterkill Lakes, 1969-72, **Dennis Unkenholz**

The Partial Chemical Reclamation of Lakes as a Fisheries Management Tool, **Ludwig Frankenberger** and **Ronald Spittler**

Fintrol-Bar, A New Concept in Stream Reclamation, **Gilbert C. Radonski**

Chemical Reclamation of Michigan Trout Streams, **E. John Trimmer**

THIRTY-FIFTH MIDWEST FISH AND WILDLIFE CONFERENCE

Stouffer's Riverfront Inn
St. Louis, Missouri
December 2-5, 1973

General Session, **Larry R. Gale**, Chairman

Introductory Remarks, **Carl R. Noren**

Welcome, **Tom Blair**

Theme: The Place of Fish and Wildlife in Future Resource Development

Agricultural Developments, **Carroll V. Hess**

Water Resource Developments, **John B. Roose**

Economic Developments, **William K. Reilly**

Socio-Political Developments, **John Gottschalk**

Joint Session, River Basin Planning and Management, **Willis Fernholz**, Chairman

Evaluation of Fishing and Hunting Opportunity - Discounting Procedures for Federal Projects, **Loren W. Moseley**

Serious Deficiencies in Evaluating Inland Navigation Projects Revealed in the National Water Commission Report, **George E. Anderson**

Geomorphic Changes in the Middle Mississippi River Channel, **Michael A. Stevens**

Current Utilization of Recreation Resources on the Missouri River and Adjacent Lands (Yankton, South Dakota-Rulo, Nebraska), **E. Don McCullough**

Evaluating Effects of Water Resource Developments on Wildlife Habitat, **Clarence Daniel** and **Robert Lamaire**

Effects of a Judicial Ditch System and a Public Law 566 Small Watershed Project on Fish and Wildlife Habitat in Minnesota, **Kenneth W. Bonnema** and **Merrill S. Zschomler**

Waterfowl Biology and Management, **Reid Goforth**, Chairman

Duck Plague: The Lake Andes Story, **Milton Friend**

Resident Waterfowl Development in the Tennessee Valley-Emphasis: Giant Canada Geese, **James H. Burbank**

Subflocks in Canada Geese of the Mississippi Valley Population, **David D. Kennedy** and **George C. Arthur**

Characteristics of Giant Canada Goose Gang Broods in Ohio, **Richard A. Warhurst**

Moist Soil Plant Production and Utilization at Mingo National Wildlife Refuge, Missouri, **Dean F. Knauer**

Nightlighting of Diving Ducks in Fall, **David L. Trauger** and **Lewis M. Cowardin**

Age-Related Studies of Breeding American Coots, **Richard D. Crawford**

Lead-Iron Shot, a Possible Solution to the Lead-Poisoning Problem in Waterfowl, **J.C. Irwin**, **D. Dennis**, and **N.G. Perret**

Biology and Management of Pheasant Populations in North America: A Symposium

Welcome, **Carl W. Wolfe**

Opening Remarks, **Edward L. Kozicky**

Pheasant Populations in North America, **Thomas S. Baskett**, Co-Chairman; Discussion Leader, **James B. Hale**

Distribution and Abundance of the Pheasant, **Robert B. Dahlgren**, **Carl G. Trautman**, and **Victor S. Janson**

Barriers Limiting the Distribution of the Pheasant, **William L. Anderson** and **Glenn D. Chambers**

Behavior and Social Organization of the Pheasant, **H. Warrington Williams**

The Annual Physiological Cycle of the Pheasant, **Robert P. Breitenbach**

Pheasant Reproduction: A Look at Some Regulatory Mechanisms, **Ronald F. Labisky** and **William L. Baxter**

Pheasant Populations in North America, **Daniel L. Leedy**, Co-Chairman; Discussion Leader, **Raymond L. Linder**

Pheasant Survival and Causes of Mortality, **John M. Gates** and **Robert T. Dumke**

- Some Current Aspects of Pheasant Harvest Management in North America, **Joseph P. Bachant, J. Blair Dawson, Norman H. Dey, Fred E. Hartman, and George W. Nason**
- Effects of Selected Biocides on the Pheasant, **Carl W. Wolfe, Lowell C. McEwen, and Harold H. Prince**
- Pheasant Management: Areas of Concern and Promise, **George V. Burger and Allen L. Farris**
- Summing Up and Looking Ahead, **George V. Burger**
- Closing Remarks, **Robert A. McCabe**
- Thanks and Acknowledgment, **Carl W. Wolfe**
- Big Game and Predators, **Glen C. Sanderson**, Chairman
- Effects of Snowmobiles on the Movements of White-Tailed Deer in Northern Wisconsin, **Ronald G. Eckstein and Orrin J. Rongstad**
- Cattle Use of a Deer Winter Range in the Black Hills, **David C. Hamm**
- Complete Removal of an Enclosed Deer Herd Through Controlled Hunting, **John F. Kubisiak and William A. Creed**
- Effects of Deer Season Changes on Harvests and Hunter Pressure, **Wayne R. Porath and Oliver Torgerson**
- White-Tailed Deer Defecation Rates - A Second Look, **Lawrence A. Ryel**
- Feeding Behavior and Food Habits of Bald Eagles in Minnesota, **James F. Harper and Thomas C. Dunstan**
- Cedar Glen Eagle Roost, **Thomas C. Dunstan, James R. Jonen, and James F. Harper**
- Reproductive Biology of Wild *Canis* (Canidae) in Arkansas, **Philip S. Gipson and John A. Sealander**
- An Aerial Census Method for Determining Spring Red Fox Densities in the Prairie, **Alan B. Sargeant, William K. Pfeifer, and Stephen H. Allen**
- Some Aspects of Aerial Predator Hunting in Eastern South Dakota, **Victor VanBallenberghe**
- Environmental Uses and Abuses, **Theodore A. Bookhout**, Chairman
- Introducing Environmental Education on Wildlife Refuges, **Ed Landin and Katy Ligare**
- A Rationale for More Public Involvement in Agency Decision Making Based on a Study of Recent Litigation, **M. Rupert Cutler**
- Mercury Contamination of Birds from Polluted South Dakota Waters, **Larry W. Hesse, Robert L. Brown, and James F. Heisinger**
- Distribution and Excretion of Methylmercury Chloride in Mallards, **James R. Ford and Harold H. Prince**
- Mercury and Organochlorine Compounds in Lake Erie Herons, **Richard D. Curnow and Robert D. Hoffman**
- Reliability of Gross Pathological Symptoms of Lead Poisoning Compared with Chemical Analysis, **Thad L. Fuller**
- A Landowner Survey in Ten Selected Indiana Counties in 1972, **Wayne Machan and John Russell**
- Habitat Utilization by Prairie Chickens in Relation to Land Use Practices in Missouri, **Ronald D. Drobney**
- Pheasant Population Levels and Land Use Changes in Winnebago County, Iowa, 1939-1973, **Wayne A. Fischer**
- Fish Physiology, **Jan Savitz**, Chairman
- Diet Quality in Fish Toxicology: Concern for Nutritional Quality and Contaminants, **Paul M. Mehrle, Foster L. Mayer, and W. Waynon Johnson**
- Glucose Metabolism of Channel Catfish as Altered by Dietary Toxaphene: An Evaluation of Liver and Pancreas Pathology, **Logan Crutcher and Paul M. Mehrle**
- Brook Trout Fry Development as Affected by Toxaphene, **Foster L. Mayer, Paul M. Mehrle, and William P. Dwyer**
- Effects of Vitamins C and D on Growth Rates and Mineral Composition of Channel Catfish, **C. A. Launer, O.W. Tiemeier, and C.W. Deyoe**
- Effects of Feed Ingredients, Temperature, and Time After Feeding on Digestion End-Products in the Blood of Channel Catfish, **R.B. Taggart, O.W. Tiemeier, and C.W. Deyoe**
- Sublethal Effects of Three Ectoparasites on Fish, **Gene Vaughan**
- Age, Growth and Populations, **Peter A. Hackney**, Chairman
- Errors in Determining Age From Scales in Relation to Fishery Management, **Kenneth D. Carlander**
- Scanning Electron Microscopy of Fish Scales, **Harold E. Klaasen and Steven D. Crawford**
- Liver RNA/DNA Ratios and Liver Condition Ratios as Measures of Feeding Rate in the Largemouth Bass, **Larry P. Hough**
- New Indices of Feeding Intensity and Well-Being, **W. and Lr. Gary D. Novinger, Don Gabelhouse, Jr., and Richard O. Anderson**
- Growth and Development of Green Sunfish in a Heated Pond, **Horst F. Siewert and Arthur D. Hasler**
- Management Implications of a Cytogenetic Study of the Round Whitefishes, **Henry E. Boone**
- Fluorescent Dye Marking of Minnows for Population Studies in the Mississippi River, **John D. Ott and A.J. Hopwood**
- Coldwater Fisheries and Limnology, **Mercer H. Patriarche**, Chairman
- Distribution, Abundance, and Growth of the Alewife in Lake Superior, 1954-72, **Merrill M. Bailey**
- The Survival of Coho Salmon Eggs in Two Wisconsin Tributaries of Lake Michigan, **James E. Cloern and Carroll R. Norden**
- Age, Growth, and Sex Composition of American Smelt Along the Western Shore of Lake Michigan, **Russell D. Robinson and Carroll R. Norden**
- Size Distribution and Lamprey Wounding of Chinook Salmon Returning to the Ocqueoc River, Hammond Bay, Lake Huron, 1969-73, **James B. Reynolds and John W. Parsons**
- Invertebrate Drift in the Little Plover River, **Dave Braatz**
- Pre-Acute and Post-Treatment Effects of Antimycin on Benthic Macroinvertebrates in a Trout Stream, **Donald J. Degan**
- Some Vital Statistics of Smallmouth Bass in the Plover and Red Cedar Rivers, Wisconsin, **Vaughn L. Paragiamian**
- Rehabilitation of Fish Populations with Toxicants: Symposium Sponsored by North Central Division, American Fisheries Society, **Al Lopinot**, Chairman
- A Summary of the Use of Fish Toxicants in the Midwest, **Al Lopinot**
- Past History of Fish Toxicants, **Kenneth B. Cumming**
- Survey of Methods Used in the Development of Fish Toxicants, **Leif L. Marking**
- Problems in Marketing a Fish Toxicant, **Gilbert C. Radonski**
- The Technology of Counteracting Chemicals Used in Fishery Operations, **Verdel K. Dawson**
- Fish Toxicification - Biological Sanity or Insanity, **George Becker**
- Wisconsin's Experience with Fish Toxicants, **John H. Klingbiel**
- An Evaluation of Chemical Reclamation in Michigan, **John Trimberger**
- The Renovation of Cagles Mill Reservoir and Its Tributaries, **Gary Hudson**

Fishery Management Techniques, Frank R. Lockard, Chairman

Operation and Effects of Lake Deepwater-Release Outlet Structure for Reducing Stream Temperature, **Dennis Anderson**

An Analysis of Trout Stocking in the Pike River System, Marinette County, Wisconsin, **Thomas F. Thuemler**

Length Limits as a Management Technique for Northern Pike, **James J. Kempinger**

The Effect of Renovation on Fish Harvest in J.C. Murphy Lake, **Robert Robertson**

The Effects of Antimycin on Two Species of Freshwater Clams, **Mary Ellen Antonioni**

The Rebirth of Long Lake, **Ronald J. Spitler**

St. Louis Urban Fishing Program, **Kenneth R. Perry** and **Jack C. Woodhead**

Warmwater Fisheries and Limnology, Donald Bonneau, Chairman

Artificial Aeration and Destratification of Ottoville Quarry, Putnam County, Ohio, **Donald K. Gartman**

Distribution and Persistence of DDE and Lindane in a Large Scale Model Lake, **J.L. Hamelink** and **R.C. Waybrant**

Killdeer Reservoir - An Experimentally Designed Upground Reservoir, **Frederick Stevenson**

Interactions of Intensive Cultures of Channel Catfish With Largemouth Bass and Bluegills in One-Acre Ponds, **D. Homer Buck**, **Richard J. Baur**, and **C. Russell Rose**

Population Estimates and Growth of Largemouth Bass in a Small Pond, **Maynard G. Hirsch**, **J. Savitz**, and **Dave McGinty**

Form and Function of Redear Sunfish Populations, **Don Gabelhouse, Jr.**

The Effects of a Commercial Gill Net Fishery on the Fish and Waterfowl of Pool 7, Mississippi River, **Richard G. Ranthum**

THIRTY-SIXTH MIDWEST FISH AND WILDLIFE CONFERENCE

**The Indianapolis Hilton
Indianapolis, Indiana
December 16-19, 1974**

General Session, Frank R. Lockard, Chairman

Introductory Remarks, **Joseph D. Cloud** and **John A. Hillenbrand, II**

Welcome, Honorable **Otis R. Bowen**, Governor

Theme: Energy-Fish-Wildlife

Demand-Liaison-Management, Horace P. Lyle, Gary Duxtater, and John A. Hillenbrand, II

White-Tailed Deer, Wayne Machan, Chairman

Patterns in Productivity of the White-Tailed Deer, **James A. Dechert**

Minnesota Deer Hunter Compliance Survey, **Patrick D. Karns**

Habitat Selection and Food Habits of White-Tailed Deer in North-Central Minnesota, **Jack J. Mooty**, **Donald E. Pierce**, **Bruce H. Waddell**, and **Bruce Kohn**

Effects of Low-Protein Winter Rations on the Blood Chemistry of White-Tailed Deer, **Patrick D. Karns** and **Charles Kinsey**

Observations of Naturally Occurring Chases of White-Tailed Deer by Free-Ranging Dogs, **John C. Olson**

Reproduction and Productivity of White-Tailed Deer on the Crane Naval Ammunition Depot, **Charley M. White**

Exploitation of White-Tailed Deer on the Crane Naval Ammunition Depot, **Fred A. Stormer**

Unrecovered Losses of White-Tailed Deer on the Crane Naval Ammunition Depot, **Harmon P. Weeks**, **Fred Stormer**, **Thomas W. Hoekstra**, and **Charley M. White**

Physiology-Toxicology, Ralph Kirpatrick, Chairman

Effect of Sublethal Doses of Insecticides on Bobwhites, **R.J. Robel**, **R.W. Felthousen**, and **K.E. Solomon**

Aspects of the Winter Metabolism of Ruffed Grouse with Special Reference to Energy Reserves, **V.G. Thomas**, **H.G. Lumsden**, and **J.G. George**

A Preliminary Model of DDT Kinetics in an Old-Field Ecosystem, **Douglas J. Forsyth**, **Tony J. Peterle**, and **Gary C. White**

Metabolizable Energy of Commercial Diets and Natural Foods for Mallards, **David A. Purol** and **Harold H. Prince**

Studies of the Helminth Parasites of Blackbirds (Icteridae), **C. Lawrence Cooper** and **John L. Crites**

Seed Treatment Pesticide Effects on Pheasant Reproduction, **Kenneth L. Stromborg**

Pheasant Reproduction and Survival as Related to Agricultural Fertilizer Use, **Larry F. Fredrickson**

Total Mercury in Lake Erie Herons and Their Foods, **R.D. Hoffman** and **R.D. Curnow**

Wetlands Wildlife, Carl Eisfelder, Chairman

Estimating Mallard Losses During Spring from Food Remains at Red Fox Rearing Dens, **Alan B. Sargeant** and **Douglas H. Johnson**

The Impact of Red Fox Predation on the Sex Ratio of a Mallard Population, **Douglas H. Johnson** and **Alan B. Sargent**

Some Aspects of Waterfowl Harvest on the Upper Mississippi River, **William E. Green**, **William F. Richie**, **Terry R. Valen**, and **John F. Wetzel**

The Effects of Sewage Effluents on Wetland Ecosystems, **W. Alan Wentz**

The Fatty Acid Composition of Canada Geese Lipids, as Related to Vernal Migration, Reproduction, and Diet, **V.G. Thomas** and **J.C. George**

Cliff-Nesting Canada Geese in Missouri, **David Graber**

Breeding Waterfowl Population and Distribution in South Dakota, **Wayne G. Brewster**, **John M. Gates**, and **Lester D. Flake**

Factors Influencing Habitat Use by Breeding Waterfowl in South Dakota, **Michael R. McEnroe**, **John M. Gates**, and **Lester D. Flake**

Forest and Upland Wildlife, Robert D. Feldt, Chairman

Herd Organization and Movements of Elk in Wind Cave National Park, South Dakota, **Kenneth L. Varland**

Five Year Study of Raccoon Population Structure in Northwestern Indiana, **Larry E. Lehman**

- Winter Food Habits of Coyotes in Northern Minnesota, **Robert A. Chesness**
- Ruffed Grouse Reintroduction, Dispersal, and Survival in Northern Indiana, **Dwayne K. Paige** and **Herbert L. Archibald**
- Precipitation, Prey Populations, and Fox Predation, **Fredrick H. Montague, Jr.**
- Effect of Edge Characteristics on Breeding Birds, **James P. Loveless**
- Nest Site Selection by Broad-Winged Hawks, **Douglas C. Keran**
- Movements of Radio-Tagged, Transplanted Greater Prairie Chickens in Central Wisconsin, **John E. Toepfer** and **Raymond K. Anderson**
- Wildlife in an Urbanizing Society, **Russel Hyer**, Chairman
- Status and Productivity of Canada Geese in the Twin Cities of Minnesota, **Rodney D. Saylor** and **James A. Cooper**
- Need for Revising Bald Eagle Nest Protection Regulations on U.S. Forest Service and Other Public Lands, **L.D. Frenzel**
- The Relationship Between Federal Cropland Diversion Programs and Pheasant Production in Northwest Ohio, **David Urban** and **Allen W. Cannon**
- Recent Wildlife Management Activities of a Corps District, **James F. Gore**
- Land and Water Management for Fish & Wildlife, **Charles M. Smith**
- Wildlife, Fish, and Channels in PL-566 Watershed Projects, **James D. McCall** and **Russell Hyer**
- Moist Soil Management - Its Cost in Dollars and Energy, **Leigh H. Fredrickson**, **Dean F. Knauer**, and **John E. Toll**
- Effect of Waterfowl Populations and Sludge Removal on Water Quality of an Urban Waterfowl Sanctuary, **Janet A. Ladowski**, **Hallett J. Harris, Jr.**, and **Donald J. Worden**
- Use of Dredged Material to Develop Marsh and Upland Wildlife Habitat, **Jean Hunt**
- Fisheries and Power Development, **Robert W. Holingsworth**, Chairman
- Observations of the Fish Fauna in a New Pumped-Storage Reservoir on Lake Michigan, **Charles R. Liston** and **Peter I. Tack**
- Multiple Regression Analysis of Yellow Perch Near the Ludington Pumped-Storage Reservoir, **David Lechel**
- Postoperational Effects of the Palisades Nuclear Power Plant on the Biota of Lake Michigan, near South Haven, Michigan, **Robert S. Benda**
- Use of Trawl Catches to Monitor Impact of Heated Effluents upon Fish in Lake Michigan, **Don Stewart**, **Paul Rago**, and **David Jude**
- Responses of Lake Michigan Fish to a Thermal Discharge, **M.M. Thommes**
- Radio Tracking Largemouth Bass in a Cooling Lake, **John A. Tranquilli**, **R. Weldon Larimore**, **Richard W. Koher**, and **William Cochran**
- Distribution of Some Larger Fishes and Turtles in Relation to Heated Effluents in the White River, Indiana, **Raymond A. Schlueter**
- Fisheries Investigations in the Missouri River Near Two Nuclear Power Plants, **Charles R. Wallace**
- Toxicology, **Jerry Lee Hamelink**, Chairman
- Natural Lakes vs. Reservoirs: Effects of Factors Controlling Pesticide Levels in Sport Fish, **Michael James Vanderford** and **Jerry Lee Hamelink**
- Pesticides in the Water and Naiad *Ambelma plicata* of Little Darby Creek, Ohio, **Mary F. Brunner**
- Methods for Channel Catfish Chronic Toxicity Tests with Cultural Implications, **William P. Dwyer** and **Foster L. Mayer, Jr.**
- Toxaphene Effects on Growth and Bone Composition of Fathead Minnows, **Paul M. Mehrle, Jr.**, **Foster L. Mayer, Jr.**, and **William P. Dwyer**
- Toxicity of 2-Digeranylamino-Ethanal, a Candidate Selective Fish Toxicant, **Leif L. Marking**
- Fathead Minnow Growth and Reproduction as Affected by 2,4-D DMA, **Foster L. Mayer, Jr.**, **Paul M. Mehrle, Jr.**, and **William P. Dwyer**
- Variability of Acute Toxicity Tests with Goldfish and Fathead Minnows, **Ira R. Adelman** and **Lloyd Smith, Jr.**
- Long-Term Effects of Antimycin on Non-Target Organisms Under Field Conditions, **Kenneth B. Cumming** and **Phillip A. Gilderhus**
- The Ecosystem Approach in Fisheries Management and Research, **R.A. Ryder**, Chairman
- Introduction, **R.A. Ryder**
- The Methods and the Models, **H.A. Regier**
- Great Lakes Application, **S.H. Smith**
- Stress History and Management Models for Lake Wingra, **J.F. Kitchell**
- Reservoir Application, **R.M. Jenkins**
- Ecological Implications, **S.R. Kerr**
- Great Lakes Fisheries, **Thomas S. McComish**, Chairman
- Daily and Seasonal Movements of Adult Alewives in Lake Michigan Near Michigan City, Indiana, from June to September, 1972, **Darrel A. Webb** and **Thomas S. McComish**
- Food Habits of the Alewife (*Alosa pseudoharengus*) in Indiana Water of Lake Michigan, **Thomas S. McComish**, **Darrel A. Webb**, **Raymond J. Rhodes**, and **Dennis A. Coleman**
- Vertical, Diel and Seasonal Distribution of Fish Larvae During 1973 in the Inshore Waters of Southeastern Lake Michigan, **David A. Jude**, **John A. Dorr, III**, **Timothy J. Miller**, and **Frank J. Tesar**
- Observations on the Growth and Fecundity of Yellow Perch, *Perca flavescens* Mitchill, on the Eastern Shore of Central Lake Michigan, **Dan C. Brazo**
- Diet Changes in Some Lake Erie Fishes Since 1958, **Bernard L. Griswold** and **Richard A. Tubb**
- Fish Disease Control in the Great Lakes Basin, **James W. Warren**
- Movement and Distribution of Mercury in a Large Scale Model Lake, **Jerry Lee Hamelink** and **Phillip Yant**
- Stream Fisheries, **Steven M. Huffaker**, Chairman
- Population Characteristics of Walleye *Stizostedion vitreum* in the Red Cedar River, Wisconsin, **Michael A. Colvin**
- Age, Growth, Food Habits and Behavior Patterns of Walleye Pike *Stizostedion vitreum vitreum*, Mitchill in Pool #3 of the Mississippi River, **James D. Fossum** and **David R. McConville**
- Age, Growth and Fecundity of Sauger *Stizostedion canadense* from the Wabash River in the Vicinity of Lafayette, Indiana, **Ronald Koiczak**, **Jerry Lee Hamelink**, and **Fisheries Students**
- Predicted Effects of a Proposed Change in Channel Catfish Size Limit for the Mississippi River Bordering Iowa, **Don R. Helms**

- Age and Growth, Condition Coefficients, and Fecundity of the Quillback *Carpoides cyprinus* and Highfin *C. velifer* Carpsuckers in an Ohio Stream, **Ronald L. Woodward** and **Thomas E. Wissing**
- Creek Chub Movements in a Small Headwater Stream, **Ted Storck**
- Preliminary Results of an Investigation into the Biology of the Arctic Char *Salvelinus alpinus* Along the West Coast of Hudson Bay to Determine Quota Levels for Fishery Exploitation, **R.F. Peet**
- Reservoir and Lake Fisheries, **William D. James**, Chairman
- Largemouth Bass Survival and Exploitation Rates in Two Heavily Fished Southern Indiana Reservoirs, **Robert L. Ball**
- Dynamics of Reproduction, Growth and Survival of the Bluegill Population in Barney's Lake, Beaver Island, Charlevoix County, Michigan, **William G. Kuhn** and **Herbert L. Lenon**
- Food Web Interactions in a Warmwater Reservoir Fishery, **John M. McNurney**, **Donald R. Halffield**, **Robert J. Lord**, and **Valerie J. Smith**
- Evaluation of Three Fish Sampling Gears in Small Man-Made Lakes, **R.H. McWilliams** and **Larry Mitzner**
- Shoreline Erosion Processes on the Missouri Mainstem Reservoirs and the Effects on Fish, **Norma G. Benson**
- Some Changes in Young-of-the-Year Stock in Lake Oahe and Their Implications Concerning Future Stocks, **Fred C. June**
- Walleye in the Big Eau Pleine, a Fluctuating Central-Wisconsin Reservoir, **Earl Thomas Joy, Jr.**
- The Potential of Coho Salmon for Small Inland Waters: A Case Study, **Sandy Engle**
- Fish Growth and Physiology, **Richard O. Anderson**, Chairman
- A Comparison of Florida and Northern Largemouth Bass in Missouri, **David L. Johnson** and **Richard O. Anderson**
- Growth, Feeding, and Vulnerability to Angling of Esocidae, **Steve Weithman**
- High Density Culture of Channel Catfish in a Recirculating System, **Meryl C. Broussard, Jr.**, and **Bill A. Simco**
- Isozyme Differences in Largemouth Bass Subspecies, **William F. Childers** and **Gregory Whitt**
- Qualitative Amino Acid Requirements of Green Sunfish *Lepomis cyanellus*, **George W. Lewis**
- Effects of Artificial Pellet Diets on the Metabolic Rates of Bluegill Sunfish *Lepomis macrochirus*, **John F. Schalles** and **Thomas E. Wissing**
- Nitrogen Excretion Measurements of Largemouth Bass as Influenced by Handling and Food Consumption, **J. Savitz**, **Elizabeth Albanese**, and **Pamela Kolasinski**
- Effects of Controlled Levels of Dissolved Nitrogen Supersaturation on Some Salmonids and Other Fishes, **William Thorn**, **Robert Glazer**, and **Charles Lessman**
- General Fish Session, **A.C. Lopinot**, Chairman
- Michigan's Habitat Development Program, **William H. Bullen** and **Donald E. Reynolds**
- Studies of the Spring Cave Fish *Chologaster agassizi*, **Norbert Welsh** and **Harold E. McReynolds**
- Analysis of Pollution from Marine Engines and Effects on the Environment, **Boating Industry Associations**
- An Ecological Evaluation of Hypolimnion Oxygenation in a Quarry Pond, **William J. Overholtz** and **Ario Fast**
- Aggressive Behavior and Competition Among Sunfish, **John Janssen**
- An Investigation of *Philometra* sp. Nematoda: Philometridae Parasitic in the Eyes of Freshwater Drum, *Aplodinotus grunniens*, in Lake Erie, **John L. Crites**
- Prevalence of *Philometra cylindracea* Ward and Magath, 1916 Nematoda: Philometridae in *Perca flavescens* in Western Lake Erie, **Robert Ashmead** and **John L. Crites**
- Abundance of Larval *Eustrongylides* Nematoda: Dioctophymatidae in Yellow Perch from the Western Basin of Lake Erie, **C. Lawrence Cooper** and **John L. Crites**
- Disease Associated with Infestation of Larval Tapeworms of the Genus *Triaenophorus* in White Bass *Morone chrysops*, **Owen D. Buck**, **Paul C. Stromberg**, and **John L. Crites**

THIRTY-SEVENTH MIDWEST FISH AND WILDLIFE CONFERENCE

Toronto, Ontario
December 7-10, 1975

- General Session, **Arthur J. Herridge**, Chairman
- Introductory Remarks, **Leo Bernier**
- Welcome to Ontario, **Donald R. Irvine**
- Welcome to Toronto, **Reid Scott**
- Alternate Directions for Resource Management in our Post Industrial Society in the 1980s, **Kenneth Hare** and **J. Keith Reynolds**
- Fox Biology, Convenor, **Alan B. Sargeant**; Chairman, **Willard D. Klimstra**
- The Red Fox Society and Spatial Relationships, **Alan B. Sargeant**
- The Influence of Age and Other Factors on Red Fox Reproduction, **S. H. Allen**
- Red Fox Mortality Factors and the Effect of Density, **B.F. Tullar**
- Red Fox Dispersal and the Management Implications, **R.D. Andrews**, **G.L. Storm**, **R.L. Phillips**, and **R.A. Bishop**
- Red Fox - Rabies: A Predator Population Under the Controlling Influence of a Pathogen, **D.H. Johnston**
- The Impact of Red Foxes on Game Bird Populations, **C.M. Pils**
- Considerations with Respect to the Control of Red Foxes for Game Management Purposes, **L.F. Fredrickson**
- Session Summary and a Perspective of Progress and Needs, **T. G. Scott**
- Snow Geese, Convenor, **H. Boyd**
- Winter Ecology of Snow Geese on the Gulf Coast, 1925-1975, **J.J. Lynch**
- Summer Feeding Ecology of Snow geese, **J. Harwood**
- Determining Geographical Differences in Hunting Pressure by Comparing Band Recoveries with Direct Field Observations of Banded Geese, **P. Prevett**
- Egg Weight Variation in the Lesser Snow Goose, **C.D. Ankney** and **A.R. Bisset**
- Return of Snow Geese to Breeding Colony - Estimates Based on Resighting of Colour Marked Birds, **F. Cooke**

- History of Snow Geese in Northern Canada Prior to 1960, **F.G. Cooch**
The future?, **H. Boyd**
- Small Lake Ecology, Convenor, **Kenneth D. Carlander**
Changes in the Fish Populations During the Initial Two Years Following Impoundment of an Unstocked Warmwater Reservoir in Ohio, **L. E. Claggett** and **B. L. Griswold**
Average Annual Mortality Rates for Juvenile Walleye (Ages I-IV), **R.F. Strand**
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Prediction of Cohort Success in Gizzard Shad (*Dorosoma cepedianum*) Based on 18 Years of Test Net and Weather Data, **R. J. Pierce** and **T. E. Wissing**
Smallmouth Bass (*Micropterus dolomieu*) in Northern Wisconsin Lakes, **P. Marinac**
Effects of Artificial Nutrient Circulation on Lake Productivity and Fish Growth, **M. D. Barnes** and **B. L. Griswold**
Evaluation of a 14-Inch Size Limit on Largemouth Bass, **V. L. Paragamian**
- Land Use Planning, Convenor, **D. Hoffman**
Public Use of Southern Michigan Game and Recreation Areas, **G. Y. Belyea**
Planning a Wildlife Management Area, **R. Jones** and **W. McNab**
Quantitative Analysis of Deer and Habitat Quality and Trends Using Sequential Air Photos, **N.E.G. Roller**
Attitudes of Michigan Landowners Toward Hunting and Fee-Hunting, **J. M. Parker** and **G. R. Dudderar**
Computerized Land Use Planning of Wildlife Areas, **A. Robinette** and **E.S. Crozier**
Comprehensive Crown Land Use Planning in Manitoba, **R. Thomasson**
How Fish and Wildlife Concerns are Incorporated into Comprehensive Land Use Plans, **E.M. Cressman**
- Management of Cooling Water Use on a Water Body Basis, Convenor, **Carlos Fetterolf**
Panelists, **Roy Irwin**, **William Brungs**, **Laurence Grotbeck**, **Kenneth E.F. Hokanson**, and **Charles F. Kleiner**
- Genetics and Fish Management, Convenor, **Peter Ihssen**
Genetics and Pond Culture, **Burton Ayles**
Genetic Manipulation Using Gynogenesis and Its Application to Monosex Production of Grass Carp, **Jon Stanley**
Genetic Strains of Splake for Lake Huron, **George Spangler**
Genetics as a Tool for Intensive Management of Atlantic Salmon, **R. L. Saunders**
- Wildlife Diseases and Parasites; Theme: The Role of Disease in Wildlife Populations, Convenor, **Daniel Trainer**
The Role of the Various Virus Diseases in Waterfowl Populations of North America, **M. Friend**
The Role of Various Parasitic Diseases and Pollutants on Wildlife Populations, **A. B. Cowan**
The Role of Disease in Captive and Wild Fish Populations, **Joan Budd**
The Significance of Some Bacterial and Parasitic Infections on Wild Mammal and Bird Populations in the North, **Eric Broughton** and **George Gibson**
The Role of Wildlife in the Maintenance and Spread of Viral Encephalitis, **T. Yuill**
- Professional Communication, Convenor, **Frank R. Lockard**
Effective Use of 35mm Projector, **Wm. D. James**
Overhead Projection Techniques, **R.W. Hollingsworth**
Preparation of Visual Aid Transparencies, **Frank R. Lockard**
Uses of Other Visual Aids, **J.L. Russell**
Preparation and Presentation, **E.L. Hansen**
Voice Development, **David Turner**
- Ungulate-Forest Relationships, Convenor, **Louis Verme**
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Physical and Reproductive Characteristics of a Deer Population at Record High Density, **J.D. Harder**
Late Winter Utilization of Mixed Upland Cutovers by Moose, **J. McNicol**
Endocrinology of White-Tailed Deer Reproduction - Male and Female, **U.S. Seal et al.**
Assessment of Natal Mortality in Upper Michigan Deer, **L. Verme**
Sustained Yield Forest Management and Deer Range, **W.F. Cheshire**
- Waterfowl Restoration, Convenor, **N. Perret**
Wetland Losses Associated with Road Construction in Western Minnesota, **C. Madsen**
Tolerance of Landowners to a Canada Goose Flock in Northeastern South Dakota, **T.C. Tacha**
Lake Level Stabilization and Coastal Freshwater Marshes-Some Unanswered Questions, **H.J. Harris, Jr.**
Waterfowl Nesting in Relation to Native and Tame Plant Communities, **P.H. Kaiser** and **S.S. Berlinger**
Causes and Suggested Remedies for Waterfowl Habitat Losses on the Upper Mississippi National Wildlife Refuge, **M.L. Andersen** and **L.E. Nauman**
Habitat Development on Dredged Material, **H.K. Smith**
- Enforcement; Theme: The Need for Uniformity of Regulations in Order to Achieve Public Acceptability, Convenor, **D. Murray**; **C. Gettmann**, **H. Hetrick**, **D. Roach**, and **J.A. Stoner**
- Wildlife Contaminants, Convenor, **R. Frank**
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Toxic Metals in Ohio Upland Wildlife and Vegetation, **R.D. Devendorf**
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Physiology of the Eggshell Thinning Response to DDE, **S.D. Haseltine**, **T.J. Peterle**, **L. Nagode**, **A. Parson**, and **S. Lustick**
Breeding Success of Great Lakes Gulls in 1975, **A. Gilman** and **S. Temple**
Organochlorine Residues in Great Lakes Herring Gulls, **D.B. Peakall** and **G.A. Fox**
Some Effects of Polychlorinated Biphenyls (PCBs) on the Reproduction of Mallard Ducks, **D.J. Cartwright**
- The Commissions and Their Roles in Protecting the Environment of the Great Lakes, Convenor, **Harold H. Harvey**
International Joint Commission, **Ken Oakley**
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Fisheries Administration, Convenor, **Charles Burrows; R. Hollingsworth, J.M. Conley, and C.A. Purkett, Jr.**

Whole Systems Models, Convenor, **S. Kerr; R. Hiborn, J. Paloheimo, D.M. Ware**

Endangered Species, Convenor, **J.M. Engel**

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Improved Bald Eagle Nest Protection Regulations on Minnesota's Chippewa National Forest, **L.D. Frenzel**
Wolf Population Increase on Isle Royale, **R.O. Peterson**
Rare and Endangered Fishes in Canada, **Charles Gruchy**
Canadian Rare and Endangered Plant Projects, **G.W. Argus**

Environmental Impact, Convenor, **Douglas P. Dodge**

Administration of the Environmental Impact Statement Process, **D.F. Eitel**
Fisheries and Marine Service Involvement in the Federal Government Environmental Assessment and Review Process, **C.L. Dominy**
Environmental Impact Statements: The Good, the Bad, and the Ugly, **M. Rupert Cutler**

Wildlife Inventories, Convenor, **G. Cooch**

A Modified Mark-Recapture Method Yielding a Precise Estimate of Deer Density, **W.R. Rice and J.D. Harder**
Estimating Small Bird Populations, **T. Erskine**
Estimating Canada Goose Survival in an Urban Environment from Neckband Observations, **J.A. Cooper**
Survey Techniques for Breeding Waterfowl in Eastern Canada, **D. Dennis**
Large Format Vertical Photography for Census of Nesting Lesser Snow Geese, **R.H. Kerbes**

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Breeding Behaviour of the Common Snipe, **T.A. Grudzien**
Fisher and Marten Management, **M.A. Strickland and C.W. Douglas**
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Species Composition and Relative Abundance of Fish Entering the New Ludington Pumped Storage Reservoir from Lake Michigan, 1972 Through 1975, **J. Gulvas, C.R. Liston, and P.I. Tack**
Flow Volume as a Determinant of Year-Class Strength in a Walleye Population, **G.K. Winterton**
The Seasonal Distribution of Fish in the Near Shore Zone of Western Lake Michigan with Notes on Age and Growth, **D. Michaud, B. Bushweiler, and C. Wahtola, Jr.**
Identification of Fish Larvae from the Inshore Waters of Southeastern Lake Michigan, **J.A. Dorr, III, D.J. Jude, and N.J. Thurber**

Fish Culture, Convenor, **Henry J. Vandett**

Muskellunge and Northern Pike Culture in Michigan, **James Copeland**
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Federal Research and Nutrition, **Leo Orme**
Importance of Nutrition in Fish Culture, **S.J. Slinger and C.Y. Cho**
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Fish Diseases and Their Control in Eastern Canada, **R.M. MacKelvie**
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Some Aspects of the Biology of an Urban Mallard Population, **R.A. Montgomery, R.C. Oldenburg, and G.V. Burger**
A Seasonal Study of Birds Feeding on Four Species of *Cornus* in Michigan, **J. Schultz**
Municipal Hunting Regulations in the Minneapolis-St. Paul Seven County Metropolitan Area, **N.D. Schultz**
Urban Birds in Metropolitan Toronto, **Jean-Pierre Savard and J.B. Falls**
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Native Fisheries and Wildlife Use, Convenors, **A. J. Herridge and A.G. Loughrey**

Federal Overview of State of Claims in the United States with Special Reference to Alaska, **R.K. Martinson**
The Canadian Dilemma from the Point of View of a Western Province, **A. Murray**
Overview on Types of Claims to Expect from Indians with Respect to Land Claims in the Fish and Wildlife Area, **R. Weir**

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Effects of Hydraulic Dredging on Trout Populations and Benthic Communities in Small, Spring-Fed Ponds in Northern Wisconsin, **R.F. Carline**
Effects of Munitions Plant Effluents on Aquatic Ecosystems, **D.C. Cooper**
Assessment of the Abundance and Sources of Suspended Organic Matter in River Water, **W.K. Liaw**
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- Daily Growth Rings in the Otoliths of *Lepomis* sp. and *Tilapia mossambica* (Peters), **B.D. Taubert**
 An Example of a Comprehensive Data Analysis System for Fisheries Data, **P.J. Rago** and **D.J. Jude**
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 Atlantic Salmon Survival as Affected by Forest Insecticides, **W.L. Mauck**
- Waterfowl, General, Convenor, **R.A. Hunt**
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 Age Determination of Adult Canada Geese, **R.C. Nelson** and **T.A. Bookhout**
- Territorial Behaviour of Prairie Pothole Blue-Winged Teal, **G.R. Stewart**
 Interaction of Male and Female Mallards During Nest Initiation and Early Incubation, **D.D. Humburg**, **R.A. Bishop**, and **H.H. Prince**
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 Nesting Giant Canada Geese of Southeastern Lower Michigan, **R.M. Kaminski**, **J.M. Parker**, and **G.F. Mortz**
 Fall Foods and Field-Feeding Behaviour of Ducks During a Period of High Water Levels in Lake Erie Marshes, **R. Farney**

THIRTY-EIGHTH MIDWEST FISH AND WILDLIFE CONFERENCE

Dearborn, Michigan
 December 5-8, 1976

- General Session, **Charles D. Harris**, Chairman
 Introductory Remarks, **Harry H. Whiteley** and **Howard A. Tanner**
 Ecological Engineering: The Biologist's Attempt to Fulfill Society's Expectations, **William E. Cooper**
 Wildlife on Public Lands - Where Do We Go Now?, **Gerard Bertrand**
 Reevaluating the Conservation and Environmental Movements, Congressman **John D. Dingell**
- Fisheries Session, **John F. Carr**, Chairperson
 Prospects for Purse Seining on the Great Lakes, **Thomas M. Kelly**
 Recent Changes in the Fish Fauna of Lake Ontario and Their Effects on Use of Deepwater Forage, **Roy F. Heberger, Jr.**
 Swimming Speeds of Larvae of Some Great Lakes Fishes, **Thomas G. Yocom**, **Robert T. Nester**, and **Thomas E. Grahl**
 Chemosterilization of the Sea Lamprey (*Petromyzon marinus*) and Its Potential Role in Sea Lamprey Control in the Great Lakes, **Lee H. Hanson** and **Patrick J. Manion**
 Differentiation in the *Coregonus zenithicus* Complex in Lake Superior, **Thomas N. Todd** and **Gerald R. Smith**
 Status of Deepwater Ciscoes (Chubs) and Their Management in Lake Michigan, **Edward H. Brown, Jr.**
 The Effects of Stocking Procedures on Homing of Rainbow Trout, **J.C. Cooper**, **A.T. Scholz**, **R.M. Horral**, **A.D. Hasler**, and **C. Gosse**
 Applications of a Bioenergetics Model to Perch and Walleye, **James F. Kitchell** and **Donald J. Stewart**
 Observations on Fisheries in the USSR and Scotland, 1976, **Lynn H. Hutchens**
- Fish Physiology and Toxicology, **Howard E. Johnson**, Chairperson
 Trace Metal Levels in Fish from an Industrially-Contaminated Lake, **Brian R. Murphy**
 The Effects of Intermittent Chlorination on Selected Great Lakes Fishes, **Gregory L. Seegert** and **Arthur S. Brooks**
 Energy Cost of Respiratory Metabolism for the Gizzard Shad *Dorosoma cepedianum*, **Robert J. Pierce** and **Thomas E. Wissing**
- Effects of Temperature and Chlorinated Hydrocarbons on the Hatching of Lake Trout Eggs and Survival of Fry, **Michael J. Mac**, **William H. Berlin**, and **Donald V. Rottiers**
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 Protective Action of Selenium Against Mercury in Northern Creek Chubs and Goldfish, **J.F. Heisinger**, **Jong Hwan Kim**, **Eric Birks**, and **Curt Hansen**
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 Energy Storage and Utilization Patterns of the Gizzard Shad (*Dorosoma cepedianum*) in Acton Lake, Ohio, **T.E. Wissing**, **R.J. Pierce**, **R.N. Givens**, **J.G. Jaworski**, and **B.A. Megrey**
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 Activity and Energy Use Strategies in Adult Smallmouth Bass, **Ronald J. Klauda**
- Fisheries Management in Small Impoundments: A New Approach, **Gary D. Novinger**, Chairperson
 Cooperation in Action - The Central States Pond Management Work Group, **Frank R. Lockard**
 The State of Pond Resources - Study Justification, Objectives, and Methods, **Richard O. Anderson**
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 Structure and Dynamics of Largemouth Bass Populations, **James B. Reynolds** and **Larry R. Babb**
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 Fishery Management - The Quest for Optimization and Quality, **Richard O. Anderson**

Fisheries and Power Plants, **Robert E. Basch**, Chairperson

A Conceptual Model of Causal Factors Regarding Gizzard Shad Runs at Steam Electric Power Plants, **Paul J. Eisele** and **John F. Malaric**

Behavioral Thermoregulation of Rainbow Trout (*Salmo gairdneri*) at Various Acclimation Temperatures, **Robert McCauley**, **Arthur Read**, and **J. Richard Elliott**

Size-Dependent Temperature-Catch Relationships for Four Species of Fish in Southeastern Lake Michigan, **Paul J. Rago** and **David J. Jude**

The Use of a Fish Pump to Alleviate Fish Impingement and Mortality at a Steam Electric Power Plant: A Review of Three Years of Testing, **Paul J. Eisele** and **John F. Malaric**

Seasonal Catch per Effort, Lengths, Weights, and Maturity of Longnose Suckers (*Catostomus catostomus*) and White Suckers (*C. commersoni*) from Various Mesh Sizes of Experimental Gill Nets in Near-Shore Lake Michigan, **Dan C. Brazo**, **Charles R. Liston**, and **Peter I. Tack**

Effects of Warm Water Discharge from Two Nuclear Power Stations on the Fishes of the Missouri River, **Larry Hesse**

Stress Physiology of Alewives (*Alosa pseudoharengus*) in a Power Plant Cooling Water Intake, **M.S. Hutcheson** and **T. Wheaton**

Temperature Sensitive Fish Tags Used to Measure Thermal Exposure, **G.P. Romberg**

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A Five-Year Study of a Northern Wisconsin Walleye Population after the Establishment of a Minimum Size Limit, **Steven L. Serns**

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Effect of Four Different Herbicides on Roadside Planted Autumn Olive, **Dean Zimmerman**

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Road-Killed Wildlife on Interstate Highways - A Data Source for Population Studies, **Ronald M. Case**

Efforts by the St. Louis District, Corps of Engineers, to Preserve the Indiana Bat (*Myotis sodalis*) at Meramec Park Lake, Missouri, **John T. Brady**

Red and Gray Fox Management in Wisconsin, **Charles M. Pils**, **Mark A. Martin**, and **LeRoy R. Petersen**

Relationships Between Sheep Management and Coyote Predation, **Robert L. Meduna** and **Robert J. Robel**

Domestic Animal Losses to Coyotes and Dogs in Iowa, **Edward K. Boggess**, **Ronald D. Andrews**, and **Richard A. Bishop**

Gamebirds, **John D. Harder**, Chairperson

Effects of Feeder-Cribs on Pheasant, Rabbit, and Squirrel Numbers Wintering in Farm Groves, **David G. Montag**

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A Quantitative Evaluation of the Foods Eaten by the Ring-Necked Pheasant Chick (*Phasianus colchicus*), **Harry R. Hill** and **Leslie W. Gysel**

Implications of Mowing to the Success of Roadside Management in Illinois, **Richard E. Warner**

Native Prairie Grass Pastures as Nesting Habitat for Bobwhite Quail and Ring-Necked Pheasants, **Ronnie R. George**

Black Locust as a Winter Food for Bobwhite Quail, **Robert Priddy**

Transplanting Wild Turkeys into Atypical Habitat in Indiana, **P. Decker Major** and **Gerald D. Wise**

Fall Food of Ruffed Grouse in Central Michigan, **Thomas Prawdzik**

Response of Breeding Male Ruffed Grouse to Forced and Natural Habitat Changes in Michigan, **James Hammill**

Habitat Utilization by Ruffed Grouse in River Hills of Missouri, **B.W. Hunyadi**

Mammals, **Fred A. Stormer**, Chairperson

A Method to Estimate the Diet of the Cottontail Rabbit, **Christine M. Spann**

Human Impact on the Baxter Herd of Sierra Nevada Bighorn Sheep, **Lorin L. Hicks**

Use of Randomized Response Technique to Estimate Deer Poaching Losses, **Vern Wright**

Forage Preference of Tame Deer in the Aspen Type of Northern Michigan, **William Bauer** and **Fred A. Stormer**

Effects of Simulated Deer Browsing on Branches of Apple Trees, **Dale E. Katsma**

Winter Habitat Selection by White-Tailed Deer in Point Pelee National Park, Southwestern Ontario, **Thomas D. Nudds**

Analysis of Three Blood Protein Polymorphisms in an Isolated Population of White-Tailed Deer, **Bonnie Lamvermeyer**

The Thymus Gland as an Indicator of Nutritional Status in Deer, **John J. Ozoga** and **Louis J. Verme**

Using Immuno Diffusion and Immunoelectrophoresis to Identify Wildlife Blood and Tissue, **David Oates**

The Prevalence of *Parelaphostrongylus* Larvae in Wapiti of Canada Creek Ranch, Montmorency County, Michigan, **Janice L. Tompkins**, **John N. Stuht**, and **James E. Knight**

Migratory Birds, **Carl L. Bennett, Jr.**, Chairperson
 Seasonal Movements of the Ohio Mourning Dove, **Patrick Ruble** and **David Urban**
 Analysis of American Woodcock Nest and Brood Habitat in Northern Lower Michigan, **Albert Bourgeois**
 Nest Success of the Yellow-Crowned Night Heron, **Fred M. Bagley** and **Jerry Grau**
 Evaluating Cultivation near Duck Blinds to Reduce Lead Poisoning Hazard, **Leigh H. Fredrickson**, **Thomas S. Baskett**, and **Vivian C. Cravens**
 Mallard and Black Duck Ratios in Southwestern Ontario, **D.A. Dennis**, **K. Newell**, and **A.B. McCullough**
 Egg-Weight Variation in the Lesser Snow Goose. II. Growth and Survival of Captive Goslings, **C.D. Ankney**
 Causes and Effects of Biases on Waterfowl Harvest Estimates, **Vern Wright**
 Causal Determinants of the Breeding Biology of the Hudson Bay Eider, **Ralph Levine**, **Marvin B. Seiger**, and **Benjamin Guild**
 Resident Canada Geese in Southwestern Michigan, **Wilbur C. Johnson** and **Thomas L. Nederveld**

Resource Issues Session, The Traumatized Professional, **Merrill L. Petoskey**, Chairperson
 Panel, **Keith Heezen**, **Gail Achterman**, **William Shaw**, **Michael Zagata**, and **Thomas Anderson**

Resource Issues Session, The Threatened and Endangered Species Act, **Gail Achterman**, Chairperson
 Panel, **Donald Barry**, **Keith M. Schreiner**, **Harold J. O'Connor**

Resource Issues Session, Management Activities and Problems Associated With Endangered Species, **James Engel**, Chairperson
 Panel, The Regional View, **James Engel**; The State View, **Ron Nicotera**; View from Washington, **Robert Jacobsen**; Law Enforcement Activities, **Robert Hodgins**; View from the Public Conservation Organizations, **Ed Brigham**

Resource Issues Session, The Great Environmental Action Team: Communicators, Surveyors and Planners, **Sally Fairfax**, Chairperson
 Building an Effective Information and Education Program, **Wayne Machan**
 The Education Program of the Audubon Workshop in Wisconsin, **Edward Brigham**
 Michigan Young People's Attitudes Toward Wildlife, **Gerri Ann Pomerantz**
 The Role of Recreation Consumer Data in Developing Wildlife Management Scenarios, **Joseph T. O'Leary** and **Harmon P. Weeks**
 Interactions between Bighorn Sheep and Wilderness Users in the Sierra Nevadas, **James Elder**
 The Changing Role of the Professional Environmental Planner in the Corps of Engineers, **Robert A. McDonald** and **Dean Eitel**
 The Need for Fish and Wildlife Agency Participation in Comprehensive Water Resources Planning, **C.A. Hayes**, **S.M. Thrasher**, and **E.A. Joering**
 Salvaging the Resources of the Upper Mississippi River: The Great Environmental Action Team, **Michael James Vanderford**
 Can the D.N.R. Forget the Pigeon River Forest and Find True Happiness?, **Donald L. Inman**

THIRTY-NINTH MIDWEST FISH AND WILDLIFE CONFERENCE

Madison, Wisconsin
 December 4-7, 1977

General Session, **David D. Kennedy**, Chairman
 Welcome and Introductory Remarks, **Anthony S. Earl**
 Principal Speaker, The Honorable **Gaylord A. Nelson**
 Remarks, **Robert W. Hougas**

Contributed Fisheries Papers, **C.W. Threinen**, Chairperson
 Purse Seining in the Great Lakes - First Season Results, **Thomas M. Kelly**
 The Importance of Yellow Perch to the Great Lakes Sport Fishery, **C. Jansen** and **Starre M. Journey**
 Status of the Fingernail Clam *Musculium transversum* in the Keokuk Pool, Mississippi River, **Carl M. Thompson** and **Richard E. Sparks**
 The Use of Latent Root Regression to Select Factors Affecting Year Class Strength of Hudson River Striped Bass, **Paul C. Baumann**, **Donald P. Strickert**, and **Daniel A. Watson**

Biology of Great Lakes Fishes, **Thomas M. Stauffer**, Chairperson
 Age, Growth, Maturity and Fecundity of the Longnose Sucker *Catostomus catostomus* and the White Sucker *C. commersoni* in Eastern Lake Michigan, **Fred Koehler**, **Dan C. Brazo**, and **Charles R. Liston**
 Immediate and Delayed Mortality of Transported Lake Erie Freshwater Drum, **Michael T. Metcalf** and **David L. Johnson**
 Distribution and Growth of Larval and Juvenile Yellow Perch in Lower Green Bay, Lake Michigan, **Steven M. Ugoretz**, **David M. Griffin**, **Paul E. Sager**, and **Hallett J. Harris**
 Distribution of Larval Fishes in the Nearshore Waters of Western Lake Huron, **Robert O'Gorman**
 Food Web Relationships of Fishes in Indiana Waters of Extreme Southern Lake Michigan, **Thomas S. McComish**

- Population Dynamics of Lake Whitefish in Wisconsin Waters of Lake Michigan East of Door County, **James D. Humphreys**
- Population Genetic Structure of Lake Whitefish *Coregonus clupeaformis* in Northern Lake Michigan as Assessed by Isoenzyme Electrophoresis, **Mark A. Imhof** and **Henry E. Boone**
- The Effect of Temperature on the Routine Metabolism and Digestion Rate of the Freshwater Alewife *Alosa pseudoharengus* Wilson, **Fred P. Binkowski**
- Swimming Performance and Respiratory Metabolism of Lake Trout *Salvelinus namaycush*, **Donald V. Rottiers**
- Environmental Parameters Affecting Aquatic Communities - **Joseph B. Hunn**, Chairperson
- Selection for Zinc Resistance in a Laboratory Population of Flagfish *Jordanella floridae*, **Frank J. Rahel** and **John J. Magnuson**
- Effects of Crude Oil on Life Stages of the Japanese Medaka, **Theresa S. Leung** and **Ross V. Bulkley**
- The Toxicity of Potassium, Undissociated Ammonia and Illinois River Water to the Fingernail Clam *Musculium transversum*, **Kevin B. Anderson**, **Michael J. Sandusky**, and **Richard E. Sparks**
- Chemical Treatment with Fintrol Antimycin for Selective Control of Stunted Panfish in Silver Lake, Columbia County, Wisconsin, **James C. Congdon**
- Effect of PCB and DDE on Performance and Survival of Fry of Lake Michigan Trout, **Neal R. Foster**
- The Effects of Intermittent Chlorination on Fish: Observations 3+ Years, 17 Species and 15,000 Fish Later, **Gregory L. Seegert** and **Arthur S. Brooks**
- Analysis of Sport Fishing in a Reservoir Receiving a Thermal Effluent, **John M. McNurney**, **Herbert M. Dreier**, and **Michael A. Frakes**
- Infection of Rainbow Smelt *Osmerus mordax* by the Microsporidian Parasite *Glugea hertwigi* Weissenberg and Its Relationship to Impingement, **Wayne S. Lifton**, **R.G. Ross**, and **J.F. Storr**
- The Role of Underutilized Fishes in Fisheries Management, **Charles H. Wahtola**, Chairperson
- Underutilized Species: An Overview, **N.R. Kevern**
- Opportunities for Development of Fisheries on Underutilized Species in Lake Michigan, **A. Wright**
- Utilization of Alewives in the Great Lakes, **E. Brown**
- Trends in the Commercial Harvest of Carp *Cyprinus carpio* and Drum in the Upper Mississippi River Between 1952-1973, **Don Kline**
- Attitudes Involving Rough Fish Removal in Wisconsin, **G.R. Priegel**
- Test Marketing Four Food Items Produced from Underutilized Fish, **F.A. Hennagir**
- Great Lakes Underutilized Fish Species, **D. Stieber**
- Fisheries Management and Trophic Ecology, **Robert W. Hollingsworth**, Chairperson
- Winter Activities of Carp as Determined by Ultrasonic Tracking, **Peter B. Johnson** and **Arthur D. Hasler**
- Growth, Food Consumption, Food Conversion and Food Preference of Grass Carp *Ctenopharyngodon idella* Under Controlled Temperatures, **Raj V. Kilambi** and **Walter R. Robinson**
- Effects of White Amurs *Ctenopharyngodon idella* on Production and Food Habits of Sport Fishes in Indiana Ponds, **Robert L. Ball**
- Exploitation, Harvest Potential and Basic Life History of Paddlefish in the Upper Mississippi River, **Thomas W. Gengerke**
- The Paddlefish Population and Fishery in Lake of the Ozarks-Osage River, Missouri, **Douglas M. Carlson** and **Thomas Russell**
- Growth and Seasonal Survival Rates of Largemouth Bass in a Pond, **Jan Savitz**
- Winter Rescue of Walleyes, **John B. Daily**
- Movement and Behavior of the Muskellunge *Esox masquinongy* Mitchell Determined by Radio-Telemetry, **Michael P. Dombeck** and **Charles W. Hiver**
- Trout Abundance and Instream Cover, **Michael D. Enk** and **Ray J. White**
- Spatial and Temporal Patterns of Larval Fish Drift in Two Wabash River Tributaries, **Kevin D. Curry** and **Anne Spacie**
- Microhabitat Selection by Riffle-Fishes in the Neosho River, Kansas, **Randall E. Moss** and **Frank B. Cross**
- Mammals, **George V. Burger**, Chairperson
- Social and Spatial Relationships of Coyotes Around a Turkey Farm in Eastern Nebraska, **Donald P. Althoff** and **Philip S. Gipson**
- Coyote and Dog Depredations in Southern Iowa, **Joseph M. Schaefer**, **Ronald D. Andrews**, and **Richard A. Bishop**
- Winter Ecology of the Coyote in Northern Wisconsin, **Craig N. Huegel**
- Demographic Response of a Black Bear Population to Selective Removal of Adult Males, **Robert L. Ruff** and **Barry F. Young**
- Characteristics of High and Low Density Raccoon Populations in Indiana, **Larry E. Lehman**
- Reintroduction of the Pine Marten into the Nicolet National Forest, Forest County, Wisconsin, **Mark H. Davis**
- Symposium: Waterfowl and Wetlands - An Integrated Review, **Theodore A. Bookhout** and **David D. Kennedy**, Chairpersons
- Species Distributions, Habitats, and Characteristics of Breeding Dabbling Ducks in North America, **Frank C. Bellrose**
- Nitrogen and Phosphorus in Inland Freshwater Wetlands, **John A. Kadlec**
- Spatial and Temporal Habitat Relationships of Breeding Dabbling Ducks on Prairie Wetlands, **David L. Trauger** and **Jerome H. Stoudt**
- Social Interactions and Spacing Behavior in Breeding Dabbling Ducks, **Scott R. Derrickson**
- Foods Consumed by Dabbling Ducks on the Breeding Grounds, With Emphasis on Laying Females, **George A. Swanson**, **Gary L. Krapu**, and **Jerome R. Serie**
- Nutrient Factors Affecting Reproductive Potential in Dabbling Ducks, **Gary L. Krapu**
- Bioenergetics of Breeding Dabbling Ducks, **Ray B. Owen, Jr.**, and **Kenneth J. Reinecke**
- Individual Variation and the Analysis of Mallard Populations, **Bruce D.J. Batt**
- Bioenergetics of Post-Breeding Dabbling Ducks, **Harold H. Prince**
- An Approach to the Study of Post-Breeding Waterfowl, **Leigh H. Frederickson** and **Ronald D. Drobney**
- Winter Habitat of Dabbling Ducks - Physical, Chemical, and Biological Characteristics, **Robert H. Chabreck**
- The Future of Waterfowl and Wetlands, **John P. Rogers**
- People, Non-Game and Management, **Peter A. Jordan**, Chairperson
- Recreational Use of State Wildlife Areas in Ohio, **Estyn R. Mead** and **Theodore A. Bookhout**
- A New Concept in Hunting Licenses, **Wayne J. Machan**

- Feral Pigeon Ecology in Stevens Point, Wisconsin, **James Krakowski** and **Neil F. Payne**
- A Radio-Telemetry Study of Activity in the Common Snapping Turtle *Chelydra serpentina*, **Martin E. Obbard** and **R.J. Brooks**
- Adaptability of the Yellowheaded Blackbird to Changing Habitat Conditions in the Coastal Marshes of Green Bay, **Frank B. Roznik** and **Hallett J. Harris**
- Breeding Biology of the Common Gallinule *Gallinula chloropus*, **Eldon D. Greij**
- Nocturnal Roosting Behavior of Nesting Adult and Young-of-the-Year Bald Eagles *Haliaeetus leucocephalus alascanus* on the Chippewa National Forest, Minnesota, **Michael E. Pramstaller** and **L.D. Frenzel, Jr.**
- Bald Eagle Nest Use Patterns on the Chippewa National Forest, **James W. Barrett**, **L.D. Frenzel**, **James D. Fraser**, and **John E. Mathiesen**
- Wildlife Communities of Vegetated Iron Ore Tailings Basins, **Donald G. Chilcote**, **Fred A. Stormer**, and **Steven G. Shetron**
- A Practical Application of Certain Remote Sensing Techniques, **John D. Beamer**
- Deer and Grouse, **Milton Friend**, Chairperson
- Roadside Track Counts as a Deer Census Method in Minnesota, **Jack J. Mooty**
- Efficacy of Deer Removal Techniques to Control a High Density Herd, **Donald T. Palmer** and **Douglas A. Andrews**
- Deer Damage to Hay in South Central Wisconsin, **Charles A. Mullen** and **Orrin J. Rongstad**
- Seasonal Feeding Habits of the Plum Brook Deer Herd, **Jack Rose** and **John D. Harder**
- Estimation of Illegal Deer Kill in Michigan and Hunter Satisfaction with Law Enforcement Efforts, **Gregg D. Stoll** and **Nemah G. Hussain**
- Importance of Threatened Habitats to Deer on Agricultural Lands, **Oliver Torgerson**, **Rollin D. Sparrowe**, **Phillip J. Swank**, and **Wayne R. Porath**
- The Bio-Politics of the Beaver Basin Deer Herd, **David A. Arnold**
- Ecological Features of a Mismanaged Population of White-Tailed Deer in Beaver Basin, Michigan, **William L. Robinson**, **Lloyd H. Fanter**, and **Albert G. Spalding**
- Ruffed Grouse Density and Habitat Relationships in Wisconsin, **John F. Kubisiak** and **John C. Moulton**
- A Cyclic Fluctuation of Ruffed Grouse in Alberta, **Donald H. Rusch**, **Lloyd B. Keith**, **Phillip D. Doerr**, and **Charles A. Fischer**
- Upland Game Birds and Waterfowl, **Dale Kaswell**, Chairperson
- A Bobwhite Quail Habitat Interspersion Index, **James E. Savery**, **John C. Olson**, **Gerald C. Sintz**, and **Charles R. Danner**
- First-Year Movements, Productivity and Survival of Eastern Wild Turkeys at a New Release Site, **Terry W. Little** and **Kenneth L. Varland**
- The Influence of Habitat Management on Winter Behavior of Wild Turkeys in Minnesota, **William F. Porter**, **Garry C. Nelson**, and **Robert D. Tangen**
- Age Determination of the Gadwall, **Robert J. Blohm**
- Shedding of Duck Plague DP Virus in Healthy Carrier Waterfowl, **Elizabeth C. Burgess** and **Thomas M. Yuill**
- Avian Cholera (*Pasteurella multocida*) in the Free-Flying Waterfowl of the Rainwater Basin in Nebraska, **Sarah S. Hurley** and **S.M. Kerr**
- Drouth-Displacement of Pintails to the Arctic Coastal Plain of Alaska, **Dirk V. Derksen** and **William D. Eldridge**
- Breeding Strategies of Male Snow Geese, **Pierre Mineau**
- Waterfowl Nesting Studies - A Closer Look, **Douglas H. Johnson** and **A. Thomas Klett**
- Reproductive Bioenergetics and Breeding Strategy in Wood Ducks, **Ronald D. Drobney**

FORTIETH MIDWEST FISH AND WILDLIFE CONFERENCE

Sheraton-Columbus Hotel
Columbus, Ohio
December 10-13, 1978

- Plenary Session, Genetics and the Problems of Wildlife Management, **Michael H. Smith**, Chairman
- General Session, **Tony J. Peterle**, Chairman
- Welcome, **Robert W. Teater**
- Symposium, Biology of Reproduction in Fishes, Birds, and Mammals
- Reproductive Potential in Fishes, **Peter J. Colby**
- Ecological Determinants of Mating Systems in Birds, **Robert K. Selander**
- Reproduction in Wild Mammals: Nutritional and Other Environmental Influences, **R.L. Kirkpatrick**
- Fish Behavior and Physiology, **Bruce Menzel**, Chairman
- Behavioral Response of Smallmouth Bass to Increased Turbidity, **John R. Young**
- Behavior as a Tool for Assessing the Effects of Water Quality on Fish: Case Studies—Thermal Discharges and Gas Supersaturation, **R.H. Gray**
- Supersaturation of Surface Waters Below Harry S. Truman Dam in Central Missouri, **Ronald L. Crunkilton**, **James M. Czarnecki**, and **Linden Trial**
- Lymphocyte Culture for Chromosomal Analysis of Ictaluridae, **William R. Wolters** and **C. Larry Chrisman**
- Effects of Malachite Green on Leukocyte Abundance in Rainbow Trout, **Roger R. Hlavek** and **Ross V. Bulkley**
- Effect of Fish Acclimation Temperature on Glycine Incorporation by Scales in a Proximate Growth Index Determination, **I.R. Adelman**
- Physiological Response of Lake Erie Freshwater Drum to Capture by Commercial Shore Seine, **B.J. Harman** and **David L. Johnson**
- Subcellular Distribution of PCBs, DDE, and Mercury in Liver of Lake Michigan Lake Trout, **Dora R.M. Passino**
- Fish Management, **Cliff Garland**, Chairman
- Contribution of Stocked Legal-Sized Trout to the Sport Fisheries of Three Small Wisconsin Lakes, **R.V. Jesien** and **D.W. Coble**
- Wild Brown Trout and the Sport Fisheries They Provide in Central Wisconsin Streams, **E.L. Avery**
- A Five-Year Study of Walleye Fry and Fingerling Stocking in South Green Bay, **Lee T. Kernen**

- Vital Statistics of the Lake Whitefish in Three Areas of Green Bay, Lake Michigan, with Comparison to Michigan East of Door County, Wisconsin, **Jeffrey L. Gunderson, F. Copes, and D. Coble**
- Minimum Estimates of Alewife Biomass in Lake Michigan, 1973-1977, **Richard W. Hatch**
- Applications of a Bioenergetic Model to Gizzard Shad: Simulation of Seasonal Biomass Dynamics in an Ohio Reservoir, **B.A. Megrey, T.E. Wissing, and R.J. Pierce**
- A Method of Evaluating Fishing Quality, **A. Stephen Weithman and Richard O. Anderson**
- Interagency Efforts to Comply With the Endangered Species Act of 1973, **John P. Wolflin**
- The Interrelationships of Fish and Cover in Standing Water, **David L. Johnson**, Convener
- Problems of Structure Utilization by Fish in Management of Western Reservoirs, **Paul Brouha**
- Environmental Impacts of Floating Breakwaters in Coves of an Oklahoma Reservoir, **Michael D. Clady, Robert Tafanelli, and Robert C. Summerfelt**
- Small Floats as Fish Attractors in Lakes, **Gene S. Helfman**
- Effects of Underwater Structures on Movement of Largemouth Bass, **Eric D. Prince and O. Eugene Maughan**
- Influence of Artificial Structure on Largemouth Bass and Bluegills, **Gary J. Wege and Richard O. Anderson**
- Production of Fish and Invertebrates in Ponds With Added Attachment Surface, **Garland B. Pardue and Larry A. Nielsen**
- Predator-Prey Interactions in Structurally Complex Environments, **William E. Cooper and Larry B. Crowder**
- Influence of Artificial Structures on Angler Harvest at Killdeer Reservoir, **Kenneth O. Paxton and Frederick Stevenson**
- Ecology of Fishes, **R.J. White**, Chairman
- Food Habits of Three Sympatric Species of Redhorse in the Wabash River, Indiana, **Richard D. Yant, Anne Spacie, and Kevin D. Curry**
- Food Electivity and Food Overlap in Riffle Fish Communities of the Little Miami River, Ohio, **David L. Wynes and Thomas E. Wissing**
- Seasonal Importance of a Wabash River Tributary to Catostomid Reproduction, **Kevin D. Curry and Anne Spacie**
- Predatory Fish and Forage Fish Relationships at Lake Rathbun, Iowa, **Larry R. Mitzner**
- Changes in Fish Community Structure and Function Along a Habitat Gradient, **Isaac J. Schlosser**
- Functional Attributes of the Aquatic Biota of an Agricultural Watershed, **James R. Karr**
- Summer Home Range and Habitat Utilization of Walleye in Chautauqua Lake, New York, **J.D. Winter, D.W. Einhouse, and D.L. Bimber**
- Relative Size, Survival, and Movements of Three Walleye Spawning Populations in Western Lake Erie, **Allan R. Van Vooren**
- Reproduction and Early Life History of Fish in a Cooling Lake, **D.W. Rondorf**
- Competition Between Brook and Brown Trout for Positions in a Stream, **Kurt D. Fausch and Ray J. White**
- Factors Affecting Brown Trout Reproduction in Selected Southeastern Minnesota Streams, **D.W. Anderson**
- Wildlife Problems and Techniques, **Oliver Torgerson**, Chairman
- Wildlife Damage Controls—Development of Federal Policy Options, **Robert J. Robel**
- White-Tailed Deer Damage Control in Minnesota, **Charles Kinsey**
- Methods of Dispersing Concentrations of Canada Geese at Horicon National Wildlife Refuge, Wisconsin, **Robert L. Drieslein and John E. Toll**
- Blackbird and Starling Population Trends in North America, 1966-1976, **Richard A. Dolbeer and Robert A. Stehn**
- Temporal Change in Gullet Food Passage of Penned Red-Winged Blackbirds, **R. Geoffrey Gartshore and R.J. Brooks**
- Net-Firing Capture Gun, **Charles W. Shaiffer and Larry M. Mechlin**
- Use of Helicopters for Locating Nesting Waterfowl, **Richard M. Kaminski**
- Visual Recovery Leg Band for the Canada Goose, **Lloyd G. Nelson and W.D. Klimstra**
- Protective Enclosures for Increasing the Productivity of Threatened and Endangered Shorebirds, **Erica Nol and Ronald J. Brooks**
- Forest Wildlife, **Robert K. Landes**, Chairman
- Identifying and Maintaining Forest Openings for Wildlife, **Todd P. Eisele and John Berkhahn**
- Harvest Statistics from Iowa's Five Modern Wild Turkey Hunting Seasons, **Terry W. Little**
- Value of Corn Food Plots to Wild Turkeys in the Upper Mississippi Valley, **William F. Porter, Robert D. Tangen, Gary C. Nelson, and David A. Hamilton**
- Characteristics of a Deer Hunt and the Deer Hunters on a Small, Intensively Managed Area, **Jay B. McAninch**
- Behavioral Aspects of the Doe-Fawn Association in White-Tailed Deer, **Kirk E. LaGory, Douglas H. Taylor, and Mary K. LaGory**
- Effects of Clear-Cutting on the Gray Squirrel, **Charles M. Nixon, Milford W. McClain, and Robert W. Donohoe**
- Effect of Supplemental Food on Gray Squirrel Movements and Reproduction, **David M. Heller and John D. Harder**
- Reproductive Levels in Unexploited Woodlot Fox Squirrels, **Ralph L. Harnishfeger, W.D. Klimstra, and John L. Roseberry**
- Ruffed Grouse Drumming Site Characteristics in Ohio, **Robert J. Stoll, Jr., Milford W. McClain, Robert L. Boston, and G.P. Honchul**
- Waterfowl, **Richard A. Bishop**, Chairman
- Age-Related Productivity in the Wood Duck, **Judith A. Scherpelz and Leigh H. Fredrickson**
- Survival and Mortality in Wisconsin Wood Ducks, **Bruce K. Folley, Lyle E. Nauman, and James R. March**
- Demographic Consequences of Snow Goose Brood Rearing Traditions, **Roger F. Healey, Fred Cooke, and Patrick W. Colgan**
- Food Habits of the Common Snapping Turtle on a Canada Goose Production Marsh in Northwestern Indiana, **Daisan E. Taylor**
- Traditional Use of Migration and Winter Roost Sites by Canada Geese, **Dennis G. Raveling**
- Production, Pioneering, and Wetland Selection by Ducks on Small, Scattered Wetlands in Southeastern Wisconsin, **William F. Wheeler**
- Coot Density and the Densities of Breeding Waterfowl in Saskatchewan Parklands, **Thomas D. Nudds**
- Use of Prairie Pothole Habitat by Breeding Mallards, **Gary L. Krapu, Thomas J. Dwyer, Douglas M. Janke, and Larry G. Talent**

Discriminant Analysis of Successive Generations of Captive Wild and Hand-Reared Mallards, **Steven M. Byers, Robert Trost, Robert A. Montgomery, and Richard C. Oldenburg**

Factors Affecting Waterfowl Production on Artificial Flowages in Central Wisconsin, **Guy A. Baldassarre**

Wildlife, General, **Carl L. Bennett**, Chairman

Wetland Habitat Destruction and Renovation Along Southwestern Lake Erie, **Robert L. Meeks**

Problems of Wetlands Acquisition in the Prairie Pothole Region, **William Aultfather**

Energetics of Egg Formation in Bobwhites, **Ronald M. Case**

Apparent Cyclic Tendencies in a Southern Illinois Bobwhite Population, **John L. Roseberry and W.D. Klimstra**

Effects of Snowmobile Activity on Wintering Pheasants and Wetland Vegetation in Northern Iowa Marshes, **Richard Sojda, Jr., and Erwin E. Klaas**

Population Responses of the Cottontail to Successionally Different Habitats in Westcentral Indiana, **Mark Fitzsimmons and Harmon P. Weeks, Jr.**

Influence of Agricultural Pesticides on Food Preference and Consumption in Ringnecked Pheasants, **Richard S. Bennett, Jr.**

Lead Shot Incidence at Oakwood Bottoms Greentree Reservoir and Its Management Implications, **Gregory A. Hanson**

Preservation of Unique Wildlife Ecosystems, **Charles R. Elliott**

Regional and Seasonal Variation of Sarcoptic Mange in Red Foxes of Southern Wisconsin, **Terry E. Amundson**

FORTY-FIRST MIDWEST FISH AND WILDLIFE CONFERENCE

Champaign-Urbana, Illinois
December 9-12, 1979

Plenary Session, David Kenney

Models of Population Regulation in Herbivorous Vertebrates (The Role of Lagomorphs in Ecosystems), **Frederic H. Wagner and George I. Batzli**

Interrelationship Between Climate, Weather and Man on Fish Habitat and Distribution, Chairman, **Brooks Burr**

Effect of Pre-Settlement, Climate and Geology on Distribution of Fishes in the Central Mississippi Valley, **William Pflieger**

Effects of Recent Changes in Climate on the Environment, **Stanley A. Changon**

Recent Changes in Streams Related to Land Use Patterns From Settlement Times to the Present, **Ron Flemal**

Fisheries Management, Chairmen, **Jim Allen and Al Lopinot**
Predation by Pellet-Reared Tiger-Muskies on Cyprinid and Centrarchid Prey in Experimental Systems, **Alan L. Gillen, Roy A. Stein, Robert F. Carline, and Michael R. Headrick**

State Warmwater Stocking Policies for Small Impoundments, **Timothy Modde**

Evaluation of the Split Stocking Method in Iowa Farm Ponds, **Kay R. Hill**

Some Aspects of the Interrelationships of Population Density, Fishing Pressure, Reproduction, and Catch Rate in Largemouth Bass, **Philip C. Mankin, Dale P. Burkett, David P. Phillip, and William F. Childers**

Catch-and-Release Largemouth Bass Fishing in Ridge Lake, **Dale P. Burkett, Philip C. Mankin, David P. Phillip, and William F. Childers**

Socioeconomic Value of the Trout Fishery in Lake Taneycomo, Missouri, **Allan S. Weithman and Mark A. Haas**

The Effects of Angler Exploitation on a Virgin Warmwater Fish Community in Central Wisconsin, **Larry E. Goedde**

Water Hyacinth and Overfishing Problems on an Indonesian Lake, **Kenneth D. Carlander**

The Use of Periodic Light Applications of Rotenone as a Management Technique for Small Impoundments, **George S. Libey and Leslie E. Holland**

Stream Ecology, Chairman, **Tom Groutage**

Determinants of Fish Community Structure and Function in a Modified Stream, **Isaac J. Schlosser**

The Effects of Municipal Sewage Effluents on Fish in the Iowa River, Marshalltown, Iowa, **Keith C. Govro**
Agricultural Drainage Development: Are There Impacts on Undisturbed Downstream Reaches?, **Paul C. Marsh and James E. Luey**

Feeding Patterns and Seasonal Distribution in the Darters (Percidae: *Etheostoma* spp.) of an Ohio Stream, **David L. Wynes and Thomas E. Wissing**

The Fishes of Hickory Creek: The Last 100 Years, **John C. Bruner and Alan R. Resetar**

Upper Mississippi River Wing Dam Notching Project: Immediate Effects of Notching on Fish and Macroinvertebrates, **Rod B. Pierce and Thomas Hall**

Fish Genetics, Chairman, **Gregory Whitt**

The Effect of Genetic Distance on Preferential Allele Expression in Interspecific Hybrids, **David P. Phillip, Henry R. Parker, Paul R. Beaty, William F. Childers, and Gregory S. Whitt**

Population or Stock Structure of Lake Whitefish, *Coregonus clupeaformis*, in Northern Lake Michigan as Assessed by Isozyme Electrophoresis, **Robb F. Leary, Mark Imhof, and Henry Boone**

Hybridization of Northern Largemouth Bass (*Micropterus salmoides salmoides*) and Northern Smallmouth Bass (*Micropterus dolomieu dolomieu*), **Paul R. Beaty and William F. Childers**

Symposium: Issues in Stream Alteration, Chairman, **Bruce W. Menzel**

Ecological Implications of Alteration of Headwater Streams, **James R. Karr and Daniel R. Dudley**

Stream Dewatering in Northeast Nebraska, **Lee Rupp**

Protecting Instream Flows, **Lee Lamb**

Road Crossings and Fish Passage Problems, **A. J. Derksen**
Mitigating the Effects of Channelization: Biological Implications of Using Artificial Stream Improvement Devices on Two Ohio Streams, **Bernard L. Griswold, Robert F. Carline, Clayton J. Edwards, and Lewis C. Woods**

Roles and Alternatives of State Agencies in Regulating Stream Alteration, **Merwin D. Dougal**

Fish Population Changes in the Lower Kaskaskia River Following Canalization, **E. Herricks, R. Weldon Larimore, and Peter J. Paladino**

Dike Notching on the Missouri River: Progress or Busy Work in Fish Habitat Enhancement?, **James B. Reynolds**

Current Topics in Fisheries, Chairmen, David McGinty and Ted Storck

Textbooks Meet Trapnets: Teaching Students to Use What They Know, **David L. Johnson** and **James R. Triplett**
Food Consumption, Growth, and Survival of White Amur at Four Salinities, **Raj Kilambi**

Evaluation of Linear Regressions in Fisheries Research, **Daryl G. Ellison** and **James L. Rosenberger**

Relationship of Walleye Fingerling Density and Electrofishing Catch per Effort in Northern Wisconsin Lakes, **Steven L. Serns**

Effect of Mesh Size and Time of Day on Catches of Larval Alewives and Rainbow Smelt, **Robert O'Gorman**

A Study of Tagged Lake Whitefish, *Coregonus clupeaformis*, in Green Bay and Lake Michigan, **Mark P. Ebener** and **Fred Copes**

Walleye Movement and Behavior in Spirit Lake, Iowa, **Richard H. McWilliams**

Walleye Movement and Behavior in West Lake Okoboji, Iowa, **John M. Pitlo, Jr.**

Summer Movement and Behavior of Muskellunge (*Esox masquinongy*) in West Lake Okoboji, Iowa, **Marlyn L. Miller** and **Bruce W. Menzel**

The Influence of Limnological Variables on Fish Community Structure, **Terry R. Marshall** and **Peter D. Waring**

The Ecology of the Northern Pike, *Esox lucius*, in Savanne Lake, Ontario, **Thomas E. Mosindy**, **Walter T. Momot**, and **Peter J. Colby**

Symposium: White-Tailed Deer Management in the North Central States, Chairmen, David A. Arnold and Oliver Torgerson

Deer Population Estimators Used in the Midwest Farmland, **Lee Gladfelter**

Monitoring Deer Populations in the Northern Forested Areas of the Midwest, **Jack J. Mooty**

Natality of White-Tailed Deer, **John D. Harder**

The Legal Kill - How It's Measured, **Lawrence A. Ryel**

The Grim Reaper, **Patrick D. Karns**

Fawn Mortality Estimates in Farmland Deer Range, **Wayne R. Porath**

Estimating Illegal Kill of Deer, **Kirk H. Beattie**, **Cleveland J. Cowles**, and **Robert H. Giles, Jr.**

Age Determination of White-Tailed Deer in the Midwest: Methods and Problems, **John L. Roseberry**

Deer Herd Management - Putting It All Together, **William A. Creed** and **Frank P. Haberland**

Population Phenomena - Their Management Implications, **George E. Burgoyne, Jr.**

Convincing the Decision Makers, **Merrill L. Petoskey**

Selling Management to the Deer Hunter, **John Madson**
Symposium Summary, **Robert S. Cook**

Wildlife Session, Chairmen, Richard H. Hunt and Alan Farris
Hunting Sandhill Cranes in North Dakota - September Versus November Seasons, **Douglas H. Johnson**
Habitat Selection by Fall Migrant Common Snipe, **W. Dean Rundle**

Status and Nesting Ecology of the Forster's Tern in Wisconsin, **H. J. Harris** and **Joel Trick**

Responses of Dabbling Ducks and Aquatic Macroinvertebrates to Manipulated Wetland Habitat, **Richard M. Kaminski** and **Harold H. Prince**

Utilization of Lower Green Bay by Diving Ducks and the Availability of Macroinvertebrates, **Victoria A. Garsow**

Reproductive Impairment in Mallards Fed DDE and South Louisiana Crude Oil, **Larry D. Vangilder** and **Tony J. Peterle**

Accessibility of Varieties of Hybrid Corn to Waterfowl in Flooded Impoundments, **Michael Schoonveld**

Depredations and Effects of Grazing by Canada Geese on Winter Wheat, **Richard Kahl**

Estimating Mortality of Adult Snow Geese Using Breakage of Pair Bonds, **Fred Cooke**

Symposium: Biology of Lead Poisoning and Steel Shot Tests, Chairman, W. D. Klimstra

Lead Poisoning of Waterfowl: An Overview, **Milton Friend** and **Louis Locke**

New Jersey's Waterfowl Lead Poisoning Survey, **Douglas E. Roscoe**

Ecological Implications of Lead Poisoning in Louisiana Waterfowl, **John D. Newsom**

Potential Impact of Lead Shot on Canada Geese Wintering in Southern Illinois, **Clinton G. Essinger**

Potential Lead Poisoning of Bald Eagles via Feeding on Hunter-Crippled and Lead Poisoned Waterfowl, **Steven K. Hennes**, **L.D. Frenzel**, and **Carrol L. Henderson**

Steel Shot—What Choke?, **H.N. Bockstruck**

Performance of Lead and Steel Loads in Bagging Geese at Tule Lake National Wildlife Refuge, **Robert I. Smith** and **Tom Roster**

Effectiveness of Steel Shot in 3-Inch 12 Gauge Shells for Hunting Canada Geese, **William L. Anderson** and **Glen C. Sanderson**

Wildlife Session, Chairmen G. Blair Joselyn and Robert Donohoe

A Comparison of Mourning Dove Productivity in Urban and Rural Areas of Central Ohio, **Randall S. Arndt** and **Thomas W. Townsend**

Demographic Characteristics of a Gray Partridge Population in East-Central Wisconsin, **Kevin E. Church**

Nutritional Reserves of Northern Grouse during Winter and Spring, **Vernon G. Thomas**

Attracting Ruffed Grouse Hens and Broods with Recorded Alarm Calls of Chicks, **Benjamin W. Hunyadi**, **Richard O. Kimmel**, and **William M. Healy**

Habitat of Broods of Wild Turkeys in Southeast Minnesota, **William F. Porter**

The Impact of White-Tailed Deer on Selected Forage and Cover Plants, **Thomas A. Nelson**

Habitat Management for Amphibians and Reptiles on Private Lands, **Tom R. Johnson**

Spread and Potential Impact of Purple Loosestrife (*Lythrum salicaria*) in Midwest Wetlands, **Daniel Q. Thompson**

Hunter Access to Private Lands in Southern Michigan, **Glenn Y. Belyea**

FORTY-SECOND MIDWEST FISH AND WILDLIFE CONFERENCE

**St. Paul, Minnesota
December 8-10, 1980**

Plenary Session, Harvey K. Nelson

Battlegrounds of the 1980's - Fish and Wildlife Habitats, **Laurence R. Jahn, Merrill L. Petoskey, and Carlos M. Fetterolf, Jr.**

Plenary Session

Contributions of Fish and Wildlife Studies to Archaeological Research, **Orrin C. Shane, III**

Winterkill Lakes-Their Ecology and Management with Artificial Aeration, Chairman Robert C. Summerfelt

Winter-Anoxia in Shallow Lakes - Mechanism and Management Aspects, **Jan Barica and Jack A. Mathias**
Aeration of Winterkill Lakes in Southern Wisconsin, **James C. Congdon**

Circulation Patterns in Two Lakes with Helixor Aerators, **Farrell Badow**

Management of Iowa Winterkill Lakes by Aeration, **Richard H. McWilliams**

Management and Aeration of Deeper Winterkill Lakes in Wisconsin, **Thomas L. Wirth**

Patterns in the Structure of Winterkill Lake Fish Communities, **William M. Tonn and John J. Magnuson**

Ecology and Management of Percids and Esocids in Boreal Lake Communities, Chairman, Walter T. Momot

Fecundity and Estimated Egg Production of the Escanaba Lake, Wisconsin, Walleye Population, **Steve Serns**

Growth Characteristics of Tagged Walleye in a Lightly Exploited Boreal Lake, **N. Baccante and S. Sandhu**

Fish Reproduction and Acid Stress, **Shelby Gerking**

Some Management Implications Resulting from a Study of an Unexploited Walleye and Northern Pike Population in Savanne Lake, Ontario, **Thomas E. Mosindy, Walter T. Momot, and Peter J. Colby**

Serious Destabilization of a Walleye Population in Shoal Lake, Ontario, Through Overfishing, **Val Macins**

The Walleye Sport Fishery in Three Upper Mississippi Reservoir Lakes - Cass, Andrusia and Big Wolf, 1971-75, **Robert F. Strand**

The Long Term Effects of Increased Fishing Pressure on Percids and Esocids in a Northern Minnesota Lake, **Thomas C. Osborn**

Fish Behavior/Physiology, Chairman, Richard Siefert

Winter Temperature Selection of Adult Yellow Perch in the Thermal Effluent of a Power Plant, **Marvin J. Ross and Donald B. Siniff**

Factors Influencing the Vulnerability to Angling of Largemouth Bass in Ponds, **Gary J. Wege and Richard O. Anderson**

Predatory Interaction Between Largemouth Bass and Bluegill Sunfish as Mediated by Macrophytes, **Jaci F. Savino and Roy A. Stein**

The Effect of Coldwater Upwelling on Distribution, Abundance and Survival of Larval Alewife in Southeastern Lake Michigan, **George R. Heufelder**

Sound Production in Male Freshwater Drum from the Mississippi River, **Christopher T. Gledhill, Frederick C. Sutter, III, and Gary C. Mensinger**

First Evidence of Natural Reproduction by Planted Lake Trout in Southeastern Lake Michigan, **Sharon A. Klinger, Michael D. Enk, and David J. Jude**

Electrophoretic Analysis of Populations of the Gizzard Shad from Various Habitats in the Lower Mississippi River, **Jeffrey S. Hatfield, Thomas E. Wissing, Sheldon L. Guttman, and Michael P. Farrell**

The Relationship Between Preferred Temperature and Ration Size in Lake Trout, **Michael T. Mac**

Water Use, Allocations and Conflicts - Symposium, Chairman, Lee Rupp

Background in Water Allocation Law, **Berton L. Lamb**
Rationing the Lake Common - or Dealing with Access, **C. W. Threinen**

Water for Fish and Wildlife, **Mark V. Meierhenry**
Missouri River Regulation, Fisheries Resource Compatibilities, and Conflicts, **Charles E. Abraham**
Legal Ramifications of Landowner Encroachment on Navigable Rivers in Kansas, **Lee Queal**

Use and Control of Boundary Waters, **F.J.O. Josephson**
"Public Waters" - The Balancing of Public and Private Interests in the Control and Use of Minnesota's Water Resources, **Steven G. Thorne**

Mitigation via Section 404, **Gary Christoff**

Impacts on Fisheries/Potpourri, Chairman, Dennis Schupp

Introduction of Chlorinated Hydrocarbons into Stream Fishes by Spawning Salmon, **James W. Merna**

The Acute Toxicity of Leachates Generated from Coal Solid Wastes, **John J. Suloway, Rudolph M. Schuller, Thomas M. Skelly, and Robert A. Griffin**

The Effect of Impounding a River on the Pesticide Concentration in Warmwater Fish, **Siu-Yin T. Leung, Ross V. Bulkley, and John Richard**

A Method for Estimating Fish Mortalities in Hydroelectric Pumped-Storage Systems, **Richard P. O'Neal, Charles R. Liston, and Dan C. Brazo**

Use of Standard Intercepts for Back-Calculating Lengths from Scales, **Kenneth D. Carlander**

Floodwater Management at Lake Rathburn, Iowa, and the Influence upon Monetary Benefits to the Crappie Fishery, **Larry R. Mitzner**

Macroinvertebrate Production in Three Minnesota Trout Streams, **Charles C. Krueger**

Urban Fish and Wildlife Opportunities in the 80's - Symposium, Chairman, Richard M. DeGraaf

Urban Fish and Wildlife Management in the 80's, **Richard M. DeGraaf**

Educational Needs of Urban Fish Managers, **John G. Nickum and Bruce D. Shupp**

Minnesota Urban Fishing in the 80's, **Duane Shodeen**

Managing for Wildlife in St. Louis, **David L. Tylka**

Avifauna Use of Illinois Airports, **Carl N. Becker**

The Effects of Urbanization on the Bird Community of Oxford, Ohio - An Evolutionary Approach, **Steven R. Beissinger and David R. Osborne**

Panel Presentation: Problems and Opportunities in Urban Wildlife Management

Opportunities in the Management of Overpopulating and Nuisance Urban Wildlife, **Jonathan W. Linn**

Urban Wildlife Management - a Double-Edged Sword, **Douglas A. Andrews**

Suburbs with Too Many Deer - The North Oaks Case, **Peter A. Jordan and Eugene J. DeGayner**

Opportunities for a Community Approach in Urban Natural Areas, **Sylvia M. Taylor** and **John M. Lerg**
Furbearer Management - The Urban Challenge, **Joel Anderson**

Forest Wildlife, Chairman, Oliver Torgerson

The Effects of Compound Bow Use on Deer Hunting Success Rates in Iowa, **Lee H. Gladfelter** and **James M. Kienzler**

Coyote Predation on a Declining Herd of White-Tailed Deer, **Steven L. Jones**

Movements of White-Tailed Deer in Relation to Natural Mineral Lick Locations, **Gary J. Wiles** and **Harmon P. Weeks, Jr.**

The Use of Tame, Free-Ranging White-Tailed Deer to Determine Food Habits, **Lynn L. Rogers**

Fall and Winter Wild Turkey Habitat Utilization in South Central Iowa, **Gaylan B. Crim**, **Terry W. Little**, and **Erwin Klaas**

The Mille Lacs Project - Experimental Forest Management for Ruffed Grouse and Other Wildlife, **Gordon W. Gullion**

What is the Best Time for Making Woodcock Singing Ground Surveys?, **David W. Murphy**

Harvest Rates of Ruffed Grouse in Central Wisconsin, **Stephen DeStefano** and **Donald H. Rusch**

Michigan Deer Habitat Study - Preliminary Results, **C. L. Bennett, Jr.**, **G.E. Burgoyne, Jr.**, **J.L. Cook**, **J.P. Duvendeck**, **E.M. Harger**, **E.E. Langenau, Jr.**, **R.J. Morand**, and **L.G. Visser**

Implementing Steel Shot Policy - A Vexing Wildlife Management Problem - Symposium, Chairman, **Roger Holmes**
Current Status of Steel Shot Regulations, **Robert L. Smith**
History and Biopolitical Perspectives of the Steel Shot Issue, **Michael E. Berger**

Steel Shot - The Wisconsin Experience, **John M. Keener**
National Audubon's View of Steel Shot, **John M. (Frosty) Anderson**

Steel Shot: Wildfowling's Enigma, **Jim Phillips**

Farmland Wildlife and Furbearers, Chairman, Thomas E. Isley
South Dakota Pheasant Restoration - A Fourth Year Evaluation, **Kenneth E. Solomon**

Effects of Hunting Season Length on Ring-Necked Pheasant Populations, **Ronnie R. George**, **James B. Wooley**, **James M. Kienzler**, **Allen L. Farris**, and **Alfred A. Berner**

Effects of Density on Reproductive Levels of Confined Cottontail Rabbits, **Scott C. Yaich** and **W.D. Klimstra**
Coyote and Red Fox Spatial Relationships on the Northern Great Plains, **Alan B. Sargeant**, **Stephen H. Allen**, and **James O. Hastings**

Productivity and Mortality of Gray Fox in Southwestern Wisconsin, **David A. Root** and **Neil F. Payne**

Bobcat Habitat Utilization Patterns in the Missouri Ozarks, **David A. Hamilton**

Furbearer Harvest Mechanics - An Examination of Variables Influencing Muskrat, Beaver, Raccoon and Coyote Harvests in Missouri, **David W. Erickson**

On the Limitations of Radiotelemetry, **Robert H. Schmidt**

Communications and Attitudes, Chairman, **Ruth L. Hine**
Communication as it Applies to Professionals, **John Madson**

Public Relations Aspects of Wildlife Management Revisited, **Clay Schoenfeld**

Models and Influences Shaping Attitudes and Behaviors, **Robert Jackson**

Public Attitudes Toward Wildlife, **Ray Quinn**

Conflicts Between Hunters and Nonhunting Recreationists in Southern Lower Michigan, **Robert W. Aho**

Human Relations to Wildlife in an Eastern City, **Charles H. Nilon** and **Linda K. Reed**

American Trapper Profiles, **Major L. Boddicker**

Waterfowl, Chairman, Karl E. Bednarik

The Distribution of Redhead Ducks at Horicon National Wildlife Refuge, **Cynthia D. Swanberg** and **Donald H. Rusch**

Waterfowl Diseases - Historic and Current Perspectives, **Milton Friend** and **Christopher J. Brand**

Prairie Dabbling Ducks, 1941-1990, **Hugh Boyd**

Prairie Drought and Its Relationship to Productivity at the La Perouse Bay Snow Goose Colony, **J. Chris Davies** and **F. Cooke**

Modelling Mallard Productivity - Is It Worthwhile?, **Douglas H. Johnson** and **Anthony M. Frank**

Energetics of Refuging Snow Geese, **Erwin E. Klaas** and **Robert B. Frederick**

Do Wetland Conditions in Mississippi Delta Hardwoods Influence Mallard Recruitment?, **Mickey E. Heitmeyer** and **Leigh H. Fredrickson**

Shotshell and Shooter Performance - An Evaluation of Lead and Steel Shot for Duck Hunting, **Dale D. Humburg**, **Steve Sheriff**, and **Tom Roster**

Estimating Waterfowl Survival Rates - Are Sample Sizes Attainable?, **F. Dale Caswell**

Drought Response of Canvasbacks and Redheads on the Delta Marsh, **Rodney D. Saylor**

Habitat and Nongame Wildlife, Chairman, Jim Hale

A Preliminary Report on the Status of the Great Gray Owl in Minnesota, **Steven L. Loch**

Frog Inventory - An Index for Monitoring Environmental Quality, **Deborah K. Jansen** and **Raymond K. Anderson**

Application of Existing Land Use and Natural Resource Surveys to Regional Wildlife Habitat Evaluation, **Robert B. Barnes** and **William F. Porter**

Kirtland's Warbler Habitat Management, **John R. Probst**
Habitat Use by Breeding Marbled Godwits in North Dakota - A Preliminary Report, **Mark R. Ryan**, **Rochelle B. Renken**, and **James J. Dinsmore**

Field Use by Staging Eastern Greater Sandhill Cranes, **James R. Lovvorn** and **Charles M. Kirkpatrick**

Indiana's Classified Wildlife Habitat Act, **John Russell** and **Wayne Machan**

Breeding Birds of Abandoned Gravel Pits in Northwestern Minnesota and Some Management Opportunities, **W.D. Svedarsky**, **T.A. Feiro**, and **D.N. Sandstrom**

Cutting Cattail in Managed Wetlands Habitats, **Richard M. Kaminski**, **Henry R. Murkin**, and **Peter Ward**

FORTY-THIRD MIDWEST FISH AND WILDLIFE CONFERENCE

**Wichita Hilton Inn
Wichita, Kansas
December 6-9, 1981**

Energy, Water and Wildlife - Resources on Collision Courses, Chairman, **John S. Gottschalk**

Oil and Gas Development and Impacts in the Midwest, **Keith G. Hay**

Surface Mining in the Midwest - Trends and Impacts, **Dennis Haag**

Interbasin Water Transfer - Opportunities and Impacts, **Bill Pearson**

State Water Resources Agencies - A New Way of Doing Business, **Dayle Williamson**

Approaches to Commercial Fish Harvest from Reservoirs, Chairman, **Jim Stephen**

The Role of Commercial Fishing in the Management of Reservoirs and Other Waters in Illinois, **Arnold W. Fritz**
Observations of Entanglement Gear Harvest and Impact on the Fisheries of Two Mainstream Reservoirs in Kentucky, **Charles R. Bronte, Thomas D. Forsythe, and Donald W. Johnson**

The Inland Commercial Fishery of Minnesota, **Floyd A. Hennagir**

The Status of Flathead Catfish Populations and Their Response to a Simulated Commercial Fishery in Ebbers Falls Reservoir, Oklahoma, **David L. Combs and Hutchie C. Weeks**

A Liberalized Commercial Fishery on Lake Okeechobee, **Dennis E. Hammond**

The Kansas Approach to a Limited Entry Fishery, **Jim Stephen**

Reclaimed Resources for Fish and Wildlife Benefits, Co-Chairmen, **Harold Klaassen and Keith Harmon**

Wildlife Conservation Through Consideration of Impacts to Wildlife, **Michael G. McKenna**

Environmental Variables Affecting Distributions of Fishes of Coffeen Lake - A Thermally Altered, Central Illinois Reservoir, **Lance G. Perry**

Use of Recirculating Thermal Effluent for Aquaculture at the SHEROC NSP Greenhouse, **John G. Woivode and Ira R. Adelman**

Establishment of a Trout Fishery by Liming in a Northern Wisconsin Bog Lake, **Robert R. Jackson**

Effects of Induced Circulation on Fish Distribution and Angling Success for Channel Catfish in a Small Prairie Lake, **Thomas D. Mosher**

Costs and Potentials for Reclaiming Abandoned Mined Lands as Fish and Wildlife Management Areas, **Rolfe D. Mandel**

The National AML Inventory in Wildlife and Fisheries Development of Abandoned Coal Mine Areas, **T.H. Lee Williams**

A Holistic Approach to Reclamation Research on Bentonite Clay Mine Spoils in the Northern High Plains, **Carolyn L. Hull, Daniel W. Uresk, and Richard M. Hansen**

Nutritional Response of Wildlife Forages to Sludge Application, **Henry Campa, III, David K. Woodyard, and Jonathan B. Haufler**

Response of Wildlife Populations to Land Application of Sewage Sludge, **David K. Woodyard, Henry Campa, III and Jonathan B. Haufler**

Structural Indices of Fish Communities, Chairman, **Richard Anderson**

Evolution and Evaluation of Structural Indices of Fish Populations and Communities, **R.O. Anderson and S.J. Gutreuter**

Use of Relative Stock (RSD) and Catch Rate for Stock Assessment, **Donald W. Gabelhouse, Jr.**

Relationships Between Proportional Stock Density (PSD) and Bluegill Population Statistics in Michigan Lakes, **Jerry W. Edde and Fred VanDeventer**

Assessment of Quality of Crappie Populations in Large Reservoirs, **Michael A. Colvin and Fred W. Vasey**

Evaluation of Fish Communities Through Assessment of Zooplankton Populations and Measures of Lake Productivity, **Edward L. Mills and Albert Schiavone**
A Cautionary Note on Estimation and Interpretation of Proportional Stock Density, **R.F. Carline, T.J. Hall, B.L. Johnson, and R.A. Schaefer**

Comparison of Length-Frequency Indices of Fish Caught by Electrofishing and Angling, **S.J. Gutreuter, W.M. Anderson, G. D. Novinger, and A.S. Weithman**

Structural Characteristics of Black Bass Populations in Maine Inferred from Angler Catches, **Lori S. Weiss-Glanz**

The Effects of Sampling Location on Management of Yellow Perch Stock Structure and Abundance, **M.B. Sandheinrich and W.A. Hubert**

Largemouth Bass Statistics in Weldon Springs Lake - Time for a Change, **Gary Lutterbie**

Structural Characteristics, Growth Rates, and Management of Largemouth Bass at Long Branch Reservoir, 1979-81, **David J. Neuswanger**

A New Index for Use in Evaluating Black Bass Overharvest, **James B. Mense**

Factors and Characteristics Associated with Unique Bluegill Populations, **W. Phillip Hillman**

Assessment of Smallmouth Bass Populations in Iowa and Management Strategies, **Vaughn Paragamian**

Fish Growth and Energetics, Chairman, **Wess Sheets**

Seasonal Energy Dynamics in Alewives in S.E. Lake Michigan, **Loren E. Flath**

Latitudinal Variations in the Growth of Northern Pike, **James S. Diana**

Comparative Bioenergetics of Northern Pike, Muskellunge, and Their F₁ Hybrid, Tiger Muskellunge, **Mark S. Bevelhimer, Roy A. Stein, and Robert F. Carline**

Nitrogen Digestion and Excretion of Lake Trout, **Salvelinus namaycush, Carroll R. Norden**

The Utility of *Dorosoma cepedianum* as a Forage Fish, **Glenda A. Stark and Daniel E. Bowen**

Is the Hybrid Grass Carp a Herbivore or an Omnivore?, **Raj V. Kilambi**

Telemetry Applications and Movement Measurements in Fishes, Chairman, **Richard Noble**

Trans-Intestinal Expulsion of Surgically Implanted Dummy Transmitters in Channel Catfish, **Robert C. Summerfelt and Doyle Mosier**

Paddlefish Movement and Habitat Use in the Upper Mississippi River, **Peter D. Southall and Wayne A. Hubert**

- Movements of Striped Bass, *Morone saxatilis*, in Wilson Reservoir, Kansas, **Kent Hampton, Thomas L. Wenke, and Bruce Zamrzla**
- Identification of Principal Muskellunge Spawning Areas in Leech Lake by Radio-Telemetry, **Robert F. Strand**
- Movement of Fish Between a Borrow Pit and Sandusky Bay, Ohio, **Fred Leckie and James R. Triplett**
- Contemporary Hatchery Design, Chairman, **Jack Hammond**
- Production Improvements at Shepherd of the Hills Hatchery, **Gordon W. Proctor**
- Relationship of Bioengineers, Engineers, and Architects to Hatchery Construction Clients, **Wayne J. Daley**
- Design and Operation of a New In-the-Pond Harvest Kettle for Extensive Culture Ponds, **Verl Stevens**
- A Review of the Oklahoma Hatchery Renovation Program, **Donald P. Driscoll**
- Design Aspects of a Solar Heating Facility, **James A. Copeland**
- A Simple Approach to Water Reuse at a Contemporary Salmonid Hatchery, **Vincent A. Mudrak and Kenneth R. Stark**
- Chemical Separation and Jar Incubation of Channel Cat Eggs to Improve Hatchability, **John P. Ringle, John G. Nickum, and Alan Moore**
- Design Aspects of a Cold, Cool, and Warmwater Hatchery, **Thomas L. Johnson**
- Operational Considerations of Producing Channel Catfish in Raceways, **Alan Moore**
- Fish Ecology and Behavior, Chairman, **Randall Moss**
- An Analysis of Adult Spotted Bass Habitat in Prairie Streams, **William G. Layher and O. Eugene Maughan**
- The Importance of Cover to Fishes in an Illinois Stream, **Paul L. Angermeier**
- Predator Influence on Bluegill, Yellow Perch, and Crayfish Choice of Artificial Habitat Structure, **Raymond A. Beaumier and David L. Johnson**
- Low-Light Underwater Television and Scuba Diver Observations of Fish Behavior in a Great Lakes Commercial Trap Net, **Thomas L. Rutecki, Philip J. Schneeberger, and David J. Jude**
- Hide and Seek at Low Light: Feeding Behavior of Largemouth Bass, **Greg Howick and W. John O'Brien**
- Oxygen Consumption of Bluegill, *Lepomis macrochirus*, **Ruth A. Williams and Robert C. Summerfelt**
- A Five-Year Study of Brown Trout Populations and Angling Success in the Castle Rock Creek Fish-for-Fun Area, Grant County, Wisconsin, **Roger A. Kerr**
- The Bait Leech, *Nephelopsis obscura*, Ecology and Culture, **Hollie L. Collins, Linda L. Holmstrand, and Jeff Denny**
- Furbearer Symposium, Chairmen, **Erik K. Fritzell and Neil F. Johnson**
- A Perspective on Midwest Furbearer Management, **Erik Fritzell and Neil Johnson**
- Application of Census Techniques in Furbearer Management, **William R. Clark and Ronald D. Andrews**
- Techniques for Aging Furbearers Using Tooth Histology, **D. H. Johnston**
- Assessing Productivity of Furbearers in Midwestern North America, **Neil F. Payne**
- Estimating and Using Furbearer Harvest Information, **David W. Erickson**
- Putting It All Together: Data that Meet the Needs of the Furbearer Manager, **Douglas H. Johnson**
- Compensatory Processes in Exploited Furbearer Populations, **Gerald L. Storm and Walter M. Tzilkowski**
- Furbearer Symposium, Chairmen, **Erik K. Fritzell and Neil F. Johnson**
- The Public and the Furbearer Resource, **Edward K. Boggess**
- The Fur Marketplace, **Henry Foner**
- A Case History of a Dynamic Resource - The Red Fox, **Alan B. Sargeant**
- The Relationships Between Rabies and Trapping as Mortality Factors of Red Foxes in Ontario, **Dennis R. Voight**
- Reintroduction of Northern Mustelids - With Emphasis on Fisher, Pine Marten, and Otter, **William E. Berg**
- History of Midwestern Furbearer Management and a Look to the Future, **G. F. Hubert, Jr.**
- Wildlife: Diseases and Environmental Contaminates, Chairman, **Erwin Klaas**
- Response of Mallards to Chemically Contaminated Drinking Water, **Barbara L. Rowe and Harold H. Prince**
- Chlorinated and Petroleum Hydrocarbons in the Diet of Mallard Hens: Effects on Egg Quality and Duckling Survival, **Larry D. Vangilder and Tony J. Peterle**
- Effects of PCB's and Food Restriction on Mourning Dove Reproductive Behavior, **Gildo M. Tori and Tony J. Peterle**
- Lead Contamination Along Highways in Kansas, **R. J. Robel and D. S. O'Neill**
- Antibody to Plague in Sera from Two Badger Populations, **John P. Messick, Michael C. Todd, and Graham W. Smith**
- Avian Cholera in the Central United States. Where do We go from Here? **William C. Bair**
- Wildlife: Habitat and Census Techniques, Chairman, **James Hale**
- Nest Habitat Selection by Ring-Necked Pheasants in Northeast Colorado, **Warren D. Snyder**
- Saving Nests in Fallow Wheat Fields, **Randy D. Rodgers**
- Root Plowing: A Technique to Save Hedge Row Habitat on Private Lands, **Stephen Capel**
- 10-Row Farmstead Shelterbelts: Potential as Wildlife Habitat, **Alfred Berner and Connie P. Cooper**
- Muskrat Habitat and Population Monitoring at the Cumberland Marshes Project, **Dave Phillips**
- Habitat Use by Nesting Canvasbacks and Redheads: Are we Managing Large Breeding Marshes Correctly?, **Rodney D. Saylor**
- A Call Count Census of the Common Gallinule, **Alan W. Brackney and Theodore A. Bookhout**
- Two Techniques for Censusing Waterfowl Broods on Water Impoundments, **Mark A. Rumble and Lester D. Blake**
- Evaluation of Singing Bird Surveys, **Jonathan Bart and James Schoultz**
- Avian Investigations of State-Managed Land-Holdings, **Vernon M. Kleen and Carol N. Becker**
- Census and Exploitation of a Discrete Beaver Population in Michigan, **Ernest N. Kafkas and Richard J. Moran**
- Law Enforcement; Wildlife Populations, Chairman, **Larry Closson**
- Planning and Logistics of an Undercover Operation, **Donald L. Hastings**
- Sportsmen Beliefs About Game Laws and Regulations, **Kirk H. Beattie**
- Warnings Versus Citations in Wildlife Law Enforcement, **Kirk H. Beattie**

- A Development Model of Hunting Behavior: Concept, Research Support and Implications, **Robert Jackson, Robert Norton, and Ray Anderson**
- Enforcement Aspects for Easements for Waterfowl Management Rights in Minnesota, **Willard E. Steffen, Edward C. Spoon, and Donald Maki**
- Changing Hunter Attitudes Through Advanced Hunter Education, **Jean S. Woodman and Roger Grosslein**
- Conservation Law Enforcement - A Resource Management Tool, **Larry D. Closson**
- Pre-Breeding Fat and Protein Reserves in Northern and Southern Nesting Canada Geese, **S. K. Mainguy, V. G. Thomas, and J. P. Prevett**
- An Evaluation of Releasing First Generation (F_1) Bobwhite Quail Produced from Wild Stock, **S. E. Backs**
- Survival and Longevity in an Unhunted, Supplementally-Fed Population of Eastern Gray Squirrels, **Douglas S. Allen and John D. Harder**
- Effects of Sport Hunting on Raccoon Reproduction, Survival and Behavior, **Stephen E. Roseberry**
- Habitat Use by Sandhill Cranes During Winter and Spring, **G. C. Inversion, T. C. Tacha, and P. A. Vohs, Jr.**
- Wildlife: Nongame Aspects, Chairman, **William Elder**
- Reproductive Success of the Endangered Common Tern in Ohio, **Mark A. Shields and Thomas W. Townsend**
- Breeding Ecology of the Least Tern in Kansas, **Margaret B. Schulenberg**
- Breeding Ecology of Vesper Sparrows in Corn and Soybean Fields, **Nicholas L. Rodenhouse and Louis B. Best**
- Population Trend, Breeding and Wintering Distribution of Loggerhead Shrikes in Missouri, **Alan L. Kridelbaugh**
- Food Habits and Survival Rates of Nestling Great Blue Herons on the Mississippi River near Cassville, Wisconsin, **Gerald Kaufmann**
- Movements and Habitat Utilization by Yellow Rails at Seney National Wildlife Refuge, **Jeffery R. Stenzel and Theodore A. Bookhout**
- Bald Eagle Management in Ohio, **Sean T. Kelly and Denis S. Case**
- Recovery Plan for the Endangered Indiana Bat and Gray Bat, **John T. Brady**
- Recreationists' Impact on Green Herons on Ozark Riverways, **Mark S. Kaiser and Erik K. Fritzell**
- Birds of Missouri Prairie Relicts: Importance of Habitat Size, **Fred B. Samson**
- Publicity Techniques for Promotion of Minnesota's Nongame Wildlife Checkoff, **Carroll L. Henderson**
- Wildlife: Habitat Evaluations, Energy Impacts and Waterfowl, Chairman, **Blair Joselyn**
- Landsat Imagery as a Tool for Mapping Pheasant Habitat in Missouri, **Elizabeth A. Cook, Diana L. Cary, and Terry W. Barney**
- PATREC and MANALT: An Integrative Approach for Integrating Habitat Evaluation and Management, **William K. Seitz**
- The Use of Multivariate Statistical Techniques in the Identification of Nest Habitat of the Wild Turkey, **Jan E. Lazarus and William F. Porter**
- A Spatial Analysis of Antelope Habitat Parameters in Kansas, **Edward A. Martinko and Loyola M. Caron**
- Response of the Michigan Elk Herd to Hydrocarbon Development, **Richard L. Dressler and John M. Bridges**
- Resolving Conflicts Between Energy Development and Nesting Golden Eagles, **Robert L. Phillips and Alan E. Beske**
- Effects of Surface Mining on the Vesper Sparrow in the Northern Great Plains, **Tim A. Schaid, R.L. Linder, and W.L. Tucker**
- Does Prairie Drought Affect Lesser Snow Goose Reproduction?, **V. G. Thomas and J.P. Prevett**
- Estimating Food Available to Refuging Waterfowl Using Aircraft and Satellite Data, **William H. Anderson and Erwin Klaas**
- Gosling Mortality Related to Parental Age, Hatching Date and Gosling Weight in an Ohio Goose Population, **Ying T. Wang, Theodore A. Bookhout, and John D. Harder**
- Interactions of American Coots and Waterfowl During Fall Migration, **William R. Eddleman and Craig T. Patterson**

FORTY-FOURTH MIDWEST FISH AND WILDLIFE CONFERENCE

Hotel Fort Des Moines
Des Moines, Iowa
December 12-15, 1982

- The Great Rivers: Arena of Conflict, Chairman, **Allen L. Farris**; Welcome, **Larry J. Wilson**
- Historical View of the Great Rivers, **Kevin Szcodronski**
- Environmental View of Industrial and Transportation Development, **John Marlin**
- Industry View of Transportation Development, **Maurice Van Nostrand**
- Overview of the Great Rivers, **Gerald F. Schnepf**
- Agricultural Nonpoint Source Pollution Impacts on Fisheries, Chairman, **Bruce W. Menzel**
- Lake Productivity: Fish Yield Relations in Midwest Lakes, **John R. Jones**
- Classification of Iowa Lakes and Their Fish Standing Stock, **Kay R. Hill**
- Effects of Agriculture on Stream Fauna in Central Illinois, **J. R. Gammon**
- Biotic Integrity and the Fish Communities of Streams in Agricultural Watersheds, **James R. Karr, Isaac J. Schlosser, and Philip Yant**
- A Different Perspective to the Effect of Agriculture on Stream Sediment Loading, **Donald P. Roseboom**
- Nonpoint Pollution from Irrigation Return Flows: A Case Study of Nine Mile Creek, Scotts Bluff County, Nebraska, **Edward J. Peters**
- Fish Contaminant Monitoring in Illinois, **Mike Conlin**
- Ecology and Management of Percid Fishes, Chairman, **Kenneth D. Carlander**
- Selection of Spawning Habitat and Factors Affecting Year-Class Abundance of Walleye in the Upper Mississippi River, **Michael J. Talbot and James Holzer**

- Age Validation Studies of Walleye Using Tetracycline Labeling and Fin Clipping, **John A. Babaluk** and **J. Scott Campbell**
- Growth and Survival of Stocked Walleye and Sauger x Walleye Hybrids in Pleasant Hill Reservoir, Ohio, **David L. Smith** and **Robert F. Carline**
- Selection of the Body Site for Scale Sampling for Age and Growth Studies, **Ahmad Abdulnabi** and **Kenneth D. Carlander**
- Seasonal and Annual Changes in the Diet of the Walleye in Western Lake Erie, **Ellen K. Pikitch**
- Evaluation of Continuous Walleye and Sauger Fishing in Pool 4 of the Mississippi River, **William C. Thorn**
- Predation by Walleye and Yellow Perch on Forage Fishes in Western Lake Erie, **Roger L. Knight**, **F. Joseph Margraf**, and **Robert F. Carline**
- Conditioning Surface Water for Use in Intensive Fish Culture, Chairman, **John Nickum**
- History and Magnitude of Use of the Surface Water for Intensive Fish Culture: Associated Problems, **Alan Moore**
- Use of Surface Waters for Intensive Fish Culture: An Overview, **Terrence B. Kayes**
- Surface Water for Channel Catfish: Removal of Particulate Matter, **Dewey Tackett**
- UV Irradiation in Fish Rearing Systems: Criteria and Conditions for Use, **John W. Nightingale** and **Wayne J. Daley**
- Use of Ozone in Conditioning Surface Waters for Intensive Fish Culture, **Steven G. Hughes**
- Successes and Failures in Attempts to Prepare Surface Waters for Use in Blind Pony State Fish Hatchery, **Ernest J. Hamilton**
- Intensive Aquaculture in Recirculating Thermal Effluents: Testing of a Commercial Prototype, **John Woiwode**
- Crappie Management: Problems and Solutions, Chairman, **Larry R. Mitzner**
- Feeding Ecology of White Crappie as Planktivores, **W. John O'Brien**, **David I. Wright**, and **Bradford S. Loveless**
- Apparent Variation in the Utilization of Shad by White Crappie in Southern Illinois Reservoirs, **Roy C. Heidinger**
- Crappie Population Fluctuations and Well Being with Reference to Predatory-Prey Relationships, **James Triplett**
- Trophic Ecology as a Tool for Crappie Management, **Daryl G. Ellison**
- An Assessment of Crappie Stocks in Small Midwestern Private Impoundments, **Donald W. Gabelhouse, Jr.**
- Population Characteristics and Angler Exploitation of White Crappie in Missouri's Large Reservoirs, **Michael A. Colvin**
- Correlation of Crappie Standing Stocks with Lake Basin Slopes and Siltation Indexes, **Kay R. Hill**
- Comparative Response of Black and White Crappie to Threadfin Shad Introductions in a Lake Containing Gizzard Shad, **Tom Mosher**
- Ecology and Management of Lake Fishes, Chairman, **Tom McComish**
- The Influence of Substrate on Muskellunge Egg Mortality, **Michael P. Dombeck**, **Bruce W. Menzel**, and **Paul N. Hinz**
- Factors Affecting Growth of Young-of-the-Year Largemouth Bass in Lake Shelbyville, Illinois, as Determined by Otolith Microstructure, **Steven J. Miller** and **Ted Storck**
- The White Perch in Lake Erie: The Ecology of an Invading Species, **Jeff S. Schaeffer** and **F. Joseph Margraf**
- The Effects of Commercial Fish Removal, by Netting, on Sport Fish Populations in Two Arkansas Reservoirs, **Tommie G. Crawford**
- The Importance of Reservoir Structure and Cover to Largemouth Bass Behavior and Distribution, **Robert R. Knopf**
- A Comparison of Gear Types Appropriate for Quantitative Larval Fish Sampling in a Coastal Marsh on Lake Michigan, **Sharalee Chubb** and **Charles R. Liston**
- Feasibility and Effects of a Mechanical Population Reduction of Black Crappies and Black Bullheads in a Small Inland Lake, **David A. Hanson**, **Brian J. Belonger**, and **Dean L. Schoenike**
- Trends in the Fishery Resources on the Missouri and Upper Mississippi Rivers, Chairman, **Jerry Rasmussen**
- Ecology of Fishes in the Unchannelized Missouri River; Gavins Point Dam to Ponca State Park, **Dennis Unkenholz**
- Approaches to River Regulation that Reduce Aquatic Habitat Losses in the Lower Missouri River, **Jack Robinson**
- Changes in Fish and Wildlife Habitat Due to Channelization of the Missouri River and Possible Mitigation Measures, **Doug McDonald**
- Historical Developments and Ecology of the Upper Mississippi River; Cairo, Illinois to Minneapolis, Minnesota, **Calvin R. Fremling**
- How Important are Backwaters to the Upper Mississippi River?, **Jim Eckblad**
- An Assessment of the Value of Current Modification Structures to Fish and Fishing on the Upper Mississippi River, **John Pitlo**
- Long-Term Ecological Research on the Illinois and Mississippi Rivers, **Richard E. Sparks**
- Upper Mississippi River: Current Trend and Projected Future, **Jerry Rasmussen**
- Ecology and Management of Stream Fishes, Chairman, **Larry Jahn**
- Estimating Flathead Catfish Populations in the Missouri River Using Low Pulse-Frequency Electrofishing as a Sampling Technique, **Rod Tondreau**
- A Fisheries Survey of the Kankakee River in Indiana, **Robert Robertson** and **Neil LeDet**
- Variations in the Reproductive Biology of Common Shiners in Agricultural Watersheds, **David K. Waldorf** and **Bruce W. Menzel**
- Population Estimates of the Shovelnose Sturgeon in the Unchanneled Missouri River, **J. J. Schuckman** and **J. C. Schmulbach**
- The Recreational Values and Associated Problems of Missouri's Major Streams, **J. P. Bachant**, **J. Martinsdale**, and **D. J. Witter**
- Influence of Flow on Smallmouth Bass Year-Classes in the Upper Mississippi River, **William A. Swenson**, **G. David Heberling**, and **Joel Weinhold**
- Freshwater Drum Population Estimates and Age Class Distribution in a Segment of Pool 14, Mississippi River, **Peter H. Howe**, **Don R. Helms**, and **Timothy J. Goeman**
- Fisheries Management Alternatives in Large Midwest Reservoirs, Chairman, **Robert C. Summerfelt**
- Overview: Predictive Methodology for Reservoir Fish Production—Standing Crop, Harvest, Angler Use, and Predator-Prey Relations, **Robert M. Jenkins**
- Prey Stocking: Threadfin Shad: An Illinois Case History, **Peter J. Paladino**

- Predator Stocking: Biological, Environmental, and Social Risks of Striped Bass in Lake McConaughy, Nebraska, **Daryl G. Ellison**, and **Darrol L. Eichner**
- Harvest Regulation: An Overview of Size Limits for Black Bass, **Gary D. Novinger**
- Vegetation Management: The Natural and Artificial Establishment of Shore Vegetation and Its Responses to Water Level Fluctuation, **George R. Hoffman**
- Water Quality Manipulation: Water Quality Patterns in Relation to Reservoir Design and Operation, **Robert H. Kennedy**
- Tailwaters: Reservoir Releases and Their Effects on Tailwater Fisheries, **William D. Swink** and **John M. Nestler**
- Artificial Habitat: Effects on Harvest and Fish Preference for Structural Characteristics, **R. Scot Stewart** and **David L. Johnson**
- Wetland Wildlife, Chairman, David L. Trauger**
- Associations of Diving Duck Activity Patterns in Relation to Habitat Use and Food Availability, **David M. Day** and **Richard V. Anderson**
- Fall Flock Behavior and Harvest of Canada Geese in Agricultural Southwest Minnesota, **Donald F. Schultz**
- Relative Effectiveness of No. 4 Steel and No. 6 Lead for Hunting Ducks: The Lacassine Study, **C. E. Hebert**, **V. L. Wright**, **P. J. Swank**, **J. D. Newsom**, and **R. L. Kasul**
- Behavior, Energetics, and Management of Refuging Waterfowl: A Simulation Model, **Robert B. Frederick**, **William R. Clark**, and **Erwin E. Klaas**
- The Effect of Multiple Annual Recapture on Adult Lesser Snow Geese: Short- and Long-Term Consequences, **J. Chris Davies**, **F. Cooke**, and **A. Dzubin**
- Colonization and Use of a Midwestern Open Water System by Waterbirds, **Patrick S. Rusz**, **Harold H. Prince**, and **Gary A. Dawson**
- Habitat Use by Breeding Virginia Rail and Sora in Northwest Iowa, **Rex R. Johnson** and **James J. Dinsmore**
- Duck and Pheasant Use of Water Bank Program Agreement Areas in South Dakota, **David A. Beck**, **Raymond L. Linder**, and **John B. Farley**
- Survival of Mallard Broods in South-Central North Dakota, **Larry G. Talent**, **Robert L. Jarvis**, and **Gary L. Krapu**
- Private Lands Work and Upland Wildlife, Chairman, Raymond L. Linder**
- Agricultural Liaison: A Full-Time Job, **Raymond Evans**
- The Cooperative Development of a Private Land Wildlife Habitat Appraisal Guide for Missouri, **Edward A. Gaskins**, **John P. Graham**, and **David L. Urlich**
- Wildlife Habitat of Kane County, Illinois: An Assessment, **Steven Byers**, **Robert Montgomery**, and **George Burger**
- Integrating Biological Farming into Desoto National Wildlife Refuge's Habitat Management Program, **Richard Sojda, Jr.**
- Attitudes Toward Wildlife Habitat Management on Private Lands, **Franklin J. Svoboda**
- Winter Use of Fragmented Farmland Habitat by Eastern Cottontail, **Robert K. Swihart**
- Spatial Patterns of Male and Female Sharptailed Grouse in Relation to Display Grounds, **Michael W. Gratson** and **Raymond K. Anderson**
- Gray Partridge Winter Ecology and Habitat Modeling, **Kevin E. Church**, **Robin L. Viola**, and **William F. Porter**
- The Upland Breeding Bird Communities Associated with Three Habitat Types on North Dakota Waterfowl Production Areas, **Rochelle B. Renken**
- Agriculture-Wildlife Interactions on the Horizon, Chairman, Tom Baskett**
- Soil Erosion: Its Future Effects on Agriculture and Wildlife Habitat, **Jane LaGrange**
- Forest Trends and Economics of Woodland Ownership, **Richard Skok**
- Economic Outlook of Farming and Future Crop Production, **Earl Heady**
- A Farm Manager's View of Land Management and Wildlife, **Sam Kennedy, III**
- Agricultural Practices: Trends and Changes, **John Pesek**
- A Legislator's View of Agriculture and Wildlife, **Lowell Norland**
- Wildlife Responses to Agricultural Changes, **Keith Harmon**
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- Irrigated Cornfields as Habitat for Small Mammals in the Sandsage Prairie Region of Western Kansas, **Eugene D. Fleharty**
- Effects of Fenvalerate, a Synthetic Pyrethroid Insecticide, on Small Mammals in an Oldfield Ecosystem, **Richard S. Bennett**, **Erwin E. Klaas**, and **Joel R. Coats**
- Wildlife Use of Grassed Backslope Terraces in Iowa, **David W. Beck**
- Bird Damage to Midwestern Agricultural Crops: Problem Definition and Methods of Control, **David L. Otis**
- Characteristic Fauna Associated with Conventional and Conservation Tillage Systems, **David Warburton**
- The Effects of No-Till Farming on Nesting Birds, **Nancy S. Basore** and **Louis B. Best**
- Factors Influencing Nongame Bird Use of Rowcrop Fields, **Gregory K. Gremaud** and **Robert B. Dahlgren**
- Duck Nesting in Zero Tillage Farms, **Wayne F. Cowan**
- Agriculture that Benefits Wildlife: Solving a Rodent Problem, **Ann E. Koehler**, **Ron J. Johnson**, **Orvin C. Burnside**, and **Stephen R. Lowry**
- Availability of Waste Corn and Soybeans for Wildlife in Illinois, **Richard E. Warner**, **Stephen P. Havera**, and **Larry M. David**
- Furbearers and Other Wildlife, Chairman, Chuck Pils**
- Evaluation of Mark-Recapture for Estimating Striped Skunk Abundance, **Raymond J. Greenwood**, **Alan B. Sargeant**, and **Douglas H. Johnson**
- Bobcat Population Dynamics in Oklahoma, **Robert E. Rolley**
- Movement Patterns and Habitat Selection of Coyotes in Southern Iowa, **Greig D. Jones**, **William L. Franklin**, and **Ronald D. Andrews**
- Population Characteristics of Muskrats Inhabiting Pool 9 of the Upper Mississippi River, **Robert T. Clay** and **William R. Clark**
- Estimation of Survival Rates from Biotelemetry Data, **Gary C. White**
- Land-Use and Marbled Godwit Habitat Selection in the Northern Prairie Region, **Mark R. Ryan**, **Rochelle B. Renken**, and **James J. Dinsmore**
- Chronology of Migration of American Coots in North-Central Oklahoma, **William R. Eddleman**
- Land Conversion to Wild Rice Production and Its Effect on Waterfowl Use in Clearwater County, Minnesota, **I. L. Johnson**
- The Water Bank Program: Working for Wetland Preservation with Landowners, **Glen A. Kajewski**
- Energy Requirements and Seed Preferences of Four Wintering Nongame Birds in Northeastern Kansas, **Theresa Warnock Shuman**, **Robert J. Robel**, and **John L. Zimmerman**

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Effect of Firewood Removal on Breeding Bird Populations in a Mixed-Oak Forest, **John Dingledine** and **Jonathan Haufler**

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Mortality and Movements of White-Tailed Deer Fawns in Southeastern Minnesota, **John H. Schulz** and **John Ludwig**

White-Tailed Deer Fawn Home Range, Movements, and Doe-Fawn Interactions in South-Central Iowa, **Craig N. Huegel**, **Robert B. Dahlgren**, and **Lee Gladfelter**
Productivity of Various Age Classes of White-Tailed Deer (*Odocoileus virginianus*) in West-Central Illinois, **Jack W. Grubaugh** and **Vernon C. Pederson**

The Impact of White-Tailed Deer (*Odocoileus virginianus*) on Agricultural Land in Wisconsin, **Scott Craven** and **Frank Haberland**

Seasonal Movements and Habitat Use By White-Tailed Deer on an Irrigated Agriculture-Grassland Area in Central Wisconsin, **Robert K. Murphy**, **Neil F. Payne**, and **Raymond K. Anderson**

Extent and Control of Deer Depredation to Corn in Illinois, **David A. Westmoreland** and **Alan Woolf**

An Evaluation of a Modified Electric Fence for Controlling Deer Depredation in Orchards, **William F. Porter**

Predictive Equations for Deer Yards in Northern Environments, **Steven J. Weber**

FORTY-FIFTH MIDWEST FISH AND WILDLIFE CONFERENCE

The Sheraton St. Louis Hotel
St. Louis, Missouri
December 4-7, 1983

Plenary Session: Positive Thinking for Fish and Wildlife, Leader, **Thomas S. Baskett**

Introductory Remarks, **Larry R. Gale**

Environmental Issues, The Washington Perspective, **John C. Danforth**, United States Senator

Soil Conservation Programs, The Washington Perspective, **Peter C. Myers**

Conservation in the Post-Watt Era, **Jack Lorenz**

Small Mammals and Predators, Chairman, **Ron Andrews**

Social Status and Survivorship in a Population of Eastern Gray Squirrels, **Douglas S. Allen** and **John D. Harder**
Movements and Habitat Use Patterns of the Franklin's Ground Squirrel in Managed Prairie Habitat, **Jane F. Choromanski-Norris**, **Erik K. Fritzell**, and **Alan B. Sargeant**

Coyote Foraging Ecology in Relation to Social Organization in South Texas, **William F. Andelt**

Demography and Summer Movements of a Free-Ranging Population of Rural Domestic Cats in Illinois, **Richard E. Warner**

Metal Concentrations in Livers of *Peromyscus* and *Blarina* on Surface-Mined Land in Southern Illinois, **James R. Smith** and **Alan Woolf**

Deer and Elk, Chairman, **George Burgoyne**

Mortality Patterns of White-Tailed Deer Fawns in South Central Iowa, **Craig N. Huegel**, **Robert B. Dahlgren**, and **Lee Gladfelter**

White-Tailed Deer Use of Managed Forest Openings in Northern Michigan, **Larry G. Visser**

Elk Movements and Habitat Utilization in Northern Michigan, **James D. Ruhl** and **Jonathan B. Haufler**
Use Versus Availability: Potential Problems for Habitat Preference Analysis, **William F. Porter** and **Kevin E. Church**

A Comparison of the Characteristics and Behaviors of Wisconsin Bowhunters and Gunhunters, **Robert M. Jackson** and **Raymond K. Anderson**

Wildlife Responses to Land-Use Changes, Chairman, **Murray Walton**

Fall Agricultural Tillage Practices and Field Use by Wintering Wildlife in Southeastern Indiana, **John S. Castrale**

Impact of No-Till Farming on Nesting Birds, **Nancy S. Basore**, **Louis B. Best**, **James B. Wooley, Jr.**, and **William B. Rybarczyk**

Rodent Populations and Crop Damage in Minimum Tillage Cornfields, **Richard E. Young** and **William R. Clark**

The Impact of Center Pivot Irrigation System Travelways on Wetland Bird Nesting Success, **Todd L. Peterson**
Waterfowl Habitat Provided by Surface-Mined Lands in Southern Illinois, **William G. O'Leary**

Wetland Habitat Development on Coal Mine Slurry Impoundments, **Scott C. Yaich**, **J. R. Nawrot**, and **Willard D. Klimstra**

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Evolution and Implementation of a Wildlife Plan, **Richard D. McCabe** and **Robert A. Schulz**

Wetland Research and Management, Chairman, **Leigh H. Fredrickson**

An Application of Line-Transect Sampling Methods for Estimating Waterfowl Pair and Brood Densities in Large Marshes, **Jeffery W. Nelson** and **Dave Phillips**
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Long-Term Wetland and Duck Population-Reproductive Trends in Grassland Saskatchewan, **Richard M. Kaminski** and **William G. Leitch**

Impacts of a Large Water Development Project on a Resident Canada Goose Flock, **David Brakhage**, **Thomas S. Baskett**, **Dale D. Humburg**, and **David Graber**

True Metabolizable Energy of Seeds Consumed by Post-Breeding Ducks in Lake Erie Marshes, **Robert D. Hoffman** and **Theodore A. Bookhout**

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Ruffed Grouse Management: State of the Art in the Early
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Ruffed Grouse Restoration in Missouri, **Benjamin W.**
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Ruffed Grouse Population Indices from Iowa, **Terry W.**
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Ruffed Grouse Restoration in Indiana, **Steven E. Backs**
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Ruffed Grouse Symposium, Co-Chairman, **Gordon W. Gullion**
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(Summation) Ruffed Grouse Management - Where Do
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Ruffed Grouse Drumming Log Survey: A Dual Purpose
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Ruffed Grouse Habitat Management in Northern Black
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Nesting and Foraging Behavior of a Woodland Raptor:
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Effects of an 8-Inch Minimum Length Limit on
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Mortality and Growth of Channel Catfish Following
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Survival of Stocked Channel Catfish in Small Ponds,
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The Texas Inland Fisheries Program: An Overview,
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Potential Relationships Between Annual Carp
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Habitat Associations and Movements of Shovelnose
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Shovelnose Sturgeon Movement in the Middle Missouri
River, **James C. Schmulbach,** **Richard E. Moos,** and
Jeffrey J. Shuckman

Spatial Distribution and Size Frequency of Unionid
Mussels in the Shallow Channel Border Areas of Pool
19, Mississippi River, **Richard V. Anderson**

Assessment of Probable Fishery Impacts from
Hydroelectric Development at Lock and Dam No. 26
(Replacement), Mississippi River, **Thomas M. Keevin**
and **Jamie E. Thomerson**

Large Lakes, Chairman, **William W. Taylor**

Yield-per-Recruit Analysis for Yellow Perch from the
Okoboji Lakes, Iowa, **Stephen J. Boe** and **John Nickum**
Changes in Population Characteristics of Yellow Perch
in Indiana Waters of Lake Michigan, 1976-81,
Including Proportional Stock Density, **Thomas S.**
McComish

Forage Fish Biomass Estimates for Western Lake Erie
During Periods of High and Low Levels of Predator
Abundance, **Kenneth M. Muth**

Frequency of Structural Deformities in the Western Lake Erie Walleye Population and Their Impacts on Growth and Mortality, **Ellen K. Pikitch** and **Robert C. Haas**

Symposium: Paddlefish - A Threatened Resource?, Moderator, **Joe G. Dillard**

Life History and Biology of the Paddlefish (*Polyodon spathula*), **Thomas R. Russell**

The Distribution and Abundance of Paddlefish in the United States, **Thomas W. Gengerke**

The Threats to Paddlefish Habitat, **Rollin D. Sparrowe**

The Effects of Habitat Alterations on Paddlefish Sport Fisheries, **Dennis G. Unkenholz**

The Effects of Commercial Fishing on Paddlefish Populations, **C. Michael Alexander** and **Ronald W. Pasch**

An Overview of Current Management Practices for Paddlefish Fisheries, **Al Elser**

The Role of Regulations in Managing Paddlefish Populations, **David L. Combs**

Artificial Propagation as a Management Practice in Maintaining Paddlefish Populations, **Charles E. Hicks** and **Ernest J. Hamilton**

Maintaining and Establishing Paddlefish Populations by Stocking, **Larry K. Graham**

Commercialization of the Paddlefish Resource, **Kenneth J. Semmens** and **William L. Shelton**

Symposium Wrap-Up, **Richard O. Anderson**

Fish Habitat, Chairman, **Charles F. Rabeni**

Application of Habitat Suitability Models for White Crappie, Bluegill, and Largemouth Bass, **David A. Nelson** and **Andrew C. Miller**

Riverine and Lacustrine Habitat Suitability Models for Walleye, **Gerald Mestl** and **John Nickum**

An Interagency Fish and Wildlife Resource Information System in Missouri, **Patrick E. Kelly**, **John P. Graham**, and **David L. Urich**

Zooplankton Dynamics in Waterfowl Management Pools of the Duck Creek Wildlife Area, **Glenn D. Wylie** and **John R. Jones**

Larval Rock Bass Dynamics in a Lotic System, **David C. Dowling** and **William W. Taylor**

The Importance of Woody Structure to Ozark Stream Centrarchids, **Wayne Probst**, **Danny D. McClendon**, **Charles F. Rabeni**, and **David I. Foster**

Fish Preference of Artificial Structures Based on Opening Size and Depth, **Debra A. Ambrow** and **David L. Johnson**

Habitat Modules: A New Fish Management Tool, **Robert R. Knopf**

Culture, Genetics, and Environmental Problems, Chairman, **Michael W. Conlin**

Monosexing Grass Carp by Sex Reversal and Breeding, **William L. Shelton**

Black Bass Cage Culture, **Scott L. Chartier**

A Test of Oxygen Transfer and Gas Super-Saturation Using Large Static Aerators in a Raceway Configuration, **Wayne J. Daley**

Effects of Commercial Dredging on the Habitat and Fishery of the Kansas River, **Stuart C. Leon** and **Frank B. Cross**

Sensitivity of Artificial Substrate and Benthic Samples to Changes in Macroinvertebrate Composition Within a Small Black Hills Stream, **Henry Drewes**, **Timothy Modde**, and **Mark Rumble**

Conservation Genetics of an Endangered Species: *Poeciliopsis occidentalis* in Arizona, **Michael E. Douglas** and **Robert C. Vrijenhoek**

Relative Contribution of Un-Ionized and Ionized Ammonia to the Toxicity of Aqueous Ammonia Solutions, **Robert J. Sheehan** and **William M. Lewis**

FORTY-SIXTH MIDWEST FISH AND WILDLIFE CONFERENCE

**Adams Mark Hotel
Indianapolis, Indiana
December 2-5, 1984**

Plenary Session, Chairman, **James M. Ridenour**

Welcome to Indiana, **Robert D. Orr**, Governor

Pending National Conservation Legislation, The Honorable **Richard L. Lugar**

Wildlife Advances Since the Thirties, **Jay D. Hair**

Fisheries Advances Since the Thirties, **G. C. Radonski**

Game Advances Since the Thirties, **Jack Berryman**

Rivers and Streams, Chairman, **John G. Nickum**

Effects of Daily Flow Fluctuations on Stream Fish Communities, **Mark B. Bain**

Habitat Models for Ozark Stream Centrarchids, **Danny D. McClendon**, **Charles F. Rabeni**, and **David I. Foster**

A New Approach for Determining Instream Flow Requirements in Warmwater Streams: Proportional Analysis, **Ken L. Brunson** and **William G. Layher**

The Fish Community of the Middle Wabash River and River Discharge, **James R. Gammon**

Fishes in the Main Channel and Main Channel Border of Pool 13, Upper Mississippi River, **Douglas L. Stang** and **John G. Nickum**

Winter Habitat Associations of Catfish and Buffalo in Pool 13, Upper Mississippi River, **Douglas L. Stang** and **John G. Nickum**

The Forest Service Wildlife and Fish Habitat Relationships System: An Explanation, **Mit G. Parsons**

Black Hills Fisheries and Riparian Study, **Dick Ford**, **Barry Parrish**, and **Robert Leffert**

Fish Habitat Relationships System: An Evaluation of Integration of Terrestrial and Aquatic Inventory Classifications, **Jerry Edde**

Esocids, Chairman, **Michael P. Dombeck**

Fish Community Responses to Northern Pike Stocking, **Dennis W. Anderson**

An Experimental Assessment of Short-Term Mortality of Tiger Muskellunge due to Stressors Associated with Stocking, **Martha E. Mather**, **Roy A. Stein**, and **Robert F. Carline**

Construction of a Northern Pike Spawning Marsh in Northern Indiana, **William F. Beard** and **Barry Isaacs**

Reservoirs and Lakes, Chairman, **Stuart T. Shipman**

An Assessment of Largemouth Bass Slot Length Limits in Five Kansas Lakes, **Donald W. Gabelhouse, Jr.**

Angler Exploitation of a Low-Density Black Crappie Population, **Jed Pearson**

The Effects of Exploitation on a Founding Population of White Crappie in a New Oklahoma Reservoir, **Mary M. Knapp, O. Eugene Maughan, and Larry G. Talent**

Resource Partitioning Among Centrarchids in a Newly Impounded Reservoir, **Susan L. Mearns, O. Eugene Maughan, and Larry G. Talent**

Classification of Iowa Lakes and Their Fish Standing Stock, **Kay R. Hill**

Trout, Chairman, **Spencer E. Turner**

Recovery, Movement and Habitat Utilization of Spring Stocked Fingerling Brown Trout in Six Northeast Iowa Streams, **Steven A. Marshall and Bruce W. Menzel**

The Effects of Acidity, Calcium and/or Aluminum on Brook Trout Eggs and Fry, **J. B. Hunn, L. Cleveland, and D. R. Buckler**

Winter Fishing in Missouri's Trout Parks: Angler Effort, Success and Program Evaluation, **Ronald D. McCulough, Pamela S. Haverland, and Daniel J. Witter**

Quality Fishing in a Metro Area - Denver's Fisheries Program, **Phil Goebel**

Predator-Prey, Genetics and Sampling, Chairman, **Robert N. Robertson**

Growth of Largemouth Bass Foraging on Bluegills and Minnows as Influenced by Plant Abundance, **Jaci F. Savino and Roy A. Stein**

The Use of Conservation Genetics to Enhance the Evolutionary Potential of Endangered Fish Species, **Michael E. Douglas and Robert C. Vrigenhoek**

Preliminary Tests of the Efficiency of Detonating Cord in Impoundments, **Peter B. Bayley, Douglas J. Austen, and Thomas Skelly**

Early Life History of Fishes, Chairman, **Fred P. Binkowski**

The Early Life History Section/American Fisheries Society: Past, Present and Future, **Robert D. Hoyt**

Some Factors Affecting the Survival and Growth of Larval Sport Fish Under Culture Conditions, **R. J. Sheehan, B. L. Tetzlaff, W. M. Lewis, and R. C. Heidinger**

Investigations of Spotted Bass Spawning and Fry Development in Culture Ponds at Meade Fish Hatchery (1979-84), **Joe Lillie, Jim McAtee, Randy Keller, Dick Unruh, and Kevin Becker**

Reproductive Biology of Gizzard Shad in Melvern Reservoir, Kansas, **David W. Willis**

Stream Larval Fish Data Collected with a Light Trap, **Robert D. Hoyt**

The Effects of Food Availability on Growth of Larval Yellow Perch and Gizzard Shad in a Great Plains Reservoir, **Mark Weisberg**

Diets of Lake Michigan Fish Larvae During Midsummer, **R. D. M. Nash and A. J. Geffen**

The Effects of Low pH and Aluminum on the Early Life Stages of Smallmouth Bass, **Donald A. Kane**

Effect of Heating Rate on Thermal Tolerance of Zebra Fish Larvae, **Lee A. Fuiman**

Perspectives on Entrainment Studies: What Have We Learned?, **D. Jude, F. Tesar, P. Mansfield, and L. Noguchi**

Great Lakes, Chairman, **Daniel W. Coble**

Overwintering Mortality of Lake Whitefish Eggs and Its Potential Role in Observed Variations in Recruitment, **Mark H. Freeberg and William W. Taylor**

A Comparison of Otolith and Scale Age Determinations for Great Lakes Alewives, **R. O'Gorman, H. Barwick, and C. Bowen**

Comparisons of Lake Michigan Bloater Chub Fecundity, 1968-81, **Ronald M. Bruch**

Movement of Yellow Perch Tagged in Indiana Waters of Lake Michigan, 1980-83, **Thomas S. McComish**

Smolting Migrations of Both Wild and Hatchery-Raised Coho and Chinook Salmon in a Tributary of Northern Lake Michigan, **Paul W. Seelbach**

The Occurrence of Piscine Trypanosomiasis in Sculpins from Lake Michigan in the Milwaukee Area, **Steven E. Yeo**

Conservation Law Enforcement and Public Relations, Chairman, Lt. **Dennis Eggers**

Wildlife Criminalistics, **Daniel L. Burgei**

Estimation of Time Since Death in White-Tailed Deer Based on Thigh Temperature, **James M. Kienzler and Wayne A. Fuller**

The Facts of Lead in Broadheads, **Gena L. Harriman**

Sex Identification of Frozen Venison, **Kenneth D. Kerr**

A Field Technique for Identifying the Sex of Dressed Pheasants, **Randy D. Rodgers**

Post Mortem Reaction to Electrical Stimulus in Waterfowl, **Larry G. Rhinehart**

Applications and Use of Sonar in Conservation Law Enforcement, **Glenn Sanders**

Enforcement Problems Associated with Protecting Spawning Lake Sturgeon in Wisconsin, **Kirk H. Beattie**

Conservation Law Enforcement and Public Relations, Chairman, **Donald VanMeter**

Wildlife Law Enforcement: Coming of Age, **John G. Mendoza**

Conservation Officer Training Across the United States and Canada, **Larry D. Closson and Glenda Burke**

Supplementing Traditional Wildlife and Fisheries Law Enforcement with County Wardens, **Kirk H. Beattie**

Covert Investigations in the Midwest, A Five Year History, **Donald L. Hastings**

Law Enforcement Stress, **Larry G. Rhinehart**

Putting It on Paper, **Wayne van Zwoll**

A Comparison of Bowhunting Regulations in the Midwest, **Kirk H. Beattie**

The Effects of Sportsman's Clubs and Hunting Groups on Hunter Attitudes and Behaviors, **Robert M. Jackson**

Big Game and Forest Wildlife, Chairman, **Harmon P. Weeks, Jr.**

Interaction of Sludge Fertilization, Elk, Pathogenic Fungi and Aspen, **John H. Hart, Henry Campa, III, and Jonathan B. Haufler**

Eartag-Mounted Transmitter for White-Tailed Deer, **John S.C. Herron, William E. Ishmael, and Orrin J. Rongstad**

Doe-Fawn Behavior in Iowa White-Tailed Deer: Implications for Management Surveys, **Craig N. Huegel, Robert B. Dahlgren, and Lee Gladfelter**

Fawn Mortality on Crab Orchard National Wildlife Refuge in Southern Illinois, **Thomas R. Nelson and Alan Woolf**

Habitat Utilization and Movement of Coyotes on the Dixon Springs Agricultural Center in Southeastern Illinois, **Jeffrey M. Priest and W. D. Klimstra**

Fox Squirrel Population Trends and Regulation in Southern Illinois, 1968-1984, **John L. Koprowski, John L. Roseberry, and W. D. Klimstra**

The Use of Radio-Telemetry in Analyzing a Ruffed Grouse Reintroduction, **Rongald E. Norris** and **Alan Woolf**

Habitat Utilization of Reintroduced Wild Turkeys in Farmland Woodlots of Southern Illinois, **Douglas R. Dufford** and **Alan Woolf**

Wildlife Programs and Conservation Practices, Chairman, Rex Hamilton

Non-Partisan Professional Input on Proposed Harvest Regulations, **Kirk H. Beattie**

The Kansas Urban Wildlife Program, **Joseph M. Schaefer**

The Use of HEP to Assess and Minimize Impacts to Wildlife Habitat, **John M. Bridges**, **William P. Kovolak**, and **T. S. Miller**

Conservation Tillage Benefits Agriculture and Wildlife, **William H. Reichenbach** and **Joe R. Peden**

Rodents in Conventional and Reduced Tillage Corn and Soybean Fields: Population Levels, Food Habits, and Impacts of Herbicides, **John S. Castrale**, **Richard T. Speer**, **John O. Whitaker, Jr.**, **Denise Benson**, and **Claude D. Baker**

Small Mammals in No-Tillage Corn Fields, **Kent E. Holm** and **Ron J. Johnson**

SCS Plant Materials for Wildlife and Erosion Control, **J. D. McCall** and **Dorian Carroll**

Missouri's Interagency Private Lands Habitat Development Program, **Edward A. Gaskins**, **John P. Graham**, **David L. Ulrich**, and **Robert D. Miller**

Interagency Resource Management Programs, Harlan County Lake, Nebraska, **Richard Lenning** and **William L. Baxter**

Indiana's Classified Wildlife Habitat Program, **David Howel**, **Donald Buckland**, and **Roy Grimes**

Highway Right-of-Way Wildlife Planting Use by Birds and Mammals, **Gerald L. Roach** and **Ralph D. Kirkpatrick**

Furbearers, Upland and Non-Game, Chairman, Randy Showalter

Evaluation of River Otter Reintroductions in Missouri, **David W. Erickson** and **Charles R. McCullough**

Relationship of Population Abundance and Scent-Station Indices for Raccoons, **Paul L. Leberg** and **Michael L. Kennedy**

Raccoon Movement and Habitat Use During the Harvest Season in Southwestern Iowa, **Thomas F. Glueck**, **William R. Clark**, and **Ronald D. Andrews**

Parasitism Related to Summer Condition of Cottontails in Southern Illinois, **Dwayne Lepitzki** and **Alan Woolf**

Cottontail Rabbit Habitat Selection in Central Ohio, **Robert C. Boyd** and **John J. Henry**

Daytime Microenvironments Used by Cottontail Rabbits in Central Pennsylvania, **Donald P. Althoff** and **Gerald L. Storm**

Mourning Dove and Bobwhite Quail Winter Energetics on Five Seed Diets in Northeast Kansas, **Theresa W. Shuman** and **Robert J. Robel**

Using LANDSAT Imagery to Assess Potential Pheasant Habitat in Missouri, **Timothy L. Haithcoat**, **William H. Elder**, **Gregory T. Koeln**, and **Diana L. Gary**

Seasonal Food Habits of Eastern Meadowlarks in Northcentral Oklahoma, **Michael R. Kemmerer** and **Larry G. Talent**

Response of Pine and Meadow Vole Populations to Habitat Manipulation in Apple Orchards, **Donna M. Bruns Stockrahm**, **John D. Harder**, and **Jay B. McAninch**

House Mouse Populations in Insulation, **Daryl D. Fisher** and **Robert M. Timm**

Wetlands Wildlife, Chairman, Russell R. Hyer

Species-Area Relationships and the Management of Iowa Marsh Birds, **M. W. Brown** and **J. J. Dinsmore**

Survival and Harvest Rates of Muskrats on Pool 9, Upper Mississippi River, **William R. Clark**

Kosciusko County, Indiana: Public, Private and Corporate Interests Pulling Together for Wetland Protection, **Nancy J. Gloman**

Native Hay Production in Seasonal Prairie Wetlands: Potential for Multiple-Use Management, **Hilary A. Neckles**

Habitat Use by Spring Migratory Mallards in Central Iowa, **Theodore G. LaGrange** and **James J. Dinsmore**

Fall Food Habits of Mallards in Illinois, **Stephen P. Havera** and **G. Alan Perkins**

Fall-Winter Foods of Canada Geese in Swan Lake Zone, Missouri, **Diane Roth Eggeman**, **Dale D. Humburg**, **David Graber**, and **Leroy J. Korschgen**

Movements of Canada Geese Associated with Rend Lake, Illinois, **Charles R. Paine**, **Thomas C. Tacha**, and **James W. Spitzkeit**

Subspecific Composition of the Mississippi Valley Population of Canada Geese Wintering in Southern Illinois, **James W. Spitzkeit**, **Thomas C. Tacha**, and **Charles R. Paine**

FORTY-SEVENTH MIDWEST FISH AND WILDLIFE CONFERENCE

**Grand Plaza Hotel
Grand Rapids, Michigan
December 15-18, 1985**

Plenary Session, R. Ben Peyton, Chairperson

Natural Resource Challenges, The Office of the Honorable **James J. Blanchard**

Accepting the Challenges, **Ronald Skoog**

Natural Resources: The National Perspective, **M.L. Petoskey**

The Impact of Fisheries and Wildlife Management Decisions on People, **Robert Jackson**

The Role of Public Characteristics and Preferences in Management, **Bev Driver**

Influencing Public Behavior and Attitudes Towards Fisheries and Wildlife Issues, **Jeffrey Smoller**

Waterfowl, Harold H. Prince, Chairperson

Evaluation of Waterfowl Recruitment at Union Slough National Wildlife Refuge, Iowa, **Joseph P. Fleskes** and **Erwin E. Klaas**

Importance of Nesting Cavities and Brood Habitat to Wood Duck Production on Muscatatuck National Wildlife Refuge, **Joseph R. Robb** and **Theodore A. Bookhout**

Use and Significance of Wood Duck Nest Houses in Wisconsin, **Gregory J. Soulliere**

The Foraging Efficiency of Canvasbacks Searching for Wildcelery Tubers, **John Y. Takekawa, Carl E. Korschgen, and Erwin E. Klaas**

Foods of Diving Ducks Wintering Inland in South Carolina, **Richard T. Hoppe, Loren M. Smith, and David B. Wester**

Effects of Winter Diet Restriction on Reproductive Performance of Captive Mallards, **Larry D. Vangilder**
Management and Biomass Production of Moist-Soil Food Plants for Waterfowl, **James R. Kelley, Jr., Donald F. McKenzie, and James C. Ware**

The Mechanics of Wetland Restoration, **Jim L. Piehl**

Wildlife Techniques and Management, **Theodore A. Bookhout**, Chairperson

Steady State Maximum Sustained Yield Models for the Bobwhite, **Yosef Cohen**

Spring Decoy Trapping of Wood Ducks in Northeastern Illinois, **Peter F. David and Orrin J. Rongstad**

Effects of Nest Disturbance on Estimates of Mourning Dove Production and Its Relationship to Nest-Site Features, **David Westmoreland and Louis B. Best**

Electric Predator Barrier Fences, **Anthony J. Rondeau**
Use of Geographic Information Systems in Wildlife Management and Planning, **Thomas W. Seamans and Thomas W. Townsend**

Use of Geographic Information Systems in Wildlife Management and Planning, **Deborah C. Southworth**
Habitat Development on Private Land in Indiana, **Roy Grimes, Joe Scheidler, Don Buckland, and Ed Guljas**

Forest Wildlife, **Oliver Torgerson**, Chairperson

An Application of the Habitat Evaluation Procedures (HEP) in Evaluating Forest Drainage and Stand Conversion in Michigan, **Linda Ebel Thomasma and David D. Reed**

Sludge-Borne Metals in Wildlife Food Chains from Recycling Sludges on Forested Lands, **David K. Woodyard, Jonathan B. Haufler, and Henry Campa, III**

Prescribed Burning for Wildlife in Northwestern Minnesota, **Bill Berg**

Responses of Songbirds and Small Mammals to Whole Tree Harvesting of Aspen, **Laura Eaton and Jonathan B. Haufler**

Structural Components of Ruffed Grouse Habitat in Missouri, **Eric W. Kurzejeski**

Removal and Replacement of Female Spruce Grouse, **N.M. Burgess and J.F. Bendell**

Dynamics of an Increasing Lynx Population with Emphasis on Trapping Mortality and Forest Type, **Norman W.S. Quinn and John E. Thompson**

Effects of Deer and Elk on Aspen Regeneration in Michigan, **Henry Campa, III, and Jonathan B. Haufler**

Forest Wildlife, **John Stuht**, Chairperson

Evaluation of Forest Opening Management Practices in the Shawnee National Forest, **Jesse L. Overcash and John L. Roseberry**

Bedsite Selection by White-Tailed Deer Fawns, **Craig N. Huegel, Robert B. Dahlgren, and H. Lee Gladfelter**
Factors Determining Range Limitation of Snowshoe Hares, **John J. Huff and Lloyd B. Keith**

Winter Bioenergetics of Wild Turkeys in Michigan's Northern Lower Peninsula, **Brian T. Gray and Harold H. Prince**

Evaluation of Eastern Wild Turkey Reintroductions into Southern Michigan, **Glenn Y. Belyea**

Habitat Selection and Movements of Wild Turkeys Following Reintroduction in Southern Michigan, **Alan G. Grenon and Dale L. Rabe**

A Wild Turkey Habitat Model Utilizing the Michigan Resource Information System, **Michael L. Donovan, Dale L. Rabe, and Charles E. Olson, Jr.**

Response of Birds to Logging and Wind Damage in a Mixed Species Rookery, **John L. Schladweiler**

Nongame Symposium, **Richard Clawson**, Chairperson

An Integrated Approach to Nongame Management, **James M. Sweeney and Carrol L. Henderson**

Ecological Principles for Wildlife Management, **Stanley Temple**

Fiscal Constraints to Nongame Programs, **William Mangun**

Long-Term Adaptive Trade-Offs in Wildlife Management, **John Faaborg**

Nongame Perspectives in Aquatic Resource Management, **Paul Angermeier, Richard Neves, and James Karr**

Wetland and Riparian Habitats: A Nongame Management Overview, **Leigh Fredrickson and Frederic Reid**

Nongame Management Strategies for Midwest Forests, **Keith Evans and Nancy Tilghman**

Nongame Management in Grassland and Agricultural Ecosystems, **Mark Ryan**

Interfacing with the Public, **Carrol L. Henderson**

The Future: Agency Perspective, **Roger Holmes**

Future Trends in Management of Nongame Wildlife: A Researcher's Viewpoint, **Jared Verner**

Nongame Wildlife, **Carrol L. Henderson**, Chairperson

Common Loon Numbers in Northcentral Minnesota, **Jack J. Mooty and Janet Boe**

Playback Recordings as a Population Census Technique for Soras and Virginia Rails, **Mary L. Rabe and Dale L. Rabe**

Piping Plover Recruitment and Habitat Selection in North Dakota, **Eleanor M. Prindiville and Mark R. Ryan**

Breeding Success and Habitat Use of Least Terns, Snowy Plovers, and American Avocets in Northcentral Oklahoma, **Laura A. Hill and Larry G. Talent**

Recovery and Current Status of the Osprey in Michigan, **Sergej Postupalsky**

Factors Influencing Production of the Common Moorhen (*Gallinula chloropus*) in Michigan, **Eldon D. Greij**

Habitat Use by Small Mammals in Tallgrass Prairie and Adjacent Woodland, **Ellen J. Snyder and Louis Best**

Wildlife: Public Dimensions, **Ed Langenau**, Chairperson

Project ELF: A Case Study in the Resolution of Environmental Conflict, **Thomas St. Clair and Kenneth J. Petrone**

Public Survey Regarding Use and Awareness of Nongame in Kansas, **Michael J. Broadway and Joseph Schaefer**

Citizen Action in Wildlife Management: The Case of the Michigan Wildlife Habitat Foundation, **Charles M. Nelson and Dennis Fijalkowski**

Age at Initial Hunt as a Predictor of Adult Participation by Indiana Deer Hunters, **Jean C. Behrens-Tepner and Joseph T. O'Leary**

Chippewa Deer Hunting Results and Attitudes, **Jonathan H. Gilbert**

Access to Urban Greenspace and Urban Blacks' Attitudes Toward Wildlife, **Charles Nilon**

Fish Feeding Ecology, **Charles R. Liston**, Chairperson

Feeding Rates of White Crappie (*Pomoxis annularis*) in a Kansas Reservoir, **Brad Loveless**

Effects of Manipulating Vegetation-Open Sediment Interface on a Predator-Prey Interaction Between Largemouth Bass and Bluegills, **Kelley Smith**

- Food Quality Limits to Forage Fish Production, **Stephen H. Bowen**
 Search by Sunfish for Zooplankton Prey, **W. John O'Brien, Barbara I. Evans, and Gregory Howick**
- Stream Environments, **Vaughn Paragamian**, Chairperson
 Movements of Brook Trout (*Salvelinus fontinalis*) in a Seasonally Variable River, **Gary E. Wheland, David Gesl, and William W. Taylor**
 Effects of Sediment Addition and Periphyton on Drift of Aquatic Macroinvertebrates, **Laurence Angle and Edward J. Peters**
 Effect of Sand Bedload Sediment on Trout Populations and Mitigation Using Sediment Basins, **Gaylord R. Alexander**
 Interspecific Interactions of *Lepomis cyanellus* and *Semotilus atromaculatus* in Small Streams in Southeastern Nebraska, **Steve L. Schleiger and Edward J. Peters**
- Fisheries and Man, **David Borgeson**, Chairperson
 Effects of a Thermal Discharge on the Distribution of Migrating Salmonids in a Lake Michigan Tributary, **Greg Seegert**
 Evaluation of Pulse Fishing for a Walleye (*Stizostedion vitreum*) in Henderson Lake, Ontario, **David M. Reid and Walter T. Momot**
 Fleet Dynamics: Competition and Information Among British Columbia Salmon Seines, **M. Ledbetter**
 Illegal Harvest: Impact on Recreational Fisheries, **Larry M. Gigliotti**
 Channelization-An Old Enemy Continues to Destroy, **Donald P. Roseboom and Kenneth Russell**
 The Effects of Fishermen Wading Activity on Benthic Macroinvertebrate Drift in a Michigan Trout Stream, **Jacob W. VanHouten**
 Winter Use of Dredge Pits by Shovelnose Sturgeon in the Lower Kansas River, **Stuart C. Leon, Frank B. Cross, and Michael E. Douglas**
 Annual Growth of *Nitellopsis obtusa* (CHARACEAE) in the Detroit River of the Great Lakes, **Susan J. Nichols, Donald W. Schloesser, and Patrick L. Hudson**
- Hatchery Fish - Production and Utilization, **Harry Westers**, Chairperson
 Fish Community Structure in an Oklahoma Turbid Reservoir After the Introduction of Striped Bass X White Bass Hybrid, **Maurice I. Muoneke and O. Eugene Maughan**
 Movement, Behavior, and Habitat Selection of Stocked Fingerling Muskellunge, **David A. Hanson**
 Methods to Eliminate Adhesiveness and Increase Survival of Walleye Eggs, **James P. Baker**
 Artificial Propagation of Coregonines in the Management of the Great Lakes, **Thomas N. Todd**
- Fishery Biology, **Ray Argyle**, Chairperson
 Evidence of Density-Dependent Mortality for Steelhead in Lake Michigan, **Paul Seelbach**
 Population Size, Productivity, and Diet of Several Species of Fish in Pentwater Marsh on Lake Michigan, **Dan C. Brazo and Charles R. Liston**
 Spatial Distribution of Centrarchids in a New Reservoir, **Susan L. Mearns and O. Eugene Maughan**
 Habitat Associations and Management Strategies of Fish Communities in a Turbid Windswept Reservoir in North Central Oklahoma, **Christopher C. Henry and O. Eugene Maughan**
 Dynamics of Reproduction by Hatchery Lake Trout on a Man-Made Spawning Reef, **James W. Peck**
- Larval Fishes, **Donald Szmania**, Chairperson
 Ichthyoplankton Drift in the Upper Missouri River; Potential Impacts of Hydropower Development, **L.E. Holland**
 Distributions of Larval Fishes in Backwater Areas Prior to Side Channel Modifications, **L. J. Erickson-Eastwood and Leslie E. Holland**
 Early Life History of Channel Catfish in Navigation Pool 7 of the Upper Mississippi River, **Michael C. Duval and Leslie E. Holland**
 Suitability of Potential Larval Fish Nursery Areas in the Nearshore Versus Channel of the St. Clair and Detroit Rivers, Michigan, **P. L. Vandermeer and F. J. Margraf**
 A Great Lakes Coastal Wetland as a Spawning and Nursery Ground for Fishes, **S. L. Chubb and C. R. Liston**
 Spawning Characteristics of the Yellow Perch Population in Southern Lake Michigan, **Ronald M. Bruch**
 Behavior and Response Time of Young Lake Sturgeon Relative to Feeding Attractants, **Fred P. Binkowski**
 A Water-Algae-Rotifer-Larval Fish Culture System for Use in Larval Fish Toxicity Studies, **W. N. Bennett, A. S. Brooks, and M. E. Boraas**
- Slot Length Limits, **Jim Schneider**, Chairperson
 Responses of Largemouth Bass and Bluegill in a Kansas Pond to a Slot Length Limit on Bass and Removal of Surplus Small Bass, **Donald W. Gabelhouse, Jr.**
 Evaluation of Minimum and Slot Length Limit Regulations for Largemouth Bass, **David A. Mayers**
 Slot Size Limits as a Walleye Management Tool, **E. R. Armstrong**
 Response of the Lake Sangchris Fishery to Two Concurrent Management Strategies, **D. J. Austen, J. A. Tranquilli, and R. W. Larimore**
- Fisheries and Aquatic Manipulations, **Gaylord Alexander**, Chairperson
 Fremont Lake, a Unique Fishery Management Opportunity in Michigan, **David W. Smith**
 Effects of Cold Water Rotenone Treatment of Tipisco Lake, **Ronald J. Spittler**
 Manual Manipulation of Unbalanced Fish Populations in Northern Michigan, **William H. Bullen**
 Effects of Agricultural Lime on a Turbid Reservoir, **Edward J. Peters**
- Toxic Substances and Fish Biochemistry, **John Giesy**, Chairperson
 The PCB Dilemma in the Kalamazoo River, Michigan, **W. Creal and J. Suppnick**
 Effects of Organic Contaminants in Ova on Walleye Reproduction from the Green Bay Area, **Kenneth E. F. Hokanson and Gregory J. Lien**
 Effects of Acclimation Temperature and PCB Exposure on the Lipid Content and Fatty Acid Composition of Larval Rainbow Trout, **G. E. Noguchi**
 Effects of Contaminants on Toxicity of Lampricides TFM and Bayer 73 to Three Species of Fish, **L. L. Marking and T. D. Bills**
 Isozyme Polymorphism in Great Lakes Yellow Perch Populations, **Charles O. Hatcher and Thomas N. Todd**
 The Comparative Efficacy of Anesthetic Chemicals on Rainbow Trout, **P. A. Gilderhas and L. L. Marking**
- Public Involvement in Regulation Enforcement, **David Purol**, Chairperson
 To RAP or Not to RAP: Values Education Curriculum for Public Schools, **R. Ben Peyton and Glenn R. Dudderar**

The Ohio Sportsman Dilemma Films, a Hunter Education Curriculum Supplement, **Paul D. Schiff**
 An Analysis of Michigan Educators' Attitudes Towards Animals with Implications for Resource Management, **Bill Siemer** and **R. Ben Peyton**
 Advanced Hunter Education - A Tool Educating the Public About Wildlife, **Jean Woodman**
 In Front of the Camera - How to Work Effectively with TV, **David J. Case**
 Write Short, Write Sweet, **Wayne vanZwoll**
 Covert Investigations - Focusing Public Attention on Problem Areas, **Bruce Gustafson**

Public Involvement in Regulation, **David J. Case**, Chairperson
 Film and PSA Presentations:
 The Game Protector, **Susan Fippin**
 Is Every Thing OK?, **James Dabb** and **Bruce Gustafson**

Public Service Announcement (PSA'S) Viewings
 Turn-In-a-Poacher; Landowner Permission: Hunter/Trapper Education, **Susan Fippin**
 Hunter Education; RAP-Report All Poaching, **Bruce Gustafson** and **James Dabb**
 Recreational Boating Safety; Cold Weather Boating; Operation Game Thief; Hunter Ethics, **David J. Case**

FORTY-EIGHTH MIDWEST FISH AND WILDLIFE CONFERENCE

The Red Lion Inn
 Omaha, Nebraska
 December 7-10, 1986

Plenary Session, **Harold Edwards**, Chairperson
 Welcome to Nebraska, **Harold Andersen**
 Agriculture Today and Tomorrow: Impacts on Fish and Wildlife, Presiding, **Roy G. Arnold**
 Opportunities for a Stronger Conservation Dimension in Agricultural Programs, **Larry Jahn**
 Agriculture Today and Tomorrow: A Farmer's Perspective, **Ron Raikes**
 Sharing the Forest: Wildlife and the Implementation of Forest Plans, **Gary Cargill**
 Derailing Delphi: Changing the Predicted Future of Wildlife, **Paul Yambert**

Walleye Population Dynamics and Management, **Steve Serns**, Chairperson

Relationships Between Storage Ratio and Population Density, Natural Recruitment, and Stocking Success of Walleyes in Kansas Reservoirs, **David W. Willis** and **James L. Stephen**
 Assessment of Critical Walleye and Sauger Spawning Habitat in the Upper Mississippi River, **John Pitlo, Jr.**
 Socio-Economic and Biological Impacts of Lake Erie Walleye Management Strategies, **Kenneth M. Muth**
 Cohort Analysis as an Indication of Walleye Year-Class Strength in Escanaba Lake, Wisconsin, 1956-1974, **Steve Serns**
 Population Dynamics and Harvest of Walleye at Lake McConaughy, Nebraska, **Daryl Ellison**
 Stock Traits of Walleye, Implications for Management, **Brian R. Murphy** and **David J. Lee**
 Factors Affecting Walleye Recruitment in Lake Sakakawea, North Dakota, **Emil Berard** and **Greg Power**
 Distribution, Food, and Growth of Young-of-Year Walleye in Clinton Reservoir, Kansas, **Randy Schademann**

Biology and Management of Channel Catfish, **Robert C. Summerfelt**, Chairperson

Approaches to Channel Catfish Management for Sport Fishing, Survey of the 50 States, **Peter Paladino** and **Michael Vanderford**
 Fifteen Year History of Cage Catfish Rearing in Iowa, **Robert Middendorf**, **Russ Gent**, and **Larry Mitzner**
 Evaluation of Flathead Catfish as a Predator in a Minnesota Lake, **Robert A. Davis**
 Status of the Channel Catfish Fishery of Saginaw Bay, Lake Huron, **Raymond J. Haak**

Biology and Management of Channel Catfish, **John S. Ramsey**, Chairperson

Winter Behavior and Habitat Selection of Catfishes in the Mississippi River, **K. S. Lubinski**
 Catfish of the Lower Wisconsin River, **Thomas D. Pellett**
 Determination of Migrational Patterns and Homing Tendencies of Channel Catfish of the Lower Wisconsin River Using Radio Telemetry, **Don Fago**
 Trends in the Commercial Harvest of Channel Catfish from the Mississippi River Bordering Iowa, 1955-1985, **Tom Boland** and **John Pitlo**

Streams and Rivers, **Norm Stucky**, Chairperson

Stabilization of Channelized Streams with Riparian Vegetation, **Don Roseboom**, **Jim Hart**, and **Bill White**
 Effects of Fluctuating Water Levels on Chlorophyll Content and Carbon-14 Uptake of Periphytic Algae in the Missouri River, **Jennifer M. Carr** and **Gary L. Hergenrader**
 Catfish Movements Between the Missouri River and a Tributary Stream, Perche Creek, **H. R. Dames**, **T. G. Coon**, and **J. W. Robinson**
 Investigation Into the Secondary Productivity of an Unchannelized Missouri River Backwater, **Gerald E. Mestl** and **Larry W. Hesse**
 Importance of Riverine Backwaters to Winter Survival of Fishes, **L. R. Bodensteiner** and **W.M. Lewis**
 Rotenone Sampling of River Reaches in Iowa and Management Recommendations, **Vaughn L. Paragamian**
 A Field Test of the U.S. Fish and Wildlife Service Creek Chub Habitat Suitability Index Model, **Don W. Zaroban** and **Edward J. Peters**

Symposium, The Missouri River - The Resources, Their Uses, and Values, **Kevin Szcodronski**, Moderator

Keynote Speaker, **Howard Tanner**
 History Relived on the Mighty MO, **James P. Jackson** and **Norm Stucky**
 Biological Aspects of the Natural River and Its Habitats, **Larry Hesse**, **Carl W. Wolfe**, and **Nancy K. Cole**
 Economic Development - Lewis and Clark to Pick-Sloan, **Kent Keenlyne**
 Physical and Chemical Modifications of the Missouri River, **John Andersen**
 Economics of the River-Related Recreation of the Missouri River Basin States, **David B. Rockland**

Moderator, **Dennis Unkenholz**

- Recreational Use Along the Missouri River in Missouri, **Steven Weithman** and **George G. Fleener**
 Missouri River Basin Water Accounting System, **Donald L. Ohnstad**
 Possibilities and Problems of Operating an Unbalanced Reservoir System to Enhance Fishery Management Programs and Uses Other Than Navigation and Power, **Duane Sveum**
 A Regional Fish and Wildlife Mitigation Program, The Columbia Basin Experience, **Patrick J. Graham**
 Montana's Program for Stream Preservation in the Missouri River Drainage, **Larry Peterman**

Ecology and Management of Lake Fishes, **Don Bonneau**, Chairperson

- Distribution of Fishes in Relation to Resource Availability in a New Reservoir, **Stuart C. Leon**, **Eugene Maughan**, and **Larry G. Talent**
 Manipulation of Bass-Bluegill-Channel Catfish Populations by Summer Aeration, **Kay R. Hill**
 Sport Fish Harvest and Related Economics of an Aerated Winterkill Lake, **R. H. McWilliams**
 Comparative Survival of Three Species of Stocked Esocids, **David H. Wahl** and **Roy A. Stein**

Ecology and Management of Lake Fishes, **Bruce Menzel**, Chairperson

- Intra- and Interspecific Resource Partitioning in Yellow Perch (*Perca flavescens*) and Freshwater Drum (*Aplodinotus grunniens*) in West Lake Okoboji, Iowa, **Curt W. Meyer** and **Bruce W. Menzel**
 Evaluation of a 305 mm Minimum Length Limit for Largemouth Bass on the Fishery in Maskenthine Reservoir, Nebraska, **Jeff Schuckman**
 The Population Biology of Oak Middle Creek Structure 58-B After an Experimental Stocking with Adult Fish: A Three Year Evaluation, **Donn A. Rodekohr**
 Wildlife and Agriculture Considerations for Dredging, **Dennis A. Haag**, **Chester J. Covert**, and **Lee E. Lindeen**

Management and Research of Salmonids, **Jack Wingate**, Chairperson

- Field Performance of Kamloops, Madison, and Donaldson Strains of Rainbow Trout, **Tracy L. Close**, **Steven E. Colin**, and **Richard L. Hassinger**
 Size and Condition of Trout and Salmon from the Wisconsin Waters of Lake Michigan, 1969-84, **Michael J. Hansen**
 Morphological Changes in Great Lakes Ciscoes, The Result of Hybridization?, **Thomas N. Todd** and **Ralph M. Stedman**
 Fish Bacterin Testing in Salmonids, **Matteo A. Cardella** and **Mark E. Eimers**

Walleye Fry Stocking and Recruitment, **Daryl Ellison**, Chairperson

- Evaluation of Walleye Fry and Fingerling Stocking Regimes, Lake Cornelia, Iowa, **Jim Wahl** and **Bill Kalishek**
 Evaluation of Walleye Fry Stocking in Six South Dakota Lakes with Reproducing Walleye Populations, **Douglas R. Hansen**
 Initial 20-30 Day Mortality of Stocked Walleye Fry in East Okoboji and Rathbun Lakes, Iowa, **Larry Mitzner** and **Dick McWilliams**
 The Ecology of Larval Walleyes in Relation to Stocking Programs, **Jack A. Mathias**

Zooplankton, **Brad Loveless**, Chairperson

- The Seasonal Succession of Zooplankton in a Small Midwestern Reservoir, **W. J. O'Brien** and **B. Loveless**
 Relationships Between Zooplankton Biomass, Chlorophyll *a*, and Suspended Sediments in Some Kansas Reservoirs, **Joseph A. Arruda**
 Empirical Prediction of Zooplankton Density and Community Structure, **Gene R. Wilde** and **Larry J. Paulson**
 The Effects of Gizzard Shad on Zooplankton Abundance in Sutherland Reservoir, Nebraska, **Ronald G. King**

Intensive Culture of Channel Catfish, **William M. Lewis**, Chairperson

- Recirculating Systems for Channel Catfish Culture, **George S. Libey**
 Catfish Rearing Density in Raceways, **Ira R. Adelman** and **John G. Woivode**
 Intensive Culture of Channel Catfish Fingerlings in Concrete Raceways at the Little Grassy Hatchery, Carbondale, Illinois, **Alan M. Bradenburg**, **Ricky W. Smith**, and **Wayne E. Lingle**
 Evaluation of Dried Distiller's Grains in Practical Diets for Channel Catfish, **Christopher C. Kohler**

Environment and Genetics, **Steven J. Hamilton**, Chairperson

- Toxicity of Selenium in Agricultural Wastewater on Chinook Salmon, **Steven J. Hamilton**, **Kevin J. Buhl**, and **Neil L. Faerber**
 Effects of a TFM Application and Flood on Invertebrates in the Silver River, **Richard J. Schultdt**
 Culture of Fathead Minnows for Use in Aquatic Toxicity Bioassays, **Jeffrey S. Denny**
 Standard Karyotype of the Walleye *Stizostedion vitreum* (2n=48), Induction of Polyploidy by Heat Shock, **A. P. Baumgartner**, **C. L. Chrisman**, **G. S. Libey**, **D. B. Lucker**, and **B. L. Woolcott**

Instream Flows, **Jim Henriksen**, Chairperson

- Platte River Instream Flow Studies, **Larry Hutchinson**, **Doug Latka**, **Duane Woodward**, **Del Holz**, and **Jim Henriksen**
 Oconto River, Wisconsin, Efforts to Amend an Existing FERC License, **Janet Smith**
 The Relationship Between Habitat Availability and Fish Abundance: A Test of the IFIM, **Charles Gowan**
 Can We Live with Instream Flow Limitations? A Permittee's Perspective, **David J. Christiano**
 Can Minnesota Have Its Corn and Walleye Too?, **Hedia R. Adelsman**

Nongame/Threatened Fish Species, **Richard Stasiak**, Chairperson

- The Effects of Stream Habitat Alterations on the Foraging Behavior of Benthic Fishes, **G. F. Vogt, Jr.**, and **T. G. Coon**
 The Status and Distribution of the Uncommon Fishes of Nebraska, **Teresa I. Hickman**
 Reproductive Behavior and Habitat of the Leopard Darter, *Percina pantherina*, **Paul W. James** and **O. Eugene Maughan**
 Vanishing Plains Fish Fauna, **Frank B. Cross**

Angler Attitudes, Values, and Response to Surveys, **Steven Weithman**, Chairperson

- Fishing Participation and Age of First Experience, Results From the Nationwide Recreation Survey, **Joseph T. O'Leary**, **Jean Behrens-Tepner**, **Francis M. McGuire**, and **F. Dominic Dottavio**

- Intensity and Commitment as Factors in Angler Development, Satisfaction, and Behavior, **Robert M. Jackson** and **Laurence E. Claggett**
- Licensed Angler Perceptions of Kansas Aquatic Resource Status and Agency Fisheries Programs, **Robert Hartmann**
- 1984 Arkansas Sport Fishing Survey: A Mail Survey of Anglers Who Sport Fished in Arkansas, **Ralph Fourt**
- Tennessee's Trout Angler Preference Survey, **Christopery O'Bara**
- Bias in Mail Survey Estimates of Angler Activity, **Gale James**
- A Market Oriented Approach to Fisheries Management, **Edward Mahoney**
- Wetlands: Research, Restoration, Inventory, and Value Assessment, **J. Henry Sather**, Chairperson
- An Update on the Delta Waterfowl and Wetlands Research Station-Ducks Unlimited Canada Marsh Ecology Research Program, **Henry R. Murkin** and **Bruce D. J. Batt**
- The Des Plaines River Wetlands Demonstration Project, **Donald L. Hey**
- The Cheyenne Bottoms Feasibility Study, **Wayne Hoffman** and **Donald G. Huggins**
- Advanced Planning for Wetland Regulation and Conservation; a Case Study: The Rainwater Basin Area in Nebraska, **John G. Yager**, **Michael C. Gilbert**, **Thomas H. Hupf**, **Richard A. Gersib**, and **John F. Bender**
- Moist-Soil Management, Effects on Long-Term Fertility and Productivity, **Donald F. McKenzie**, **Gray S. Henderson**, and **Leigh H. Fredrickson**
- National Wetlands Inventory Status in Relation to South Dakota and the Prairie Pothole Region, **Kristin K. Sletten**, **Peggy E. Year**, **Ross R. Blank-Libra**, and **David E. Nomsen**
- The Illinois Wetlands Program, Dealing with "Opposition" Through Public Participation and Data, **Marvin Hubbell**
- A Wetland Evaluation Methodology for the North-Central United States, **John Kittelson**, **John Wells**, and **Dale Simon**
- Mammals, **Philip S. Gipson**, Chairperson
- The Effect of Elk on Aspen Ecology in Rocky Mountain Ecosystems, **J. H. Hart** and **D. L. Hart**
- The Developmental Characteristics and Hunting Behaviors of Wisconsin Female Deer Hunters, **Robert M. Jackson**
- Selective Harvest Management of Red Deer in Scotland, **R. J. Robel**
- Evaluation of Low-Profile Fences and Commercial Repellents for Controlling Deer Damage in Field Crops, **Scott E. Hygnstrom** and **Scott R. Craven**
- Fox Squirrel Interaction with Electrical Transformers, **J. C. Hamilton**, **R. J. Johnson**, **R. M. Case**, **M. W. Riley**, and **W. W. Stroup**
- Coyote Diets Vary with Season and Successional Changes in Vegetation, **William F. Andelt**, **John G. Kie**, **Frederick F. Knowlton**, and **Kean Cardwell**
- Assessment of Indiana Raccoon Population Status from Annual Road-Kill Survey, **Larry E. Lehman** and **Robert E. Rolley**
- Habitat Utilization and Survival of Swamp Rabbits in Southern Illinois, **Mark S. Kjolhaug** and **Alan Woolf**
- Cranes, **Harvey W. Miller**, Chairperson
- Availability of Roosting Habitat for Sandhill Cranes and Whooping Cranes on the Platte River, Nebraska, 1860 to 1983, **Jerry W. Ziewitz** and **Mark Laustrop**
- Application of Thermal Infrared Imagery to Locate Sandhill Crane Roosting Habitat, **Michael J. Pucherelli**, **Delmar D. Holz**, and **Douglas C. Latka**
- The Roosting Habitat-Flow Relationships for Sandhill Cranes on the Platte River in Central Nebraska, **Douglas C. Latka**, **Laura F. Smith**, **Craig A. Schwieger**, and **Delmar D. Holz**
- Fall Migration of Sandhill Cranes from Upper Michigan, **Janet L. McMillen**, **Richard P. Urbanek**, and **Theodore A. Bookhout**
- Simulation Models for Subpopulations of Mid-Continent Sandhill Cranes, **Thomas C. Tacha**
- Age-Related Pairing and Recruitment of Mid-Continent Sandhill Cranes, **Thomas C. Tacha**, **Donald E. Haley**, and **Paul A. Vohs**
- Procedures for Rocket-Netting Sandhill Cranes on the Breeding Grounds, **Richard P. Urbanek**, **Janet L. McMillen**, and **Theodore A. Bookhout**
- Whooping Cranes, Their Status and Future Plans for Recovery, **James C. Lewis**
- Ducks, **Harold F. Duebbert**, Chairperson
- Remote Acquisition of Foraging Data: Foraging Decisions in Captive Mallards, **A. M. Strong**, **C. W. Shaiffer**, and **K. J. Reinecke**
- Patterns of Nutrient Acquisition in Canvasbacks During Spring Migration, **Jeb A. Barzen**
- Foods of Prairie-Nesting Ruddy Ducks and Redheads, **Marc C. Woodin**
- Incidence and Availability of Lead and Steel Shot in Ducks and Marshes in Eastern Kansas, **Jeffrey C. Furness**, **Daniel W. Mulhern**, and **Robert J. Robel**
- Habitat Use by Migratory Female Mallards in Northwest Missouri, **N. M. Gruenhagen** and **L. H. Fredrickson**
- Interlake Movements of Wintering Waterfowl, **Alan M. Fedynich** and **Eric G. Bolen**
- Mallard Nesting Success in the Canadian Prairie-Parkland, **Raymond J. Greenwood** and **Alan B. Sargeant**
- Fluorescent Pigments for Waterfowl Marking, **Ralph D. Godfrey, Jr.** and **Eric G. Bolen**
- Response to Habitat Management, **Clait E. Braun**, Chairperson
- Influence of Habitat Management Practices on Nongame Small Mammals, **Byron K. Clark**, **Donald W. Kaufman**, **Clennis A. Kaufman**, and **Brenda S. Clark**
- Management of Grassland Birds and Small Mammals, **Elmer J. Finck**
- Small Mammal Response to Changes in Vegetation Structure on Renovated Warm-Season Pastures, **C. Gerry Schimek**
- Prairie Dog Population Growth: Relationships to Population Density, Habitat, and Grazing Management, **Kelly A. Cable** and **Robert M. Timm**
- A Test of Habitat Evaluation Models Using Avian Densities, **Jeremy B. Cable** and **Ronald M. Case**
- Densely Aggregated Least Flycatchers and Their Response to Forest Fragmentation, **Dominick** and **Della Sala**

- American Kestrel Nest Box Use Associated with Interstate Corridors in Iowa, **Ronald D. Andrews** and **Douglas A. Reeves**
- Potential Adverse Impacts of Fall/Winter Drawdowns on Breeding Waterfowl, **William L. Hohman** and **John Kadlec**
- Geese and Other Waterfowl, **Lester D. Flake**, Chairperson
- Gang Brood Formation in Canada Geese, **Jeffrey S. Lawrence** and **Willard D. Klimstra**
- Breeding Distributions of Mississippi Valley Population (MVP) Canada Geese, **Thomas C. Tacha**, **Willard D. Klimstra**, and **Alan Woolf**
- Habitat Use by Canada Geese in Wisconsin and Southern Illinois, **David F. Caithamer**, **Robert J. Gates**, and **Thomas C. Tacha**
- Diet and Condition of Mississippi Valley Population (MVP) Canada Geese in Relation to Agriculture, **Robert J. Gates**, **David F. Caithamer**, and **Thomas C. Tacha**
- Effects of Grazing by Canada Geese on Winter Wheat Yield, **Earl J. Flegler, Jr.**, **Harold H. Prince**, and **Wilbur C. Johnson**
- Vocal Communication of the Giant Canada Goose, A Potential Source of New Tools for the Reduction of Crop Depredation, **Philip Clason Whitford**
- Canada Goose Population Management at the Minneapolis/St. Paul International Airport, **Mari Smaby** and **James A. Cooper**
- The Impact of Irrigation Travelways on Prairie Wetland Aquatic Invertebrates Important to Waterfowl, **Terry J. Birkenstock** and **James A. Cooper**
- Wetlands/Other Habitat Programs, **Leigh H. Frederickson**, Chairperson
- Status and Trends of Bottomland Hardwood Wetlands in Eastern Oklahoma, **Jerry J. Brabander**, **Ronald E. Masters**, and **Robert M. Short**
- Pivots and Potholes, **William B. Bicknell**, **Joseph A. Fontaine**, and **Richard McCabe**
- Restoration of Previously Farmed Wetlands in Central Iowa, **Theodore G. LaGrange** and **James J. Dinsmore**
- Land Use Effects on Prairie Pothole Vegetation, **Kenneth F. Higgins**, **Bryan Schultz**, and **Dave Beck**
- Propagation of Wetland Vegetation on a Riparian Overflow Area, Oklahoma, **Nanette E. Erickson** and **John S. Barclay**
- An Evaluation of Missouri's Private Land Habitat Improvement Programs, **David L. Urich**, **Robert D. Miller**, **John P. Graham**, and **Edward A. Gaskins**
- Midwestern Farmer Support for Nongame Wildlife Conservation, **Jean Behrens-Teppe**, **Joseph T. O'Leary**, and **Martha Avery**
- St. Louis Vegetative Cover Study, **David L. Tylka** and **Elizabeth A. Cook**
- Game Birds, **Ralph W. Dimmick**, Chairperson
- Home Range and Habitat Use of Female Eastern Wild Turkeys on Commercial Forestland in Southeastern Oklahoma, **Terrence G. Bidwell** and **O. Eugene Maughan**
- Wild Turkey Poult Survival in an Agricultural Environment, **Gregory A. Hanson**, **Terry W. Little**, and **James M. Kienzler**
- Cause-Specific Mortality and Survival Rates of Wild Turkey Hens in North Missouri, **Eric W. Kurzejeski** and **Larry D. Vangilder**
- Comparative Post-Release Survival of Bobwhites, **John L. Roseberry**, **Darrell L. Ellsworth**, and **W. D. Klimstra**
- Bobwhite Use of No-Till vs. Conventionally Planted Crops in Western Tennessee, **William G. Minser** and **Ralph W. Dimmick**
- Gut Morphology and Condition of Quail in Burned and Unburned Redberry Juniper, **Anthony P. Leif** and **Loren M. Smith**
- Sex Determination of Aspen Flower Buds and Catkins and Their Nutritional Quality for Ruffed Grouse in Michigan, **Bobbi L. Webber** and **Jonathan B. Haufler**
- Securing a Wildlife Position: An Administrator's Viewpoint, **Wayne C. Faatz**
- Poster Session, **Steve Schainost**, Chairperson
- Iowa's Purebred Muskellunge (*Esox masquinongy*) Fishery, **Jim Christianson**
- On the Efficiency of Stream Drift Samplers for the Quantification of Larval Walleye Recruitment from Small Rivers, **W. G. Franzin** and **S. M. Harbicht**
- Long Pine Creek Rural Clean Water Program: A Case Study in Non-Point Pollution Control in Nebraska, **Terry R. Maret**
- Biomanipulation in Two Nebraska Farm Ponds: Zooplanktivory by Juvenile Black Crappie, **Richard S. Holland** and **Gary L. Hergenrader**
- Crayfish Control, Current Research Thrusts, **Terry D. Bills** and **Jeffrey J. Rach**
- The National Wetlands Inventory Project: Procedures and Products, **Anthony D. Apa**, **Tara L. Wertz**, and **Ronald E. Erickson**
- Post-Breeding Movements and Habitat Use of Hooded Mergansers in Central Wisconsin, **Richard C. Brust** and **Lyle E. Nauman**
- Assessment of Crop Depredation by Beaver Along the Big Sioux River, **Charles D. Dieter** and **Thomas R. McCabe**
- Vegetation-Soil Correlations in the Sandhill and Rainwater Basin Wetlands of Nebraska, **Nanette E. Erickson** and **David M. Leslie, Jr.**
- Wildlife Habitat Enrichment Program: An Interagency Effort, **Thomas D. Fischer**, **Roy D. Nelson**, **Mark G. Oja**, and **Donald L. Schuster**
- Distribution and Impact of Canada Goose Crop Damage in East-Central Wisconsin, **James W. Heinrich** and **Scott R. Craven**
- Potential Revenue for State Nongame Management Programs in the Year 2000, **William R. Mangun**
- Comparison of Aerial and Ground Count Procedures for Estimating White-Tailed Deer Abundance, **Janet L. Sillings** and **Peter A. Jordan**
- First Year Response of Sichuan Pheasants in Captivity, **Pete Squibb**, **Harold H. Prince**, and **Glenn Y. Belyea**
- Environmental Impacts of Agricultural Drainage Ditches in the Missouri Bootheel, **Richard Szlemp** and **Mamie A. Parker**
- Genetic Variation in Two White-Tailed Deer Populations from Wisconsin, **Robert E. Vanderhoof** and **Raymond K. Anderson**
- Wetland Identification and Classification for the Garrison Diversion Unit, North Dakota, Using Remote Sensing Techniques, **James D. Von Loh**, **Richard C. Clark**, **Laura B. Hall**, **Michael J. Purcherelli**, and **Richard McCabe**
- Wetland Wildlife Habitat Opportunities on Coal Mine Slurry Impoundments, **D. B. Warburton**, **J. R. Nawrot**, and **W. D. Klimstra**

FORTY-NINTH MIDWEST FISH AND WILDLIFE CONFERENCE

**Marc Plaza Hotel
Milwaukee, Wisconsin
December 5-9, 1987**

Plenary Session

Formal Opening, **Kent E. Klepinger**
 Welcome to Wisconsin, C. D. **"Buzz" Besadny**
 Aldo Leopold - What Would He Think of Us Now?, **Robert A. McCabe** and **James B. Hale**
 Ecological Approaches to Fish and Wildlife Management, **Hallett J. Harris**, Chairperson
 Aquatic Ecosystems Management
 Managing Predator-Prey Interactions in an Ecosystem Context, **James F. Kitchell**
 Ecosystem Integrity, **Henry A. Reiger**
 Forest Landscape Ecology
 Wildlife Management in the Midwest: Evolving Concepts and Goals, **Forest Stearns**
 Toward the Management Landscape - Forest Wildlife Ecology in Transition, **Jack Ward Thomas**

Workshop: Computer Applications for Fish and Wildlife, Kathryn Converse, Chairperson

Dr. Halo: A Color Graphics Screen Editor for Making Fish and Wildlife Presentations, **James M. Kienzler**
 Application of A Scatter Plot Graphics Program for Data Inspection and Analysis, **James M. Kienzler**
 SAS GRAPH 3: Dimensional and Contour Plots for Spacial Data, **Barry Moser**
 Microcomputer Graphics Software For Biologists, **Timothy L. Lewis**

John R. Cary, Chairperson

Landsat TM Data for Wetland Habitat Inventory and Evaluation, **Barbara A. Vogel** and **John E. Jacobson**
 Geographic Information Systems: One-stop Shopping for Natural Resources Information, **Warren U. Brigham**
 Applications of a GIS for Ruffed Grouse Management, **Laura E. Umland** and **Anthony M. Rinaldi**
 Radio Telemetry Data Collection System Using Loran C, **Kevin P. Kenow**, **Carl E. Korschgen**, and **William Green**
 Map-Based Property Information Management for Field Wildlife Managers, **Steve Kallin**

Population Estimation and Modeling, Michael D. Samuel, Chairperson

Southeastern Software and Message Exchange (SESAME) Bulletin Board, **Wayne L. Cornelius**
 Field Usage of Portable Computers for Recording Fish and Wildlife Data, **Clark S. Winchell** and **Steven D. Covach**
 HEP, HSI, and HMEM Habitat Analysis Programs, **Warren L. Mangus**
 PREFER: A Program for Evaluating Resource Preference, **Douglas H. Johnson** and **Anthony M. Frank**
 SIZETRAN: Analysis of Size-Biased Line Transect Data, **Thomas D. Drummer**
 Analyzing Mortality Rates in Wildlife Radio Telemetry Studies Using MICROMORT, **Dennis M. Heisey**
 JOLLY and JOLLYAGE: Computer Programs for Capture-Recapture Estimation on Open Populations, **James E. Hines**, **Cavell Brownie**, **James D. Nicholls**, and **Kenneth H. Pollack**
 Use of CAPTURE and RELEASE for Analysis of Terrestrial and Aquatic Mark-Recapture Experiments, **Eric Rexstad**

Wildlife Applications, Thomas M. Hauge, Chairperson

Computerized Forest Habitat Analysis for the Mark Twain National Forest, Missouri, **Charles Putnam** and **Rex Ennis**
 An Application of "Expert Systems" Software for Forest Habitat Management, **Richard R. Beuch**, **Christian J. Martin**, and **H. Michael Rauscher**
 A Computer Application for the Management of Wisconsin's Deer Herd, **John J. Huss** and **Gerald A. Bartelt**
 REFMOD, A Model of Refuging Waterfowl, **William R. Clark** and **Erwin E. Klaas**
 Automated Data Collection and Analysis of Wisconsin's Bird Populations, **Stanley A. Temple** and **John R. Cary**

Fisheries Applications, Michael D. Staggs, Chairperson

A Statewide Fisheries Data Base for Management and Research, **Peter B. Bayley**, **Douglas J. Austen**, and **Steven T. Sobaski**
 Fisheries Software: Back Calculation, Age-Length Keys, and Population Structure Indices, **Richard V. Frie**
 A Generalized Model of Fish Growth for Microcomputers, **Barry L. Johnson** and **Steven W. Hewett**
 Creel Census Analysis on the IBMPC Using CREELAN, **Kelly D. Smith** and **James R. Ryckman**
 Software Library of the American Fisheries Society Computer User Section, **Anthony Frank**
 TROUT DYNAMICS: Computer Programs for Simulating Recreational Fishing Regulations, **Richard D. Clark, Jr.**

Education Applications, Lyle E. Nauman, Chairperson

Psychological Considerations in Education Software Design, **Aaron N. Moen**
 Wildlife Software Applications Used in the Classroom, **James W. Hardin**
 Modeling Software for Use in Resource Management, **Thomas G. Coon**
 Customizing Macro Functions for Spreadsheet Analysis of Fisheries and Wildlife Data, **George R. Spangler**

Law Enforcement Applications, James R. March, Chairperson

Use of Microchip Technology for Issuance of Hunting and Fishing Licenses, **Patrick Harkins** and **James R. March**
 Use of Computers by Conservation Wardens in Wisconsin, **John T. Daniel** and **Thomas L. Harelson**

Urban Fish and Wildlife, Laura Spess Jackson and Alan Crossley, Chairpersons; Joseph E. Werner, Moderator

International Urban Wildlife Conservation, **Thomas M. Franklin**
 National Wildlife Federation's Backyard Wildlife Habitat Program, **Craig E. Tufts**
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