

COMPILATION OF AVIAN INFORMATION IN COMPUTERIZED  
DATA STORAGE AND RETRIEVAL SYSTEMS OF THE NORTH-  
CENTRAL AND NORTHEASTERN UNITED STATES

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Abstract.--Characteristics of 18 computerized files of bird information in the North Central and Northeast United States were compiled. Information contained in the files included species occurrence, population and management requirements. No standard framework for data files was identified from the 18 custom built systems. Expected expansion and development of new systems necessitates improved communication to establish standard definitions for identifying, describing and coding data elements.

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#### INTRODUCTION

Many computerized data/information systems are currently in use or being developed to store and retrieve information about non-game species of birds. We were asked to review and summarize systems with data from the North Central and Northeastern part of the United States. Our review is cursory. To provide a brief overview on this subject, we called system managers and others, asking a series of questions about their system. In this report we have categorized information available by species occurrence, populations, and management requirements. We suggest individuals identified in the Appendix be contacted directly for detailed information about systems. We apologize for those systems we inadvertently overlooked. The assistance of Mr. Ralph Alig in preparation of this report is deeply appreciated.

#### CHARACTERIZATION OF DATA STORAGE AND RETRIEVAL SYSTEMS

We identified 18 computerized files which contain some information about birds in the N.E./N.C. part of the United States (Table 1). Approximately one-third of the files contain a

list of all categories of birds (Table 1). Species lists for waterfowl, shorebirds, upland gamebirds, raptors and migratory birds are available from approximately two-thirds of the files. Passerine, non-migratory, and seabird species lists were included in nearly half of the files.

Fifteen files have data at the state level. Less than half of the files have species lists at the regional level. Species lists for political units smaller than the state are available from about one-third of the files. A continental United States list was found in eight files.

Fourteen files contain information about categories of birds associated with various vegetation types. Twelve files produce a link by ecosystem (combinations of vegetation types). Five of the files will provide a species list by the following ecological categories: biome, ecosystem, vegetation type, stage of succession, community structure and specialized habitat such as cavities, snags, riparian, etc.

#### Population Estimates

Fourteen files have population estimates or population trends for some category of birds (Table 2). Population estimates are available in nine information bases. Waterfowl are the most common category of birds for which we have population estimates. No population information is computerized for passerine bird populations except for species that

1

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are threatened or endangered. The State is the most common unit of political organization for population data. Continent-wide population estimates are not available. The biome and ecosystem level of ecological organization for population estimates are represented in the most information bases.

Population trends for gamebirds are best represented; however, two information bases contain trend information for passerine birds. Specialized habitats are the lowest ecological level represented and are present in four of the information bases.

Compared to species occurrence information, population estimates or trends are both difficult and expensive kinds of information to obtain for data systems. The number of systems containing these types of information reflect this fact.

#### Management Requirements

Six files have some population management information defined by protection or harvest quotas (Table 3).

Habitat requirements of bird species can be effectively used in developing habitat management programs and are the most common management type of information available from computerized data storage and retrieval systems (Table 3). Ten of the information bases contain species habitat requirements. Compared to other kinds of information for non-game birds, they are well represented in data systems by information on habitat requirements. Habitat management guidelines are most available for game species; however, management guidelines for non-game bird habitat occur in four files.

"How Much of What They Require is Available?"

Effective evaluation of alternative management practices and mitigation require a measure of habitat tradeoffs. Quantities of available habitat in units of land area are a useful measure in analyzing the consequences of changing habitats. Seven files contain estimates of habitat quantities. Several other wildlife files have defined species habitat requirements which permit a link to data files which contain estimates of habitat quantities.

#### SUMMARY

Computerized files containing information about birds in the Northeastern and North Central United States are varied. The 18 files reviewed were custom built and

programmed; there is no standard framework. The 1979 RPA Wildlife and Fish Assessment data base is the only file which contains information on the habitat requirements of all categories of birds in all states, territories and possessions of the United States.

Increased use of automated systems for storing and retrieving information on sensitive or threatened and endangered species is noticeable. Many data base managers contacted in this study indicated they were hoping to expand their data files or develop new ones. Several individuals interviewed said population estimates or trends will be increasingly computerized. Desired population sizes are another area of noticeable potential expansion and improvement.

Management guidelines seem to be drawn mostly from literature searches and are not frequently stored or accessed in the computer. Habitat requirements are also largely drawn from the literature, but more easily lend themselves to computerized storage and retrieval systems. The reason for the difference is the more general applicability of habitat requirement information and various ecological situations compared to management guideline information.

The emphasis of avian information in automated systems has been placed on game or threatened and endangered species, with non-game categories being less developed. There is a lack of communication between system developers and/or users with similar personnel in other regions or states.

A major recommendation is to form a data standards group for the region and attempt to use standard definitions in collecting information about birds.

Table 1.---Availability (X) of Bird Species lists in the Northeastern and North Central United States from Computerized data storage and retrieval systems

Type of Information	System Acronym or Identification Key																	
	USDI/BBS	USDI/BBC	USDI/CMBD	USDI/RUN WILD EAST	USDI/MBMO	CORNELL/IFIF	CORNELL/Nest	DOD/SWISL	U. of MN.	USDI/M. Dove	USDI/W - Cock	U. of Maine	ME/MIDAS	CAR. MUS./Band	NY/B.W.	NAT. CONS./LCDSF	USDA/WAFA	MD/MAGI
<u>Category of Birds</u>																		
Waterfowl	X	X	X	X	X		X	X					X	X		X	X	X
Shorebirds	X	X	X	X		X	X	X					X	X		X	X	X
Upland Gamebirds				X			X	X	X	X	X		X	X	X	X	X	X
Passerine	X	X		X			X	X	X				X	X		X	X	X
Migratory	X	X	X	X	X	X	X	X					X	X		X	X	X
Nonmigratory	X	X		X		X	X	X					X	X		X	X	X
Raptors	X			X			X	X	X			X	X	X		X	X	X
Seabirds			X				X	X				X	X	X		X	X	X
<u>Political Units</u>																		
Continental U.S. Region	X	X	X			X	X							X		X	X	
State	X	X	X		X	X	X			X	X		X	X		X	X	
County				X	X	X	X						X	X		X	X	X
Township					X	X	X					X	X	X		X	X	X
Other <sup>2/</sup>								X	X		X	X	X		X	X	X	X
<u>Ecological Units</u>																		
Biome	X	X	X		X	X		X					X			X		X
Ecosystem	X	X	X		X	X	X	X				X	X			X	X	X
Vegetation Type	X	X	X	X	X	X	X	X	X	X			X			X	X	X
Seral Stage						X	X	X					X			X	X	X
Community Structure		X	X			X	X	X					X			X		X
Specialized Habitats		X	X	X		X	X	X				X	X			X	X	X

<sup>1/</sup> System includes information about birds classified by the F&WS as threatened or endangered of extinction.

<sup>2/</sup> Includes a research area, physiographic regions, wildlife management units, F&WS-numbered islands, New York's thousand square kilometer inventory blocks, USGS geological quads, and Maryland's state inventory blocks (≈100 acres each)

Table 2.---Availability of estimates (E) and trends (T) in bird populations in northeastern and northcentral United States from computerized data storage and retrieval systems

		System Acronym or Identification Key																			
Type of Information		USDI/BBS	USDI/BBC	USDI/CMBD	USDI/RUN	WILD EAST	USDI/MBMO	CORNELL/IFIF	CORNELL/Nest	DOD/SWIS	U. of Minn.	USDI/M. Dove	USDI/W - Cock	U. of Maine	ME/MIDAS	CAR. MUS./Band	NY/B.N.	NAT. CONS. LCDSF	USDA/WAFA	MD/MAGI	
<u>Category of Birds</u>																					
Waterfowl	T		E		T		E			E					E				E, T	E	
Shorebirds	T		E		T		E			E					E				E, T	E	
Upland Gamebirds					T		E			E	T	T			E					E	
Passerine	T				T		E			E					E					E	
Migratory	T						E			E					E					E	
Nonmigratory	T						E			E					E					E	
Raptors										E				E	E					E	
Seabirds				E						E				E	E					E	
<u>Political Units</u>																					
Continental U.S. Region	T						E														
State	T			E		T	E						T	E	E				E, T	E	
County				E			E							E	E					E	
Township				E			E							E	E					E	
Other <sup>1/</sup>										E	T			E	E		E			E	
<u>Ecological Units</u>																					
Biome	T			E			E			E					E					E	
Ecosystem	T			E			E								E					E	
Vegetation Type	T			E			E					T			E					E	
Seral Stage				E			E								E					E	
Community Structure				E			E								E					E	
Specialized Habitats				E			E							E	E					E	
Non-ecological Units																				E	

<sup>1/</sup>Includes a research area, wildlife management units, physiographic region, F&WS-numbered islands, and New York and Maryland inventory blocks.

Table 3.---Availability of Management information for Bird species in Northeastern and Northcentral United States from computerized data storage and retrieval systems

System Acronym or Identification Key

Management Information	USDI/BBS	USDI/BBC	USDI/CRED	USDI/RON WILD EAST	USDI/MENO	CORNELL/ IETL	CORNELL/ Neat	DOB/SWIS	U. of Minn.	USDI/N. Dove	USDI/N - Cuck	U. of Maine	NE/MIDAS	CAR. MDS./ Band	NY/B.M.	NAT. CONS./ LCDSF	USDA/NAFA	ND/MAGI
<u>Category of Birds</u>																		
<u>Desired Population Size (H, P)<sup>1/</sup></u>																		
Waterfowl				H	H			P					P					
Shorebirds				H				P										
Upland Gamebirds				H				P					P					
Passerine				P	E			P					P					
Migratory								P					P					
Nonmigratory								P					P					
Raptors			E	P				P				P	P					
Seabirds								P				P	P					
<u>Habitat Requirements (F, B, S)<sup>2/</sup></u>																		
Waterfowl	B,S	F,B, S	F,B					F,B, S					F,B, S				F,B, S	F,B, S
Shorebirds	B,S	F,B, S	F,B			B,S		F,B, S					F,B, S				F,B, S	F,B, S
Upland Gamebirds				F,B				F,B, S					F,B, S				F,B, S	F,B, S
Passerine	B,S		F,B					F,B, S					F,B, S				F,B, S	F,B, S
Migratory	B,S	F,B, S				B,S		F,B, S					F,B, S				F,B, S	F,B, S
Nonmigratory	B,S					B,S		F,B, S					F,B, S				F,B, S	F,B, S
Raptors			F,B					F,B, S				F,B, S	F,B, S				F,B, S	F,B, S
Seabirds								F,B, S				F,B, S	F,B, S				F,B, S	F,B, S
<u>Habitat Management Guidelines (F, B, S)<sup>2/</sup></u>																		
Waterfowl	B,S	F,B, S	F,B					F,B, S										
Shorebirds	B,S	F,B, S	F,B					F,B, S										
Upland Gamebirds				F,B				F,B, S										
Passerine	B,S		F,B					F,B, S										
Migratory	B,S	F,B, S						F,B, S										
Nonmigratory	B,S							F,B, S										
Raptors			F,B					F,B, S				B						
Seabirds								F,B, S				B						

<sup>1/</sup>H = Harvest Regulation, P = Protection Regulation.

<sup>2/</sup>F = Feeding, B = Breeding, S = Seasonal.

## APPENDIX

System Acronym or Key	Name of Contact Individual and Address	System Is Available for Transport to Other Computer Centers	Computer Language	Type of Computer and Model	Data Can Be Obtained Through	Fee for data on the system, if any	Input Mode	Output Mode	Location of Computer Facility
USDI/ BBS	Danny Bystrak Migratory Bird and Habitat Lab Patuxent Research Center USDI Fish and Wildlife Service Laurel, MD 20810	no	FORTTRAN	IBM 370-150	Bystrak	none for reasonable requests	cards, tape, disc	printer	Patuxent Research Center USDI Fish and Wildlife Service Laurel, Maryland
USDI/ BBC	Chandler Robbins Patuxent Research Center USDI Fish and Wildlife Service Laurel, MD 20810	no	FORTTRAN	IBM 370-150	Robbins	none for reasonable requests	tape, disc	printer	Patuxent Research Center USDI Fish and Wildlife Service Laurel, Maryland
USDI/ CMBD	Stanley Anderson Patuxent Research Center USDI Fish and Wildlife Service Laurel, MD 20810	yes	FORTTRAN	IBM 360-60	Anderson	none for reasonable requests	inter-active	inter-active	Interior Bldg. Washington, D.C.
USDI/ RUN/WILD EAST	Douglas Gladwin Eastern Energy & Land Use Group Harpers Ferry Center Harpers Ferry, WV 25425	yes	FORTTRAN	Univac 1108	Edgar Pash EELUG Harpers Ferry Ctr Harpers Ferry, WV	tape cost (\$12.00)	cards	inter-active	Arizona State University Tempe, Arizona
USDI/ MBSO	Richard Pospahala Migratory Bird Management Office USDI Fish and Wildlife Service Laurel, MD 20810	yes	COBOL	IBM 370-115	Pospahala	none, for reasonable requests	cards, tape	printer	Patuxent Research Center USDI Fish and Wildlife Service Laurel, Maryland
Cornell/ IPIF	Donald McCrimmon Laboratory of Ornithology Cornell University Ithaca, NY 14850	yes	FORTTRAN	IBM 370-168	McCrimmon or the Cornell Univ. Comp. Ctr.	yes, fee schedule depends on volume used	cards, tape	cards, printer	Cornell Univ. Ithaca, New York
Cornell/ Nest	Donald McCrimmon Laboratory of Ornithology Cornell University Ithaca, NY 14850	yes	FORTTRAN	IBM 370-168	McCrimmon or Cornell Univ. Comp. Ctr.	Same as above	cards	cards, tape, printer	Cornell Univ. Ithaca, New York
DOD/ SWIS	Tony Rekas Corps of Engineers Vicksburg, MS 39180	possibly	FORTTRAN	GE 635	Rekas	none	inter-active	printer inter-active	Corps of Engineers Vicksburg, Mississippi
NY/ B.W.	William Sarbello Biometrics Unit Wildlife Resources Center Bureau of Wildlife DN, of Fish and Wildlife Delmar, NY 12054	no	FORTTRAN and COBOL	Honeywell 60-60	Sarbello	none at present	cards tape disc inter-active	cards tape printer	Empire State Plaza Albany, New York
Nat. Cons./ LCDSF	Helmut Moysenko The Nature Conservancy Suite 800 1800 N. Kent Street Arlington, VA 22209	yes	FORTTRAN	IBM 360-65	Moysenko	yes, at cost	cards tape disc	printer inter-active	American Management Systems Lynn Street Arlington, Virginia
USDA/ WAFA	Thomas Hoekstra Research Wildlife Biologist RM Forest and Range Exp. Stn. USDA Forest Service 3825 E. Mulberry Fort Collins, CO 80526	yes	FORTTRAN	Univac 1100-42	Hoekstra, Forest Service regional staff biologists, or Dennis Schweitzer, USDA FS, WO	none, for reasonable requests	cards	cards tape printer	USDA Fort Collins, Colorado 80524
MD/ MAGI	John Antenucci State Planning Office- Maryland Baltimore, MD 21200	yes, but only under special arrangements	FORTTRAN	Univac 1108	Antenucci	yes, at cost	cards tape disc remote-batch inter-active	printer	Univ. of Maryland College Park, Maryland

## APPENDIX (cont.)

System Acronym or Key	Name of Contact Individual and address	System Is Available for Transport to Other Computer Centers	Computer Language	Type of Computer and Model	Data Can Be Obtained Through	Fee for data on the system, if any	Input Mode	Output Mode	Location of Computer Facility
U. of Minn.	John Tester Dept. of Ecology and Behavioral Sciences or Kathleen Cinnel 317 Zoology Bldg. Univ. of Minnesota St. Paul, MN 55108	yes	FORTRAN	Central Data Corporation Cyberg 74	Cinnel	yes, reimbursement for computer time and personnel costs involved	cards	printer	Univ. of Minnesota St. Paul, Minnesota
USDI/ M. Dove	David Dolten or Robert Shanahan Patuxent Research Center USDI Fish and Wildlife Service Laurel, MD 20810	yes	FORTRAN	IBM 370-115	Dolten	yes, but not specified	tape	printer	Patuxent Research Center Gabrielson Lab. Laurel, Maryland
USDI W-Cock	John Totten Patuxent Research Center USDI Fish and Wildlife Service Laurel, MD 20810	no	COBOL	IBM 370-65	Totten	none	tape	printer	Patuxent Research Center Gabrielson Lab. Laurel, Maryland
U. of Maine	Bucky Owen or Stewart Fer Cooperative Wildlife Research Unit Univ. of Maine Orono, ME 04473	yes	FORTRAN	IBM 360	Owen	none	cards, tape	cards tape disc printer inter-active	University of Maine Orono, Maine
ME/ MIDAS	Arthur Ritter or Frederick Hurley Dept. of Inland Fisheries and Wildlife, Statehouse Off. Bldg. Augusta, ME 04330	yes	FORTRAN	Honeywell 6000	Ritter	yes, cost plus 60%	cards, tape	printer	Statehouse Office Bldg. Augusta, Maine
CAR. MUS./ Band	Mary Clench, Assoc. Curator of Birds or John Sutton, Data Services Carnegie Museum Pittsburgh, PA 15200	yes, but only under special arrangements	FORTRAN	IBM 370	Sutton or Clench	yes, at cost	cards, tape	printer	MACH 4 (Commercial Services System) Cleveland, Ohio