

WILDLIFE SPECIAL INTEREST MEETING

NEEDED: A DOVE FLYWAY CONCEPT

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The mourning dove investigations carried on in Missouri included a banding program. This has produced recovery data that have brought into question the validity of following the present waterfowl flyway concept in the management and administration of the mourning dove.

The flyway concept as outlined by Lincoln has had considerable influence in the administrative procedure in the management of migrating birds in the United States. This concept is based primarily on the banding records of waterfowl, but has also been used as the major political subdivisions by the Fish and Wildlife Service in the regulations of other migratory game birds.

Insofar as the flyways, as conceived and outlined by Lincoln, have adequately outlined the gross migratory division of waterfowl, the concept of managing and administering on a flyway basis is, for the most part, unchallenged.

It has been shown that basically waterfowl move on a generally northwest-southeast axis, and the waterfowl flyway concept reflects this general axis. The administration of other migrating game species has followed in general the flyway concept as originally established in terms of migratory waterfowl. For, as Lincoln (1939) pointed out, "the flyway concept has come to have an administrative significance chiefly in connection with the continental resources of migratory waterfowl," and further, that "it becomes apparent that the flyway concept would conveniently serve for grouping the varied migration routes used by non-game species."

It is because of the divergence of dove migration from the broad administrative flyway concept in the central portion of the United States that these data on the migration of doves in the mid-continental region are herewith presented, with the proposal that a re-evaluation of the flyway concept as is related to management and administration of mourning doves is in order.

SOURCE OF DATA

The source of the data from states other than Missouri's is presented through the courtesy of Mr. Harold Peters, U. S. Fish and Wildlife Service, who made the banding data from his files available to me. All of the following data are from original dove-banding records of the Bird-Banding Office, Laurel, Maryland, and are complete from 1920 to March 31, 1953.

SCOPE OF THIS PAPER

At the present time, doves are administered on the basis of the boundaries of the Central and Mississippi flyways — the dividing line being between the states of North Dakota and Minnesota; Nebraska and Iowa; Kansas and Missouri; Oklahoma and Arkansas; and Texas and Louisiana.

The recoveries of doves banded in the states bordering the present division between the Central and Mississippi waterfowl flyways were plotted to test the validity of the flyway line as dividing the sample of recoveries from those states bordering the line. These recoveries from doves banded in the various states and subsequently recovered out of the state of banding reveal that the vast majority of these doves moved in a southwesterly direction (Table 1). States on the west edge of the Mississippi Flyway consistently sent the major portion of their migration into the Central Flyway (Table 2). The bordering Central Flyway states rarely sent doves east into the Mississippi Flyway. Thus, the northwest-southeast axis of migration, generally true of waterfowl in central United States is not represented in this segment of dove migration.

Table 1. Out-state migration of doves from states on the eastern edge of Central Flyway.

State of banding	No. recovered in states east of Mississippi River			No. recovered in states west of Mississippi River		
	State	No.	Percent	State	No.	Percent
N. Dakota				Kansas	1	6.2
				Louisiana	2	12.5
				Mexico	2	12.5
				Texas	11	68.8
Sub total					16	100.0
S. Dakota				Arkansas	1	6.7
				Oklahoma	1	6.7
				Texas	13	86.6
Sub total					15	100.0
Nebraska				Louisiana	1	7.1
				Oklahoma	1	7.1
				New Mexico	1	7.1
				Mexico	5	35.7
				Texas	6	42.9
Sub total					14	100.0
Kansas				Colorado	1	9.1
				Mexico	4	36.4
				Texas	6	54.5
Sub total					11	100.0
Oklahoma	Alabama	1	8.3	Kansas	1	8.3
				Mexico	3	25.0
				Texas	7	58.3
Sub total		1	8.3		11	91.6
Texas	Alabama	1	4.8	Louisiana	1	4.8
	Florida	1	4.8	Central America	3	14.3
				Mexico	15	71.4
Sub total		2	9.6		19	90.5
Total		3	3.4		85	96.6

Table 2. Out-state migration of doves from states on the western edge of Mississippi Flyway.

State of banding	No. recovered in states east of Mississippi River			No. recovered in states west of Mississippi River		
	State	No.	Percent	State	No.	Percent
Minnesota				Texas	9	100.0
Iowa				Nebraska	1	3.2
				Louisiana	1	3.2
				Oklahoma	3	9.6
				Mexico	7	22.6
				Texas	19	61.3
Sub total					31	100.0
Missouri	Georgia	1	3.7	Kansas	1	3.7
	Florida	2	7.4	Louisiana	2	7.4
	Illinois	2	7.4	Oklahoma	2	7.4
				Central America	2	7.4
				Mexico	4	14.8
				Texas	11	40.7
Sub total		5	18.5		22	81.4
Arkansas	Alabama	1	3.8	Missouri	1	3.8
	Florida	1	3.8	Iowa	1	3.8
	Illinois	2	7.7	Louisiana	2	7.7
	Mississippi	2	7.7	Mexico	2	7.7
				Texas	14	53.8
Sub total		6	23.0		20	76.8
Louisiana	Alabama	1	3.0	Missouri	1	3.0
	Georgia	1	3.0	Texas	24	72.7
	Illinois	1	3.0			
	Indiana	1	3.0			
	Mississippi	1	3.0			
	Tennessee	1	3.0			
	Florida	2	6.1			
Sub total		8	24.1		25	75.7
Total		19	15.1		107	84.9

The major portion of the dove recoveries from states bordering both sides of the present division between the Central and Mississippi flyways occur west of the Mississippi River, as follows: States in Central Flyway: North Dakota, 100%; South Dakota, 100%; Nebraska, 100%; Oklahoma, 92%; Texas, 100%; Missouri, 80%; Arkansas, 77%; Louisiana, 76%.

In totaling all out-state recoveries from the above-named states bordering the present division between the Mississippi and Central flyways, it was found that 191 out of the 213 recoveries, or 90 percent, were from west of the Mississippi River; while 22, or 10 percent, were from states east of the Mississippi River.

DOVE MIGRATION FROM WISCONSIN AND ILLINOIS

Moving east, we begin to observe a division in the migratory pattern, as exhibited by recoveries from doves banded in Wisconsin and Illinois. These two states form a division line between states which exhibit predominantly a southwesterly migration and states exhibiting a southeasterly migrational pattern (Table 3).

Table 3. Out-state migration of doves from Wisconsin and Illinois.

State of banding	No. recovered in states east of Mississippi River			No. recovered in states west of Mississippi River		
	State	No.	Percent	State	No.	Percent
Wisconsin	Illinois	1	2.3	Missouri	1	2.3
	Pennsylvania	1	2.3	Oklahoma	1	2.3
	Cuba	1	2.3	Mexico	3	7.0
	S. Carolina	2	4.6	Louisiana	5	11.6
	Alabama	4	9.3	Texas	10	23.3
	Georgia	6	14.0			
	Florida	8	18.6			
Sub total		23	53.4		20	46.5
Illinois	Tennessee	2	3.2	Iowa	1	1.6
	Alabama	3	4.8	Arkansas	4	6.5
	Florida	10	16.1	Louisiana	11	17.7
	Georgia	17	27.4	Texas	14	22.6
Sub total		32	51.5		30	48.4
Total		55	52.4		50	47.6

An almost even distribution to the southwest and southeast was seen in recoveries from Wisconsin and Illinois. Wisconsin recoveries occurred with 54 percent east of the Mississippi River, and 46 percent west. Illinois sent 52 percent east of the Mississippi, and 48 percent west. Of these, only Illinois is directly affected from a regulatory standpoint, since Illinois has a regular open dove season.

The remaining northern states in the Mississippi Flyway, all located east of the Mississippi River, show a predominantly southeasterly migrational pattern (Table 4.)

From the foregoing it has been shown that, although the states of Minnesota, Iowa, Missouri, Arkansas, and Louisiana fall within the limits of the present Mississippi waterfowl flyway, their dove migration, as exhibited by band returns, indicates for the most part a southwesterly pattern, crossing the line between the Mississippi and Central flyways. Wisconsin and Illinois band recoveries reveal an almost 50-50 division between southeast and southwest migration; while the remaining states of the Mississippi Flyway exhibit a strong southeasterly pattern of migration.

DISCUSSION

It is both surprising and distressing that so few band returns are to be had from mourning doves. Further, it may be pointed out that the flyway concept as

Table 4. Out-state migration of doves from states in eastern part of Mississippi Flyway.

State of banding	No. recovered in states east of Mississippi River			No. recovered in states west of Mississippi River		
	State	No.	Percent	State	No.	Percent
Michigan	Illinois	1	1.1	Louisiana	10	10.6
	Kentucky	1	1.1	Texas	10	10.6
	Indiana	2	2.1			
	Tennessee	2	2.1			
	S. Carolina	3	3.2			
	Mississippi	4	4.3			
	N. Carolina	6	6.4			
	Alabama	11	11.7			
	Florida	20	21.3			
	Georgia	24	25.5			
Sub total		74	78.8		20	21.2
Indiana	Michigan	1	2.0	Arkansas	1	2.0
	S. Carolina	1	2.0	Mexico	1	2.0
	Mississippi	1	2.0	Louisiana	6	12.2
	N. Carolina	2	4.1	Texas	7	14.3
	Illinois	2	4.1			
	Alabama	7	14.3			
	Georgia	8	16.3			
	Florida	12	24.5			
	Sub total		34	69.3		15
Ohio	Indiana	1	1.1	Arizona	1	1.1
	Michigan	1	1.1	Mexico	3	3.4
	Tennessee	1	1.1	Texas	6	6.8
	Mississippi	2	2.3	Louisiana	10	11.4
	N. Carolina	3	3.4			
	S. Carolina	6	6.8			
	Alabama	15	17.0			
	Florida	18	20.5			
	Georgia	21	23.8			
Sub total		68	77.1		20	22.7
Tennessee	Alabama	1	9.1	Texas	1	9.1
	Kentucky	1	9.1			
	Georgia	2	18.2			
	Florida	3	27.3			
	Mississippi	3	27.3			
Sub total		10	91.0		1	9.1
Kentucky	Illinois	1	8.3	Texas	1	8.3
	Tennessee	2	16.7	Louisiana	2	16.7
	Florida	2	16.7			
	Alabama	4	33.3			
Sub total		9	75.0		3	25.0
Total		195	76.8		59	23.2

established on the basis of waterfowl band recoveries was based on a sample of somewhat larger size. Banding of doves is neither accomplished as readily nor is the percentage of recoveries as great as in waterfowl. Irrespective of the comparatively small size of the sample here presented, a division in the migratory pattern of doves may be noted and additional recoveries in the course of the study have exhibited and undoubtedly will continue to exhibit this same general pattern.

The state of Missouri for several years has observed this southwesterly migrational pattern. McClure (1940), in Iowa, pointed out that: "Birds banded west of the Mississippi River rarely migrate east of the Mississippi." Banded recoveries from Minnesota, Arkansas, and Louisiana, as well as Missouri and Iowa, serve to substantiate this theorem.

Therefore, it becomes obvious that a relatively stable population of doves banded west of the Mississippi River continue to remain west of the Mississippi River, while Wisconsin and Illinois doves migrate both easterly and westerly. Those remaining states east of the Mississippi River, for the most part, migrate into the Southeastern states.

The importance of managing doves by flyways is obvious to biologists. Management, for the most part, is primarily a control of the harvest to equitably distribute the kill, and to set seasons and bag limits in accordance as the individual flyway populations dictate. As pointed out in the U. S. Fish and Wildlife Service publication, Status of Migratory Game Birds, 1948 - 49: The basic reason back of flyway management is of course that the birds of each flyway, regardless of species, represent definite populations.

"These populations, even though they may, in part, use the same breeding and wintering grounds, are of different numerical strengths and are subject to different degrees of hunting pressure. Because of these facts which have been abundantly demonstrated through banding operations, it is sound practice to manage birds of each flyway by regulating therein the legal take by sportsmen. If this were not done, it would be necessary to base regulations on the flyway with the smallest population to the obvious discrimination of sportsmen in the more populous flyways."

This same publication further states that ". . . the biological flyways" do not exactly coincide with the "political flyways." Nevertheless, it is always possible to place an entire state in the flyway that furnishes most of its birds.

On this basis, it would appear that the present waterfowl flyways are inadequate as divisions in the management of doves in the present Mississippi Flyway. It is, therefore, recommended that considerable study of this flyway concept as regards doves is needed, and that a new flyway concept regarding doves as a distinct species be conceived, in order that adequate management of this species be made on the evidence at hand and not on the basis of disassociated species, such as waterfowl.

LITERATURE CITED

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PANEL DISCUSSION — DOVES

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The meeting opened with the presentation of a paper by Howard Wight of Missouri. The title of his talk was, "Needed, A Dove Flyway Concept." The author showed several maps of dove returns of the Midwestern and Central states, and pointed out the routes of doves from these areas. His conclusion was that Missouri should be administered as a separate flyway from the Southeastern states. Discussion from the floor at this point was from Dan Russell of Kentucky, who answered that Wight was only trying to get in the same administrative flyway as Texas to be able to get more satisfactory regulations for his state. Russell pointed out that all of the Southeastern states were aiming at this same objective.

Wight showed and explained a few more slides on a simple method of aging birds by the bursa technique while in the field.

The panel brought out and emphasized the need for more future research data on the mourning dove. Harold Peters suggested more trapping of doves in the Northern states and asked Bill Davis and John Finley if this wasn't possible through the Federal Game Agents in those states. Mr. Davis pointed out that the Game Agents were already making call counts in this endeavor, and thought something could be worked out on the trapping program as well.