UNITED STATES GOVERNMENT

memorandum

DATE: May 12, 1999

REPLY TO
ATTN OF: Migratory Bird Field Coordinator, WHM Office, Memphis, TN

SUBJECT: Population Affiliation of Interior Canada Geese Observed On National Wildlife Refuges In Mississippi Flyway States of the Southeast Region, 1985-96

TO: Refuge Managers (see list below)

The attached report provides estimates of the population affiliation of interior Canada geese neckbanded on the breeding grounds and observed on national wildlife refuges in Mississippi Flyway states of the Southeast Region. We appreciate all of the effort you and your staff have devoted to collecting the data and making it available to this office. A summary of the data you have provided to this office since 1985 is included in the report. We hope you find the information interesting and useful.

If you have any questions, please let us hear from you.

Don Dn

attachment

Refuge Managers:

Holla Bend	Chickasaw	Lake Isom
Cache River	Tennessee	Lower Hatchie
White River	Cross Creeks	Bald Knob
Wapanocca	Wheeler	Cameron Prairie
Big Lake	Yazoo	
Reelfoot	Noxubee	
Hatchie	Lacassine	

cc: Bill Grabill
Pete Jerome
Steve Thompson
Mitch King
Frank Bowers
Dave Heffernan
District Biologists

POPULATION AFFILIATION OF INTERIOR CANADA GEESE OBSERVED ON NATIONAL WILDLIFE REFUGES IN MISSISSIPPI FLYWAY STATES OF THE SOUTHEAST REGION, 1985-96

Don H. Orr

Division of Wildlife and Habitat Management
Refuges and Wildlife
Memphis, Tennessee

May 5, 1999

Background

The distribution of the various populations of Canada geese neckbanded on the breeding grounds and observed during the winter on national wildlife refuges (NWR) is an important management consideration. Hunting season lengths and bag limits may be affected based upon the proportion of a population that occurs on a given NWR. In the Mississippi Flyway four populations of interior Canada geese occur: (1) Tall Grass Prairie (TGPP), (2) Eastern Prairie (EPP), (3) Mississippi Valley (MVP), and (4) Southern James Bay (SJBP). Since 1985, refuge managers, their staffs, and volunteers have spent thousands of hours observing collars on Canada geese and this report summarizes some of the results of their efforts The objectives of this report were:

1. To determine the population affiliation of interior Canada geese neckbanded on the breeding grounds and observed on NWR's during the 1985-96 period.

2. To summarize NWR observation and population data for the 1985-96 period.

Methods

Rusch (1996) identified the range for each Canada goose breeding population as shown in Figure 1. Adult Canada geese captured with young on the breeding grounds are fitted with plastic, orange-colored neckbands with engraved white alpha-numeric codes. Collar codes are then observed and recorded on migration and wintering areas throughout the Mississippi Flyway. Collar observation data were initially submitted to the Wisconsin Cooperative Wildlife Research Unit and later to the Office of Migratory Bird Management in Columbia, Missouri. All observation data for this analysis were obtained from the Wisconsin Cooperative Wildlife Research Unit in January 1999.

Observations of individual Canada geese were weighted based upon the number of estimated geese each neckbanded goose represented in the population. Weighting factors are basically determined by dividing the estimated fall flight of a population by the number of geese with collars. Weighting factors for each population were provided by Dr. Don Rusch and John Wood of the Wisconsin Cooperative Wildlife Research Unit for the 1985-89 and 1990-96 periods, respectively.

Results

This analysis only provides an estimate of the population affiliation for interior geese that occurred on each NWR. Since the number of giant Canada geese present on each refuge is unknown, the number of interior geese is also unknown. On some refuges very few individual neckbanded geese were observed and population affiliation

estimates from these data should be viewed cautiously. Also the weighting factors used were based, in part, on an estimate of populations size and the accuracy of that estimate may significantly affect the importance given to a specific population.

Table 1 shows an estimate for the 1985-96 average weighted proportion of each population that occurred on individual NWR's. Unweighted proportions for each population are also shown for your information, but these data are considered much less accurate. In Arkansas, Canada geese on Holla Bend, Cache River, and White River NWR's were more closely associated with the EPP, while Wapanocca NWR appeared to be about half EPP and half MVP. Big Lake NWR seemed to be more closely associated with MVP.

Reelfoot, Hatchie, and Chickasaw NWR's in west Tennessee and Cross Creeks in middle Tennessee were strongly associated with the MVP. Over half (57%) of the geese observed on Tennessee NWR appeared to be associated with the MVP and 37% with the SJBP.

Wheeler NWR in Alabama was the only NWR where over half (54%) of the population appeared to be associated with the SJBP. About one third of the Wheeler geese seemed to be associated with the MVP.

Observation data for Yazoo NWR in Mississippi indicated about half the geese were associated with the TGPP and one-third EPP. Lacassine NWR in Louisiana appeared to be affiliated with only the TGPP.

There were no observation records for geese neckbanded on the breeding grounds and observed on Lake Isom and Lower Hatchie NWR's in Tennessee, Bald Knob in Arkansas, or Cameron Prairie in Louisiana.

Table 2 shows the annual estimate of population affiliation for each NWR as well as the number of individual collared geese observed and the weighting factors (geese per collar) for each year.

A summary of population peaks and collar observation data is shown for each NWR in Table 3.

Management Recommendations

1. Observation efforts should continue on NWR's as long as collars are being applied to geese on the breeding grounds. Current management plans for each population of Canada geese calls for a strong observation effort.

2. Maintaining the data shown in Table 4 may be of value in analyses where estimating the probability of observing a neckbanded goose on an individual NWR is needed.

Acknowledgments

A special thanks to Dawn James, Office Assistant at the Memphis Wildlife and Habitat Management Office, for compiling the data in this report. We thank all the refuge employees and their volunteers for collecting and reporting the neckband observation and population data.

References

Rusch, D. H., F. D. Caswell, M. M. Gillespie and J. O. Leafloor. 1996. Research contributions to management of Canada geese in the Mississippi Flyway. Trans. No. Am.Wildl. Resour. Conf. 61:437-449.

Figure 1. Breeding ranges of Canada geese of the Tall Grass Prairie Population (TGPP), Eastern Prairie Population (EPP), Mississippi Valley Population (MVP) and Southern James Bay Population (SJBP) (after Rusch 1996)

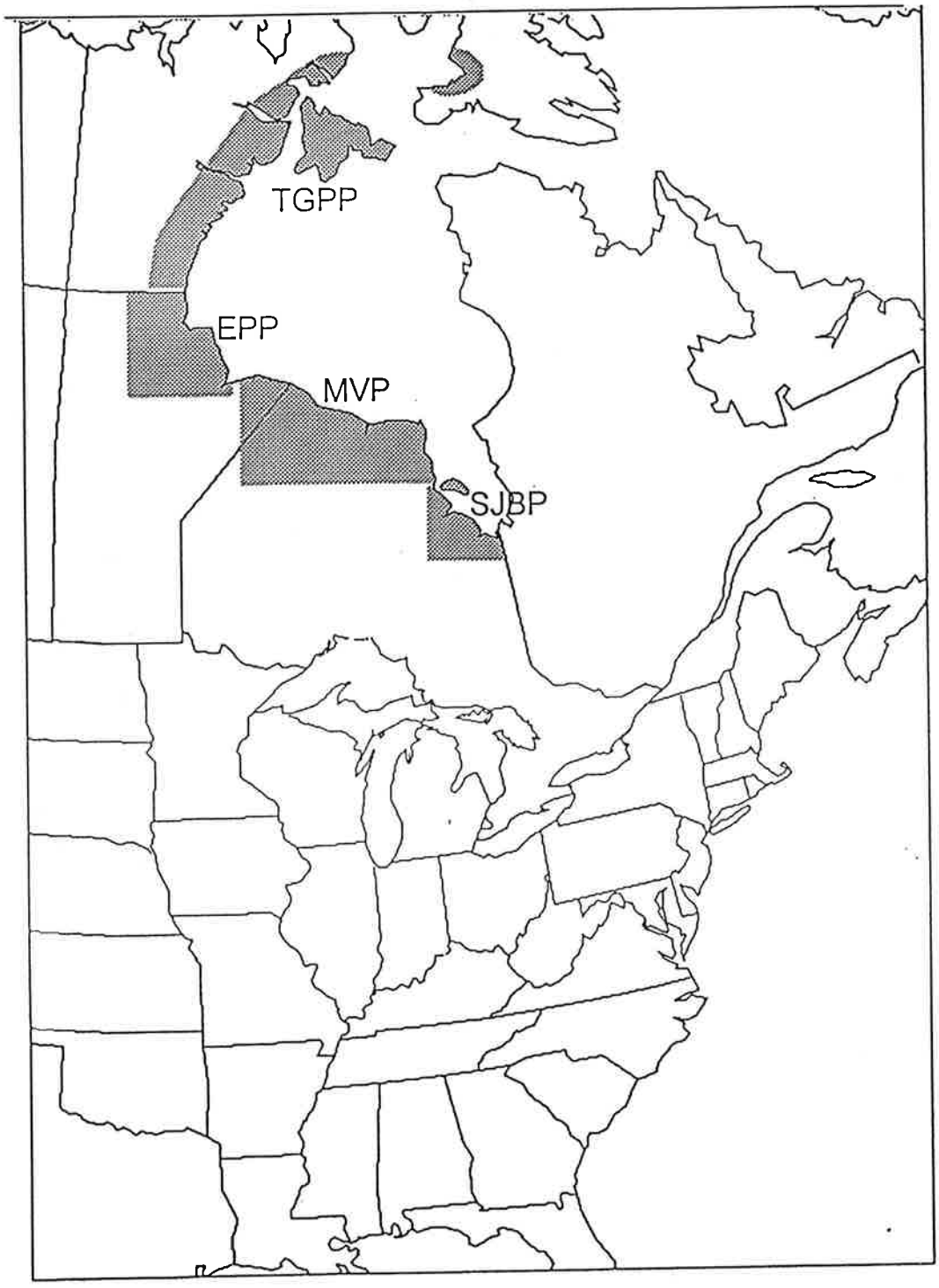

Table 1. Estimated percent population affiliation of individual Canada geese collared on the breeding grounds and observed on southeastern national wildlife refuges in the Mississippi Flyway 1985-96.

WEIGHTED DATA	Population*			
Refuge	TGPP	EPP	MVP	SJBP
Holla Bend, AR	6	84	9	1
Cache River, AR	11	56	33	0
White River, AR	4	62	33	2
Wapanocca, AR	<1	50	49	<1
Big Lake, AR	0	37	62	<1
Reelfoot, TN	<1	22	77	1
Hatchie, TN	0	3	94	3
Chickasaw, TN	0	17	83	0
Tennessee, TN	<1	6	57	37
Cross Creeks, TN	0	7	79	14
Wheeler, AL	0	11	35	54
Yazoo, MS	15	62	23	0
Noxubee, MS	0	100	0	0
Lacassine, LA	100	0	0	0

UNWEIGHTED DATA	Population*			
Refuge	TGPP	EPP	MVP	SJBP
Holla Bend, AR	8	82	5	4
Cache River, AR	25	50	25	0
White River, AR	4	75	16	4
Wapanocca, AR	1	64	31	4
Big Lake, AR	0	44	52	4
Reelfoot, TN	1	29	64	6
Hatchie, TN	0	20	65	15
Chickasaw, TN	0	17	83	0
Tennessee, TN	<1	3	18	78
Cross Creeks, TN	0	8	41	51
Wheeler, AL	0	3	7	90
Yazoo, MS	21	63	16	0
Noxubee, MS	0	100	0	0
Lacassine, LA	100	0	0	0

*TGPP - Tall Grass Prairie Population
EPP - Eastern Prairie Population
MVP - Mississippi Valley Population
SJBP - Southern James Bay Population

2. Estimated population affiliation of individual Canada geese collared on the breeding grounds and observed on national wildlife refuges in Mississippi Flyway states of the east region (1985-96). Percentages were calculated from the estimated number of geese for each population.

05/12/99

	TGPP			EPP			MVP			SJBP			TGPP + EPP				
e/year	collars observed	geese per collar	number of geese	collars observed	geese per collar	number of geese	collars observed	geese per collar	number of geese	collars observed	geese per collar	number of geese	+ MVP + SJBP Total geese	percent TGPP	percent EPP	percent MVP	percent SJBP
Bend, AR																	
-86	0	0	0	14	142	1,988	0	433	0	0	95	0	1,988	0	100	0	0
87	0	0	0	14	73	1,022	0	272	0	3	51	153	1,175	0	87	0	13
88	0	0	0	14	91	1,274	2	291	582	1	66	66	1,922	0	66	30	3
89	1	175	175	12	72	864	5	322	1,610	2	58	116	2,765	6	31	58	4
90	0	0	0	15	171	2,565	0	506	0	0	60	0	2,565	0	100	0	0
91	1	140	140	27	409	11,043	2	420	840	0	37	0	12,023	1	92	7	0
92	0	213	0	20	338	6,760	0	384	0	0	54	0	6,760	0	100	0	0
93	9	177	1,593	9	303	2,727	0	425	0	1	40	40	4,360	37	63	0	1
94	2	154	308	10	175	1,750	0	332	0	0	32	0	2,058	15	85	0	0
al			2,216			29,993			3,032			375	35,616				
rcent			6.2			84.2			8.5			1.1					
River, AR																	
91	1	140	140	1	409	409	1	420	420	0	37	0	969	14	42	43	0
3	0	213	0	1	303	303	0	384	0	0	54	0	303	0	100	0	0
al			140			712			420			0	1,272				
rcent			11.0			56.0			33.0			0.0					
River, AR																	
86	0	0	0	5	142	710	0	433	0	0	95	0	710	0	100	0	0
7	0	0	0	12	73	876	4	272	1,088	0	51	0	1,964	0	45	55	0
8	0	0	0	10	91	910	1	291	291	1	66	66	1,267	0	72	23	5
9	2	175	350	8	72	576	1	322	322	2	58	116	1,364	26	42	24	9
0	0	0	0	5	171	855	3	506	1,518	0	60	0	2,373	0	36	64	0
1	0	140	0	7	409	2,863	2	420	840	0	37	0	3,703	0	77	23	0
2	0	213	0	1	338	338	0	384	0	0	54	0	338	0	100	0	0
3	1	177	177	1	303	303	0	425	0	0	40	0	480	37	63	0	0
4	0	154	0	1	175	175	0	332	0	0	32	0	175	0	100	0	0
l			527			7,606			4,059			182	12,374				
cent			4.3			61.5			32.8			1.5					
occa, AR																	
6	0	0	0	23	142	3,266	11	433	4,763	0	95	0	8,029	0	41	59	0
7	0	0	0	59	73	4,307	2	272	544	1	51	51	4,902	0	88	11	1
8	1	889	889	31	91	2,821	24	291	6,984	1	66	66	10,760	8	26	65	1
9	0	175	0	30	72	2,160	18	322	5,796	3	58	174	8,130	0	27	71	2
0	2	69	138	7	171	1,197	10	506	5,060	3	60	180	6,575	2	18	77	3
1	1	140	140	32	409	13,088	12	420	5,040	1	37	37	18,305	1	71	28	0
2	0	213	0	33	338	11,154	11	384	4,224	0	54	0	15,378	0	73	27	0
3	0	177	0	25	303	7,575	10	425	4,250	0	40	0	11,825	0	64	36	0
4	1	154	154	24	175	4,200	8	332	2,656	0	32	0	7,010	2	60	38	0
5	0	105	0	0	240	0	2	415	830	4	51	204	1,034	0	0	80	20
6	0	104	0	0	267	0	19	412	7,828	3	58	174	8,002	0	0	98	2
*	0	104	0	0	267	0	2	412	824	0	58	0	824	0	0	100	0
			1,321			49,768			48,799			886	100,774				
ent			1.3			49.4			48.4			0.9					

5 264 129 16

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ear	TGPP collars observed	TGPP geese per collar	TGPP number of geese	EPP collars observed	EPP geese per collar	EPP number of geese	MVP collars observed	MVP geese per collar	MVP number of geese	SJBP collars observed	SJBP geese per collar	SJBP number of geese	TGPP + EPP + MVP + SJBP Total geese	percent TGPP	percent EPP	percent MVP	percent SJBP
e, AR																	
	0	0	0	1	73	73	0	272	0	0	51	0	73	0	100	0	0
	0	0	0	2	91	182	0	291	0	0	66	0	182	0	100	0	0
	0	175	0	0	72	0	0	322	0	0	58	0	0	0	0	0	0
	0	0	0	0	171	0	2	506	1,012	0	60	0	1,012	0	0	100	0
	0	140	0	2	409	818	0	420	0	0	37	0	818	0	100	0	0
	0	213	0	5	338	1,690	2	384	768	0	54	0	2,458	0	69	31	0
	0	177	0	1	303	303	1	425	425	0	40	0	728	0	42	58	0
	0	154	0	0	175	0	4	332	1,328	0	32	0	1,328	0	0	100	0
	0	105	0	0	240	0	2	415	830	0	51	0	830	0	0	100	0
	0	104	0	0	267	0	2	412	824	1	58	58	882	0	0	93	7
			0			3,066			5,187			58	8,311				
ent			0.0			36.9			62.4			0.7					
, TN																	
	0	0	0	15	142	2,130	53	433	22,949	3	95	285	25,364	0	8	90	1
	0	0	0	38	73	2,774	51	272	13,872	7	51	357	17,003	0	16	82	2
	0	0	0	27	91	2,457	43	291	12,513	6	66	396	15,366	0	16	81	3
	0	175	0	18	72	1,296	85	322	27,370	9	58	522	29,188	0	4	94	2
	0	0	0	14	171	2,394	16	506	8,096	1	60	60	10,550	0	23	77	1
	4	140	560	42	409	17,178	61	420	25,620	0	37	0	43,358	1	40	59	0
	0	213	0	30	338	10,140	56	384	21,504	4	54	216	31,860	0	32	67	1
	2	177	354	27	303	8,181	39	425	16,575	2	40	80	25,190	1	32	66	0
	0	154	0	26	175	4,550	40	332	13,280	0	32	0	17,830	0	26	74	0
	0	105	0	0	240	0	21	415	8,715	14	51	714	9,429	0	0	92	8
	0	104	0	0	267	0	23	412	9,476	1	58	58	9,534	0	0	99	1
	0	104	0	0	267	0	31	412	12,772	0	58	0	12,772	0	0	100	0
			914			48,970			169,793			2,403	222,080				
nt			0.4			22.1			76.5			1.1					
TN																	
	0	0	0	2	73	146	0	272	0	0	51	0	146	0	100	0	0
	0	0	0	1	91	91	1	291	291	0	66	0	382	0	24	76	0
	0	175	0	1	72	72	3	322	966	1	58	58	1,096	0	7	88	5
	0	0	0	0	171	0	0	506	0	1	60	60	60	0	0	0	100
	0	140	0	0	409	0	6	420	2,520	0	37	0	2,520	0	0	100	0
	0	213	0	0	338	0	1	384	384	0	54	0	384	0	0	100	0
	0	177	0	0	303	0	0	425	0	1	40	40	40	0	0	0	100
	0	154	0	0	175	0	1	332	332	0	32	0	332	0	0	100	0
	0	105	0	0	240	0	1	415	415	0	51	0	415	0	0	100	0
			0			309			4,908			158	5,375				
nt			0.0			5.7			91.3			2.9					

ble 2 (cont'd)

fuge/year	TGPP collars observed	TGPP geese per collar	TGPP number of geese	EPP collars observed	EPP geese per collar	EPP number of geese	MVP collars observed	MVP geese per collar	MVP number of geese	SJBP collars observed	SJBP geese per collar	SJBP number of geese	TGPP + EPP + MVP + SJBP Total geese	percent TGPP	percent EPP	percent MVP	percent SJBP
ickasaw, TN																	
85-86	0	0	0	0	142	0	1	433	433	0	95	0	433	0	0	100	0
86-87	0	0	0	0	73	0	1	272	272	0	51	0	272	0	0	100	0
87-88	0	0	0	0	91	0	1	291	291	0	66	0	291	0	0	100	0
88-89	0	175	0	0	72	0	2	322	644	0	58	0	644	0	0	100	0
91-92	0	213	0	1	338	338	0	384	0	0	54	0	338	0	100	0	0
total			0			338			1,640			0	1,978				
percent			0.0			17.1			82.9			0.0					
nessee, TN																	
85-86	0	0	0	1	142	142	15	433	6,495	54	95	5,130	11,767	0	1	55	44
86-87	0	0	0	3	73	219	10	272	2,720	94	51	4,794	7,733	0	3	35	62
87-88	0	0	0	0	91	0	11	291	3,201	35	66	2,310	5,511	0	0	58	42
88-89	0	175	0	4	72	288	16	322	5,152	128	58	7,424	12,864	0	2	40	58
89-90	0	0	0	3	171	513	16	506	8,096	43	60	2,580	11,189	0	5	72	23
90-91	2	140	280	3	409	1,227	5	420	2,100	10	37	370	3,977	7	31	53	9
91-92	0	213	0	4	338	1,352	10	384	3,840	33	54	1,782	6,974	0	19	55	26
92-93	0	177	0	3	303	909	17	425	7,225	31	40	1,240	9,374	0	10	77	13
93-94	0	154	0	2	175	350	13	332	4,316	29	32	928	5,594	0	6	77	17
94-95	0	105	0	0	240	0	5	415	2,075	45	51	2,295	4,370	0	0	47	53
95-96	0	104	0	0	267	0	4	412	1,648	20	58	1,160	2,808	0	0	59	41
96-97*	0	104	0	0	267	0	1	412	412	6	58	348	760	0	0	54	46
total			280			5,000			47,280			30,361	82,921				
percent			0.3			6.0			57.0			36.6					
ss Creeks, TN																	
85-86	0	0	0	0	142	0	9	433	3,897	2	95	190	4,087	0	0	95	5
6-87	0	0	0	4	73	292	4	272	1,088	5	51	255	1,635	0	18	67	16
7-88	0	0	0	0	91	0	10	291	2,910	1	66	66	2,976	0	0	98	2
8-89	0	175	0	3	72	216	4	322	1,288	10	58	580	2,084	0	10	62	28
9-90	0	0	0	0	171	0	3	506	1,518	16	60	960	2,478	0	0	61	39
0-91	0	140	0	2	409	818	3	420	1,260	2	37	74	2,152	0	38	59	3
1-92	0	213	0	1	338	338	5	384	1,920	2	54	108	2,366	0	14	81	5
2-93	0	177	0	1	303	303	5	425	2,125	5	40	200	2,628	0	12	81	8
3-94	0	154	0	0	175	0	1	332	332	6	32	192	524	0	0	63	37
4-95	0	105	0	0	240	0	3	415	1,245	19	51	969	2,214	0	0	56	44
5-96	0	104	0	0	267	0	7	412	2,884	3	58	174	3,058	0	0	94	6
6-97*	0	104	0	0	267	0	4	412	1,648	0	58	0	1,648	0	0	100	0
otal			0			1,967			22,115			3,768	27,850				
percent			0.0			7.1			79.4			13.5					

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ge/year	TGPP collars observed	TGPP geese per collar	TGPP number of geese	EPP collars observed	EPP geese per collar	EPP number of geese	MVP collars observed	MVP geese per collar	MVP number of geese	SJBP collars observed	SJBP geese per collar	SJBP number of geese	TGPP + EPP + MVP + SJBP Total geese	percent TGPP	percent EPP	percent MVP	percent SJBP
ler, AL																	
5-86	0	0	0	0	142	0	1	433	433	9	95	855	1,288	0	0	34	66
-87	0	0	0	0	73	0	2	272	544	22	51	1,122	1,666	0	0	33	67
-88	0	0	0	1	91	91	3	291	873	19	66	1,254	2,218	0	4	39	57
-89	0	175	0	1	72	72	1	322	322	67	58	3,886	4,280	0	2	8	91
-90	0	0	0	3	171	513	5	506	2,530	38	60	2,280	5,323	0	10	48	43
-91	0	140	0	6	409	2,454	5	420	2,100	20	37	740	5,294	0	46	40	14
-92	0	213	0	3	338	1,014	4	384	1,536	46	54	2,484	5,034	0	20	31	49
-93	0	177	0	0	303	0	4	425	1,700	53	40	2,120	3,820	0	0	45	55
-94	0	154	0	0	175	0	4	332	1,328	53	32	1,696	3,024	0	0	44	56
-95	0	105	0	0	240	0	1	415	415	48	51	2,448	2,863	0	0	14	86
-96	0	104	0	0	267	0	2	412	824	29	58	1,682	2,506	0	0	33	67
-97*	0	104	0	0	267	0	3	412	1,236	15	58	870	2,106	0	0	59	41
tal			0			4,144			13,841			21,437	39,422				
ercent			0.0			10.5			35.1			54.4					
, MS																	
-87	0	0	0	2	73	146	0	272	0	0	51	0	146	0	100	0	0
88	0	0	0	1	91	91	0	291	0	0	66	0	91	0	100	0	0
89	0	175	0	0	72	0	1	322	322	0	58	0	322	0	0	100	0
90	0	0	0	1	171	171	1	506	506	0	60	0	677	0	25	75	0
91	1	140	140	3	409	1,227	0	420	0	0	37	0	1,367	10	90	0	0
92	2	213	426	4	338	1,352	0	384	0	0	54	0	1,778	24	76	0	0
93	1	177	177	0	303	0	0	425	0	0	40	0	177	100	0	0	0
94	0	154	0	1	175	175	1	332	332	0	32	0	507	0	35	65	0
tal			743			3,162			1,160			0	5,065				
ercent			14.7			62.4			22.9			0.0					
ee, MS																	
-87	0	213	0	7	338	2,366	0	384	0	0	54	0	2,366	0	100	0	0
tal			0			2,366			0			0	2,366				
ercent			0.0			100.0			0.0			0.0					
sine, LA																	
88	3	889	2,667	0	91	0	0	291	0	0	66	0	2,667	100	0	0	0
89	14	175	2,450	0	72	0	0	322	0	0	58	0	2,450	100	0	0	0
90	56	69	3,864	0	171	0	0	506	0	0	60	0	3,864	100	0	0	0
91	58	140	8,120	0	409	0	0	420	0	0	37	0	8,120	100	0	0	0
92	48	213	10,224	0	338	0	0	384	0	0	54	0	10,224	100	0	0	0
93	37	177	6,549	0	303	0	0	425	0	0	40	0	6,549	100	0	0	0
94	18	154	2,772	0	175	0	0	332	0	0	32	0	2,772	100	0	0	0
al			36,646			0			0			0	36,646				
rcent			100.0			0.0			0.0			0.0					

a weighting factor for 1996-97 was not available, the 1995-96 factor was utilized.

Table 3. Summary of population and collar observation data collected by NWR's 1985-98.

Location	year	Peak Population	Collars observed	Geese examined	Avg. birds per collar	Hours spent looking
Holla Bend	1985		550	29,600	54	
	1986		76	1,218	16	
	1987	4,500	499	11,961	24	
	1988	8,000	95	21,186	223	42
	1989	11,000	611	49,970	82	70
	1990	10,300	455	137,109	301	246
	1991	13,000	795	120,254	151	370
	1992	12,500	190	29,729	156	140
	1993	4,500	358	47,569	133	227
	1994	5,500	47	30,339	646	75
	1995	6,050	23	13,110	570	89
	1996	6,000	5	25,500	5,100	24
	1997	2,000	0	0	0	0
	1998					
Cache River	1989	180	0	53	0	1
	1990	500	2	300	150	0
	1991					
	1992					
	1993					
	1994	500	0	1,300	0	6
	1995	200	0	475	0	4
	1996	60	0	60	0	15
	1997					
	1998	70	0	455	0	46
White River	1985	10,000	749	26,000	35	
	1986	700	89	1,793	20	
	1987	3,400	286	7,622	27	
	1988	4,000	86	7,010	82	45
	1989	10,000	501	43,727	87	59
	1990	4,000	47	1,983	42	69
	1991	5,000	67	15,794	236	32
	1992	1,500	13	2,809	216	18
	1993	2,500	22	14,285	649	65
	1994	1,400	39	2,787	71	28
	1995	1,200	11	3,091	281	28
	1996	750	8	2,280	285	12
	1997	175	0	571	0	9
	1998	510	1	341	341	7
Wapanocca	1985	25,000	1,255	215,400	172	
	1986	8,000	1,296	49,350	38	
	1987	12,000	486	25,845	53	
	1988	9,000	268	19,300	72	31
	1989	30,000	863	73,335	85	182
	1990	5,000	202	10,650	53	70
	1991	5,000	265	21,900	83	79
	1992	4,000	60	6,565	109	29
	1993	10,000	188	18,802	100	79
	1994	4,000	82	11,900	145	46
	1995	16,000	177	21,050	119	46
	1996	4,000	34	7,455	219	79
	1997	1,000	18	4,850	269	25

able 3 (cont'd)

Location	year	Peak Population	Collars observed	Geese examined	Avg. birds per collar	Hours spent looking
Big Lake	1985	4,500	12	4,000	333	
	1986	800	10	5,100	510	
	1987	800	0	0	0	
	1988	500	1	3,620	3,620	19
	1989	10,000	38	18,219	479	54
	1990	1,000	0	0	0	30
	1991	1,200	0	1,700	0	3
	1992	700	0	5,384	0	13
	1993					
	1994	2,500	16	2,150	134	10
	1995	6,000	17	8,400	494	14
	1996	3,300	17	8,950	526	5
	1997	0	0	0	0	0
	1998	700	2	1,182	591	6
Reelfoot	1985	83,700	1,336	216,300	162	
	1986	55,000	1,039	210,978	203	
	1987	60,001	1,260	286,445	227	
	1988	85,000	1,151	136,620	119	176
	1989	160,000	577	181,450	314	62
	1990	57,502	801	200,810	251	200
	1991	77,500	649	127,050	196	53
	1992	42,125	1,066	407,715	382	86
	1993	70,000	638	146,487	230	223
	1994	39,023	806	316,601	393	66
	1995	80,000	600	197,453	329	54
	1996	35,000	196	43,470	222	37
	1997	7,000	28	9,616	343	3
	1998	20,600	30	17,650	588	6
Hatchie	1985	474	7	2,100	300	
	1986	301	7	692	99	
	1987	975	14	1,250	89	
	1988	1,500	5	1,960	392	3
	1989	15,000	41	7,677	187	8
	1990	800	6	1,500	250	114
	1991	639	3	1,886	629	8
	1992	335	14	2,262	162	30
	1993	3,160	10	2,435	244	43
	1994	298	11	2,700	245	32
	1995	610	3	4,386	1,462	19
	1996	980	5	2,658	532	11
	1997					
	1998					
Chickasaw	1989	5,000	0	0	0	0
	1990	1,000	1	493	493	2
	1991	1,000	8	2,188	274	19
	1992	198	2	340	170	3
	1993	13,000	2	1,541	771	4
	1994	620	0	889	0	22
	1995	1,000	1	110	110	16
	1996	788	0			
	1997	50	0	50	0	0
	1998					

able 3 (cont'd)

Location	year	Peak Population	Collars observed	Geese examined	Avg. birds per collar	Hours spent looking
Tennessee	1985		620	170,800	966	
	1986		866	74,879	405	
	1987	52,390	864	39,270	214	
	1988	70,950	625	75,444	121	116
	1989	101,860	1,163	95,648	82	380
	1990	21,547	182	16,372	344	174
	1991	58,755	1,003	56,148	522	134
	1992	19,189	319	39,812	125	106
	1993	39,844	1,031	76,372	74	152
	1994	23,075	865	52,829	61	242
	1995	29,140	828	67,464	81	188
	1996	18,166	1,153	35,921	31	133
	1997	6,896	207	15,441	75	82
	1998	14,001	137	23,697	173	71
Cross Creeks	1985		250	91,100	364	
	1986		873	77,266	89	
	1987	32,619	558	52,761	95	
	1988	33,735	1,277	70,123	55	223
	1989	73,534	815	35,537	44	73
	1990	19,183	1,204	36,105	30	144
	1991	14,946	1,571	42,047	27	233
	1992	14,639	526	21,453	41	184
	1993	73,155	508	62,047	122	228
	1994	19,406	484	49,958	103	161
	1995	36,620	267	47,767	179	126
	1996	11,242	90	30,582	340	76
	1997	8,877	68	19,634	289	70
	1998	20,334	41	24,642	601	40
Wheeler	1985		172	102,900	598	
	1986		730	60,886	83	
	1987	37,255	387	59,750	154	
	1988	28,000	580	31,060	54	53
	1989	48,203	792	70,813	89	334
	1990	9,000	625	32,883	53	280
	1991	7,300	786	36,249	46	679
	1992	3,000	615	27,286	44	494
	1993	14,500	623	58,313	94	368
	1994	11,000	508	37,625	74	309
	1995	22,022	526	68,207	130	382
	1996	3,500	299	29,790	100	272
	1997	3,650	221	19,198	87	253
	1998	1,550	150	14,010	93	312
Yazoo	1985	3,000	140	12,500	89	
	1986	2,500	33	3,720	113	
	1987	3,000	65	8,123	125	
	1988	1,000	0	2,340	0	6
	1989	6,200	25	6,060	242	19
	1990	500	15	1,910	127	16
	1991	750	35	2,529	72	36
	1992	600	12	3,766	314	70
	1993	344	26	2,327	90	54
	1994	67	3	91	30	10
	1995	20	0	30	0	30
	1996	300	1	433	433	22
	1997	100	0	145		

Table 3 (cont'd)

Location	year	Peak Population	Collars observed	Geese examined	Avg. birds per collar	Hours spent looking
Lacassine	1993	13,666	153	15,580	102	
	1994	7,000	55	9,762	177	68
	1995	600	6	592	99	20
	1996	1,683	6	3,417	570	76
	1997	2,105	5	2,177	435	88
	1998	3,865	4	2,880	720	126
Lake Isom	1992	3,750	50	12,050	241	9
	1993	45,000	32	10,478	327	12
	1994	800	30	2,523	84	3
	1995	2,200	14	5,530	395	3
	1996	1,500	3	1,200	400	3
	1997	600	0	0	0	0
	1998	2,700	0	0	0	0
Lower Hatchie	1985	3,000	2	400	200	
	1986	115	0	0	0	
	1987	8	0	0	0	
	1988	35	0	0	0	0
	1989	20,000	0	0	0	0
	1990	305	0	123	0	5
	1991	20	0	20	0	2
	1992	30	0	30	0	1
	1993	7,900	16	12,657	791	44
	1994	1,200	0	1,129	0	20
	1995	5,000	5	1,532	306	20
	1996	4,166	0	432	0	10
	1997	19	0	0	0	0
	1998					
Bald Knob	1995	25	2	75	38	1
	1996	35	0	35	0	15
C. Prairie	1994	93	5	124	25	
	1995	400	2	803	402	18
	1996	100	0	48	0	15
	1997	15	0	0	0	7
	1998					

Note: where blanks occur no data were available

dho 05/05/99