

**Harvest Opportunities and Hunter Compliance during 2014-2016 Special September Teal Seasons in
Iowa, Michigan and Wisconsin:**

A final report to the U.S. Fish and Wildlife Service and the Mississippi Flyway Council

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Introduction

Blue-winged teal (*Anas discors*) are one of the most abundant ducks in the Mississippi Flyway that in recent years have reached all-time high population indices; similarly, green-winged teal (*Anas crecca*) reached peak abundance in the traditional U.S. Fish and Wildlife Service (USFWS) survey area and were 104% above the long-term average in 2016 (USFWS Waterfowl Status Report, 2016). Due to their early migration chronology, the majority of blue-wings migrate through many states prior to regular duck seasons. The early migration of teal is a primary reason special early teal seasons were adopted by many Mississippi Flyway states; however, since 1969 the production states of Iowa, Michigan, Minnesota, and Wisconsin have been excluded from September teal seasons that were offered to the rest of the flyway. Historically, production and non-production states supported about the same number of duck hunters, but this parity diverged when duck hunting participation in the production states did not respond as favorably as did participation in non-production states when habitat and duck abundance improved in the late-1990s (Fig. 1). Based on Harvest Information Program estimates, duck hunting participation has declined since 2000 (Fig. 1). The reason for these trends are complex and incompletely understood, but we assume continued offering of diverse duck hunting opportunities across the Flyway will be an important component of a strategy to retain and recruit future hunters. For these important reasons and others presented in the Mississippi Flyway's recent recommendations (Appendices A and B), the production states requested opportunities to participate in special early teal seasons several times over the last decade.

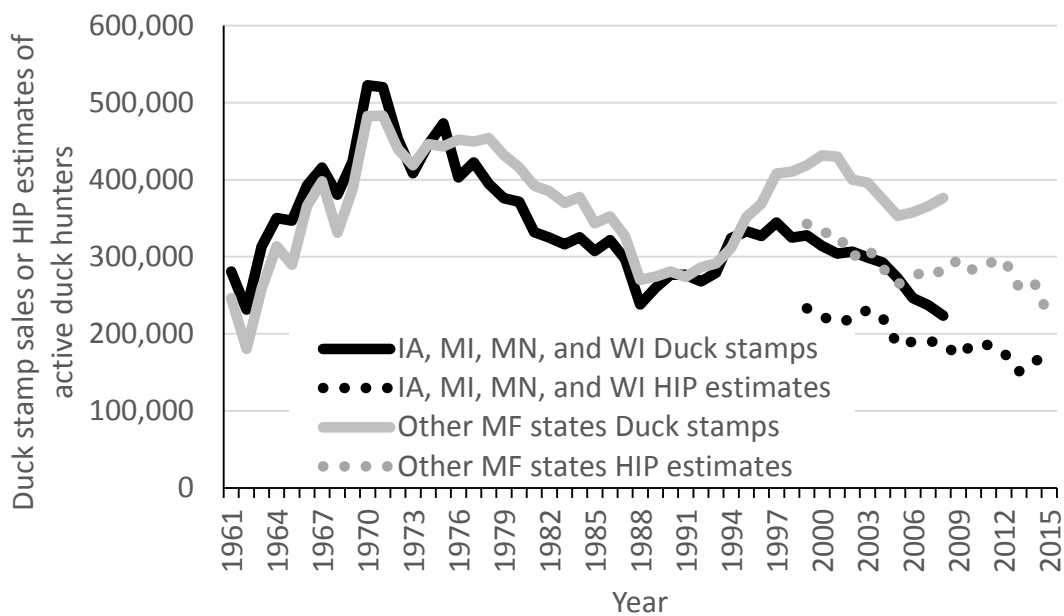


Figure 1. Duck hunting participation in the Mississippi Flyway as indexed by Migratory Bird Hunting and Conservation Stamp (“duck stamp”) sales and Harvest Information Program (HIP) estimates of active duck hunters for “production states” of Iowa, Michigan, Minnesota, and Wisconsin and other “non-production states,” 1961-2015.

There has long been interest from the production states to develop a more equitable distribution of opportunities for early duck hunting. The recent record high continental population levels of teal in conjunction with the release of a harvest assessment documenting additional harvest potential on blue-winged teal provided impetus for expanding September teal seasons (Appendix A). In 2014 the U.S. Fish and Wildlife Service (USFWS) offered the production states of the Mississippi Flyway the opportunity to participate in an experimental special September teal season. Production states opting to participate in the experiment were offered the same season as non-production states and were required to collect data on hunter performance and harvest during the experimental season using methods like those used during the 1960's when production and non-production states held experimental teal seasons.

Methods

Michigan and Wisconsin both held 7 day statewide September teal seasons from September 1-7, 2014-2016. Iowa held 16 day statewide seasons except North and South zones had 9-day seasons in 2016 and season dates varied by year (Table 1). Each state used historic data such as teal harvest, band recoveries and knowledge of geographic distribution of habitat to identify areas to target for observations of teal hunters (Fig. 2). We also used various methods (e.g., press releases, internet-based education, and public meetings) to announce the season to the public, explain the experimental status and provide duck identification tools.

The USFWS required that the upper 90% confidence interval on the estimate of non-target (non-teal) attempt rates for the 3 participating states combined be less than 0.25; similarly, the upper 67% confidence interval for the estimated non-target attempt rate at the state scale must be below 0.25. Based on historic attempt rates and numbers of non-target flocks observed per hunt party, states set a target of observing 40 parties/state during 2014 September seasons; the minimum desired sample size of 40 parties was used again in 2015, but relaxed in 2016. In addition, the USFWS specified a maximum non-target kill rate of 0.10 for the 3 states combined. The USFWS and participating states agreed that a minimum of 180 of hunting parties should be observed over all three years of the experiment in all three states combined.

Each state held training sessions for observers during which the geographic distribution of observations, data collection procedures, duck identification, law enforcement, and safety considerations were discussed. Data sheets were created to facilitate collection of comparable data across states (Appendix C). States conducted hunter performance surveys of parties hunting during the September teal season. The species, number of birds in each flock, whether the flock was shot at, and the number of birds hit was recorded. Non-target species included ducks other than teal and coots for all states; Iowa included Canada geese (*Branta canadensis*) as non-target waterfowl while Michigan and Wisconsin did not include Canada geese as non-targets as the early goose season was open concurrent with teal seasons in these states.

Table 1. Observer effort and season dates for experimental teal seasons in Iowa, Michigan, and Wisconsin, 2014-2016.

State	Year	Observer effort (hours)	Season area and dates
Iowa	2014	315	Statewide September 6-21
	2015	270	Statewide September 5-20
	2016	193	North & South Zones Sep. 3- 11; Missouri River Zone Sep. 3-18
	2014-2016	778	
Michigan	2014	290	Statewide September 1-7
	2015	310	Statewide September 1-7
	2016	220	Statewide September 1-7
	2014-2016	820	
Wisconsin	2014	258	Statewide September 1-7
	2015	211	Statewide September 1-7
	2016	192	Statewide September 1-7
	2014-2016	661	
Combined	2014	863	
	2015	791	
	2016	605	
	2014-2016	2,259	

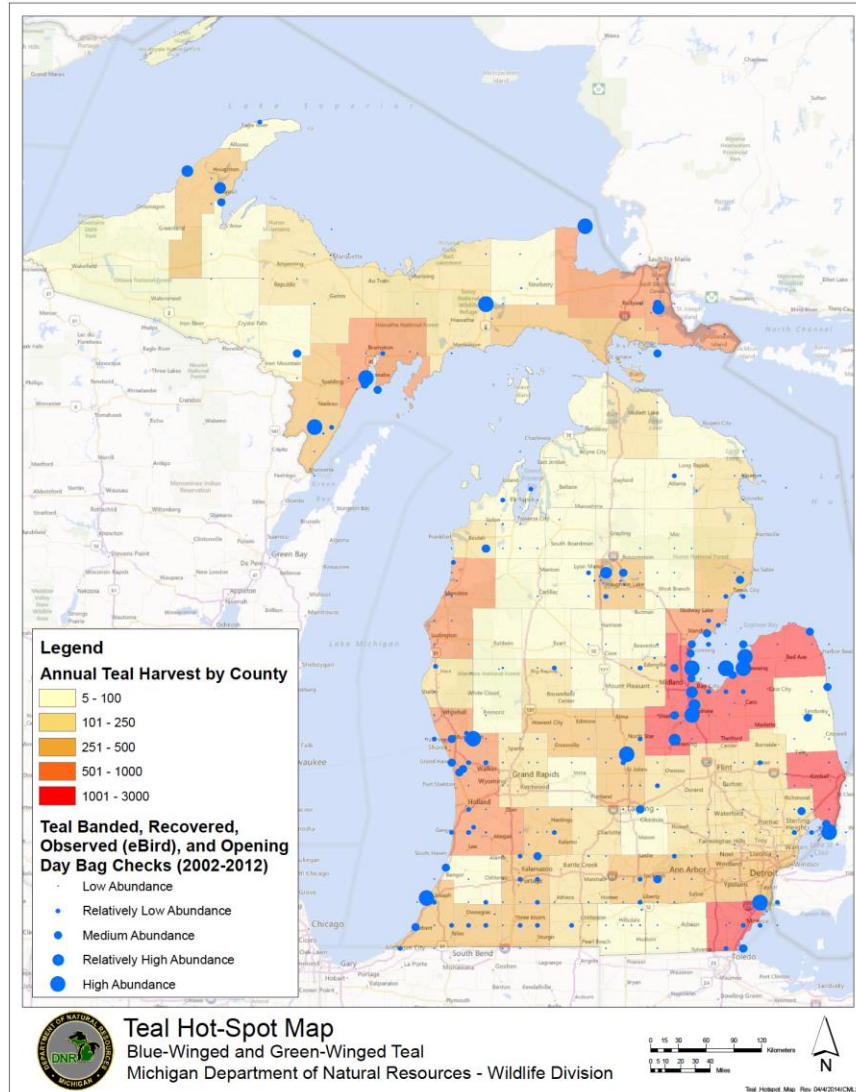


Figure 2. Historic geographic distribution of teal harvest, band recoveries, e-bird sightings, and bag checks to identify relative teal abundance and areas for inclusion in observation of teal hunters during experimental teal seasons in Michigan, 2014-2016.

From flock observations, a non-target attempt rate was estimated based on non-target flocks observed during legal shooting hours and determined by observers to be in range; the non-target attempt rate is the ratio of non-target flocks shot at one or more times to the total number of non-target flocks. The non-target kill rate was estimated as the ratio of non-target ducks that fell directly or sailed after being shot at to the total number of ducks (teal plus non-target ducks) that fell directly or sailed after being shot.

Results

Trained observers (Table 2) conducted hunter performance surveys resulting in 425 hunting parties observed during the 3 years of the experiment (Table 3: 180 parties in Iowa, 130 parties in Michigan, and 115 parties in Wisconsin).

Across the 3 states, a total of 1,596 non-target flocks came within range of hunting parties during legal shooting hours and 88 flocks were shot at resulting in a non-target attempt rate of 5.5% (Upper 67% CI =6.1%); non-target attempt rates by state were: 5.9% (Upper 67% CI = 6.8%) for Iowa, 4.6% (Upper 67% CI = 5.4%) for Michigan, and 6.6% (Upper 67% CI = 8.0%) for Wisconsin (Table 3).

A total of 908 ducks were observed killed (birds that fell directly or glided before falling), 39 of which were species other than teal, resulting in a non-target kill rate of 4.1% (Table 4). There were years when non-target kill exceeded 10% for Michigan (2015) and Wisconsin (2014), but overall kill rates for all production states combined ranged from 2% to 5% among years (Table 4). Harvest information program estimates of teal harvest during the first two experimental seasons indicated higher blue-winged teal harvest in Iowa and Wisconsin compared to Michigan, where green-winged teal comprised 44-60% of the harvest (Table 4).

Table 2. Participants conducting hunter performance surveys during the 2014-2016 experimental teal season in Iowa, Michigan and Wisconsin.

Iowa	Michigan	Wisconsin
N. Dirks	D. Arsnoe	A. Paulios
V. Evelsizer	D. Avers	B. Herzfeldt
F. Fromm	B. Barlow	B. Mott
H. Fry	B. Berger	B. Peterson
K. Goodrich	P. Brickel	B. Braden
S. Griebel	R. Cardenas	B. Peters
M. Griffin	Z. Cooley	C. Cold
A. Hancock	J. Darling	H. Bauman
D. Hoffman	C. Fedewa	J. Robaidek
D. Jones	K. Fisher	J. Hopp
O. Jones	D. Gast	J. Bahls
A. Keil	G. Goulette	J. Pritzl
D. Nelson	R. Hamilton	J. Wirth
B. Ohde	J. Heise	J. Loining
Z. Ripperger	R. Hobkirk	K. Van Horn
A. Robbins	J. Imber	K. Johansen
B. Schlader	D. Jentoft	K. Drake
T. Smith	B. Johnson	M. Rasmussen
H. Van Waus	D. Jones	M. Johnson
M. Washburn	P. Kailing	N. Ackerman
G. Zenner	N. Kalejs	N. Nice
	M. Kish	P. Nell
	M. Knee	P. Petersen
	C. Krumnauer	R. Nerva
	D. Luukkonen	R. Haffele
	T. Maples	T. Finger
	B. Majdecki	T. Babros
	T. Mcfadden	T. Strelow
	J. Miller	
	M. Mills	
	M. Monfils	
	M. Mshar	
	J. Owens	
	B. Piccolo	
	D. Poppe	
	D. Prince	
	J. Rabbers	
	S. Rhodea	
	M. Richardson	
	J. Robison	
	R. Roeske	
	B. Scullon	
	D. Shaw	
	H. Singer	
	G. Soulliere	
	B. Sova	
	R. Sting	
	N. Torsky	

Table 3. Number of hunting parties, teal flocks and non-target duck flocks in range encountered during legal shooting hours during experimental teal season evaluations in Iowa, Michigan, and Wisconsin, 2014-2016.

State	Year	Parties	Teal flocks			Non-target waterfowl and coot flocks			Upper 67% CI (% shot at)
			In range	Shot at	% Shot at	In range	Shot at	% Shot at	
Iowa	2014	72	354	259	73.2	306	20	6.5	7.9
	2015	64	343	268	78.1	203	12	5.9	7.6
	2016	44	157	130	82.8	153	7	4.6	6.3
	2014-2016	180	854	657	76.9	662	39	5.9	6.8
Michigan	2014	44	61	43	70.5	239	9	3.8	5.0
	2015	47	57	35	61.4	161	15	9.3	11.6
	2016	39	59	44	74.6	229	5	2.2	3.1
	2014-2016	130	177	122	68.9	629	29	4.6	5.4
Wisconsin	2014	44	95	66	69.5	156	16	10.3	12.7
	2015	40	54	24	44.4	73	0	0.0	0.0
	2016	31	30	20	66.7	76	4	5.3	7.8
	2014-2016	115	179	110	61.5	305	20	6.6	8.0
Combined	2014	160	510	368	72.2	701	45	6.4	7.3
	2015	151	454	327	72.0	437	27	6.2	7.3
	2016	114	246	194	78.9	458	16	3.5	4.4
	2014-2016	425	1210	889	73.5	1596	88	5.5	6.1

Table 4. Number of teal and other ducks observed kill during legal shooting hours during experimental teal season evaluations in Iowa, Michigan, and Wisconsin, 2014-2016.

State	Year	Killed			HIP teal harvest estimates	
		Teal	Non-target	% Non-target	Teal harvest	% Blue-winged Teal
Iowa	2014	254	6	2.3	48,780	94.0
	2015	293	4	1.3	33,733	94.8
	2016	146	2	1.4		
	2014-2016	693	12	1.7		
Michigan	2014	42	3	6.7	9,690	44.1
	2015	29	13	31.0	4,488	60.0
	2016	48	2	4.0		
	2014-2016	119	18	13.1		
Wisconsin	2014	54	9	14.3	15,617	88.2
	2015	28	0	0.0	14,068	84.3
	2016	14	0	0.0		
	2014-2016	96	9	8.6		
Combined	2014	350	18	4.9	74,087	86.3
	2015	350	17	4.6	52,289	89.0
	2016	208	4	1.9		
	2014-2016	908	39	4.1		

Discussion

This experiment demonstrated hunters can be selective in targeting teal during September seasons in Iowa, Michigan and Wisconsin. To achieve this level of selectivity, hunters declined some opportunities at teal as only 73% of the teal flocks encountered in range were fired on. Many questioned if hunters would participate in these seasons, but Harvest Information Program estimates (only 2014 and 2015 estimates were available) showed Iowa was second in blue-winged teal harvest in the Mississippi Flyway (behind Louisiana); Wisconsin's blue-winged teal harvest ranked 5-6th while Michigan had relatively high harvest of green-winged teal, similar to Ohio's harvest. Collectively, the harvest of teal in the production states during the 2014 and 2015 experimental teal seasons represented 18% and 19%, respectively, of the total Mississippi Flyway Special September teal season harvest. Observation effort

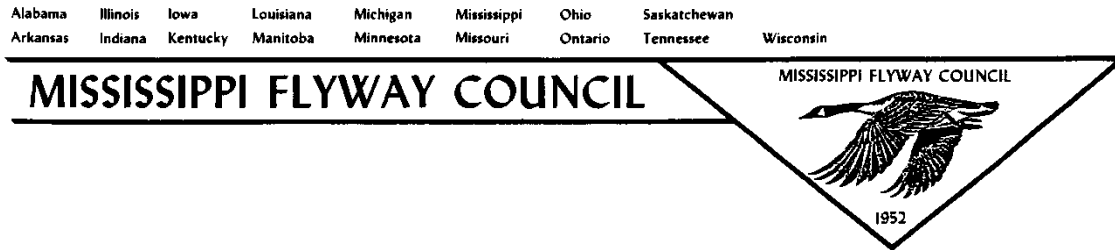
was highly successful with all 3 states exceeding target sample sizes in most years. This was the direct result of a significant investment of personnel time from each state with a total of 2,259 observer-hours. Observer efficiency (non-target flocks recorded per party observation) was greater than assumed as observers well exceeded the agreed to minimum 180 hunting parties.

Hunter performance was well below the criteria established by the USFWS for both non-target attempt rates and non-target kill rates for the three states combined . All three states had communication and education efforts to inform hunters of the additional regulations and help improve their species identification skills.

Acknowledgements

Many state and federal personnel assisted with the observation effort and deserve recognition (Table 1). We would also like to thank Barb Avers (MI DNR), Corey Lucas (MI DNR), Taylor Finger (WI DNR), Jim Kelley (USFWS), Kathy Fleming (USFWS), and Al Hancock (IA DNR) for their assistance with this project.

Appendix A: Mississippi Flyway Council Technical Section recommendation regarding the teal season assessment, 2012.



MFCTS ITEM NUMBER: 5

ORIGIN: Dabbling Duck Committee

DIRECTED TO: Mississippi Flyway Council and USFWS

SUBJECT: Special Teal Seasons in the Mississippi Flyway

RECOMMENDATION:

If the teal harvest assessment concludes that teal populations can sustain harvests beyond the harvest incurred during regular duck seasons and the USFWS offers states special teal harvest opportunities outside the regular duck seasons, then Iowa, Michigan, Minnesota, and Wisconsin should be offered the same special teal harvest opportunities that are offered to other states in the Mississippi Flyway.

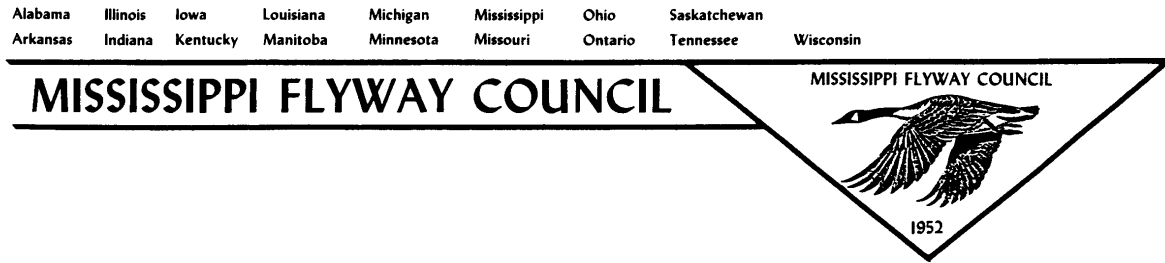
JUSTIFICATION:

Four northern states in the Mississippi Flyway, i.e., Minnesota, Wisconsin, Michigan, and Iowa, have been denied the opportunity to open special teal seasons for 40 years, a special hunting opportunity that is now 16-days long in the other 10 states in the Flyway. This situation developed as a result of two primary decisions. First, a political decision was made outside the USFWS to make special teal seasons operational in the Mississippi and Central Flyways in 1969. Second, because of concerns about the take of non-teal ducks during special teal seasons and the greater numbers of non-teal ducks that hunters might encounter in the northern areas of the flyways, the Service separated the states into "production" (northern) and "non-production" (southern) states and only offered September teal seasons to "non-production" states. Production states were given the option to add two "bonus" teal to their regular bag limit during their regular duck seasons. However, as a result of the hunting regulations reviews for the revision of the Environmental Impact Statement on sport hunting of migratory birds during 1987-88, the bonus teal option was eliminated. Special teal seasons, however, were allowed to continue. These regulations reviews and subsequent additional analyses also indicated that take attempt rates at non-teal species during September teal seasons did not differ between production and non-production states. Nevertheless, "production" states continued to be denied the opportunity to open special teal seasons. The net effect of this series of decisions is that hunters in the 10 "non-production" states in the Mississippi Flyway have had 408 more days of waterfowl hunting opportunity since 1973 than hunters in the 4 "production" states in the Flyway. The Mississippi Flyway Council believes that this inequity should be corrected and that if teal populations can sustain harvest beyond the regular duck season that the production states of Iowa, Wisconsin, Minnesota and Michigan be added to the states who have an opportunity to implement special teal seasons.

TECHNICAL SECTION ACTION: Approved 7/21/12

COUNCIL ACTION: Approved 7/22/12

Appendix B: Mississippi Flyway Council Technical Section recommendation regarding experimental teal seasons in production states, 2014.



MFCGBTS ITEM NUMBER: URR 4 & LRR 2

ORIGIN: Upper and Lower Regions Regulations Committees

DIRECTED TO: Mississippi Flyway Council and USFWS

SUBJECT: Experimental Special September Teal Seasons for IA, MI, WI, MN

RECOMMENDATION:

That IA, MI, WI, and MN be granted special September teal hunting seasons for an experimental 3-year period beginning in September 2014; the framework for these seasons would follow the established teal harvest strategy (i.e., 9 or 16 days with up to 6 bird daily limits) with sunrise to sunset shooting hours. Further, the USFWS work with these states to develop a mutually acceptable evaluation plan prior to June 2014. In the event that this does not pass or Iowa declines the opportunity for an early teal season, then we recommend that Iowa retain their early September duck season.

JUSTIFICATION:

Four northern states in the Mississippi Flyway (Minnesota, Wisconsin, Michigan, and Iowa) have been denied the opportunity to open special September teal seasons for 40 years, a special hunting opportunity that is now 16-days long in the other 10 states in the Flyway. This situation developed as a result of two primary decisions. First, a political decision was made outside the USFWS to make special teal seasons operational in the Mississippi and Central Flyways in 1969. Second, because of concerns about the take of non-teal ducks during special teal seasons and the greater numbers of non-teal ducks that hunters might encounter in the northern areas of the flyways, the Service separated the states into “production” (northern) and “non-production” (southern) states and only offered September teal seasons to “non-production” states. Production states were given the option to add two “bonus” teal to their regular bag limit during their regular duck seasons. However, as a result of the hunting regulations reviews for the revision of the Environmental Impact Statement on sport hunting of migratory birds during 1987-88, the bonus teal option was eliminated. Special teal seasons (9 days, 4 teal/day), however, were allowed to continue. These regulation reviews and subsequent additional analyses also indicated that take attempt rates at non-teal species during September teal seasons did not differ between production and non-production states. Nevertheless, “production” states continued to be denied the opportunity to open special teal seasons. The net effect of this series of decisions is that hunters in the 10 “non-production” states in the Mississippi Flyway have had 440 more days of waterfowl hunting opportunity since 1973 than hunters in the 4 “production” states in the Flyway. The Mississippi Flyway Council is resolved that this inequity be corrected and that if any states in the Mississippi Flyway have an opportunity to implement special teal seasons after the teal harvest assessment is completed, then ALL states in the Flyway must have this opportunity, however that opportunity is defined.

MFCGBTS: Approved by Upper and Lower Region Regulations Committees: 02/26/14

COUNCIL ACTION: Approved by Upper and Lower Region Regulations Committees: 03/11/14

Appendix C: Data collection sheets for experimental teal season evaluations in Iowa, Michigan, and Wisconsin, 2014-2016.

Hunt Record					
Hunter Performance Survey			Bag Check Record		
Date	Observer's name (<i>Print</i>)		Species and Sex		Number
State	County	Site Name	1.		
			2.		
Observer's affiliation			3.		
<input type="checkbox"/> State	<input type="checkbox"/> Federal	<input type="checkbox"/> Other	4.		
			5.		
Land ownership (<i>check most applicable</i>)			6.		
<input type="checkbox"/> State	<input type="checkbox"/> Federal	<input type="checkbox"/> Public	<input type="checkbox"/> Private	<input type="checkbox"/> Unknown	7.
					8.
Legal opening Time		Legal closing Time	9.		
			10.		
Method of hunting (<i>circle all that apply</i>)			11.		
<input type="checkbox"/> Decoys	<input type="checkbox"/> Spinning Wing Decoys	<input type="checkbox"/> Pass Shoot	<input type="checkbox"/> Jump Shoot	<input type="checkbox"/> Other	12.
					13.
Number in party		Dog used?	<input type="checkbox"/> Yes	<input type="checkbox"/> No	Comments
Time observation began		Time observation ended		1.	
Was entire hunt observed?		<input type="checkbox"/> Yes	<input type="checkbox"/> No	2.	
Were hunters aware they were being observed by you while hunting?		<input type="checkbox"/> Yes	<input type="checkbox"/> No	3.	
Estimate the distance between you and the hunting party (<i>yards</i>):			4.		
Did law violations occur during the hunt? (<i>If "yes", explain</i>)		<input type="checkbox"/> Yes	<input type="checkbox"/> No	5.	
Comment:			6.		
Was hunt interrupted by above violation?		<input type="checkbox"/> Yes	<input type="checkbox"/> No	7.	
Species Abbreviations					
U = Unknown	UP = Unknown Puddler	M = Mallard	B = Baldplate (<i>Wigeon</i>)	RH = Redhead	H = Hooded Merg.
T = Unknown Teal	UPNT = Unk. Pdlr. NOT Teal	G = Gadwall	BD = Black Duck	C = Canvasback	GE = Goldeneye
NT = Unknown NOT Teal	BWT = Blue-winged Teal	P = Pintail	SC = Scaup	SH = Shoveler	CT = Coot
UD = Unknown Diver	GWT = Green-winged Teal	W = Wood Duck	RN = Ringneck	BH = Bufflehead	Others - (<i>Write in</i>)

