Title:
Waterfowl Use and Human Disturbance Events within Eight Waterfowl Hunting Closed Areas, and a Summary of Hunter Activity, in Response to New Management Actions Implemented in the Fall of 2007 at the Upper Mississippi River National Wildlife and Fish Refuge.

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Introduction:
This report describes how waterfowl and the public responded to changes in management of waterfowl hunting closed areas that were implemented in the fall of 2007 on the Upper Mississippi River National Wildlife and Fish Refuge (Refuge). Included are specific accounts for several management areas. Waterfowl numbers increased dramatically on some new and existing closed areas in response to the new provisions. In other areas the response was not as clear due to river conditions or other factors. Public compliance with new access provisions and use requirements was good.

Closed area changes were approved in the refuge's 2006 Comprehensive Conservation Plan (CCP). Implementation began in 2007. The CCP called for monitoring of waterfowl use and response of waterfowl to disturbance by the public. If disturbance exceeded a threshold of one major disturbance per day through the season further restrictions would be implemented. A major disturbance is defined as a human intrusion which displaces 1,000 waterfowl or 50% of the waterfowl present, which ever is less. Disturbances caused by commercial fishermen, official government agency boats, and trains are not factored into the disturbance threshold criteria.

Background
The purpose of the Refuge's closed area system is to provide migrating waterfowl a network or series of "stepping stones" of relatively secure feeding and resting areas, and to disperse waterfowl hunting opportunities on the Refuge. Closed areas range in size from 243 to 7,348 acres and are located throughout the refuge which runs along 261 miles of the Mississippi River between Wabasha, Minn. and Rock Island, Ill, covering 240,040 acres.

Closed areas are closed to all migratory bird hunting and other hunting and trapping during the duck hunting season, but are open to most other uses such as fishing and boating, at that time. The areas are generally located in shallow backwaters and lakes that offer high-energy foods plus good loafing and resting sites.

The closed area system was first established on the refuge in the 1930s and later modified in 1957 and 1958. The system remained essentially unchanged for 50 years. Over that period, there have been major shifts in habitat and wildlife populations, as well as huge advances in hunting and boating technologies. The 2007 revisions to the closed areas were achieved through implementation of the CCP. The system now provides a series of 24 closed areas covering 43,683 acres or 18% of the refuge (Table 1). The 1958 system included 15 closed areas but covered more acres, 44,544. Currently, Pool 4 contains two closed areas totaling 6,884 acres. When CCP changes go into effect in 2009, Pool 4 will have three closed areas totaling 3,634 acres. Additional CCP changes affected hunting, as described below.

Two new special hunting areas were established in 2007 through the CCP (Table 2). One is the 1,409-acre Wisconsin River Delta special hunt area where the season is closed on November 1, the other is a 4,000-acre area of lower Pool 11 where no open water hunting is allowed. Finally, four areas (505 acres) were added to an existing group of eight administrative no hunting zones, bringing the total to 4,060 acres in 12 zones (Table 3). Administrative no hunting zones were established due to the presence of contaminants (Crooked Slough in Pool 13, covering 2,467 acres, pre-2006) and concerns over public safety or user conflicts.

Closed Area Milestones

1924 – Refuge established by Congress

- Entire Refuge closed to waterfowl hunting until the early 1930s

1930s to 1956 – system of 20 closed areas, totaling 34,150 acres

- Some closed areas established out of convenience of Refuge ownership rather than on areas with best food sources (carrying capacity) or reduced disturbance; established only on Fish and Wildlife Service-acquired fee title lands
- Disturbance by boaters a problem;
- Maintenance of boundaries difficult, required constant brushing;
- "Firing lines" developed

1957-58 – system of 14 closed areas, totaling 41,600 acres

- After 10 years in development, this is the core of the current system which now has 15 units, covering 44,544 acres. Two units do not have standard closed area regulations: Spring Lake in Pool 13 is a sanctuary from October 1 to the end of the duck hunting season. Goose Island in Pool 8 is closed to all hunting year-round. Trempealeau National Wildlife Refuge, next to Pool 6, functions as a closed area with special regulations but is not included in this analysis. When first established, this system generally met goals of providing secure feeding and resting areas and dispersing hunting opportunities. Closed areas are located on Refuge-acquired and Corps of Engineers-acquired fee title lands.

1978 and 1985 – Wildlife Technical Section of the Upper Mississippi River Conservation Committee Section recognized that some closed areas were not functioning as intended and proposed changes to the closed area system but none were implemented.

1986 – establishment of the Lake Onalaska Voluntary Waterfowl Avoidance Area, Pool 7

- Other than at Spring Lake and Goose Island (see above), this is the only tool currently being used by the Refuge to address human-caused disturbance during fall migration. This program, developed in cooperation with state agencies and local sportsman and conservation groups, asks the public (mostly boaters) to avoid entry into this area. It has been operational each year, from October 15 through mid-November, since 1986. Studies conducted in 1986-88, 1993, 1997, and 2004 revealed that the voluntary avoidance area was effective in maintaining constant levels of boater intrusions and disturbance of birds despite increased levels of boating activity throughout the Pool.

1987 – Refuge's Master Plan

- During development of the Plan, changes to the closed area system were considered but none were included in the final, pending further study on human disturbance and effectiveness of the voluntary avoidance area.

2005 – release Draft EIS/ CCP in May

- Initial preferred alternative (D) proposes a closed area system of 21 units, covering 43,704 acres. Areas would retain the standard closed area definition and add proposed regulations of no fishing and the use of no motors during the state duck hunting season.

2005 – release Supplement to the Draft EIS/CCP in December

- New preferred alternative (E) proposes a system of 22 units, covering 45,755 acres. Areas retain standard closed area definition with proposed regulations of voluntary avoidance on all large closed areas (> 1000 acres) October 15 to the end of the state duck hunting season and use of no motors and voluntary avoidance on small closed areas (~1000 acres or less) October 15 to the end of the state duck hunting season. A threshold for disturbance is also established under Alternative E.

2006 – release of EIS/CCP with final preferred Alternative E that includes a closed area system comprised of 23 units covering 43,652 acres. Same entry regulations and threshold as Supplement (see above).

2007 – Final hunting regulations published September 7, 2007 and changes implemented.

- includes 24 closed areas and sanctuaries (Bertom Island, 31 acres, Pool 11 added in rule-making process) covering a total of 43,683 acres.

Study Methods

Researchers and refuge staff conducted "disturbance" studies to determine waterfowl response to boating intrusions and the public's compliance with new regulations and provisions at eight closed areas in the fall of 2007. Observations were made through scientific studies, monitoring, and anecdotal field notes. Details were provided in reports compiled by District Managers.

Research and monitoring studies incorporated standardized methods used for disturbance studies on the refuge (Pool 7) in 1986, 1993, 1997, and 2004 (Kenow, et al, 2005). These studies showed that voluntary avoidance of closed areas by boaters is an effective tool in maintaining low levels of disturbance to the birds despite large increases in recreational boating activity in the surrounding area. These studies were also used to establish threshold criteria. Monitoring data were recorded on standardized data forms developed for the Pool 7 studies; see examples from Savanna District, Appendix A (Daily Log) and B (Incident Data Sheet).

Observers, often perched on bluff tops over-looking the closed areas, noted routes of boats and the response, if any, by waterfowl to boating activity. Observer times were randomly established but were allocated to include mornings, evenings, weekends, weekdays, and holidays, October to December. Equal time was not allocated to all closed areas due to constraints in time, personnel, weather, and funding. Where vantage points were unavailable, boating activity was recorded using motion-sensitive cameras, although bird movement was not detected with the cameras.

Bird numbers were obtained from ground counts and weekly aerial surveys. Waterfowl use-days, a measure of carrying capacity, were calculated from aerial survey data.

Hunter success was primarily determined from bag checks conducted on opening day by staff and volunteers at boat landings that access the Refuge. Indications of success were also gained from mandatory reports submitted by waterfowl hunting guides who operate within the Refuge and must obtain a permit. Ducks per hunter was calculated based on total birds shot and total number of hunters guided throughout the season. Hunting pressure on opening day was

measured by counting waterfowl hunter vehicles (car counts) at boat landings accessing the Refuge.

Results
Waterfowl numbers increased dramatically on some new and existing closed areas apparently due to the closed area changes. Other factors (change in vegetation, food supply, island construction, etc.) may have influenced bird use as well. In other closed areas increases in waterfowl numbers were not so pronounced due to river conditions or other factors.

Public compliance with new access provisions and use requirements was generally good. Within closed areas, the extent of waterfowl disturbance due to intrusions by boats was at generally acceptable levels. At this time, there appears to be no need to consider additional public use restrictions to reduce human disturbance of waterfowl in closed areas. Overall hunter success and pressure was not curtailed as a result of implementation of management changes (see page 14).

Specific accounts of studies or surveillance conducted on seven of the eight closed areas are listed below. These accounts are presented in turn.

Pool 5 – Spring Lake closed area
Pool 8 – Wisconsin Islands closed area (results are pending at the time of this writing)
Pool 10 – Wisconsin River Delta special hunt area and closed area
Pool 12 – Kehough Slough closed area
Pool 13 – Pleasant Creek closed area
Pool 13 – Elk River closed area
Pool 13 – Spring Lake sanctuary and furbearer management unit
Pool 14 – Beaver Island closed area

Spring Lake closed area; newly established in 2007; 243 acres; Pool 5, 2 miles south of Buffalo City, Wis.

Methods: Waterfowl numbers were determined from weekly aerial waterfowl surveys conducted by US Fish and Wildlife Service personnel. Disturbance studies were conducted by volunteers, but only for a total of six hours. Observers were stationed on a dike on the south side of the closed area.

Results: Waterfowl responded quickly to the closed area designation, as revealed in fall aerial waterfowl surveys conducted in 2006 and 2007 (Figure 1). Only two species of puddle ducks (mallards and gadwalls) were seen in 2006, having peak counts of 155 mallards and 20 gadwalls. In 2007, seven puddle duck species were observed, including peaks of 210 mallards and 365 gadwalls. Diving ducks (canvasbacks, scaup, etc.) nearly doubled between years, with peaks of 900 scaup and 320 canvasbacks seen in 2006 followed by a reversal to 45 scaup and 3,000 canvasbacks in 2007. Canada geese and tundra swans were not observed in the area in 2006, and 10 swans and 60 geese were observed in 2007.

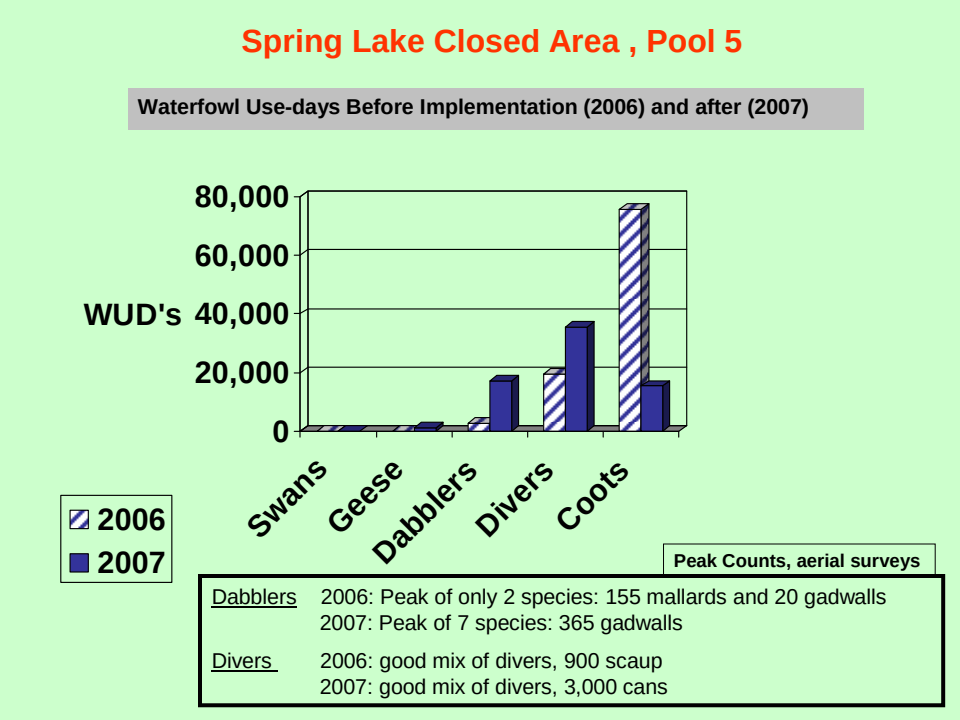


Figure 1. A comparison of waterfowl use-days at the Spring Lake closed area in the fall seasons of 2006 and 2007, Pool 5, UMRNW&FR.

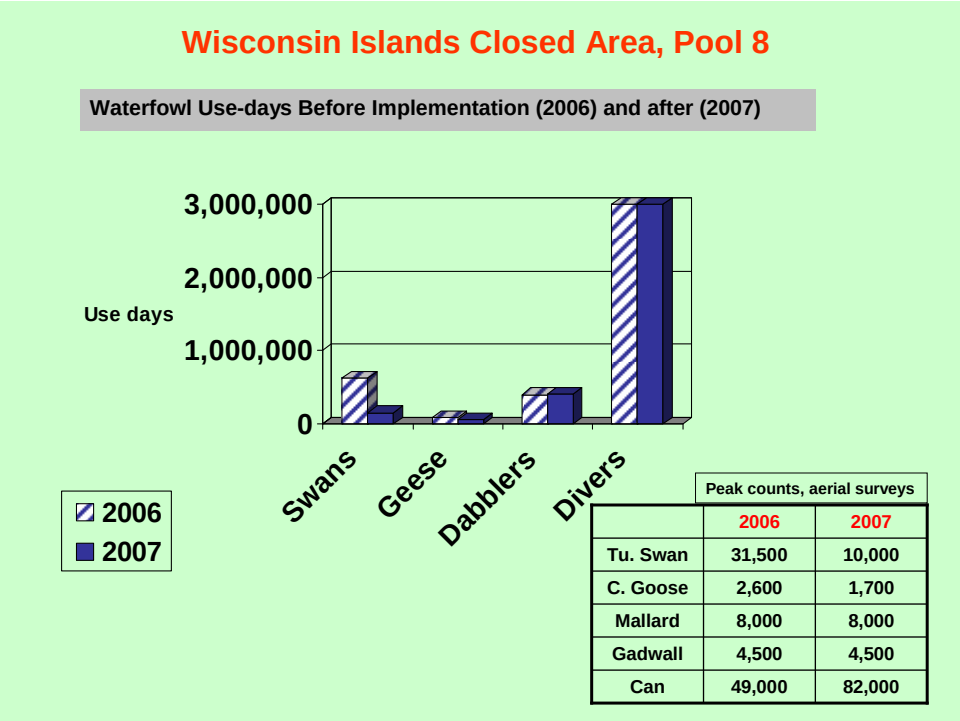
No disturbance of birds was recorded in over six hours of observation. Activity included 17 people using the dike bordering the closed area, either walking, riding mopeds or motorcycles, or bow hunting for deer. One boat was observed going around the closed area. No other boating activity was reported.

Wisconsin Islands closed area; established in 1957; 6510 acres; Pool 8, near Brownsville, Minn.

Methods: Waterfowl numbers were determined from weekly aerial waterfowl surveys conducted by US Fish and Wildlife Service personnel and from the ground by observers monitoring boating disturbance. A formal boating disturbance study was conducted on this area by Kevin Kenow and Brain Gray, USGS, La Crosse WI. Observers, located on an adjacent bluff top, were present three days a week, over a 65-day period, and targeted an average of 9.3 hrs per day, ½ hour after sunrise to ½ hour before sunset. Observers noted boating routes, boating intrusions, and bird response. The sampling was conducted in a stratified random design and researchers adjusted variances using a finite sampling correction. Data were analyzed with a SAS ™ macro that allows for subpopulation and ratio analyses.

Results: Total waterfowl use days for the Wisconsin Islands closed area were similar in 2006 and 2007 (Figure 2). While geese, puddle ducks, and diving ducks numbers were constant between years, tundra swan levels in 2007 were one third the record high in 2006. This decline was documented throughout the Refuge. A cautionary note: the 2007 calculations are artificially

low for all waterfowl groups because aerial surveys were not conducted the week of November 19 when a large influx of birds was observed by Refuge personnel, particularly in Pool 8. Aerial surveys were not conducted because of foggy conditions early in the week, followed by scheduled aircraft maintenance and observer schedules at week's end.



	2006	2007
Tu. Swan	31,500	10,000
C. Goose	2,600	1,700
Mallard	8,000	8,000
Gadwall	4,500	4,500
Can	49,000	82,000

Figure 2. A comparison of waterfowl use-days at the Wisconsin Islands closed area in the fall seasons of 2006 and 2007, Pool 8, UMRNW&FR.

Observers documented 477 boating events and recorded their routes (Figure 3) on Pool 8 during 267 hours of observation,15 Oct – 29 Nov 2007. Thirty three boats intruded into the Wisconsin Islands Closed Area, nine of those were government or commercial fishing boats. These intrusions resulted in 15 disturbances to waterfowl, six were caused by government or commercial fishing boats.

Major disturbance to waterfowl due to boating intrusions into the closed area during the 2007 Voluntary Avoidance period was estimated at 0.32 disturbances per day (all boats) and 0.05 disturbances per day when commercial fishing and government boats are excluded from the total. In conclusion, this estimated disturbance rate is below the Refuge CCP threshold (1 major disturbance per day) for implementing more restrictive regulations. The USGS report was in preparation at the time of this writing (April 2008).

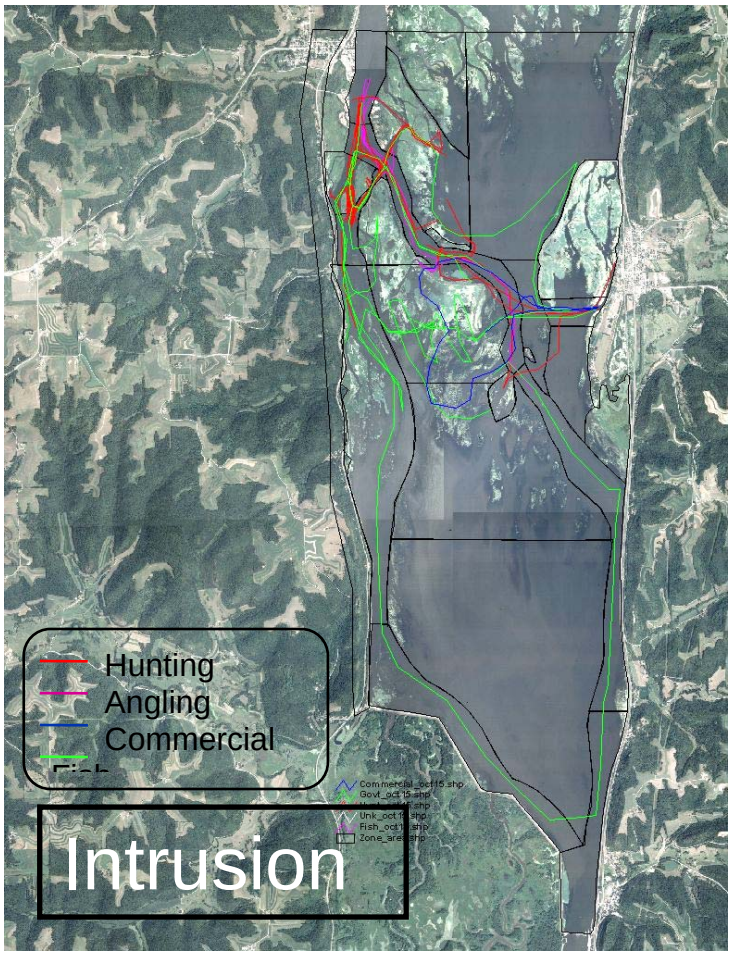


Figure 3. All boat intrusions into the Wisconsin Islands Closed Area during the voluntary avoidance period, October 15 to November 29, 2007, as reported by Kevin Kenow, USGS, La Crosse WI (green line is government boat).

Wisconsin River Delta special hunt area and closed area; established in 2007; 1,406 acres; Pool 10, 1 mile south of Prairie du Chien, Wis. This area is open to waterfowl hunting through October 31. It is then designated a closed area from November 1 to the end of the duck season.

Methods: Waterfowl numbers were determined from weekly aerial waterfowl surveys conducted by Wisconsin Department of Natural Resources personnel and by observers on the ground. Observers were located on Bluffs across the river from the study area at Pikes Peak State Park, Iowa and were present during 16 observation periods (each period sunrise to noon or noon to sunset). Data were recorded on standard forms (see Appendix A).

Results: Waterfowl use days on the Wisconsin River Delta area increased dramatically after the cessation of hunting on November 1(Figure 4). Peak numbers recorded in ground counts made from Pikes Peak State Park prior to November 1 reached 460 birds (mostly coots), but within two weeks of closure 2,652 waterfowl (including 400 coot) were present. By November 27 the count reached 3,275 (mostly mallards and no coot). Aerial surveys showed a similar bird

response. Up to 75 tundra swans were present in late November and were of high interest to visitors at Pikes Peak State Park. In 2006, peak counts of mallards never exceeded 215 birds and no swans and geese were observed during aerial surveys.

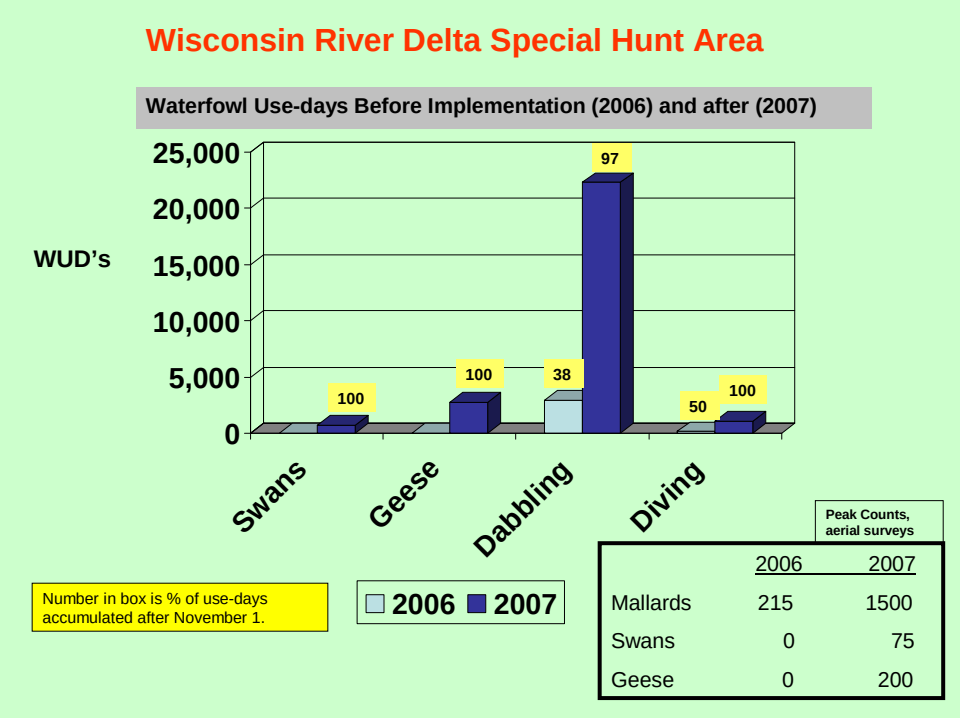


Figure 4. A comparison of waterfowl use-days at the Wisconsin River Delta special hunt and closed area in the fall seasons of 2006 and 2007, Pool 10, UMRNW&FR.

In approximately 56 hours of observation, 170 boating events were recorded. Most boats did not enter the closed area, but 45 did enter and these events were classified as intrusions. Waterfowl were not disturbed during 28 intrusions (62%). Of the 17 intrusions that caused disturbance, 15 were attributed to recreational fishing boats and classified as minor events (less than 1000 birds moved) in which 15 to 950 birds were moved. Most of these intrusions were into a very small area off the main channel which is a traditional "hot spot" for fall walleye fishing. Two intrusions resulted in major events (more than 1000 birds moved) and were both caused by commercial fishing boats.

Kehough Slough closed area; established in 2007; 343 acres; Pool 12, 10 miles north of Bellevue Iowa.

Methods: Waterfowl numbers were determined from weekly aerial waterfowl surveys conducted by US Fish and Wildlife Service personnel in 2006 and Illinois Natural History Survey personnel in 2007, and by observers on the ground. Disturbance study data were recorded by observers stationed at a bluff-top property, with landowner permission. Observers could view 70% of the Kehough Slough study area. The landowner appreciated the presence of FWS staff as a deterrent to trespass that had occurred in the past.

With limited staff time, a motion sensitive trail camera was also used at Kehough Slough to record disturbance events. It was installed at the only entry/exit channel to the slough. The cameras were hidden inside a stump. The cameras would only document boat entry, not waterfowl disturbance. Cameras were checked on a weekly basis to determine if entry was excessive and additional monitoring was needed.

Results: Waterfowl use days within the Kehough Slough closed area did not change appreciably between 2006 and 2007, as determined from aerial surveys (Figure 5). Low use (200 mallards) in 2007 was attributed to the lack of food caused by high water in mid-August that killed much of the backwater aquatic vegetation. High water returned again between mid-October to mid-November and made the remaining food sources inaccessible to the birds.

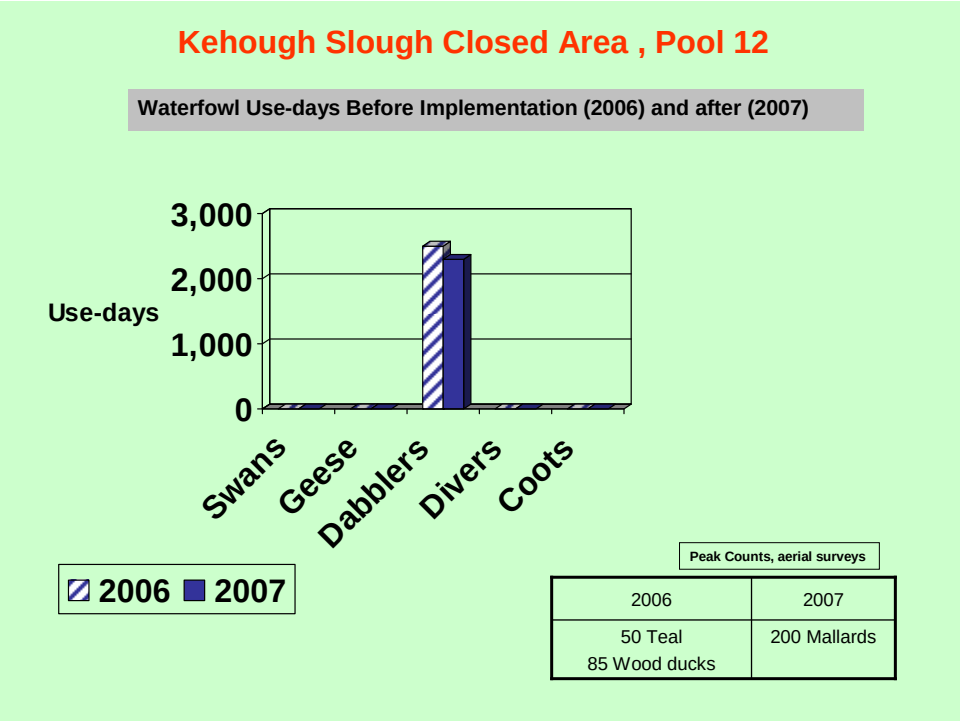


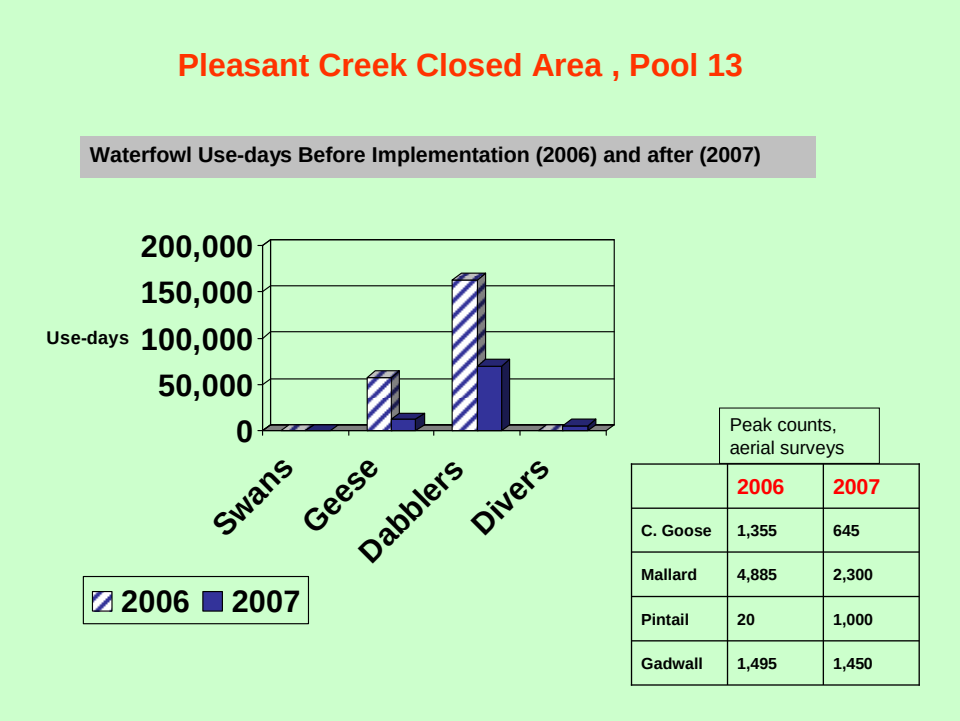
Figure 5. A comparison of waterfowl use-days at the Kehough Slough closed area in the fall seasons of 2006 and 2007, Pool 12, UMRNW&FR.

The observer saw no intrusions into Kehough Slough during seven visits and a total of 32 observation hours between October 2 and November 29. This excellent compliance was in contrast to "considerable discontent" expressed by hunters and anglers at the nearby Ferry Landing boat landing over the voluntary avoidance designation for Kehough Slough. Interviews confirmed that the area is a favorite fishing site.

The motion sensor camera detected 14 boats entering Kehough Slough the week of October 6-11 when fishing activity was known to be high. This was just prior to the start of voluntary avoidance provisions on October 15. Additional camera detections could not be made after October 15 because the camera malfunctioned in mid-October and was stolen the last week of October and not replaced.

Pleasant Creek closed area; established 1957, reduced by 610 acres in 2007; now 1993 acres; Pool 13, 4 miles south of Bellevue Iowa.
Methods: Waterfowl numbers were determined from weekly aerial waterfowl surveys conducted by US Fish and Wildlife Service personnel in 2006 and Illinois Natural History Survey personnel in 2007, and by observers on the ground. Disturbance study data were recorded from a bluff top property, with landowner permission, where observers could view 20% of the Pleasant Creek study area.

Results: The 2007 fall waterfowl use day levels at Pleasant Creek were only 40% of use that occurred in 2006 (Figure 6). The decline was attributed to unusually high water from mid-October to mid-November. High levels allowed birds to move into forested habitats where they are very difficult to detect during aerial surveys.



	2006	2007
C. Goose	1,355	645
Mallard	4,885	2,300
Pintail	20	1,000
Gadwall	1,495	1,450

Figure 6. A comparison of waterfowl use-days at the Pleasant Creek closed area in the fall seasons of 2006 and 2007, Pool 13, UMRNW&FR.

Only one day of observations was made at Pleasant Creek because of time constraints. Two disturbances were observed. One involved a refuge vehicle that caused minor disturbance to waterfowl as it approached a nearby pump station. The other was the FWS aircraft as it passed over the area with observers conducting the weekly aerial waterfowl survey.

More attention may be needed to monitor hunter intrusions from the south access road because high water puts waterfowl right up to that road. This 610-acre area south of the roadway eliminated from the historic closed area boundary because it is primarily forested and attracts

few waterfowl except during fall floods. In 2007, much of this forested area was flooded and thereby offered more waterfowl hunting opportunities than in many previous years.

Elk River closed area; established 1957; 1,237 acres; Pool 13, 4 miles south of Sabula, Iowa.

Methods: Waterfowl numbers were determined from weekly aerial waterfowl surveys conducted by US Fish and Wildlife personnel in 2006 and Illinois Natural History Survey personnel in 2007, and by observers on the ground. The disturbance study observation point was on private land on a bluff overlooking Elk River. Sixty percent of the closed area could be observed from this site. The landowner appreciated the presence of FWS staff as a deterrent to trespass that had occurred in the past. Monitoring was conducted during 11 days between October 6 and November 27, and totaled 51 hours of observations.

Results: Aerial surveys over Elk River in 2007 showed 40% more puddle duck use than in 2006, but numbers of Canada geese, tundra swans and diving ducks were lower than 2006 (Figure 7). The 2006 surveys had peaks of 1,315 Canada geese, 330 tundra swans, 1,900 mallards, only 400 gadwalls, plus three species of divers, with a high count of 185 buffleheads. After implementation in 2007, surveys showed peaks 1,350 Canada geese, 70 swans, 4,100 mallards, 3,200 gadwalls, and 10 goldeneyes (the only diver recorded), Overall, the 2006 birds were present longer so total use days between years were similar. The exception was a 40% increase in puddle ducks in 2007, which was attributed to combined effects of a late season influx of birds, a natural reduction in high water levels, and anecdotal evidence of fewer incidents of human disturbance.

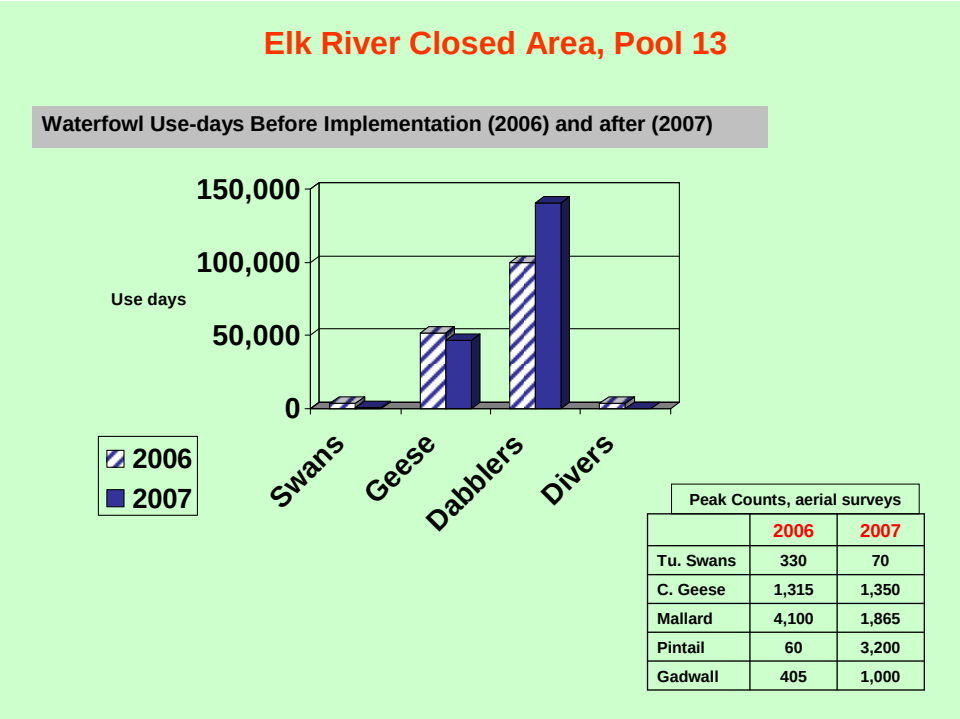


Figure 7. A comparison of waterfowl use-days at the Elk River closed area in the fall seasons of 2006 and 2007, Pool 13, UMRNW&FR.

Observers recorded only three boating intrusions into the Elk River closed area after October 15 and those occurred in late October when waterfowl use was low, thus causing minimal disturbance. Two of the three disturbances may have been attempts to rally birds, a practice reported in the past under the old closed area guidelines. However, the boats passed straight through the area and did not venture from a forward direction. Hunting conditions deteriorated with the onset of high water about October 21 which lasted until mid-November. Large numbers of birds were flushed by trains passing on the west side of the area. Most of the flushed birds circled and settled back on the east side. Train-caused disturbances are not intrusions and therefore not included as a contributing factor in meeting threshold levels of disturbance as set forth in the CCP.

Spring Lake Sanctuary – Furbearer Trapping Management Unit; 3,600 acres ; established 1957; Pool 13, 1 mile south of Savanna, Ill.

Methods: Waterfowl numbers were determined from weekly aerial waterfowl surveys conducted by US Fish and Wildlife Service personnel in 2006 and Illinois Natural History Survey personnel in 2007, and by observers on the ground. Use days and peak numbers were the combined total of Upper and Lower Spring Lake survey routes. A trapping management program to reduce the muskrat population was initiated in 2007 within the entire area. The unit contains 12-plus miles of levees. A 2006 muskrat damage assessment survey showed there were 100-plus muskrat tunnels per mile on the interior levees. This special trapping program allowed restricted entry into the Spring Lake Sanctuary from 11am-2pm daily, beginning November 5. Under normal regulations, Spring Lake is a sanctuary where all public access is prohibited, including trapping, from October 1 to the end of the duck hunting season.

Results: Waterfowl use at the Spring Lake sanctuary increased from 2006 to 2007 (Figure 8). This may have been in response to improved habitat or more birds in the area. Human activity in the sanctuary was actually greater in 2007 than 2006 because a special trapping season was implemented to control an overpopulation of muskrats.

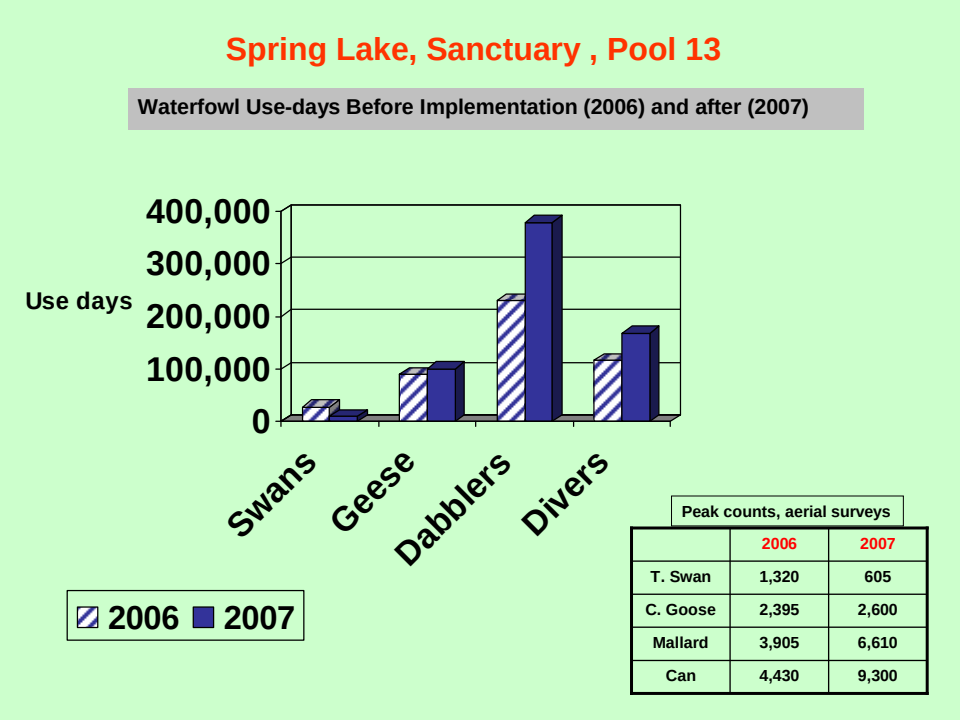


Figure 8. A comparison of waterfowl use-days at the Spring Lake sanctuary in the fall seasons of 2006 and 2007, Pool 13, UMRNW&FR.

Observations of human disturbance were made at Spring Lake on only two days totaling seven hours. These observation surveys were discontinued because the observer caused unacceptable levels of waterfowl disturbance. The trapper worked alone so only one vehicle was present on any given day. As suspected, the disturbance to waterfowl was minimal in that birds would leave the immediate area nearest the vehicle, and fly a short distance within the sanctuary.

Beaver Island closed area, established 2007, 717 acres; 2 miles south of Clinton Iowa.

Methods: Waterfowl numbers were determined from weekly aerial waterfowl surveys conducted by US Fish and Wildlife Service personnel in 2006 and Illinois Natural History Survey personnel in 2007, and by observers on the ground. No elevated observation point was available for the disturbance study. Observers accessed the area by boat and then walked the shoreline. Due to limits in staff time, a motion sensitive trail camera was set up north of the boat entry/exit channel to Beaver Island.

Results: Waterfowl use of the Beaver Island Closed Area was low in both 2006 and 2007 (Figure 9). Mallard numbers peaked at 25 in 2006 and reached 800 in 2007, but managers expected higher numbers in 2007. The relatively low peak in 2007 was attributed to the lack of food caused by high water in mid-August that killed much of the backwater aquatic vegetation. High water returned again between mid-October to mid-November made the remaining food sources inaccessible to the birds.

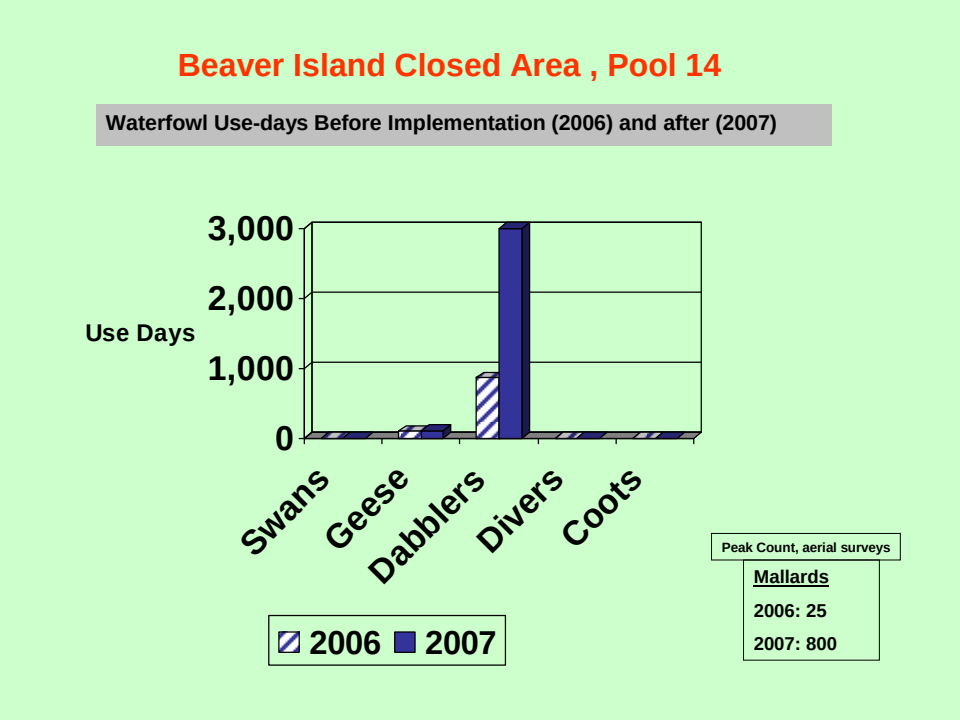


Figure 9. A comparison of waterfowl use-days at the Beaver Island closed area in the fall seasons of 2006 and 2007, Pool 14, UMRNW&FR.

Observers saw no boat intrusions into Beaver Island closed area during five visits and a total of 15 observation hours. The motion-sensitive camera was set up on October 6. It triggered 716 shots from October 6 to November 26, excluding October 12-16 when the batteries were dead. Eighteen boat intrusions were recorded, but only five occurred after October 15, when the voluntary avoidance provision went into effect. These five included one fishing boat, one hunting boat, one staged intrusion by FWS staff, and two boat wakes.

District Summaries of 2007 Closed Area Monitoring, Hunter Bag Checks, and Hunter Car Counts

Winona District

Opening day hunter success in the fall of 2007 was similar to previous years, as determined by bag checks conducted at 25 access points along the District. In Pools 4 - 6, between Wabasha and Winona, Minn., hunters averaged 1.6 ducks per hunter, as compared to 1.5 ducks per hunter over the previous 10 years.

Concern was expressed that the closed area changes would cause hunters to turn away. However, hunting pressure, measured by the number of hunting vehicles at boat landings, was similar to previous years. For example, opening day counts at 25 access locations along Pools 4-6, revealed 371 cars, very near the 10-year average of 381 vehicles.

The Big Lake area of Pool 4 is currently open to hunting and other uses, but is scheduled to be a closed area in 2009, as approved in the 2006 CCP. Structured, pre-implementation monitoring

of boating activity and waterfowl use was conducted in 2006 by Hallie Rasmussen, a University of Wisconsin – La Crosse graduate student. In 2005, preliminary monitoring was conducted by Refuge staff to select observation points and develop site-specific protocols. Boating studies were not conducted in 2007 because no changes were implemented that year.

In 2006, observers were present for 154 hours at the Big Lake area and documented 293 boating events. Of those, 209 (72%) caused disturbance of birds (1.4 per observation hour). Birds either swam or flew away for an average of three minutes per disturbance. Hunting boats caused 81% of all the major disturbances (97) and 72% of all minor disturbances (112). These results were consistent with surveys conducted in 2005.

La Crosse District

Opening day hunter success (retrieved waterfowl/hunter) and hunting pressure (car counts) in 2007 was similar to the previous two years at the La Crosse District, Pools 7 and 8. The 2007 bag checks revealed an average of 1.2 birds per hunter, compared to 1.1 birds in 2006 and 1.5 in 2005. The 2007 opening day car count was 502, compared to 470 in 2006 and 496 in 2005. In 2006, cars were not counted at Hunters Point landing due to lack of personnel, but in current years the landing has averaged about 62 cars, therefore the 2006 count was probably more than 530 cars, exceeding counts in 2005 and 2007 by about six percent.

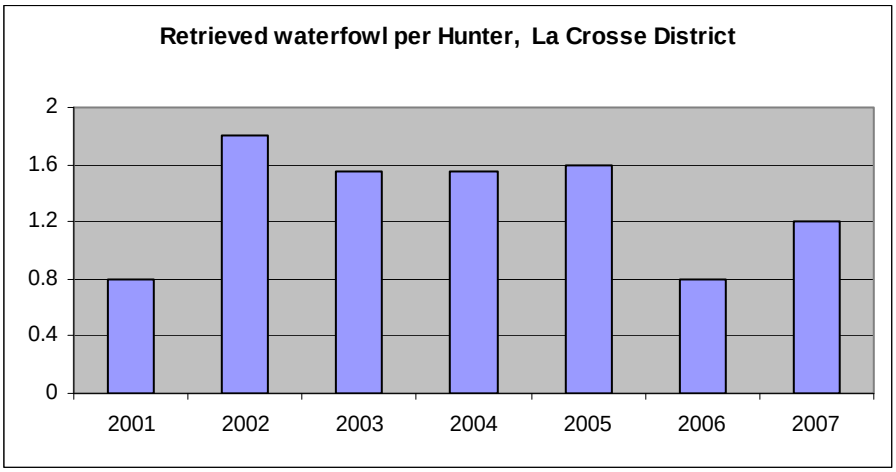


Figure 10. Trend in waterfowl retrieved per hunter on opening weekends determined from bag checks at boat landings, number of landings varies slightly by year, La Crosse District, UMRNW&FR.

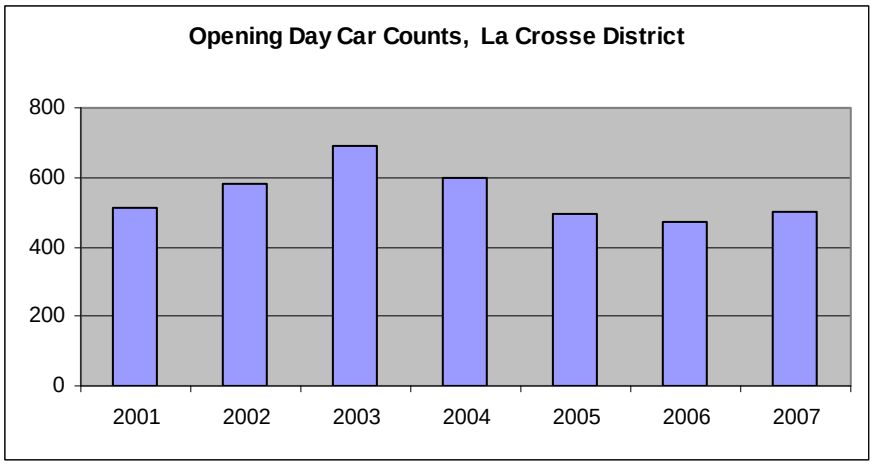


Figure 11. Number of cars counted at boating landings on opening weekends, number of landings varies each year due to time constraints and available personnel, La Crosse District, UMRNW&FR. See text for explanation.

A waterfowl hunting guide, operating largely in Pool 8, reported good hunter success. A total of 76 hunters in 36 parties harvested 253 waterfowl for an average of 3.3 birds/hunter, October 6 through November 28. Nearly two thirds of the birds were divers, including 87 canvasbacks. The first canvasback was taken on October 22. Nineteen of 30 parties (63%) guided after October 22 retrieved their daily 2-bird canvasback limit.

Two changes were implemented in 2007 to the boundary of the Lake Onalaska Closed Area in Pool 7. Near Proudfoot Slough, the actual change was an addition of about 11 acres compared with the estimate of 14 acres identified in the CCP. Along the section of boundary bordering the "old channel," about 3.5 acres were added to the closed area compared with the CCP estimate of 10 acres.

The 2007 expansion of the Goose Island No Hunting Zone in Pool 8 was about 108 acres, as posted, compared to the CCP estimate of 110 acres. The total area is now 984 acres. While no formal monitoring was conducted in 2007, no complaints were received, or observations made, of motor use in the area during the designated period of restriction (October 15 to the end of the duck hunting season).

With implementation, the expansion of the no hunting zone continued to draw a range of comments. For example, during waterfowl hunter bag checking operations on October 13, one hunter said the expansion resulted in hunter crowding in areas just across the sloughs from the new boundary. Another hunter thought the expansion benefited more Pool 8 hunters because waterfowl leaving the closed area moved over a wider area.

Aerial surveys in late September and October showed few birds using the new portion of the Goose Island No Hunting Zone, but numbers increased in late October and November. This build-up resulted in 3-year peak counts (2005-2007) for wigeon (1,335 on October 29) and mallards (6,270) and gadwall (4,350) on November 13. Further, redheads were observed using the open water area of the no hunting zone during the November 13 aerial survey. In past years,

ring-necked ducks have used the no hunting zone, but few other diving ducks have been recorded. Unfortunately, no aerial survey was conducted the week of November 19 due to inclement weather. A survey that week may have recorded a record number of ducks. An informal November 19 roadside survey found upwards of 1,000 canvasbacks staging in the open water area along Highway 35 for the full length of the no hunting zone, along with many gadwall. Tundra swans also were observed feeding in the emergent plant beds found in the expanded area.

For 2007, waterfowl (ducks, geese, and swans) use days in the Goose Island No Hunting Zone totaled 376,526, compared to 452,245 in 2006 and 275,213 in 2005.

Waterfowl distribution in the Goose Island No Hunting Zone will be mapped during the 2008 fall migration according to the protocol used in 2002, the last year mapping occurred.

McGregor District

Compliance with voluntary avoidance of the Wisconsin River Delta special hunt area was good. Overall levels of human disturbance of waterfowl in this area were below established thresholds. There is no reason at this time to consider further measures to secure the area for waterfowl via public use restrictions.

Hunter success in the Mc Gregor District was determined from mandatory reports submitted by hunting guides with Refuge permits. Success was higher in 2007 than in 2006. In Pool 9, one guide conducted 58 hunts involving 117 hunters. They took 480 birds (average of 4.10 per hunter). In 2006, in a similar number of hunts, the average bag was 3.08 birds per hunter. Another guide in the Pool 9 area also reported an increased harvest in 2007 and wrote, "By far for ducks, this was our best year, however just average for geese. In the 12 years of guiding, Gadwalls, Widgeon, Canvasbacks, Redheads, Ringnecks, Buffleheads, and Pintails were harvested at all time highs with several others very close."

Savanna District

During 2007, observers recorded only a few boat intrusions into the closed areas, all resulting in minimal waterfowl disturbance. However, it is apparent that many people did not understand the closed area regulations related to Voluntary Avoidance. For example, when a FWS employee was checking the boundaries at Kehough Slough on December 16, several ice fishermen were present but they hurriedly left the area upon seeing refuge staff in FWS uniforms. Duck hunting in Illinois extended until December 18, so they probably believed they were in violation by being in the Closed Area. Few of the local papers printed a District news release about the changes.

<u>Analysis of Trail Camera Use, Savanna District</u>

The motion sensitive trail cameras were minimally successful because wind continually set off the cameras and the type of boat (hunting or fishing) could not be determined because the camera's reaction time was slow so it usually only recorded the boat's wake. The camera at Kehough Slough was stolen during the third week of use.

The District will continue to work on the use of cameras for 2008, possibly mounting them inside a wood duck nest box, as they could be a great low cost tool for additional monitoring. We will continue to research the technical capabilities with the manufacturer to determine how to reduce random triggering by wind, waves, air, or other factors and to determine if quicker photo response can be obtained. Savanna District will continue to monitor the closed areas in 2008 with the same priorities as in 2007.

Literature Cited

Kenow, K., J. Nissen, and S. Houdak. 2005. Boater compliance with the Lake Onalaska voluntary avoidance area in the Fall of 2004. Report to Region 3, U.S. Fish and Wildlife Service. July 2005. 16 pages.