

## 2009 PATUXENT NWR WATERBIRD CENSUS

Dec. 2008 – Dec. 2009

Surveys of waterbird species use of the Patuxent Research Refuge have been conducted weekly since 1997. Surveys cover about 50 wetland areas encompassing approximately 560 acres, plus approximately  $\frac{3}{4}$  mile segments of the Patuxent and Little Patuxent Rivers. The amount and location of habitat has varied considerably over the years because of droughts, modifications in beaver activities and artificial impoundment drawdowns.

### Weather

Precipitation in 2009 was about ten inches above normal, with no prolonged periods of drought.

#### Winter Quarter

December was mild, with only one brief spell of a hard freeze. January and February were very cold; January was the coldest in ten years. Impoundments were still frozen at the end of the quarter.

Precipitation was normal in December, close to normal in January, and the driest on record in February with only a trace recorded.

#### Spring Quarter

March began with very cold weather and eight inches of snow, but was back to normal by mid-month with temperatures above freezing. Mid-May was unusually cold with a record low of 36 on May 19.

March precipitation was  $\frac{1}{2}$  of normal, but the rest of the quarter was wet, with April twice normal and May recorded nine inches. All wetlands were full by the end of the quarter.

#### Summer Quarter

Precipitation continued above normal through June, but fell 1  $\frac{1}{2}$  inches below normal in July and water levels began to fall. August levels were one inch above normal and water levels did not fall further.

#### Fall Quarter

This quarter was very mild and wet. There was no hard freeze. September precipitation was normal but October and November very wet at six inches above normal. All wetlands were full except Wood Duck Pond and Duval 2, that were not deliberately drawn down.

### Impoundment Management

Duval 1, Uhler 1, and Mabbott Ponds were drained in 2008 in anticipation of installing beaver baffles. None were in place by the end of 2009. Boards were put back into Uhler 1 in early April and Duval 1 in mid-July. A break in the drain prevented reflooding Mabbott and it remained dry the entire year.

Two new shallow intermittent ponds were built in the endangered species area, one in 2008 and the second in 2009. There was very little water in either at the end of the year. Censusing is difficult since they are only available in late fall and early winter.

The two green-tree impoundments, Patuxent Marsh and Green-tree Pond, were drained in early May and boards were put back in near the end of November.

Boards were pulled in the following impoundments in late-June for vegetation control: Lake Allen, Knowles 3 and Hance 1 and 2. Knowles 3 and Hance 2 were completely drained. Lake Allen and Hance 1 were partially drained.

Beaver problems continued with some impoundments being plugged up with debris. In spite of trapping during the winter of 2008-2009, new animals moved into Blue Heron, Hance 1 and Hobbs Ponds. A small dam was built in the upper end of Rogue Harbor but causes no problems. The culverts under Millrace Road have been plugged up for a number of years, but heavy rains this year have flooded the road. The drains were cleared at the end of the year, resulting in about ½ of Millrace Pond being drained.

#### Summary of 2009 waterbird census

Canada geese were somewhat below the 1997-2006 ten year average. Mallards and black ducks equaled the ten year low. Hooded mergansers reached a record low. Wood ducks, ring neck ducks, American green-wing teal, great blue herons, green herons, bald eagles, and ospreys were all above the ten year average. The accompanying tables provide details.

#### Species Accounts

##### Total Waterfowl

This includes geese, ducks and swans. Waterfowl days-use in 2009 was 248,000. This was about the same as 2008 and well below the ten year average. Peak use was 347,000 days in 2005 and the low was 178,000 in 2003. The ten year average was 272,000 days.

##### Canada goose

Total days use for 2009 was 133,000. This was the same as 2008, and well below the ten year average of 151,000. The record high was 237,000 in 2005 and the low 78,000 in 2003. Winter quarter counts were close to double those of 2007 and 2008, but below the ten year average. The record low Spring Quarter reflects the continuing decline in the breeding population. The count was 18,000 compared to the record high of 53,000 in 1999. The Summer Quarter showed an increase over 2008 with a small increase in gosling survival but was still well below the ten year average. Migrants were present for a very short period during the Fall Quarter resulting in a significant decline from 2007 and 2008 and well below the ten year average.

##### Wood Duck

Total days use increased from 36,000 in 2008 to 47,000 in 2009, which was close to the record high of 49,000 in 1997 and well above the 38,000 ten year average. This was entirely due to the near record high Fall Quarter count of 21,000 days-use. The very mild fall held the birds longer than normal. Both Spring and Summer counts were near the ten year average.

##### Mallard

The total days-use of 18,000 approached the record low of 2007. Winter counts were near normal but Spring counts were ½ of the ten year average and Summer counts almost disappeared, reflecting the collapse in the breeding population. Fall counts were a record low.

##### Black Duck

There was a steep decline from 2007 and 2008 to close to a record low of 5500 days-use. The record low was 5100 in 2004. The ten year average is 9,000. There was a decline in every quarter. They are rare during the Summer Quarter.

##### Hooded Merganser

There was a record low of 3765 days-use. The previous low was 5660 in 2007. This was ½ the ten

year average. The record high of 9500 was recorded in 1999. There were declines in all four quarters. The breeding population crashed and there were very few fall migrants.

#### Ring-neck Duck

This species is strictly a migrant and our most abundant wintering species. Populations vary considerably from year to year, depending on weather, and for reasons unknown. The 2009 count of 37,000 was above the ten year average of 32,600 but well below the high of 47,000 in 2006.

#### American Green-wing Teal

This species is strictly a migrant and populations vary considerable from year to year. The 2009 count of 2600 was close to the record high in 2005 and twice the ten year average. In contrast, the record low was only 380 in 2003. Reasons for this variation from year to year are unknown.

#### Pied-billed Grebe

Populations have remained level over the past three years at about 400 days use. For reasons unknown counts remain well below the ten year average of 800 days. They are rarely recorded during the Winter or Summer Quarters.

#### Belted Kingfisher

Counts have increased during the past three years to 1200 days-use in 2009, but this is still below the ten year average of 1600 days. The high was 1900 in 2002.

#### Shorebirds

Since 2009 was a wet year, shorebird habitat was very limited. The 3000 days use was well below the ten year average of 8700, but somewhat above last year's record low. Killdeer continue to be the most abundant species. However, the Spring Quarter found solitary sandpipers and Wilson's snipe to be of equal abundance.

#### Waders

Total days-use by all species of waders was 10,000, just at the ten-year average. Waders included great blue herons, green herons, little blue herons, great egrets, and American bitterns.

#### Great Blue Heron

Great blues comprise 70% of wading birds. Counts increased substantially over 2008 to 7200, well above the ten year average of 6400, but somewhat below the high of 7700 in 1998. The continued expansion of the breeding colony substantially increased Spring and Summer counts. Fall counts rebounded from the 2008 record low to 1700 days, 300 days above the ten year average.

#### Green Heron

Green herons continued to increase in numbers over the past three years to near 2,000 days-use. The count was 200 days above the ten year average, but well below the 2900 high of 1999. The Summer Quarter comprises  $\frac{3}{4}$  of their annual total.

#### Great Egret

Counts increased by 500 days over 2008 to almost 900 days, still below the ten year average of 1100 days. They are concentrated on the Refuge in late summer and early fall with numbers highest during years of summer drought.

## Raptors

In addition to bald eagles and ospreys, we recorded three northern harriers. We also record red-shouldered and red-tailed hawks when seen in the vicinity of the census areas.

## Bald Eagle

Counts reached a record high of 476 days-use in 2009. The previous high was 343 in 2007, and the ten year average is 216.

## Osprey

Counts over the past three years continued to decline to 469 days, down from 500 in 2008 and 560 in 2007. The counts are still well above the ten year average of 243 but well below the high of 830 in 2005.

## Aquatic Mammals

### Beaver

They are recorded when seen, but sightings do not indicate population trends. This is best done with lodge counts. The population is probably stable with almost all habitat occupied. We estimate the population at about 300 animals. Nuisance animals continue to be removed from areas threatened with washouts and road flooding.

### Otter

As with beaver, we record all animals seen, but this is not a good indicator of numbers. We know from scat that the species is common, but numbers are unknown. There were only two sightings in 2009, down from eight in 2008.

Muskrat – None were seen in 2009. There are very few indications of the presence of the species.

WATERBIRD DAYS USE BY QUARTER  
 Patuxent National Wildlife Research Refuge  
 Winter

Species	10 yr avg 97-06			2007	2008	2009	2010
	avg	high (YR)	low (YR)				
CAGO	50,052	120,015 (05)	14,168 (03)	37,926	39,174	70,560	
WODU	756	1,526 (08)	105 (06)	462	1,526	627	
MALL	11,717	19,331 (02)	6,792 (97)	9,205	7,609	10,307	
ABDU	4,269	6,664 (02)	2,226 (04,97)	5,026	5,537	2545	
HOME	3,783	5,082 (02)	1,995 (03)	1,953	4,858	2477	
RNDU	14,648	24,410 (07)	5,880 (99)	24,410	16,527	14,510	
AGWT	346	1,736 (00)	0 (97)	42	21	0	
OTHERS	522	1,165 (99)	77 (01)	126	189	196	
Total Waterfowl	86,093	153,230 (05)	49,783 (03)	80,150	75,441	101,222	
KILL	829	3,282 (98)	0 (03,06)	392	140	280	
WISN	148	532 (99)	0 (97,03,05,06)	126	42	63	
Total Shorebirds	987	3,619 (98)	0 (04,06)	518	182	343	
AMCO	15	56 (01)	0 (98,00,02,03,05)	49	0	21	
GBHE	437	861	168 (04)	413	385	189	
PBGR	70	168 (01)	0 (03)	70	70	35	
BEKI	197	371 (02)	35 (04)	147	147	140	
BAEA	41	98 (02)	7 (97,03)	42	70	133	

WATERBIRD DAYS USE BY QUARTER  
Patuxent National Wildlife Research Refuge  
Spring

Species	10 yr avg 97-06			2007	2008	2009
	avg	high (YR)	low (YR)			
CAGO	36,262	53,305 (99)	25942 (07)	25942	28882	18304
WODU	11,403	14,714 (98)	7,350 (00)	10521	11179	10570
MALL	8,818	13,895 (99)	3990 (07)	3990	6104	4568
ABDU	1,296	1,764 (00)	735 (07)	735	1386	777
HOME	2,603	3,920 (05)	1283 (08)	2660	1283	1029
RNDU	9,262	13,792 (04)	5,397 (05)	16415	11900	9136
AGWT	530	1,869 (04)	42 (97)	203	154	1428
OTHERS	498	1,407 (04)	215 (99)	357	875	329
Total Waterfowl	70,671	90,137 (99)	60,000 (02)	60823	61763	46141
AMCO	161	735 (97)	0 (05)	224	189	140
PBGR	404	980 (00)	112 (98, 05)	210	280	154
BEKI	335	574 (06)	154 (04)	175	217	91
KILL	552	1,519 (99)	56 (03)	280	133	196
SOSA	294	588 (99)	7 (03)	196	56	231
SPSA	132	322 (05)	7 (03)	70	35	70
YELE	184	966 (00)	0 (04)	235	7	0
WISN	661	2,450 (00)	14 (03)	161	133	154
OTHERS	123	567 (00)	0 (97,99,08)	224	0	49
Total Shorebirds	1,945	5,628 (00)	91 (03)	696	364	700
GBHE	1,809	3,158 (01)	875 (03)	1414	1764	2023
GRHE	200	357 (01)	0 (97)	132	105	182
GREG	26	54 (03)	0 (97,99,08)	14	0	28
LBHE	6	28 (00)	(97,98, 01, 03, 04, 05)	21	0	0
OTHERS	37	91 (00)	7 (02, 04)	56	28	42
Total Wader	2,078	3,564 (01)	1,125 (03)	1637	1897	2275
BAEA	50	105 (06)	0 (97)	56	91	140
OSPR	123	305 (05)	35 (99)	196	259	231

WATERBIRD DAYS USE BY QUARTER  
 Patuxent National Wildlife Research Refuge  
 Summer

10 yr avg 97-06							
Species	avg	high	low	2007	2008	2009	2010
CAGO	15,089	21,954 (04)	6244 (08)	11,508	6244	9940	
WODU	13,314	17,731 (97, 04)	9,756 (99)	12,628	10,227	14,451	
MALL	2,339	4,606 (97)	406 (08)	469	406	385	
ABDU	251	826 (98)	7 (03, 06)	266	56	112	
HOME	174	350 (97)	0 (08)	91	0	7	
AGWT	4	14 (98, 00, 04)	0 (ALL OTHERS)	0	0	0	
OTHERS	23	98 (05)	0 (5 YRS)	7	0	28	
Total Waterfowl	31,195	42,079 (04)	20,600 (03,05)	24,969	16,933	24,923	
AMCO	21	14 (98)	0 (8 YRS)	14	0	0	
PBGR	40	154 (04)	0 (07)	0	28	14	
BEKI	432	693 (02)	189 (06)	266	189	294	
KILL	1,368	4,368 (99)	35 (03)	1,015	728	560	
SOSA	167	567 (98)	7 (03)	56	35	70	
WISN	8	63 (02)	0 (6 YRS)	0	0	0	
OTHERS	289	1015 (98)	0 (03)	182	52	49	
Total Shorebirds	1,927	6,202 (98)	84 (03)	1252	815	679	
GBHE	2,858	4,025 (98)	2,310 (00, 03)	3801	2597	3236	
GRHE	1,268	2,464 (99)	630 (97)	1267	1463	1486	
GREG	726	2,709 (98)	28 (99)	721	252	665	
LBHE	58	203 (98)	0 (01, 03, 05)	28	14	35	
OTHERS	10	35 (04)	0 (4 YRS)	21	7	14	
Total Waders	4,921	8000 (98)	3,520 (03)	5838	4333	5436	
BAEA	29	63 (00, 01)	7 (99,04)	56	21	63	
OSPR	106	7 (99)	497 (05)	364	245	231	

WATERBIRD DAYS USE BY QUARTER  
 Patuxent National Wildlife Research Refuge  
 Fall

Species	10 yr avg 97-06			2007	2008	2009	2010
	avg	high	low				
CAGO	49,829	71,529 (05)	24,675 (03)	63.322	60,108	34,482	
WODU	13,151	22,190 (01)	6,839 (99)	15.967	13,657	21,434	
MALL	6,947	9,331 (97)	3,919 (07)	3.919	6495	2569	
ABDU	3,286	6,146 (97)	1,505 (04)	3.967	2702	2086	
HOME	1,287	2,191 (99)	413 (08)	959	413	252	
RNDU	8,699	13,670 (06)	3,969 (03)	2.884	4151	13,614	
AGWT	957	2,581 (05)	84 (03)	525	294	1155	
OTHERS	970	4,452 (97)	77 (06)	644	476	259	
Total Waterfowl	85,125	109,000 (05)	47,000 (03)	92.187	88,296	75,851	
AMCO	65	119 (06)	0 (02)	21	0	35	
PBGR	307	644 (97)	70 (08)	161	70	196	
BEKI	630	829 (06)	160 (03)	273	609	693	
KILL	1,138	3,178 (98)	259 (04)	994	945	1127	
SOSA	61	210 (03)	7 (99, 04)	91	21	91	
SPSA	14	39 (01)	0 (5 YRS)	7	0	49	
YELE	125	385 (98)	7 (00)	105	224	42	
WISN	157	679 (98)	0 (04)	77	203	42	
OTHERS	93	357 (05)	0 (03)	77	0	0	
Total Shorebirds	1,588	4,448 (98)	483 (04)	1351	1393	1351	
GBHE	1,461	1,967 (98, 05)	973 (08)	1.596	973	1729	
GRHE	253	546 (01)	112 (99)	238	246	280	
GREG	367	1,064 (98)	21 (05)	322	259	175	
LBHE	26	112 (00)	0 (99, 03, 05, 06)	126	63	28	
OTHERS	2	14 (00)	0 (8 YRS)	0	14	0	
Total Waders	2,110	3,269 (98)	1,337 (99)	2.282	1555	2212	
BAEA	95	154 (98, 05)	14 (99)	189	133	140	
OSPR	14	42 (98)	0 (04)	0	0	7	

WATERBIRD DAYS USE  
Patuxent National Wildlife Research Refuge  
Total for the Year

Species	10 yr avg 97-06			2007	2008	2009	2010
	avg	high	low				
CAGO	151,232	236,874 (05)	77,736 (03)	138,698	134,408	133,286	
WODU	38,624	49,462 (97)	29,258 (99)	39,578	36,589	47,082	
MALL	29,821	37,290 (02)	17,578 (07)	17,578	20,614	17,829	
ABDU	9,103	13,160 (98)	5,082 (04)	9,994	9681	5520	
HOME	7,846	9,527 (99)	5,663 (07)	5,663	6554	3765	
RNDU	32,608	47,369 (06)	18,396 (99)	43,709	32,578	37,260	
AGWT	1,491	2,650 (98, 05)	378 (03)	770	469	2583	
OTHERS	1,599	5,100 (97)	539 (00)	1,134	1540	833	
Total Waterfowl	272,324	347,000 (05)	178,000 (03)	257,129	242,433	248,137	
AMCO	244	896 (97)	21 (02)	308	189	196	
PBGR	819	1,547 (00)	273 (03)	441	448	399	
BEKI	1,593	1,918 (02)	791 (03)	861	1162	1218	
KILL	3,886	12,124 (98)	1,106 (03)	2,680	1946	2163	
SOSA	533	1,008 (99)	105 (04)	343	112	392	
SPSA	199	483 (99)	28 (04)	77	35	168	
YELE	350	987 (00)	91 (02, 04)	340	231	42	
WISN	826	2,555 (00)	203 (05)	364	378	259	
OTHERS	653	1,358 (98)	0 (03)	483	52	0	
Total Shorebirds	8,711	18,945 (98)	2,754 (08)	4,287	2754	3024	
GBHE	6,385	7,714 (98)	4,704 (03)	7,224	5719	7177	
GRHE	1,722	2,919 (99)	959 (97)	1,637	1814	1948	
GREG	1,120	3,794 (98)	203 (99)	1,057	511	868	
LBHE	90	245 (98)	0 (03, 05)	175	77	63	
OTHERS	49	112 (00)	28 (06)	77	49	56	
Total Wader	9,365	13,076 (98)	6,654 (03)	10,170	8170	10,112	
BAEA	216		91 (97)	343	315	476	
OSPR	243	830 (05)	56 (99)	560	504	469	