

## 2003 PATUXENT NWR WATERBIRD CENSUS

Dec. 2002 – Dec. 2003

Intensive surveys of waterbird use of the Patuxent Research Refuge have been conducted weekly since 1997. Originally surveys covered 53 wetland units encompassing approximately 560 acres, plus segments of the Patuxent and Little Patuxent Rivers. The amount of habitat has varied considerably over the years because of artificial draw-downs and drought. Three units were lost on North Tract in the past year; Rogue Harbor (17 acres) and Powerline (10 acres) were lost when beaver dams were destroyed. Midway (10 acres) was lost when beaver left the unit and the dam was breached. The 1998 report contains an in-depth discussion of the units in the survey. Units drawn down in 2003 included Duval 1, Hance 2, Harding Spring, Mabbott, Lake Redington, and Millrace. Mabbott refilled by the end of the year; the other units remained drained. Census tables for the most common waterbird species by season and Tract are attached. Purposes and methodology did not change.

### Weather

2003 was an incredible year weather-wise. After two years of record drought, we had the wettest year on record. Normal precipitation is about 40"; we had over 60". This included a record blizzard of 30" in February. Only January, March and April had normal rainfall. No month was below average. Highest precipitation was June - 8", February - 7" and September - 6 1/2 inches. Hurricane Isabel accounted for most of September's rain. It also caused incredible devastation of our forests, particularly along the Patuxent River. We also had the coldest winter in 10 years. Only a short thaw near the end of December interrupted a freeze of most units that lasted from early December until mid-March. We had a cool and wet spring, with near freezing weather in mid-April. All units were full until the end of July when a few units with limited watersheds began to dry up. Isabel returned all units to full and spilling over.

### Results

#### General comments

Record low numbers were recorded for all common waterbird species except ring-neck ducks. This included all quarters of the year except Spring.

#### Waterfowl

Total waterfowl-days use on the Refuge have been declining since 2001. In 2003, use declined precipitously to 176,400, 65% below the seven-year average of 264,500. All common species, except the ringneck, declined. Canada goose and mallard populations crashed. Because of the weather, the record low 48,000 days use during the Winter quarter was expected. Only the rivers and a small area near the bubblers on Cash Lake were open most of the time. The rest of the year defies explanation. Spring quarter was late and many migrants, particularly wood ducks, moved through quickly. The abundance of water may have scattered birds so much as to affect counts. Summer use at 20,700 was well below the 7-year average of 32,000, primarily because of a collapse in Canada goose and mallard populations. The Fall quarter was a real disaster, only 47,000 days use compared with a 7-year average of 87,000.

Canada Goose

After peaking at 194,000 days use in 1999, goose numbers declined to about 135,000 from 2000 through 2002. In 2003 use fell by 50% to 77,600 days. The severe winter and collapse of reproduction on the South Tract had a substantial impact. Band recoveries indicate a substantial harvest, with our flock not near as "local" as supposed. The fall migrant population also appeared to be down substantially. At 25,000, the fall count was 50% below the 7-year average. The lead shot die off on South Tract continued for the fourth year.

Wood Duck

Wood ducks had a record low count of 28,800. The 7-year average is 37,600. The winter quarter is not a factor. Spring quarter was near average at 9100 days, compared to the 7-year average of 10,888 and summer was also fair, at 11,000 compared to the 7 year average of 13,000. Fall brought a big decline, 8550 compared with the 7 year average of 13,000. The problem with these figures is that wetlands were more abundant and widespread than anytime since we began the surveys. Birds could spread out all over creation!

Mallard

After increasing every year since counts began to a peak of 37,300 in 2002, numbers fell to a low of less than 20,000, down 40% from the 7 year average. The Winter Quarter is most important for mallards and after increasing for three straight open winters, 2003 recorded a substantial decline to 7100 compared to a 7 year average of 12,000. The bottom really dropped out the rest of the year. Mallards almost disappeared during the Summer Quarter.

Black Duck

Black duck use also fell to the lowest number since the surveys began. Total use was 6780 days use, compared with 9940 for the 7 year average. The Winter quarter is also the most important for this species. Summer use disappeared altogether. The rate of decline was not as serious as for mallards. The percent of blacks to mallards increased from 18% in 2001 to 26% in 2003.

Hooded Merganser

The hard winter also affected use by this species. Overall use was 5700 days compared with the 7 year average of 8000. Winter use fell to 2000 days, compared with the 7 year average of 3900. Spring and fall use were near average, summer use was nonexistent.

Ring-neck Duck

There was a slight decline in ringnecks from the high of 38,000 last year to 36,500 this year, still well above the 7 year average of 31,500. The "bubblers" on Cash Lake provided enough open water to hold birds through the winter to reach a new high of 21,200 days-use, well above the 14,000 7 year average. There was also a new Spring Quarter high of 11,260, well above the 7 year average of 8740.

Other Waterfowl

Green-winged Teal and Ruddy Ducks have been of some importance in some years, but not in 2003. Other species in small numbers included Bufflehead, Gadwall, Blue-wing Teal, Northern pintail, American widgeon, Lesser Scaup, Canvasback, Domestic goose, and Tundra Swan. The swan was present on Knowles 3 through the spring.

Pied-billed Grebe

The decline in grebe use from the high of 1574 days-use in 2000 to a new low of 280 days in 2003 continued. Use was evenly divided between the Spring and Fall Quarters.

Belted Kingfisher

This species also hit a record low in 2003. From a peak of 1869 days-use in 2000 to 790 this year. Use was down in all quarters except spring.

Shore birds

The record high water levels and total lack of shoreline until Duval 1 and Lake Redington were drawn down in late summer resulted in a new shore bird low of 1876 use-days. The previous low was 2001 at 5100 days. The vast bulk of use was by killdeer. There were small numbers of common snipe, yellowlegs, spotted sandpipers and solitary sandpipers.

Wading Birds

Blue Heron

A record low of 4700 days of use was set in 2003. The next lowest total was 5300 days in 2000; the high was 7700 in 1998. The decline occurred over all four quarters.

Green Heron

This species also recorded a record low of 1400 use days. The next lowest figure was 1600 in 2003; the high was 2550 in 2001.

Great Egret

Use by this species almost disappeared. Less than 500 use days were recorded; compared with the next low of 640 in 2001 and a high of 1140 in 2000. Their use is almost entirely restricted to late summer and early fall on drawdown units.

Other Waders

This was the first year with no records of Little Blue Herons. The only other wader was a few spring records of American Bittern..

Raptors

Bald Eagle

Eagle use was widely dispersed compared to previous years when they concentrated on Lake Redington. We only recorded 200 use days, but about average for the last four years.

Osprey

Use was by far the highest since the census began. Excluding known hacked birds, use reached 322 days, compared with the next highest of 140 last year. There was one failed nesting attempt on Lake Redington. This pair was apparently not of hand reared origin.

Red-shouldered Hawk

We recorded approximately 18 pairs, which remains about the long term average.

Red-tailed Hawk

Ten pairs were recorded, compared to the record of 13 last year.

**Mammals**

Aquatic mammals are recorded as seen or as signs of activity.

Beaver

Record high water levels allowed beaver to disperse over a wide area. Individuals or activity was recorded on 10 units. They continue to be a nuisance on a number of man-made impoundments. Although trapped out on Merganser Pond last year, they have reappeared and have again flooded the islands. They have also flooded the islands on Blue Heron and Hobbs Ponds. Damage to dikes can be expected if this situation continues. By contrast, beaver have disappeared from a number of natural beaver ponds, including Midway, Range Pond, Beaver Valley, Millrace and Schangri-la.

Muskrat

Musk rats were seen on Cash Lake, the Borrow Pits, and Wood Duck Pond.

Otter

None have been seen since one was killed in a beaver trap on Knowles 3 in 2001

WATERBIRD DAYS USE BY QUARTER 1997 - 2003  
PATUXENT NATIONAL WILDLIFE RESEARCH REFUGE

**WINTER**

Species	1997	1998	1999	2000	2001	2002	2003
CAGO	25571	53837	61516	32165	33166	36890	14168
WODU	581	637	581	1106	1008	364	203
MALL	6792	11459	13895	15309	11298	19331	7112
ABDU	2237	5838	4823	4788	3927	6664	2884
HOME	3073	4326	4389	4165	4032	5082	1995
RNDU	15875	16149	5880	11060	9625	20580	21196
AGWT	0	7	280	1736	98	973	77
RUDU	0	560	980	364	7	35	175
OTHERS	84	336	185	238	70	448	140
Total Waterfowl	54214	93156	92529	70931	63231	90367	47950
AMCO	21	0	14	0	56	0	0
PBGR	49	63	91	168	14	98	0
BEKI	196	238	301	126	231	371	56
KILL	644	3283	1715	602	231	1449	0
SOSA	0	105	0	0	0	0	0
SPSA	0	0	0	0	0	0	0
YELE	0	0	42	0	0	0	0
COSN	0	231	532	133	7	511	0
OTHERS	0	7	0	0	0	0	0
Total Shorebird	644	3619	2247	735	238	1960	0
GBHE	252	441	721	399	343	861	294
Total Wader	259	469	721	399	343	861	294
BAEA	7	42	63	28	21	98	7

## SPRING

Species	1997	1998	1999	2000	2001	2002	2003
CAGO	40624	39991	53305	31857	33047	31787	29798
WODU	13797	14714	12082	7350	9926	9009	9163
MALL	8988	9395	13895	9394	12047	8547	6245
ABDU	1351	1694	1232	1764	1099	1134	1162
HOME	1855	2870	2926	1939	2989	2611	2394
RNDU	10087	11116	5936	7007	9492	6293	11263
AGWT	42	658	546	945	350	385	294
RUDU	0	7	14	0	7	0	14
OTHER	560	854	168	322	231	245	483
Total Waterfowl	77266	81320	90104	60578	69762	60011	60810
AMCO	735	21	14	147	161	21	7
PBGR	665	112	406	980	483	350	133
BEKI	210	413	308	385	420	287	287
KILL	602	1295	1519	812	420	245	56
SOSA	315	252	588	560	567	238	7
SPSA	84	140	252	273	91	77	7
YELE	105	70	385	966	126	21	7
COSN	294	553	2170	2450	154	308	14
OTHER	0	0	105	567	231	140	0
Total Shorebirds	1407	2310	5019	5628	1589	1029	91
GBHE	2324	1281	2170	994	1358	1232	875
GNHE	0	21	343	322	357	217	154
GREG	0	21	0	42	14	28	54
LBHE	0	0	14	28	0	7	0
OTHER	42	35	35	91	35	7	42
Total Waders	2590	1631	2632	1477	1764	1491	1125
BAEA	0	7	49	35	70	49	84
OSPR	63	42	35	49	70	105	168



## SUMMER

Species	1997	1998	1999	2000	2001	2002	2003
CAGO	16002	19103	20895	13188	13636	16891	9072
WODU	17731	13692	9756	13979	14966	11865	10885
MALL	4606	2940	3010	2849	3472	1915	553
ABDU	595	826	287	357	196	140	7
HOME	350	210	21	238	210	7	77
AGWT	0	14	0	14	0	0	0
OTHER	0	7	0	0	7	0	60
Total Waterfowl	39284	36792	33971	30625	32487	30818	20664
AMCO	7	14	0	0	0	0	0
PBGR	119	56	0	14	21	7	7
BEKI	462	448	504	567	455	693	287
KILL	1498	4368	2751	1057	1211	434	35
SOSA	231	567	413	105	63	154	7
SPSA	21	91	231	35	42	49	42
YELE	21	154	189	14	7	0	0
COSN	7	7	0	0	0	63	0
OTHER	70	1015	511	504	477	7	0
Total Shorebird	1778	6251	5019	1715	1800	707	84
GBHE	3108	4025	3185	2310	2786	2671	2324
GNHE	630	1064	2464	1526	1652	1190	965
GREG	630	2709	28	490	322	623	231
LBHE	14	203	21	70	0	140	0
OTHER	7	7	0	7	14	28	0
Total Wader	4998	8932	6356	4403	4774	4652	3520
BAEA	21	35	7	63	63	42	14
OSPR	14	21	7	42	21	35	147

## FALL

Species	1997	1998	1999	2000	2001	2002	2003
CAGO	57512	57099	58492	53067	56287	50120	24675
WODU	17353	10934	6839	12719	22190	11529	8545
MALL	9331	9142	5320	7980	9121	7497	5761
ABDU	6146	4802	4697	2954	2856	2520	2653
HOME	868	1624	2191	1848	770	1477	1309
RNDU	10682	6223	6580	8379	12089	11375	3969
AGWT	553	1981	1680	1104	637	420	84
RUDU	1890	406	840	70	91	329	0
OTHER	2562	616	1120	63	336	280	91
Total Waterfowl	105014	92421	86919	88184	104377	85547	47087
AMCO	133	7	133	35	56	0	84
PBGR	644	273	581	385	252	126	133
BEKI	679	721	490	791	735	567	161
KILL	1687	3178	756	658	1029	448	1015
SOSO	56	70	7	21	49	63	210
SPSA	28	14	0	0	39	35	14
YELE	133	385	21	7	14	70	252
COSN	21	679	203	105	91	63	210
OTHER	28	112	14	14	259	7	0
Total Shorebird	1974	4438	1001	805	1481	686	1701
GBHE	1253	1967	1050	1596	1706	1575	1211
GNHE	329	196	112	294	546	203	315
GREG	203	1064	175	609	308	385	189
LBHE	7	42	0	112	28	49	0
OTHER	0	0	0	14	0	7	0
Total Wader	1792	3269	1337	2618	2588	2219	1715
BAEA	63	154	14	98	105	84	112
OSPR	7	42	14	14	14	7	7



**TOTAL WATERBIRDS DAYS USE 1997 - 2003**

Species	1997	1998	1999	2000	2001	2002	2003
CAGO	139707	170030	194208	132150	136136	135688	77623
WODU	49462	39977	29258	35154	48090	32767	28796
MALL	29717	32936	36120	35532	35938	37290	19671
ABDU	10329	13160	11039	9863	8078	10458	6776
HOME	6146	9030	9527	8190	8001	9583	5705
RNDU	36644	33488	18396	26432	31206	38248	36428
AGWT	595	2660	2506	3799	1085	1778	455
RUDU	1890	973	1834	434	105	364	175
OTHER	3206	1813	1351	623	644	742	896
Total Waterfowl	277698	304067	304239	252191	269283	267660	176525
AMCO	896	42	161	182	273	21	91
PBGR	1477	504	1078	1574	770	581	280
BEKI	1547	1820	1603	1869	1841	1918	791
KILL	4431	12124	6741	3129	2891	2576	1169
SOSO	602	994	1008	686	679	455	28
SPSA	133	245	483	308	172	161	210
YELE	259	609	637	987	147	140	259
COSN	322	1470	2905	2688	252	945	210
OTHER	56	1176	630	1085	967	147	0
Total Shorebird	5803	16618	12404	8883	5108	5880	1876
GBHE	6937	7714	7126	5299	6193	6339	4704
GNHE	1799	2387	2919	2142	2555	1610	1434
GREG	833	3794	889	1141	644	959	474
LBHE	21	245	35	210	28	196	0
OTHER	70	42	35	105	49	35	42
Total Wader	9639	14301	10423	8792	9469	9286	6654
BAEA	266	364	133	224	259	259	210
OSPR	84	112	56	105	105	140	322