2008

Virginia bald eagle nest and productivity survey: Year 2008 report

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VIRGINIA BALD EAGLE NEST AND PRODUCTIVITY SURVEY: YEAR 2008 REPORT

CENTER FOR CONSERVATION BIOLOGY
COLLEGE OF WILLIAM AND MARY

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Recommended Citation:

Watts, B. D. and M. A. Byrd 2008. Virginia bald eagle nest and productivity survey: Year 2008 report. Center for Conservation Biology Technical Report Series, CCBTR-08-05. College of William and Mary, Williamsburg, VA. 39 pp.

Project Funded By:
The Virginia Department of Game and Inland Fisheries
(Wildlife Diversity Program)
Center for Conservation Biology

Front Cover: ***Survey crew lft to rt: Captain Fuzzzo, Bryan Watts, and Mitchell Byrd. Photo CCB.***

The Center for Conservation Biology is an organization dedicated to discovering innovative solutions to environmental problems that are both scientifically sound and practical within today's social context. Our philosophy has been to use a general systems approach to locate critical information needs and to plot a deliberate course of action to reach what we believe are essential information endpoints.

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EXECUTIVE SUMMARY

By the late 1960's, the Virginia bald eagle breeding population had been decimated by eggshell thinning and associated low productivity. In 1977, the U. S. Fish and Wildlife Service formed the Chesapeake Bay Bald Eagle Recovery Team. This team was tasked with developing a plan for the recovery of the Bay population. As part of this process, state wildlife agencies assumed the responsibility for population monitoring. The Virginia Department of Game & Inland Fisheries along with the College of William & Mary initiated a systematic survey in the spring of 1977. Since that time, the annual bald eagle survey has become the most essential element of a successful conservation strategy. Our objectives in continuing the Virginia bald eagle nest survey are 1) to monitor the recovery of the bald eagle in Virginia, 2) to document the status, distribution, and productivity of breeding bald eagles in Virginia, 3) to provide information to the government agencies charged with the management and protection of the Virginia Bald Eagle population, 4) to provide information to land holders about the status of Bald Eagles on their properties, and 5) to increase our understanding of Bald Eagle natural history in Virginia.

The Virginia Bald Eagle survey measures breeding activity and productivity via a standard 2-flight approach. The first flight is conducted between late February and mid-March to locate active nests. A high-wing Cessna 172 aircraft is used to systematically overfly the land surface at an altitude of approximately 100 m to detect eagle nests. All Bald Eagle nests detected are plotted on 7.5 min topographic maps and given a unique alpha-numeric code. Each nest is examined to determine its condition and activity status. The second survey flight is conducted from late April through mid-May to check active nests for productivity.

During the 2008 breeding season, the annual survey documented 584 occupied Bald Eagle territories in Virginia. This number represents a 4.3% increase over 2007. The number of active nests increased by 5.3% and 120 new nests were mapped. Occupied territories were located within 40 counties and 9 independent cities. The majority of known territories continue to be concentrated within the coastal plain with less than 4% of pairs occurring in the piedmont and mountains. A total of 864 chicks were counted during the productivity flight. This is the highest chick production recorded during the 32-year history of the survey. The Virginia population continues to have tremendous reproductive momentum. Of 8,364 chicks documented in the past 32 years, 10.3% were produced in 2008 and nearly 65% were produced since 2000. In general, this momentum is the combined result of an overall increase in the breeding population, the breeding success rate and the average brood size.

BACKGROUND

Context

No specific estimates of the Chesapeake Bay Bald Eagle population are available prior to the early 1900's. However, given the high productivity of Bay waters and the availability of extensive shallow-water foraging areas, it has been speculated that prior to European settlement the Chesapeake Bay may have supported one of the densest breeding populations of Bald Eagles outside of Alaska. By applying breeding densities from Alaska to the 13,000 km of Chesapeake shoreline, Fraser et al. (1991) suggest that the pristine Chesapeake may have supported in excess of 3,000 breeding pairs of Bald Eagles. A more recent investigation (Watts et al. 2006) shows significant spatial variation in colonization rates and breeding density that suggests carrying capacity varies throughout the Bay. One implication of these results is that the initial carrying capacity of the Bay may have been approximately half of that projected by the Fraser et al. (1991) study.

A decline in the Chesapeake Bay Bald Eagle population was evident to the ornithological community by the mid-1950s. The first aerial survey of eagle nests in the Chesapeake Bay was conducted in 1962 (Abbott 1963). The survey included approximately twice the land area covered by Tyrell in 1936. Survey results suggested that about 150 breeding pairs of eagles remained in the Chesapeake Bay in 1962. Annual aerial surveys continued to document a decline until the population reached an estimated low of 80-90 pairs in 1970 (Abbott 1978).

In 1977, the U. S. Fish and Wildlife Service formed the Chesapeake Bay Bald Eagle Recovery Team (Abbott 1977). This team was tasked with developing a plan for the recovery of the Bay population. As part of this process, state wildlife agencies assumed the responsibility for population monitoring. As the state agency responsible for wildlife management, The Virginia Game Commission (currently, The Virginia Department of Game & Inland Fisheries) is responsible for Bald Eagle monitoring and management in Virginia. Under contract to the state M. A. Byrd took over responsibility for the survey in 1977. The 2008 breeding season represents the 32nd year of the comprehensive Bald Eagle breeding survey.

Objectives

Our objectives in continuing the Virginia bald eagle nest survey are:

1) to monitor the recovery of the bald eagle in Virginia
2) to document the status, distribution, and productivity of breeding bald eagles in Virginia

3) to provide information to the government agencies charged with the management and protection of the Virginia bald eagle population
4) to provide information to land holders about the status of bald eagles on their properties
5) to increase our understanding of bald eagle natural history in Virginia

METHODS

Study Area

The primary focus area for the Virginia Bald Eagle breeding survey includes the tidal reaches of Chesapeake Bay tributaries and the lower Delmarva Peninsula. All Chesapeake Bay tributaries in Virginia are systematically surveyed to the extent of tidal influence. These drainages encompass nearly all historic records of breeding eagles in Virginia and continue to support the vast majority of the population. Throughout the 1990s, several areas have been added to the core survey area including Back Bay/North Landing River area, Lake Drummond, Kerr Reservoir, Lake Chesdin, Swift Creek Reservoir, Diascund Reservoir, and Occoquan Reservoir. No attempts have been made to systematically survey the piedmont and mountain regions of Virginia. With the dramatic increase in inland reservoirs over the past few decades, it seems likely that breeding pairs remain undiscovered within these physiographic provinces. Nesting pairs known to occur within these regions have generally been discovered by agency biologists and the general public.

Survey

The Virginia Bald Eagle survey measures breeding activity and productivity via a standard 2-flight approach (Fraser et al. 1983). The first flight is conducted between late February and mid-March to locate active nests. A high-wing Cessna 172 aircraft is used to systematically overfly the land surface at an altitude of approximately 100 m to detect eagle nests. The aircraft is maneuvered systematically between the shoreline and a distance of approximately 1 km to cover the most probable breeding locations. All Bald Eagle nests detected are plotted on 7.5 min topographic maps and given a unique alpha-numeric code. Each nest is examined to determine its condition and activity status. A breeding territory is considered to be “occupied” if a pair of birds is observed in association with the nest and there is evidence of recent nest maintenance (e.g. well-formed cup, fresh lining, structural maintenance). Nests are considered to be “active” if a bird is observed in an incubating posture or if eggs or young are detected in the nest (Postupalsky 1974). The second survey flight is conducted from late April through mid-May to check active nests for productivity. A high-wing Cessna 172 is flown low over the nest allowing observers to examine nest contents. The number of eaglets present is recorded along with their approximate ages.

Survey plane over Hog Island Wildlife Management Area (lft) (photo by Bryan Watts). Typical isolated nest tree over marsh on Rappahannock River (rt) (photo by Bryan Watts).

Eaglets in nest on Corbin Hall Farm along the Rappahannock River (photo by Bryan Watts)

RESULTS

Breeding Population

A total of 584 Bald Eagle territories was determined to be occupied in Virginia during the 2008 breeding season (Table 1, see Appendices I – VIII for nesting details by geographic area). When compared to 2007, this represents a 4.3% increase in the breeding population (Table 2). This rate is one of the lower recorded during the 32-year history of the survey but followed the 15.5% increase between 2006 and 2007 (Figure 1). More than 120 new nests were mapped in 2008. Many of these new nests represent relocations within existing territories, although a substantial number of new territories were discovered. The number of active nests increased by 6.3% compared to the previous year.

Table 1. Summary of 2008 Bald Eagle survey results by geographic area. See methods for definitions of "occupied territory" and "active nest". Chicks/active nests and chicks/productive nests are mean values.

GEOGRAPHIC AREA	OCCUP TERRS	ACTIVE NESTS	CHICKS PROD	CHICKS/ ACT NEST[1]	CHICKS/ PROD NEST[1]
POTOMAC RIVER	139	132	211	1.67	1.91
RAPPAHAN. RIVER	145	140	211	1.57	1.87
YORK RIVER	65	63	101	1.63	1.98
JAMES RIVER	128	121	186	1.54	1.90
WESTERN SHORE	24	22	34	1.55	2.13
EASTERN SHORE	49	48	76	1.58	1.73
LOWER TIDEWATER	11	11	17	1.70	1.70
INLAND AREAS	23	20	29	1.61	1.93
TOTAL	**584**	**557**	**864**	**1.59**	**1.89**

[1]Calculated based on nests with known outcome. Success of 15 nests known to be active was not determined.

Growth between 2007 and 2008 was variable between geographic areas (Tables 1 and 2) with the largest gains documented on the Potomac and Rappahannock Rivers. As in 2007, documented breeding attempts increased in nearly all geographic areas. The majority of known territories continue to be concentrated within the coastal plain with less than 4% of known pairs occurring in the piedmont and mountains (it should be noted that the systematic survey is focused primarily on the coastal tributaries). Occupied territories were located within 40 counties and 9 independent cities (Table 3). Westmoreland, King George, Richmond, and Essex counties continue to support the highest number of pairs in the state. These 4 counties alone account for 31.5% of the state population.

Table 2. Summary of 2007 Bald Eagle survey results by geographic area. See methods for definitions of "occupied territory" and "active nest". Chicks/active nests and chicks/productive nests are mean values.

GEOGRAPHIC AREA	OCCUP TERRS	ACTIVE NESTS	CHICKS PROD	CHICKS/ ACT NEST[1]	CHICKS/ PROD NEST[1]
POTOMAC RIVER	123	117	160	1.33	1.74
RAPPAHAN. RIVER	143	139	188	1.45	1.84
YORK RIVER	63	58	82	1.41	1.74
JAMES RIVER	129	121	184	1.52	1.88
WESTERN SHORE	19	18	31	1.72	1.94
EASTERN SHORE	44	39	42	1.08	1.50
LOWER TIDEWATER	11	10	18	1.80	2.00
INLAND AREAS	28	22	32	1.68	2.00
TOTAL	**560**	**524**	**737**	**1.45**	**1.82**

[1]Calculated based on nests with known outcome. Success of 15 nests known to be active was not determined.

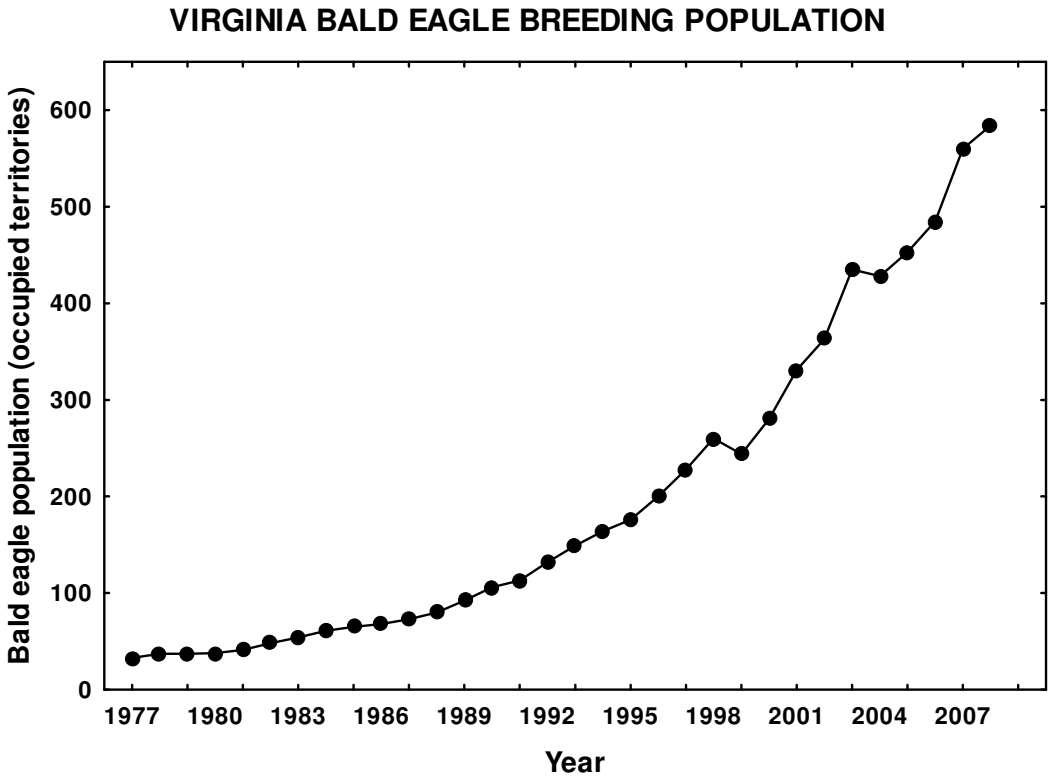

Figure 1. Annual increase values for the 32-year survey period (1977-2008). Values calculated as $(Pairs_t - Pairs_{t-1})/Pairs_{t-1} \times 100$.

Table 3. Summary of 2008 Bald Eagle survey results by jurisdiction. See methods for definitions of "occupied territory" and "active nest". Chicks/active nests and chicks/productive nests are mean values.

COUNTY	OCCUP TERRS	ACTIVE NESTS	CHICKS PROD	CHICKS/ ACT NESTS	CHICKS/ PROD NESTS
Counties					
Accomack	30	29(27)	46	1.59	1.70
Albemarle	?	-----	-----	-----	-----
Amherst	1	1(1)	1	1.00	1.00
Arlington	2	2(2)	4	2.00	2.00
Augusta	1	1(1)	1	1.00	1.00
Bath	1	1(?)	?	-----	-----
Bedford	1	1(1)	2	2.00	2.00
Buckingham	1	1(?)	-----	-----	-----
Caroline	18	17(8)[1]	17	1.55	2.13
Charles City	26	24(21)	40	1.67	1.90
Chesterfield	10	7(6)	10	1.43	1.67
Clarke	?	-----	-----	-----	-----
Culpepper	?	-----	-----	-----	-----
Essex	35	35(27)	57	1.63	2.11
Fairfax	16	15(12)[2]	27	1.80	2.25
Fauquier	?	-----	-----	-----	-----
Gloucester	11	11(9)	19	1.73	2.11
Goochland	?	-----	-----	-----	-----
Halifax	0	0	-----	-----	-----
Hanover	2	2(2)	2	1.00	1.00
Henrico	8	8(7)	14	1.75	2.00
Highland	3	2(0)[2]	0	0	0
Isle of Wight	8	8(8)	14	1.75	1.75
James City	23	22(16)	31	1.41	1.94
King and Queen	10	9(5)	10	1.11	2.00
King George	47	47(42)	79	1.68	1.88
King William	20	19(15)	31	1.63	2.07
Lancaster	9	8(6)	11	1.38	1.83
Louisa	?	-----	-----	-----	-----
Mathews	7	6(5)	12	2.00	2.40
Mecklenburg	9	9(7)	15	1.67	2.14
Middlesex	20	19(12)	23	1.21	1.92
Nelson	?	-----	-----	-----	-----
New Kent	15	15(15)	28	1.87	1.87
Northampton	19	19(17)	30	1.58	1.76
Northumberland	24	20(12)	24	1.20	2.00
Nottoway	1	1(1)	1	1.00	1.00

Table 3. –continued-

COUNTY	OCCUP TERRS	ACTIVE NESTS	CHICKS PROD	CHICKS/ ACT NESTS	CHICKS/ PROD NESTS
Page	?	-----	-----	-----	-----
Pittsylvania	?	-----	-----	-----	-----
Powhatan	1	1	2	2.00	2.00
Prince Edward	1	1	3	3.00	3.00
Prince George	18	17(13)	30	1.76	2.31
Prince William	9	9(8)	16	1.78	2.00
Pulaski	?	-----	-----	-----	-----
Richmond	42	41(35)	69	1.68	1.97
Shenandoah	?	-----	-----	-----	-----
Southampton	2	2(2)	4	2.00	2.00
Spotsylvania	?	-----	-----	-----	-----
Stafford	13	11(10)[3]	16	1.45	1.60
Surry	21	20(14)	24	1.20	1.71
Sussex	1	1(1)	1	1.00	1.00
Westmoreland	60	58(49)	92	1.59	1.88
York	9	9(6)[3]	10	1.11	1.67
Independent Cities					
Chesapeake	3	3(3)	5	1.67	1.67
Hampton	3	3(3)	7	2.33	2.33
Hopewell	1	1(1)	2	2.00	2.00
Newport News	6	6(5)	7	1.17	1.40
Norfolk	1	1(1)	1	1.00	1.00
Petersburg	1	1(1)	2	2.00	2.00
Richmond	1	1(1)	2	2.00	2.00
Suffolk	7	7(5)	9	1.29	1.80
Virginia Beach	6	6(5)[3]	10	1.67	2.00

[1]Results of 6 active nests unknown.
[2]Results of 2 active nests unknown.
[3]Results of 1 active nest unknown.

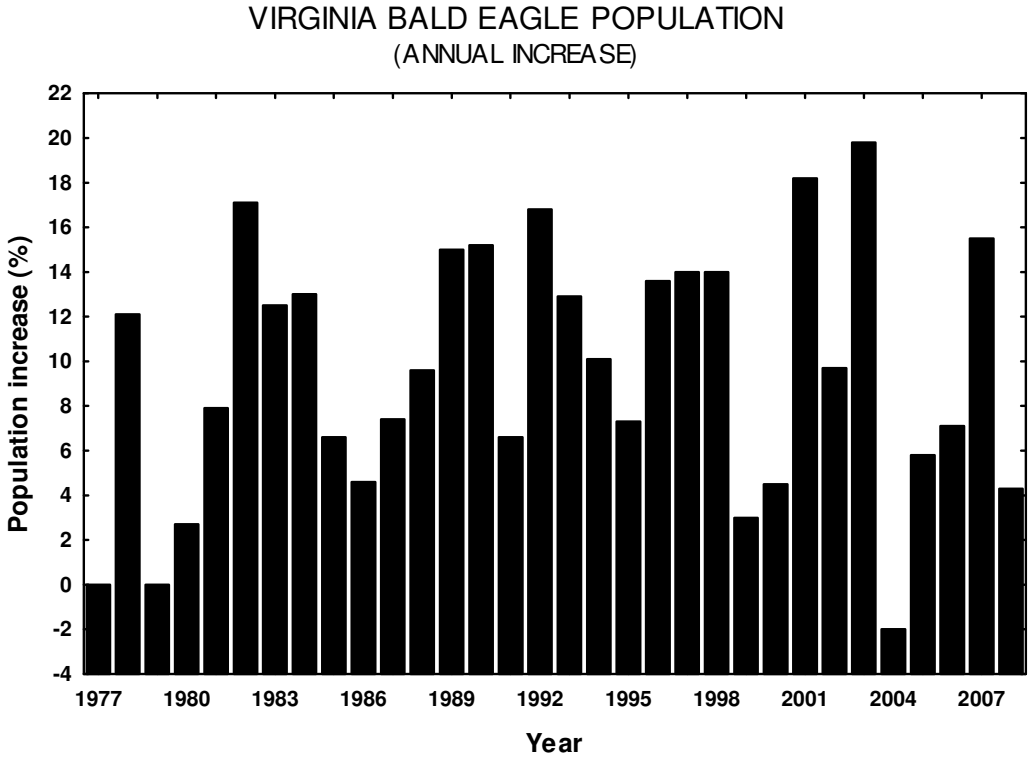

Figure 2. Change in the Virginia Bald Eagle breeding population 1977-2008.

Productivity

A total of 864 chicks were counted during the productivity flight (Table 1, see Appendices I – VIII for nesting details by geographic area). This is the highest chick production recorded during the 32-year survey. The Virginia population continues to have tremendous reproductive momentum. Of 8,369 chicks documented in the past 32 years, 10.3% were produced in 2008 and nearly than 65% were produced since 2000 (Figure 3). In general, this momentum is the combined result of an overall increase in the breeding population, the breeding success rate and the average brood size. Average reproductive rate (1.59 chicks/breeding attempt) was the highest in the survey history. Success rate and average brood size were both high in 2008. The percentage of active nests that were documented to be successful was 84.5% (Figure 4). Average brood size (chicks/productive nests) was 1.829chicks/nest (Figure 5). These values continue the upward trend in reproductive performance observed over the past 15 years.

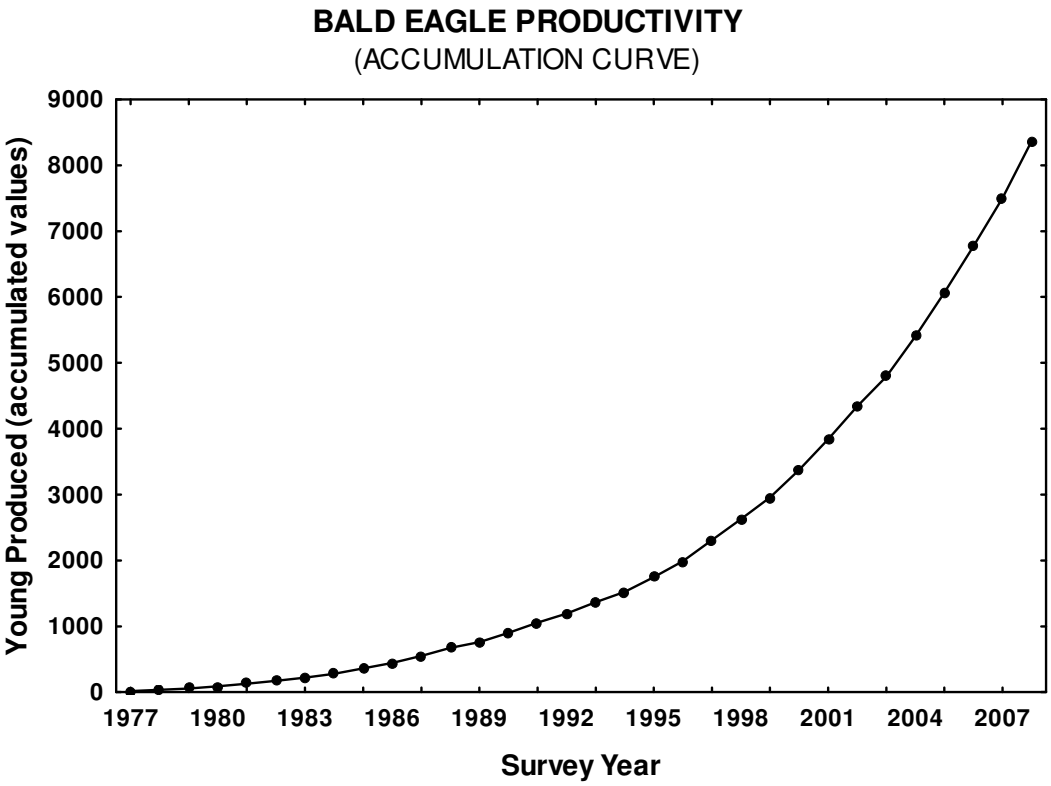

Figure 3. Productivity accumulation curve for Bald Eagles in Virginia (1977-2008). Total chicks produced over the 32-year study was 8,369.

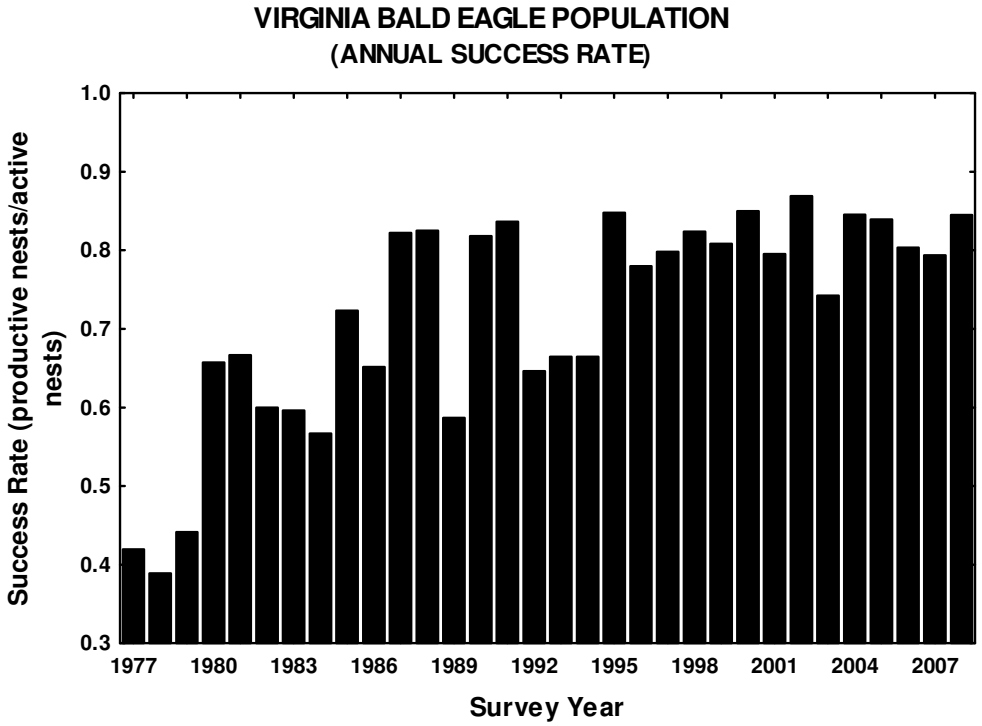

Figure 4. General trend in success rate for Bald Eagles in Virginia (1977-2007)

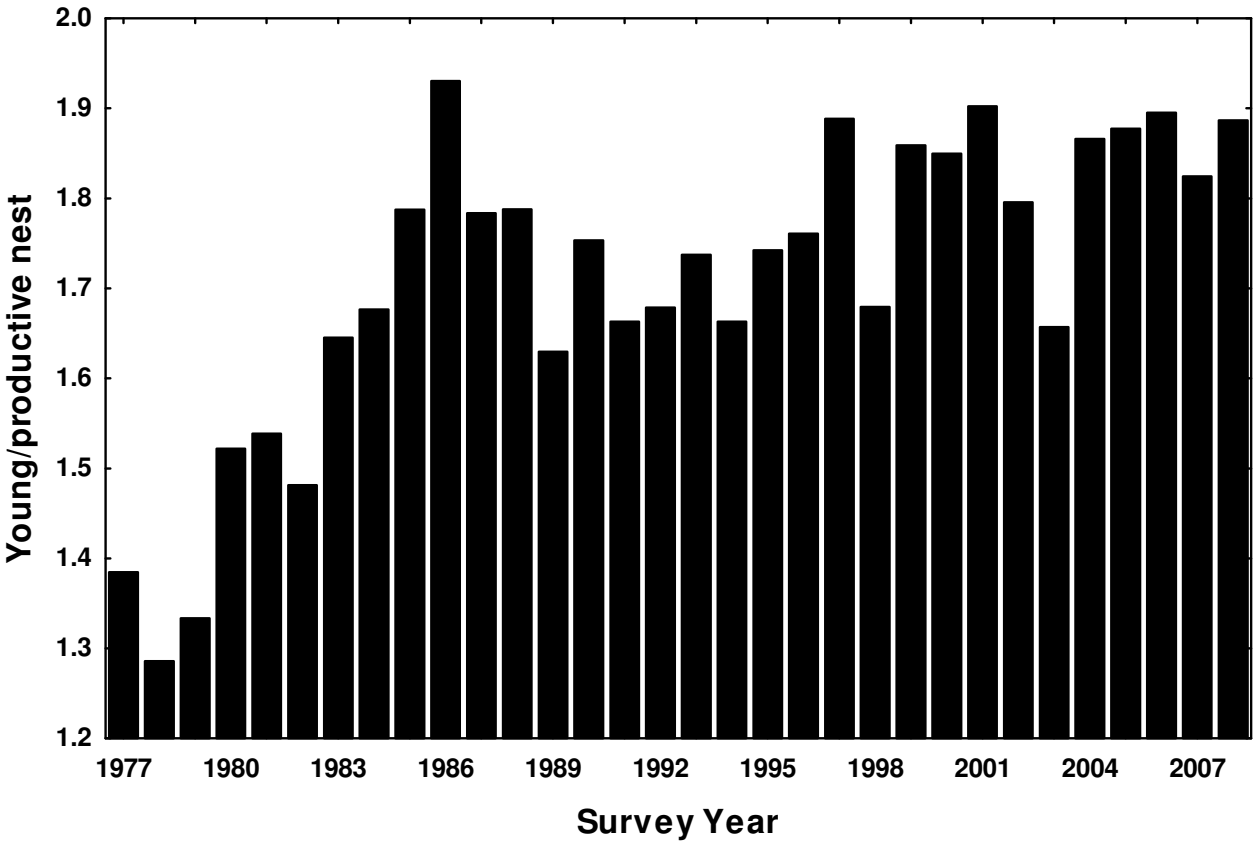

Figure 5. Temporal trend in average brood size for Bald Eagles in Virginia (1977-2008).

DISCUSSION

Bald Eagles within Virginia have experienced a dramatic recovery since the 1970s. During the period of this survey, the average, annual rate of increase has been greater than 9%. This level of growth is comparable to that experienced by other populations within the portion of the breeding range where the species has been federally listed. During the 15-year period between 1982 and 1997, average growth rate within the conterminous United States was 8.6% (Buehler 2000).

Nesting success in the lower Chesapeake Bay may be the highest on record in North America. Since 1995, 74% of occupied territories produced at least one young. Success rates in many parts of North America have ranged between 60% and 65%, including the Pacific Northwest (Anthony et al. 1994, Watson et al. 2002) and the Rocky Mountains (Swenson et al. 1986, Kralovec et al. 1992). In Alaska (Stiedl et al. 1997) and Arizona (Driscoll et al. 1999) only half of nesting pairs produced young.

The reproductive rate in the lower Chesapeake Bay eagles is comparable to or greater than those of other regions. The highest reproductive rates have been in Florida where nesting Bald Eagles produced 1.3 young per breeding pair during 1997-2001 (Millsap et al. 2004) and Wisconsin where eagles produced 1.3 young per occupied territory in the mid 1980s (Kozie and Anderson 1991). Productivity in the Rocky Mountain states has ranged from 1.0 to 1.2 young per nesting pair (Swenson et al 1986, Kralovec et al. 1992). Reproductive rates in the Pacific Northwest were 0.9 young per occupied nest (Anthony et al. 1994, Watson et al. 2002). In Alaska, productivity (0.8 yg/pair) was well below that in the Chesapeake Bay (Stiedl et al. 1997). The lowest reproductive rate (0.13 yg/pair) recorded in recent times was in Alaska on Prince of Wales Island (Anthony 2001). That low rate was attributed to high densities of nesting bald eagles. There is no indication in the Chesapeake Bay that nesting densities are reducing productivity rates yet.

A reproductive rate of 0.7 chicks/breeding attempt has been suggested to represent the threshold for population maintenance for Bald Eagles (Sprunt et al. 1973). Buehler et al. (1991a) estimated that 1.0 chicks/successful nest (equivalent to brood size) was required for population maintenance in the Bay. A reproductive rate of 1.1 chicks/breeding attempt was set as the recovery goal for the Chesapeake Bay population (Byrd et al. 1990). Documented rates for the Chesapeake Bay population reached an all-time low of 0.2 chicks/breeding attempt in 1962 (Abbott 1963). Productivity showed a steady increase throughout the late 1960s and early 1970s, reaching projected maintenance levels by the mid-1970s (Abbott 1978). The population has met or exceeded the productivity target outlined in the recovery plan in every year since 1985. The reproductive rate documented by Tyrrell in 1936 was nearly 1.5 chicks/breeding attempt. The population has achieved this rate in 4 of the 5 years between 1997 and 2001.

Given the tremendous forward momentum currently exhibited by the breeding population, it seems likely that Bald Eagles will reach saturation within the Bay in a relatively short period of time. No specific estimates of the Chesapeake Bay Bald Eagle population are available prior to the early 1900s. However, given the high productivity of Bay waters and the availability of extensive shallow-water foraging areas, it has been speculated that prior to European settlement the Chesapeake Bay may have supported one of the densest breeding populations of Bald Eagles outside of Alaska. By applying breeding densities from Alaska to the 13,000 km of Chesapeake shoreline, Fraser et al. (1996) suggested that the Chesapeake may have supported in excess of 3,000 breeding pairs of Bald Eagles prior to European Settlement. However, a recent investigation shows significant spatial variation in both colonization rates and breeding density suggesting that carrying capacity varies widely throughout the Bay (Watts et al. 2006). By fitting population growth data (1977 – 2002) for birds in portions of the lower Chesapeake Bay to a logistic curve, Watts et al. (2006) estimated that the population had reached

approximately 70% of capacity. This suggests that the current carrying capacity of the Bay may be half of that estimated by Fraser al. (1996) for the pristine Bay and that if recent growth rates continue, this population should reach that level within the next decade.

The availability of undeveloped waterfront property has become the dominant limiting factor for Bald Eagles in the Chesapeake Bay. Human activity is the best predictor of eagle distribution within the tidal portion of the Bay. Indicators of human activity such as housing and road density, shoreline use, and boating activity have been related to nest distribution (Watts et al. 1994), shoreline use (Buehler et al. 1991b, Watts and Whelan 1997), and the likelihood of nest abandonment (Therres et al. 1993) or recolonization (Watts, unpublished data). Since Bald Eagles began their most dramatic decline in the 1950s, the human population within the tidal reach of the Bay has increased by more than 50% (http://www.census.gov). A preliminary review of development occurring around eagle nests in the lower Chesapeake Bay shows that development had occurred in 55% of shoreline areas by the late 1980's (Byrd et al. 1990). Similarly, Buehler et al. (1991b) found that in northern areas of the Bay, 75.6% of the shoreline had developments within 500 m. Application of a habitat suitability model to the James River in 1991 revealed that more than 50% of the available area was not suitable for eagle breeding due to human use (Watts et al. 1994).

Increases in the human population around the Chesapeake Bay are expected to continue for the foreseeable future (Gray et al. 1988) likely causing further reductions in the capacity of the Bay to support Bald Eagles. In the long term, the size and stability of the breeding population will depend on both the Bald Eagle's capacity to cope with human activity and the management community's ability to protect suitable breeding habitat. In Florida, Millsap et al. (2004) found similar nest occupancy rates and brood sizes between suburban and rural nesting bald eagles. They defined suburban nest sites as those with >50% intensive human use within 1,500 m of the nest. Young per occupied nest site averaged 1.3 in suburban nests between 1996 and 2001. That is comparable to productivity of Chesapeake Bay bald eagles during the same time period. Though few in number as of 2001, bald eagles nesting in suburban situations are increasing in the Chesapeake Bay area. Over the past decade, the transition in the eagle population has been ongoing with an increasing number of pairs breeding in very disturbed settings. A recent investigation within the lower Chesapeake Bay has shown that success rate and productivity for pairs within the most human dominated settings are not statistically distinguishable from pairs in the most pristine settings (Watts 2006).

ACKNOWLEDGMENTS

Many individuals and organizations contributed to the success of the 2007 Bald Eagle survey in Virginia. Ray Fernald and Jeff Cooper from the Virginia Department of Game & Inland Fisheries provided logistical support. Captain

Fuzzzo and Matt Crabbe provided expert flying services. Libby Mojica and Carla Schneider assisted with productivity flights. Numerous individuals including Bob and Linda Cole, Jeff Cooper, Thelma Dalmas, Sergio Harding, Sandy Hevner, Mark Indseth, Patti Reum, John Spahr, Tim Stamps, and Brent Steury provided information toward the survey. Bart Paxton provided data management support. Marian Watts provided production assistance. Carlton Adams, Mike Ludwick, Renee Peace, Mark Roberts, Cheryl Pope, Bonnie Willard, and Gloria Sciole from the College of William and Mary provided logistical support. Financial support was provided by the Virginia Department of Game & Inland Fisheries and the Center for Conservation Biology.

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Appendix I: Summary of 2008 Bald Eagle survey results for the Potomac River Drainage. See methods section for definition of "occupied territory" and "active nest". Nesting results unknown due to dense foliage during productivity flight.

Nest Code	County	Topo Quad	Occup Terr	Active Nest	Productivity
AR-08-01	Arlington	Alexandria	Y	Y	2
AR-08-02	Arlington	Alexandria	Y	Y	2
FF-00-02	Fairfax	Fort Belvoir	Y	N	NA
FF-04-01	Fairfax	Fort Belvoir	Y	Y	2
FF-04-03	Fairfax	Indian Head	Y	Y	0
FF-05-01	Fairfax	Fort Belvoir	Y	Y	3
FF-05-02	Fairfax	Occoquan	Y	Y	3
FF-07-01	Fairfax	Fort Belvoir	Y	Y	UNKNOWN
FF-07-02	Fairfax	Indian Head	Y	Y	3
FF-07-03	Fairfax	Indian Head	Y	Y	1
FF-07-04	Fairfax	Fort Belvoir	Y	Y	2
FF-07-05	Fairfax	Fort Belvoir	Y	Y	2
FF-08-01	Fairfax	Fort Belvoir	Y	Y	2
FF-08-02	Fairfax	Mount Vernon	Y	Y	UNKNOWN
FF-94-01	Fairfax	Fort Belvoir	Y	Y	2
FF-96-01	Fairfax	Fort Belvoir	Y	Y	3
FF-96-02	Fairfax	Fort Belvoir	Y	Y	2
FF-97-01	Fairfax	Fort Belvoir	Y	Y	2
KG-00-01	King George	Dahlgren	Y	Y	3
KG-00-02	King George	Dahlgren	Y	Y	2
KG-04-04	King George	King George	Y	Y	0
KG-04-07	King George	Dahlgren	Y	Y	2
KG-05-07	King George	King George	Y	Y	2
KG-05-08	King George	King George	Y	Y	2
KG-05-09	King George	Dahlgren	Y	Y	1
KG-06-03	King George	Passapatanzy	Y	Y	2
KG-06-04	King George	King George	Y	Y	2
KG-06-05	King George	Dahlgren	Y	Y	1
KG-06-06	King George	Dahlgren	Y	Y	2
KG-06-07	King George	Mathias Pt	Y	Y	2
KG-07-03	King George	Passapatanzy	Y	Y	2
KG-07-04	King George	King George	Y	Y	2
KG-07-05	King George	Dahlgren	Y	Y	2
KG-07-06	King George	Mathias Pnt	Y	Y	2
KG-07-08	King George	Dahlgren	Y	Y	2
KG-07-09	King George	Dahlgren	Y	Y	2
KG-08-01	King George	Mathias Point	Y	Y	1
KG-08-02	King George	Dahlgren	Y	Y	0
KG-08-03	King George	Dahlgren	Y	Y	0

Appendix I: -continued-

KG-08-04	King George	Passapatanzy	Y	Y	2
KG-08-05	King George	Passapatanzy	Y	Y	3
KG-08-06	King George	Passapatanzy	Y	Y	2
KG-82-02	King George	Rollins Fork	Y	Y	1
KG-87-03	King George	King George	Y	Y	1
KG-87-04	King George	Dahlgren	Y	Y	2
KG-87-05	King George	Mathias Point	Y	Y	1
KG-90-02	King George	King George	Y	Y	3
KG-97-01	King George	Passapatanzy	Y	Y	2
KG-99-05	King George	Dahlgren	Y	Y	0
ND-02-02	Northumberland	Lottsburg	Y	Y	2
ND-02-05	Northumberland	Reedville	Y	Y	2
ND-02-06	Northumberland	Heathsville	Y	Y	1
ND-03-02	Northumberland	Kinsale	Y	Y	0
ND-03-06	Northumberland	Burgess	Y	N	NA
ND-04-03	Northumberland	Burgess	Y	Y	2
ND-04-05	Northumberland	Heathsville	Y	Y	0
ND-04-06	Northumberland	St. George Isl	Y	N	NA
ND-05-01	Northumberland	Lottsburg	Y	Y	2
ND-06-02	Northumberland	Fleets Bay	Y	Y	0
ND-07-01	Northumberland	Fleets Bay	Y	Y	1
ND-07-03	Northumberland	Burgess	Y	N	NA
ND-07-04	Northumberland	Burgess	Y	Y	3
ND-08-01	Northumberland	Fleets Bay	Y	Y	0
ND-08-02	Northumberland	Heathsville	Y	Y	0
ND-08-03	Northumberland	Kinsale	Y	Y	2
ND-86-01	Northumberland	Lancaster	Y	Y	2
ND-97-01	Northumberland	Heathsville	Y	Y	0
ND-98-01	Northumberland	Heathsville	Y	Y	0
PW-02-01	Prince William	Quantico	Y	Y	2
PW-03-02	Prince William	Quantico	Y	Y	1
PW-06-01	Prince William	Quantico	Y	Y	2
PW-06-02	Prince William	Quantico	Y	Y	3
PW-06-03	Prince William	Quantico	Y	Y	2
PW-07-01	Prince William	Quantico	Y	Y	2
PW-08-01	Prince William	Quantico	Y	Y	2
PW-08-02	Prince William	Quantico	Y	Y	0
PW-99-01	Prince William	Quantico	Y	Y	2
ST-00-01	Stafford	Widewater	Y	Y	1
ST-02-01	Stafford	Widewater	Y	Y	1
ST-04-02	Stafford	Widewater	Y	Y	UNKNOWN
ST-05-01	Stafford	Widewater	Y	Y	2
ST-05-02	Stafford	Widewater	Y	N	NA

Appendix I: -continued-

ST-05-03	Stafford	Passapatanzy	Y	Y	1
ST-05-04	Stafford	Passapatanzy	Y	Y	1
ST-06-01	Stafford	Passapatanzy	Y	Y	2
ST-07-01	Stafford	Widewater	Y	N	NA
ST-07-02	Stafford	Passapatanzy	Y	Y	2
ST-08-01	Stafford	Quantico	Y	Y	2
ST-08-02	Stafford	Stafford	Y	Y	1
ST-96-03	Stafford	Passapatanzy	Y	Y	3
WE-00-03	Westmoreland	Kinsale	Y	Y	2
WE-00-07	Westmoreland	Kinsale	Y	Y	3
WE-01-04	Westmoreland	Colonial Beach S.	Y	Y	3
WE-01-11	Westmoreland	Rollins Fork	Y	Y	0
WE-01-12	Westmoreland	Machodoc	Y	Y	1
WE-02-03	Westmoreland	Stratford Hall	Y	Y	2
WE-02-05	Westmoreland	St. Clements Isl	Y	Y	2
WE-02-07	Westmoreland	Kinsale	Y	Y	2
WE-03-03	Westmoreland	Colonial Beach N.	Y	Y	2
WE-03-08	Westmoreland	Colonial Beach S.	Y	Y	3
WE-03-10	Westmoreland	Stratford Hall	Y	Y	1
WE-03-11	Westmoreland	Machodoc	Y	Y	0
WE-03-12	Westmoreland	St. Clements Isl	Y	Y	3
WE-04-07	Westmoreland	St. Clements Isl	Y	Y	2
WE-04-14	Westmoreland	Colonial Beach N.	Y	Y	0
WE-05-06	Westmoreland	Montross	Y	N	NA
WE-05-08	Westmoreland	Machodoc	Y	Y	2
WE-05-09	Westmoreland	St. Clements Isl	Y	Y	2
WE-05-10	Westmoreland	Rollins Fork	Y	Y	0
WE-06-02	Westmoreland	Colonial Beach S.	Y	Y	2
WE-06-03	Westmoreland	Colonial Beach S.	Y	Y	2
WE-06-04	Westmoreland	Machodoc	Y	Y	1
WE-06-05	Westmoreland	Machodoc	Y	Y	3
WE-06-07	Westmoreland	Machodoc	Y	Y	2
WE-06-08	Westmoreland	Machodoc	Y	Y	2
WE-06-10	Westmoreland	Colonial Beach S.	Y	Y	3
WE-07-02	Westmoreland	Rollins Fork	Y	Y	2
WE-07-03	Westmoreland	Rollins Fork	Y	Y	3
WE-07-05	Westmoreland	Colonial Beach S.	Y	Y	0
WE-07-06	Westmoreland	St. Clements Isl	Y	Y	UNKNOWN
WE-07-07	Westmoreland	Machodoc	Y	Y	2
WE-08-01	Westmoreland	Kinsale	Y	Y	2
WE-08-02	Westmoreland	Kinsale	Y	Y	2
WE-08-03	Westmoreland	Kinsale	Y	Y	2
WE-08-04	Westmoreland	Kinsale	Y	Y	2

Appendix I: -continued-

WE-08-05	Westmoreland	Colonial Beach S.	Y	Y	2
WE-08-06	Westmoreland	Colonial Beach S.	Y	Y	0
WE-08-07	Westmoreland	Colonial Beach S.	Y	Y	2
WE-08-08	Westmoreland	Colonial Beach S.	Y	Y	2
WE-08-09	Westmoreland	Colonial Beach S.	Y	Y	0
WE-08-10	Westmoreland	Stratford Hall	Y	Y	UNKNOWN
WE-08-12	Westmoreland	Machodoc	Y	Y	2
WE-08-13	Westmoreland	St. Clements Isl	Y	Y	1
WE-90-03	Westmoreland	Colonial Beach S.	Y	Y	2
WE-91-02	Westmoreland	Stratford Hall	Y	Y	2
WE-95-03	Westmoreland	Rollins Fork	Y	Y	3
WE-96-03	Westmoreland	St. Clements Isl	Y	Y	1
WE-96-05	Westmoreland	Stratford Hall	Y	Y	1
WE-98-07	Westmoreland	Kinsale	Y	Y	2

Appendix II: Summary of 2008 Bald Eagle survey results for the Rappahannock River Drainage. See methods section for definition of "occupied territory" and "active nest".

Nest Code	County	Topo Quad	Occup Terr	Active Nest	Productivity
CA-01-01	Caroline	Rapp Academy	Y	Y	0
CA-02-01	Caroline	Port Royal	Y	Y	UNKNOWN
CA-04-01	Caroline	Supply	Y	Y	UNKNOWN
CA-04-02	Caroline	Supply	Y	Y	UNKNOWN
CA-04-03	Caroline	Bowling Green	Y	N	NA
CA-04-04	Caroline	Port Royal	Y	Y	UNKNOWN
CA-05-01	Caroline	Rapp Academy	Y	Y	3
CA-05-02	Caroline	Bowling Green	Y	Y	UNKNOWN
CA-06-01	Caroline	Port Royal	Y	Y	3
CA-06-02	Caroline	Port Royal	Y	Y	0
CA-06-03	Caroline	Rollins Fork	Y	Y	3
CA-08-01	Caroline	Rapp Academy	Y	Y	2
CA-08-02	Caroline	Port Royal	Y	Y	2
CA-90-02	Caroline	Port Royal	Y	Y	0
CA-90-03	Caroline	Rapp Academy	Y	Y	2
CA-95-02	Caroline	Rapp Academy	Y	Y	1
CA-96-03	Caroline	Supply	Y	Y	UNKNOWN
ES-00-04	Essex	Champlain	Y	Y	2
ES-01-05	Essex	Champlain	Y	Y	2
ES-02-04	Essex	Loretto	Y	Y	2
ES-03-02	Essex	Tappahannock	Y	Y	2
ES-04-02	Essex	Dunnsville	Y	Y	0
ES-04-05	Essex	Mount Landing	Y	Y	0
ES-04-08	Essex	Champlain	Y	Y	2
ES-04-11	Essex	Loretto	Y	Y	0
ES-04-12	Essex	Loretto	Y	Y	3
ES-05-04	Essex	Mount Landing	Y	Y	0
ES-05-05	Essex	Champlain	Y	Y	2
ES-05-07	Essex	Champlain	Y	Y	0
ES-05-08	Essex	Champlain	Y	Y	2
ES-05-09	Essex	Rollins Fork	Y	Y	2
ES-05-10	Essex	Rollins Fork	Y	Y	2
ES-06-04	Essex	Mount Landing	Y	Y	2
ES-07-01	Essex	Morattico	Y	Y	1
ES-07-02	Essex	Tappahannock	Y	Y	3
ES-07-03	Essex	Mount Landing	Y	Y	1
ES-07-04	Essex	Mount Landing	Y	Y	2
ES-07-05	Essex	Champlain	Y	Y	2
ES-07-06	Essex	Champlain	Y	Y	2

Appendix II: -continued-

ES-07-07	Essex	Champlain	Y	Y	0
ES-07-08	Essex	Loretto	Y	Y	0
ES-07-09	Essex	Rollins Fork	Y	Y	3
ES-08-01	Essex	Dunnsville	Y	Y	2
ES-08-02	Essex	Dunnsville	Y	Y	2
ES-08-03	Essex	Dunnsville	Y	Y	3
ES-08-04	Essex	Dunnsville	Y	Y	2
ES-08-05	Essex	Champlain	Y	Y	0
ES-08-06	Essex	Champlain	Y	Y	2
ES-08-07	Essex	Champlain	Y	Y	2
ES-08-08	Essex	Loretto	Y	Y	2
ES-08-10	Essex	Rollins Fork	Y	Y	3
ES-79-01	Essex	Morattico	Y	Y	2
KG-03-01	King George	Passapatanzy	Y	Y	2
KG-03-02	King George	Rollins Fork	Y	Y	2
KG-05-01	King George	Port Royal	Y	Y	3
KG-05-03	King George	Port Royal	Y	Y	2
KG-05-06	King George	Rollins Fork	Y	Y	2
KG-06-01	King George	Port Royal	Y	Y	1
KG-06-02	King George	Rollins Fork	Y	Y	2
KG-07-01	King George	Port Royal	Y	Y	2
KG-07-02	King George	Rollins Fork	Y	Y	2
KG-08-01	King George	Port Royal	Y	Y	2
KG-08-02	King George	Port Royal	Y	Y	2
KG-08-03	King George	Port Royal	Y	Y	2
KG-08-04	King George	Rollins Fork	Y	Y	1
KG-08-05	King George	Rollins Fork	Y	Y	0
KG-96-01	King George	Port Royal	Y	Y	2
KG-97-08	King George	Rollins Fork	Y	Y	1
LA-01-02	Lancaster	Irvington	Y	Y	1
LA-03-05	Lancaster	Lively	Y	Y	0
LA-04-01	Lancaster	Lively	Y	N	NA
LA-04-02	Lancaster	Lively	Y	Y	1
LA-04-04	Lancaster	Irvington	Y	Y	2
LA-04-07	Lancaster	Urbanna	Y	Y	3
LA-05-01	Lancaster	Lancaster	Y	Y	0
LA-07-01	Lancaster	Urbanna	Y	Y	2
LA-07-03	Lancaster	Deltaville	Y	Y	2
MI-01-03	Middlesex	Morattico	Y	N	NA
MI-02-04	Middlesex	Church View	Y	Y	2
MI-02-05	Middlesex	Church View	Y	Y	0
MI-03-01	Middlesex	Wilton	Y	Y	2
MI-05-02	Middlesex	Urbanna	Y	Y	0

Appendix II: -continued-

MI-05-03	Middlesex	Church View	Y	Y	0
MI-06-02	Middlesex	Urbanna	Y	Y	2
MI-06-04	Middlesex	Church View	Y	Y	2
MI-07-03	Middlesex	Urbanna	Y	Y	0
MI-08-04	Middlesex	Wilton	Y	Y	3
MI-08-05	Middlesex	Church View	Y	Y	2
MI-08-06	Middlesex	Urbanna	Y	Y	1
MI-08-08	Middlesex	Urbanna	Y	Y	2
MI-08-09	Middlesex	Urbanna	Y	Y	0
MI-08-10	Middlesex	Deltaville	Y	Y	2
RI-02-02	Richmond	Montross	Y	Y	3
RI-02-06	Richmond	Tappahannock	Y	Y	0
RI-02-08	Richmond	Tappahannock	Y	Y	2
RI-03-06	Richmond	Tappahannock	Y	Y	3
RI-03-08	Richmond	Haynesville	Y	Y	1
RI-03-10	Richmond	Haynesville	Y	Y	1
RI-03-11	Richmond	Haynesville	Y	Y	3
RI-05-01	Richmond	Champlain	Y	Y	0
RI-05-02	Richmond	Mount Landing	Y	Y	0
RI-05-07	Richmond	Tappahannock	Y	Y	2
RI-05-09	Richmond	Morattico	Y	Y	3
RI-06-01	Richmond	Tappahannock	Y	Y	2
RI-06-03	Richmond	Tappahannock	Y	Y	2
RI-06-04	Richmond	Montross	Y	Y	2
RI-06-05	Richmond	Tappahannock	Y	Y	0
RI-06-08	Richmond	Haynesville	Y	Y	2
RI-06-09	Richmond	Morattico	Y	Y	3
RI-07-01	Richmond	Mount Landing	Y	Y	1
RI-07-04	Richmond	Tappahannock	Y	Y	0
RI-07-05	Richmond	Tappahannock	Y	Y	2
RI-07-06	Richmond	Haynesville	Y	Y	3
RI-07-07	Richmond	Morattico	Y	Y	2
RI-07-08	Richmond	Lively	Y	Y	1
RI-08-01	Richmond	Champlain	Y	Y	2
RI-08-02	Richmond	Champlain	Y	Y	2
RI-08-03	Richmond	Montross	Y	Y	2
RI-08-04	Richmond	Tappahannock	Y	Y	0
RI-08-05	Richmond	Montross	Y	Y	2
RI-08-06	Richmond	Montross	Y	Y	2
RI-08-07	Richmond	Tappahannock	Y	Y	1
RI-08-09	Richmond	Tappahannock	Y	Y	3
RI-08-10	Richmond	Tappahannock	Y	Y	1
RI-08-11	Richmond	Tappahannock	Y	Y	3

Appendix II: -continued-

RI-08-12	Richmond	Mount Landing	Y	N	NA
RI-81-02	Richmond	Champlain	Y	Y	2
RI-87-03	Richmond	Tappahannock	Y	Y	3
RI-90-03	Richmond	Champlain	Y	Y	1
RI-96-03	Richmond	Morattico	Y	Y	2
RI-97-01	Richmond	Montross	Y	Y	1
RI-98-01	Richmond	Champlain	Y	Y	1
RI-98-05	Richmond	Tappahannock	Y	Y	1
RI-99-03	Richmond	Lively	Y	Y	2
WE-00-10	Westmoreland	Champlain	Y	Y	1
WE-01-01	Westmoreland	Rollins Fork	Y	Y	2
WE-01-02	Westmoreland	Loretto	Y	N	NA
WE-02-01	Westmoreland	Champlain	Y	Y	1
WE-03-02	Westmoreland	Champlain	Y	Y	1
WE-03-16	Westmoreland	Haynesville	Y	Y	1
WE-04-01	Westmoreland	Rollins Fork	Y	Y	0
WE-04-02	Westmoreland	Rollins Fork	Y	Y	2
WE-05-01	Westmoreland	Champlain	Y	Y	0
WE-06-01	Westmoreland	Champlain	Y	Y	2
WE-88-01	Westmoreland	Champlain	Y	Y	2

Appendix III: Summary of 2008 Bald Eagle survey results for the York River Drainage. See methods section for definition of "occupied territory" and "active nest".

Nest Code	County	Topo Quad	Occup Terr	Active Nest	Productivity
CA-99-01	Caroline	Ashland	Y	Y	1
GL-04-01	Gloucester	Gressitt	Y	Y	3
GL-04-03	Gloucester	Gloucester	Y	Y	3
GL-05-02	Gloucester	Gressitt	Y	Y	2
GL-06-02	Gloucester	Gloucester	Y	Y	2
GL-06-03	Gloucester	Saluda	Y	Y	0
GL-07-01	Gloucester	Clay Bank	Y	Y	2
GL-07-02	Gloucester	Clay Bank	Y	Y	2
GL-07-03	Gloucester	Achilles	Y	Y	0
HN-05-01	Hanover	Hanover	Y	Y	0
HN-08-01	Hanover	Hanover	Y	Y	2
JC-05-02	James City	Williamsburg	Y	Y	2
JC-07-04	James City	Williamsburg	Y	Y	2
JC-08-05	James City	Toano	Y	Y	0
KQ-03-02	King & Queen	K&Q Courthouse	Y	Y	0
KQ-04-01	King & Queen	West Point	Y	Y	0
KQ-05-01	King & Queen	King William	Y	Y	2
KQ-05-02	King & Queen	K&Q Courthouse	Y	Y	1
KQ-06-01	King & Queen	West Point	Y	Y	2
KQ-07-01	King & Queen	West Point	Y	Y	2
KQ-08-01	King & Queen	Truhart	Y	N	NA
KQ-08-02	King & Queen	West Point	Y	Y	3
KW-02-01	King William	K&Q Courthouse	Y	Y	0
KW-03-01	King William	Tunstall	Y	N	NA
KW-03-02	King William	West Point	Y	Y	2
KW-03-03	King William	New Kent	Y	Y	2
KW-04-01	King William	New Kent	Y	Y	3
KW-05-01	King William	Tunstall	Y	Y	3
KW-05-03	King William	King William	Y	Y	1
KW-05-04	King William	King William	Y	Y	2
KW-06-01	King William	New Kent	Y	Y	2
KW-06-02	King William	K&Q Courthouse	Y	Y	0
KW-07-01	King William	West Point	Y	Y	3
KW-07-02	King William	West Point	Y	Y	3
KW-07-03	King William	K&Q Courthouse	Y	Y	2
KW-07-04	King William	K&Q Courthouse	Y	Y	1
KW-08-01	King William	New Kent	Y	Y	2
KW-08-02	King William	West Point	Y	Y	0
KW-08-03	King William	West Point	Y	Y	2

Appendix III: -continued-

KW-08-04	King William	Tunstall	Y	Y	2
KW-88-01	King William	New Kent	Y	Y	1
KW-99-01	King William	K&Q Courthouse	Y	Y	0
MI-08-03	Middlesex	Wilton	Y	Y	2
NK-01-01	New Kent	West Point	Y	Y	2
NK-03-02	New Kent	Toano	Y	Y	2
NK-03-03	New Kent	Toano	Y	Y	3
NK-06-01	New Kent	New Kent	Y	Y	1
NK-06-02	New Kent	New Kent	Y	Y	1
NK-07-03	New Kent	West Point	Y	Y	2
NK-07-04	New Kent	West Point	Y	Y	1
NK-07-05	New Kent	Tunstall	Y	Y	3
NK-08-01	New Kent	New Kent	Y	Y	2
NK-08-02	New Kent	Tunstall	Y	Y	2
NK-91-01	New Kent	New Kent	Y	Y	1
NK-98-02	New Kent	Toano	Y	Y	2
NK-98-04	New Kent	New Kent	Y	Y	2
YK-02-04	York	Williamsburg	Y	Y	UNKNOWN
YK-02-06	York	Williamsburg	Y	Y	1
YK-03-01	York	Clay Bank	Y	Y	2
YK-04-02	York	Yorktown	Y	Y	0
YK-04-03	York	Williamsburg	Y	Y	2
YK-06-01	York	Williamsburg	Y	Y	2
YK-07-01	York	Yorktown	Y	Y	1
YK-07-02	York	Clay Bank	Y	Y	0
YK-07-03	York	Williamsburg	Y	Y	2

Appendix IV: Summary of 2008 Bald Eagle survey results for the James River Drainage. See methods section for definition of "occupied territory" and "active nest".

Nest Code	County	Topo Quad	Occup Terr	Active Nest	Productivity
CC-02-02	Charles City	Westover	Y	Y	2
CC-02-06	Charles City	Brandon	Y	Y	1
CC-03-03	Charles City	Westover	Y	Y	0
CC-03-04	Charles City	Westover	Y	Y	2
CC-03-05	Charles City	Charles City	Y	Y	3
CC-04-07	Charles City	Brandon	Y	Y	0
CC-04-08	Charles City	Walkers	Y	Y	1
CC-05-02	Charles City	Charles City	Y	Y	1
CC-05-04	Charles City	Walkers	Y	Y	1
CC-06-01	Charles City	Hopewell	Y	Y	3
CC-06-03	Charles City	Charles City	Y	Y	2
CC-06-04	Charles City	Charles City	Y	Y	2
CC-06-05	Charles City	Claremont	Y	Y	2
CC-06-06	Charles City	Brandon	Y	Y	2
CC-06-07	Charles City	Prov Forge	Y	Y	2
CC-07-02	Charles City	Hopewell	Y	Y	2
CC-07-03	Charles City	Westover	Y	Y	3
CC-07-04	Charles City	Westover	Y	Y	0
CC-08-01	Charles City	Westover	Y	Y	2
CC-08-02	Charles City	Brandon	Y	N	NA
CC-08-03	Charles City	Walker	Y	Y	2
CC-91-02	Charles City	Charles City	Y	Y	2
CC-92-01	Charles City	Westover	Y	Y	1
CC-96-02	Charles City	Brandon	Y	Y	2
CC-99-04	Charles City	Charles City	Y	Y	2
CC-99-06	Charles City	Prov Forge	Y	N	NA
CD-02-02	Chesterfield	Hopewell	Y	N	NA
CD-04-02	Chesterfield	Dutch Gap	Y	Y	2
CD-06-02	Chesterfield	Hopewell	Y	Y	0
CD-06-04	Chesterfield	Hopewell	Y	Y	2
CD-07-01	Chesterfield	Dutch Gap	Y	Y	2
CD-08-01	Chesterfield	Hopewell	Y	N	NA
CD-08-02	Chesterfield	Hopewell	Y	Y	1
CD-08-03	Chesterfield	Hopewell	Y	Y	2
CD-99-01	Chesterfield	Hopewell	Y	Y	1
HE-03-01	Henricho	Hopewell	Y	Y	3
HE-06-01	Henricho	Hopewell	Y	Y	0
HE-06-02	Henricho	Hopewell	Y	Y	1
HE-06-04	Henricho	Dutch Gap	Y	Y	1

Appendix IV: -continued-

HE-08-01	Henricho	Drewrys Bluff	Y	Y	3
HE-08-02	Henricho	Dutch Gap	Y	Y	3
HE-95-01	Henricho	Roxbury	Y	Y	1
HE-99-02	Henricho	Drewrys Bluff	Y	Y	2
HO-00-04	Hopewell City	Hopewell	Y	Y	2
IW-02-01	Isle of Wight	Bacons Castle	Y	Y	2
IW-04-01	Isle of Wight	Benns Church	Y	Y	2
IW-04-02	Isle of Wight	Mulberry Island	Y	Y	2
IW-05-01	Isle of Wight	Mulberry Island	Y	Y	1
IW-07-01	Isle of Wight	Benns Church	Y	Y	2
IW-07-02	Isle of Wight	Mulberry Island	Y	Y	1
IW-08-01	Isle of Wight	Smithfield	Y	Y	2
IW-08-02	Isle of Wight	Hog Island	Y	Y	2
JC-01-01	James City	Surry	Y	Y	1
JC-02-01	James City	Norge	Y	Y	2
JC-04-01	James City	Hog Island	Y	Y	0
JC-04-03	James City	Norge	Y	Y	3
JC-04-04	James City	Norge	Y	Y	2
JC-04-07	James City	Norge	Y	Y	1
JC-05-01	James City	Hog Island	Y	Y	3
JC-05-03	James City	Yorktown	Y	Y	2
JC-06-01	James City	Norge	Y	Y	2
JC-06-02	James City	Norge	Y	N	NA
JC-06-04	James City	Hog Island	Y	Y	0
JC-06-05	James City	Hog Island	Y	Y	0
JC-07-01	James City	Norge	Y	Y	1
JC-07-02	James City	Surry	Y	Y	0
JC-07-03	James City	Yorktown	Y	Y	2
JC-08-01	James City	Norge	Y	Y	2
JC-08-02	James City	Norge	Y	Y	2
JC-08-03	James City	Surry	Y	Y	2
JC-08-04	James City	Hog Island	Y	Y	2
JC-96-02	James City	Norge	Y	Y	0
NK-07-01	New Kent	Walkers	Y	Y	3
NK-07-02	New Kent	Walkers	Y	Y	1
NN-02-01	Newport News	Mulberry Island	Y	Y	2
NN-02-02	Newport News	Newpt News N.	Y	Y	0
NN-04-01	Newport News	Mulberry Island	Y	Y	1
NN-06-01	Newport News	Yorktown	Y	Y	1
NN-08-01	Newport News	Mulberry Island	Y	Y	2
NN-08-02	Newport News	Mulberry Island	Y	Y	1
PB-04-01	Petersburg City	Prince George	Y	Y	2
PG-00-02	Prince George	Savedge	Y	N	NA

Appendix IV: -continued-

PG-01-02	Prince George	Savedge	Y	Y	1
PG-05-01	Prince George	Claremont	Y	Y	2
PG-05-02	Prince George	Westover	Y	Y	0
PG-06-01	Prince George	Brandon	Y	Y	1
PG-06-02	Prince George	Charles City	Y	Y	3
PG-06-03	Prince George	Westover	Y	Y	3
PG-06-04	Prince George	Westover	Y	Y	0
PG-06-06	Prince George	Westover	Y	Y	1
PG-07-02	Prince George	Charles City	Y	Y	3
PG-07-03	Prince George	Charles City	Y	Y	2
PG-07-04	Prince George	Westover	Y	Y	2
PG-07-05	Prince George	Hopewell	Y	Y	3
PG-08-01	Prince George	Charles City	Y	Y	0
PG-08-02	Prince George	Westover	Y	Y	0
PG-89-01	Prince George	Charles City	Y	Y	3
PG-92-01	Prince George	Westover	Y	Y	3
PG-94-01	Prince George	Westover	Y	Y	3
PO-98-01	Powhatan	Midlothian	Y	Y	2
RM-01-01	Richmond	Bonair	Y	Y	2
SK-02-02	Suffolk City	Chuckatuck	Y	Y	2
SK-03-01	Suffolk City	Windsor	Y	Y	2
SK-04-01	Suffolk City	Newpt News S.	Y	Y	0
SK-06-01	Suffolk City	Chuckatuck	Y	Y	0
SK-08-01	Suffolk City	Chuckatuck	Y	Y	2
SK-91-01	Suffolk City	Chuckatuck	Y	Y	2
SU-03-02	Surry	Hog Island	Y	Y	1
SU-03-04	Surry	Claremont	Y	Y	0
SU-04-01	Surry	Hog Island	Y	N	NA
SU-04-02	Surry	Hog Island	Y	Y	0
SU-04-03	Surry	Hog Island	Y	Y	1
SU-04-04	Surry	Surry	Y	Y	2
SU-04-06	Surry	Surry	Y	Y	2
SU-04-08	Surry	Claremont	Y	Y	2
SU-04-09	Surry	Savedge	Y	Y	2
SU-05-01	Surry	Hog Island	Y	Y	2
SU-05-02	Surry	Surry	Y	Y	2
SU-05-03	Surry	Hog Island	Y	Y	0
SU-05-04	Surry	Surry	Y	Y	2
SU-06-01	Surry	Surry	Y	Y	1
SU-07-01	Surry	Hog Island	Y	Y	2
SU-07-02	Surry	Surry	Y	Y	2
SU-07-03	Surry	Savedge	Y	Y	2
SU-08-01	Surry	Surry	Y	Y	0

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SU-08-02	Surry	Surry	Y	Y	0
SU-08-03	Surry	Surry	Y	Y	1
SU-08-04	Surry	Surry	Y	Y	0

Appendix V: Summary of 2008 Bald Eagle survey results for the Bay fringe of the western shore. See methods section for definition of "occupied territory" and "active nest".

Nest Code	County	Topo Quad	Occup Terr	Active Nest	Productivity
GL-02-01	Gloucester	Saluda	Y	Y	2
GL-08-02	Gloucester	Achilles	Y	Y	1
GL-08-02	Gloucester	Achilles	Y	Y	2
HM-04-01	Hampton City	Hampton	Y	Y	3
HM-07-01	Hampton City	Hampton	Y	Y	2
HM-07-02	Hampton City	Hampton	Y	Y	2
KQ-02-02	King & Queen	Church View	Y	Y	0
KQ-04-03	King & Queen	Church View	Y	Y	0
MA-01-01	Mathews	Ware Neck	Y	Y	2
MA-01-02	Mathews	Mathews	Y	Y	2
MA-02-01	Mathews	New Point Comfrt	Y	Y	0
MA-02-07	Mathews	Saluda	Y	N	NA
MA-06-01	Mathews	New Point Comfrt	Y	Y	3
MA-08-01	Mathews	Mathews	Y	Y	3
MA-97-01	Mathews	Ware Neck	Y	Y	2
MI-02-06	Middlesex	Shacklefords	Y	Y	0
MI-08-01	Middlesex	Saluda	Y	Y	2
MI-08-02	Middlesex	Wilton	Y	Y	0
MI-85-01	Middlesex	Wilton	Y	Y	1
ND-01-01	Northumberland	Fleets Bay	Y	Y	2
ND-02-05	Northumberland	Reedville	Y	Y	2
ND-04-01	Northumberland	Reedville	Y	Y	3
ND-05-02	Northumberland	Reedville	Y	Y	0
ND-92-01	Northumberland	Reedville	Y	N	NA

Appendix VI: Summary of 2008 Bald Eagle survey results for the Eastern Shore. See methods section for definition of "occupied territory" and "active nest".

Nest Code	County	Topo Quad	Occup Terr	Active Nest	Productivity
AC-00-02	Accomack	Saxis	Y	Y	1
AC-02-02	Accomack	Hallwood	Y	Y	2
AC-03-03	Accomack	Chincoteague E.	Y	Y	2
AC-03-05	Accomack	Parksley	Y	Y	2
AC-03-08	Accomack	Accomac	Y	Y	2
AC-04-04	Accomack	Saxis	Y	Y	2
AC-04-05	Accomack	Parksley	Y	Y	0
AC-06-02	Accomack	Exmore	Y	Y	1
AC-06-03	Accomack	Bloxom	Y	Y	1
AC-06-04	Accomack	Parksley	Y	Y	2
AC-06-05	Accomack	Tangier Island	Y	Y	2
AC-07-01	Accomack	Metompkin Inlet	Y	Y	2
AC-07-02	Accomack	Chincoteague E.	Y	Y	1
AC-07-05	Accomack	Pungoteague	Y	Y	3
AC-07-06	Accomack	Pungoteague	Y	Y	1
AC-08-01	Accomack	Exmore	Y	Y	2
AC-08-02	Accomack	Chincoteague W.	Y	Y	2
AC-08-03	Accomack	Saxis	Y	Y	1
AC-08-04	Accomack	Saxis	Y	Y	1
AC-08-05	Accomack	Saxis	Y	Y	2
AC-08-06	Accomack	Pungoteague	Y	Y	1
AC-08-07	Accomack	Pungoteague	Y	Y	1
AC-08-08	Accomack	Jamesville	Y	Y	3
AC-08-09	Accomack	Quinby Inlet	Y	Y	2
AC-91-02	Accomack	Jamesville	Y	Y	2
AC-93-03	Accomack	Parksley	Y	Y	0
AC-94-01	Accomack	Chincoteague W.	Y	Y	1
AC-97-03	Accomack	Chincoteague W.	Y	Y	2
AC-98-02	Accomack	Pungoteague	Y	Y	2
AC-99-02	Accomack	Accomac	Y	N	NA
NT-00-01	Northampton	Jamesville	Y	Y	2
NT-02-01	Northampton	Cheriton	Y	Y	2
NT-02-02	Northampton	Cheriton	Y	Y	3
NT-04-01	Northampton	Exmore	Y	Y	0
NT-06-02	Northampton	Elliotts Creek	Y	Y	2
NT-07-02	Northampton	Nassawaddox	Y	Y	2
NT-07-03	Northampton	Franktown	Y	Y	2
NT-07-04	Northampton	Franktown	Y	Y	2
NT-07-05	Northampton	Franktown	Y	Y	1
NT-08-01	Northampton	Townsend	Y	Y	1

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NT-08-02	Northampton	Townsend	Y	Y	1
NT-08-03	Northampton	Cheriton	Y	Y	2
NT-08-04	Northampton	Cheriton	Y	Y	2
NT-08-05	Northampton	Jamesville	Y	Y	0
NT-08-06	Northampton	Franktown	Y	Y	1
NT-08-07	Northampton	Grt Machipongo	Y	Y	1
NT-94-03	Northampton	Townsend	Y	Y	3
NT-96-01	Northampton	Cheriton	Y	Y	1
NT-97-01	Northampton	Townsend	Y	Y	2

Appendix VII: Summary of 2008 Bald Eagle survey results for lower Tidewater. See methods section for definition of "occupied territory" and "active nest".

Nest Code	County	Topo Quad	Occup Terr	Active Nest	Productivity
CP-03-03	Chesapeake City	Pleasant Ridge	Y	Y	1
CP-04-01	Chesapeake City	Deep Creek	Y	Y	2
CP-08-01	Chesapeake City	Bowers Hill	Y	Y	2
NO-03-01	Norfolk City	Little Creek	Y	Y	1
SK-07-01	Suffolk City	Lake Drummond	Y	Y	1
VB-00-01	Virginia Beach	North Bay	Y	Y	3
VB-02-01	Virginia Beach	Cape Henry	Y	Y	0
VB-06-01	Virginia Beach	Virginia Beach	Y	Y	2
VB-07-01	Virginia Beach	Pleasant Ridge	Y	Y	2
VB-97-01	Virginia Beach	Kempsville	Y	Y	3
VB-99-01	Virginia Beach	Creeds	Y	Y	0

Appendix VIII: Summary of 2008 Bald Eagle survey results for Inland areas. See methods section for definition of "occupied territory" and "active nest".

Nest Code	County	Topo Quad	Occup Terr	Active Nest	Productivity
AG-08-01	Augusta		Y	Y	1
AH-01-01	Amherst	Lynchburg	Y	Y	1
AL-98-01	Albemarle	Simeon			NC
BA-06-01	Bath	Bath Alum			NC
BA-08-01	Bath		Y	Y	UNKNOWN
BA-93-01	Bath	Mountain Grove			NC
BA-99-01	Bath	Sunrise			NC
BE-03-01	Bedford	Lynchburg	Y	Y	2
BU-07-01	Bedford	Scottsville	Y	N	NA
BU-07-02	Buckingham	Shipman			NC
CD-07-02	Chesterfield	Hallsboro	Y	N	NA
CL-04-01	Clarke	Ashby Gap			NC
CL-04-02	Clarke	Ashby Gap			NC
CU-04-01	Culpepper	Stratford Hall			NC
CU-97-01	Culpepper	Rapidan			NC
FQ-92-01	Faquir	Rectortown			NC
GO-07-01	Goochland	Cartersville			NC
HI-06-01	Highland	Montery	Y	Y	UNKNOWN
HI-08-01	Highland		Y	Y	0
HI-08-02	Highland		Y	N	NA
LO-02-01	Louisa	Mineral			NC
LO-05-01	Louisa	Leesburg			NC
LO-06-01	Louisa	Lake Anna			NC
LO-06-02	Louisa	Lake Anna			NC
ME-02-01	Mecklenburg	Bracey	Y	Y	3
ME-04-01	Mecklenburg	Tungsten	Y	Y	0
ME-04-02	Mecklenburg	Boydton	Y	Y	2
ME-05-01	Mecklenburg	Tungsten	Y	Y	2
ME-05-02	Mecklenburg	John H. Kerr	Y	Y	2
ME-06-01	Mecklenburg	Clarksville North			NC
ME-07-01	Mecklenburg	John H. Kerr	Y	Y	2
ME-07-02	Mecklenburg	Clarksville North	Y	Y	1
ME-07-03	Mecklenburg	Clarksville South	Y	Y	0
ME-08-01	Mecklenburg	Tungsten	Y	Y	3
NE-07-01	Nelson	Howardsville			NC
NO-08-01	Nottoway	Danieltown	Y	Y	1
NO-99-01	Nottoway	Danieltown			NC
PA-03-01	Page	Rileyville			NC
PE-96-01	Prince Edward	Green Bay	Y	Y	3
PU-07-01	Pulaski	Radford South			NC

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PV-03-01	Pittsylvania	Straightstone			NC
PW-98-03	Prince William	Thoroghfare Gap			NC
SH-02-01	Shenandoah	Strasburg			NC
SO-01-01	Southampton	Riverdale	Y	Y	2
SO-06-01	Southampton		Y	Y	2
SP-07-01	Spotsyvania				NC
SS-02-02	Sussex	Yale			NC
SS-97-01	Sussex	Disputana South	Y	Y	1