

**Summary of Fall Passerine Banding on the
Eastern Shore of Virginia National Wildlife
Refuge: 2009-2010 Report.**



**Center for Conservation Biology
College of William and Mary
& Virginia Commonwealth University**

Summary of Fall Passerine Banding on the Eastern Shore of Virginia National Wildlife
Refuge: 2009-2010 Report.

Fletcher M. Smith

Center for Conservation Biology
College of William and Mary & Virginia Commonwealth University

Recommended Citation:

F.M. Smith. 2011. Summary of Fall Passerine Banding on the Eastern Shore of
Virginia National Wildlife Refuge: 2009-2010 Seasons.. Center for Conservation
Biology Technical Report Series, CCBTR-11-06. College of William and Mary &
Virginia Commonwealth University, Williamsburg, VA. 20 pp.

Project Partners:

U.S. Fish and Wildlife Service

Center for Conservation Biology



Front Cover: Connecticut Warbler. Photo by Sue Rice.



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.

TABLE OF CONTENTS

| | |
|-----------------------|----|
| SUMMARY..... | 4 |
| BACKGROUND..... | 5 |
| Objectives..... | 5 |
| METHODS..... | 5 |
| RESULTS..... | 7 |
| DISCUSSION..... | 9 |
| ACKNOWLEDGMENTS..... | 10 |
| LITERATURE CITED..... | 11 |
| APPENDIX A..... | 12 |
| APPENDIX B..... | 15 |
| APPENDIX C..... | 18 |

Summary:

Along the Atlantic Coast, significant barriers such as large bodies of water act as migration bottlenecks funneling large numbers of birds onto relatively small land masses. For southbound migrants, the Chesapeake Bay is one of the largest physical barriers along the East Coast of North America. Migrants that reach the mouth of the Bay in the hours just before dawn land near the tip of the Delmarva Peninsula. Many of these birds depend on habitats found within the lower peninsula for rest and refueling before leaving on the next leg of their migration. Because of its unique geographic position, the lower Delmarva contains some of the most critical habitats for migrant birds within the Atlantic Flyway. The Eastern Shore of Virginia National Wildlife Refuge is particularly significant because of its position at the southern tip of the peninsula.

Beginning in the fall of 2009, and continuing in the fall of 2010, the U.S. Fish and Wildlife Service initiated a study of shrubland migrants within a network of several refuges including the Eastern Shore of Virginia National Wildlife Refuge. The Eastern Shore Refuge is currently managing approximately 280 acres in an early successional grassland/shrub-scrub habitat. The primary goal of this study is to collect baseline data on the number and diversity of fall migrants using this habitat complex. The information will be used to better manage habitat for migrating songbirds on the lower Eastern Shore of Virginia. The study includes point counts, vegetation characterization work, and banding of migrant passerines. The Center for Conservation Biology partnered with the refuge to conduct field work during both fall seasons.

In 2010, the songbird banding station was open for 83 days between August 31st and November 30th. In 2009, songbird banding was conducted on 57 days between 15 September and 30 November. A total of 11,638 birds were banded of 97 species in 2010, and 7,860 birds were banded of 85 species in 2009. Total captures included 4,634 (23.77%) Neotropical migrants, 14,643 (75.10%) temperate migrants, 218 (1.12%) resident birds, and 2 (0.01%) vagrant birds. Average capture rate was 175 birds/100 net hours in 2009 and 169 birds/100 net hours in 2010. Temporal distribution varied greatly within both seasons.

Background:

Along the Atlantic Coast, significant barriers such as large bodies of water act as migration bottlenecks funneling large numbers of birds onto relatively small land masses. For southbound migrants, the Chesapeake Bay is one of the largest physical barriers along the East Coast of North America. Migrants that reach the mouth of the Bay in the hours just before dawn land near the tip of the Delmarva Peninsula. Many of these birds depend on habitats found within the lower peninsula for rest and refueling before leaving on the next leg of their migration. Because of its unique geographic position, the lower Delmarva contains some of the most critical habitats for migrant birds within the Atlantic Flyway. The Eastern Shore of Virginia National Wildlife Refuge is particularly significant because of its position at the southern tip of the peninsula.

Beginning in the fall of 2009, and continuing in the fall of 2010, the U.S. Fish and Wildlife Service initiated a study of shrubland migrants within a network of several refuges including the Eastern Shore of Virginia National Wildlife Refuge. The Eastern Shore Refuge is currently managing approximately 280 acres in an early successional grassland/shrub-scrub habitat. The primary goal of this study is to collect baseline data on the number and diversity of fall migrants using this habitat complex. The information will be used to better manage habitat for migrating songbirds on the lower Eastern Shore of Virginia. The study includes point counts, vegetation characterization work, and banding of migrant passerines. The Center for Conservation Biology partnered with the refuge to conduct field work during both fall seasons.

Objectives:

- 1) Document temporal distribution of landbird migration through shrub habitat by operating a mist net in shrub habitat.
- 2) Document volume of landbird migration through shrub habitat through mist netting in shrub habitat.
- 3) Provide data for USFWS and partners to better manage early successional habitat on the lower Eastern Shore of Virginia.

Methods:

Birds were trapped in 30mm mist nets and birds were tagged with a USGS serially numbered band. Birds were processed (Figures 1-4) using standard morphometric and physical measurements, including wing and tail (to nearest mm), and weight (to the nearest tenth of a gram). Birds were aged according to methods described in Pyle 1997. Nets were grouped in five 3 net clusters in dense shrub (see Figure 5 for common shrub species found in banding station) along an east/west axis in an effort to maximize northbound/southbound migrant captures. On high volume migration days, data recorded were abbreviated to minimize handling time.



Figure 1. Bander in Charge (2009), Jethro Runco, bands a grey catbird.



Figure 2. Jethro releases a red-eyed vireo after banding it.



Figure 3. Birds hang in cloth holding bags waiting to be banded and processed.



Figure 4. From Left, Caroline Poli, Bander in Charge (2010), Clyde Morris, volunteer, Nathan Banfield, Bander in Charge (2010), Todd Jones, Banding Technician (2010). Photo courtesy of Sue Rice.



Figure 5. Shrub-scrub layer mast crops on the lower Delmarva Peninsula provide cover and food for fall songbird migrants. Common shrub-scrub level plants on the Delmarva include: (photos, top to bottom) winged sumac, Autumn olive, wax myrtle, scuppernong grape vine. Vegetation surveys were conducted by USFWS technicians in both 2009 and 2010.

Results:

In 2010, the songbird banding station was open for 83 days between August 31st and November 30th. In 2009, songbird banding was conducted on 57 days between 15 September and 30 November. A total of 11,638 birds were banded of 97 species in 2010, and 7,860 birds were banded of 85 species in 2009 (Table 1 and Appendix A).

Total captures included 4,634 (23.77%) Neotropical migrants, 14,643 (75.10%) temperate migrants, 218 (1.12%) resident birds, and 2 (0.01%) vagrant birds. Average capture rate was 175 birds/100 net hours in 2009 and 169 birds/100 net hours in 2010. Temporal distribution varied greatly within both seasons (Figures 6 and 7, Appendix B). The general framework for this study was provided by Ralph and Knutson (2008) and Hussell and Ralph (2005).

Table 1. Percent of total captures of Neotropical, Temperate, Resident, and Vagrant Species during 2009-2010 fall trapping seasons on Eastern Shore of Virginia National Wildlife Refuge.

| Migratory Status | Year 2009 | % Total 2009 | Year 2010 | % Total 2010 | Totals 2009-2010 | % Totals |
|---------------------|-------------|----------------|--------------|----------------|------------------|----------------|
| Neotropical Migrant | 1683 | 21.41% | 2951 | 25.36% | 4634 | 23.77% |
| Temperate Migrant | 6084 | 77.41% | 8559 | 73.54% | 14643 | 75.10% |
| Resident | 91 | 1.16% | 127 | 1.09% | 218 | 1.12% |
| Vagrant | 1 | 0.01% | 1 | 0.01% | 2 | 0.01% |
| Totals | 7859 | 100.00% | 11638 | 100.00% | 19497 | 100.00% |

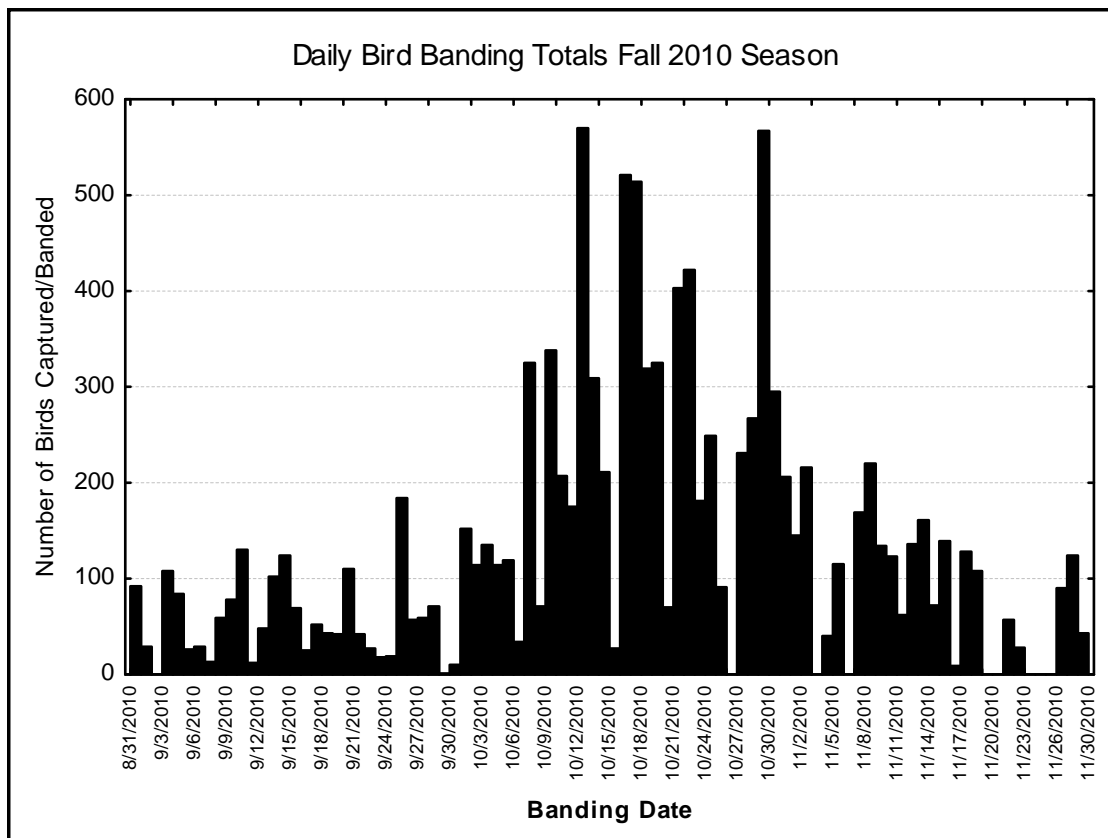


Figure 6. Temporal distribution of landbird captures during 2010 songbird banding season on the Eastern Shore of Virginia National Wildlife Refuge.

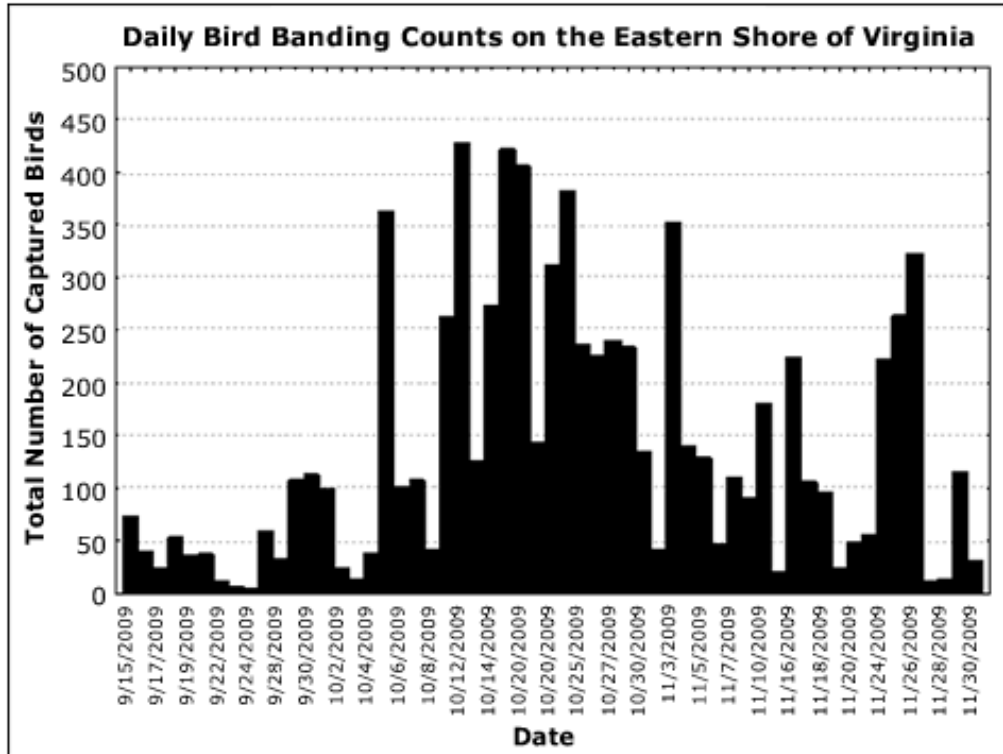


Figure 7. Temporal distribution of landbird captures during the 2009 fall trapping season on the Eastern Shore of Virginia National Wildlife Refuge.

Discussion:

Many studies have examined the importance of forest habitat to migrant landbirds (Yong et al. 1998, Kilgo et al 1999, Winker et al. 1992, Watts and Mabey 1994) but very few have studied the importance of shrub habitat to landbirds during migration (Woodrey and Moore 1997, Morris et al. 1996). Our results confirm the importance of shrub habitat to migrating landbirds on the Delmarva Peninsula. The capture rates of 1.75 and 1.69 birds/net hour are among the highest of any passerine station in North America. When paired with transect count data collected concurrently with banding data, a better picture of habitat quality should begin to emerge, allowing land managers insight into how best to manage early successional habitat.

Age ratios were similar in shrub-scrub habitat as they are in forested habitat on the Lower Delmarva (Coastal Virginia Wildlife Observatory/Kiptopeke Banding Station, unpublished data). These ratios are similar to ratios found at other coastal migration

banding stations. A full 90 percent of all birds captured during the 2009 and 2010 seasons were hatching-year birds (Appendix C). High quality stopover habitat is crucial for these young birds survival in their first long distance migration event (Hutto 1998).

The top ten species captured include Myrtle Warbler, Gray Catbird, American Redstart, Common Yellowthroat, Northern Parula, Red-eyed Vireo, Palm Warbler, Northern Waterthrush, Hermit Thrush, and Golden-crowned Kinglet (Appendix X). All of these species are migratory, with 7 of the 10 Neotropical migrants. Many Neotropical migrants are in various stages of population decline (Robbins et al 1989). While some of these species are habitat generalists in migration (Red-eyed Vireo, American Redstart, Northern Parula, Hermit Thrush, Golden-crowned Kinglet), several of these species (Northern Waterthrush, Gray Catbird, Common Yellowthroat) are not found in high densities in forest habitat and are likely targeting shrub-scrub as preferable stopover habitat.

As an interesting side note, a total of two vagrant landbirds were captured during the 2009-2010 banding seasons. In 2009, a Northern Flicker integrate was captured. In 2010, Virginia's first Bell's Vireo was captured and photographed well. The Virginia Avian Records Committee (VARCOM) has recently accepted this record as the first photo verified record in the state.

The role that managed early successional habitats provide to migratory landbirds ecology in other locations on the Eastern Shore of Virginia is worth further examination. Also worth examining is the relative value of natural shrub habitat to migratory landbird stopover ecology on the lower Eastern Shore. Much of the high marsh edge on the lower shore is fringed with various species of shrub and is kept in this state by the salt tolerance of the shrub species. This habitat may be as valuable as the managed portions on the Eastern Shore National Wildlife Refuge and elsewhere.

Acknowledgements:

This study was conducted in conjunction with the staff of the Eastern Shore of Virginia National Wildlife Refuge. It is part of a larger study focusing on assessing population trends of fall migrant landbirds utilizing shrub-scrub habitat. Jethro Runco, Shannon Ehlers, Caroline Poli, Nathan Banfield, and Todd Jones assisted in all aspects of field work. Sue Rice and Pam Denmon provided technical and field support. The banding station owes a huge debt of gratitude to the volunteers that came out and assisted with extraction and data collection, especially Shannon Ehlers, Clyde Morris, and Joelle Buffa. Funding for this project was provided by The US Fish and Wildlife Service and The Center for Conservation Biology. Finally, we gratefully acknowledge administrative support from Mark Roberts, Gloria Sciole, Renee Peace, and Carlton Adams at the College of William and Mary.

Literature Cited:

- Hussell, D.J.T., and C.J. Ralph. 2005. Recommended Methods for Monitoring Change in Landbird Populations by Counting and Capturing Migrants. *North American Bird Bander* 30(1): 6-20.
- Hutto, R. L. 1998. On the Importance of Stopover Sites to Migrating Birds. *The Auk*. 115 (4): 823-825.
- Kilgo, J.C., K.V. Miller, and W.P. Smith. 1999. Effects of Group-selection Timber Harvest in Bottomland Hardwoods on Fall Migrant Birds. *Journal of Field Ornithology* 70(3): 404-413.
- Morris, S.R., D.W. Holmes, and M.E. Richmond. 1996. A Ten-year Study of the Stopover Patterns of Migratory Passerines during Fall Migration on Appledore Island, Maine. *The Condor* 98(2): 395-409.
- Pyle, P. 1997. Identification Guide to North American Birds. Part I: Columbidae to Ploceidae. Slaty Creek Press.
- Ralph, C.J. and M. Knutson. 2008. A Rapid Monitoring Protocol Suitable for Assessing the Status and Change Over Time in Populations of Fall-migrating Landbirds Using Shrub Habitats on Service Field Stations.
- Robbins, C.S., J.R. Sauer, R.S. Greenberg, and S. Droege. 1989. Population Declines in North American birds that migrate. *Proceedings of the National Academy of Sciences*. Vol. 86, pp. 7658-7662.
- Watts, B.D., and S.E. Mabey. 1994. Migratory Landbirds of the Lower Delmarva: Habitat Selection and Geographic Distribution. Final report submitted to NOAA Coastal Zone Management Program.
- Winker, K., D.W. Warner, and A.R. Weisbrod. 1992. Migration of Woodland Birds at a Fragmented Inland Stopover Site. *The Wilson Bulletin* 104(4): 580-598.
- Woodrey, M.S., and F.R. Moore. 1997. Age-related Differences in the Stopover of Fall Landbird Migrants on the Coast of Alabama. *The Auk* 114(4):695-707.
- Yong, W., D.M. Finch, F.R. Moore, and J.F. Kelly. 1998. Stopover Ecology and Habitat Use of Migratory Wilson's Warblers.

Appendix A. Common Name, Genus and Species, and Migratory Status of all birds captured during the 2009-2010 fall passerine season on Eastern Shore of Virginia National Wildlife Refuge.

| Common Name | Genus | Species | Migratory Status |
|---------------------------|--------------------|--------------------------|---------------------|
| Green Heron | <i>Butorides</i> | <i>virescens</i> | Temperate Migrant |
| Sharp-shinned Hawk | <i>Accipiter</i> | <i>striatus</i> | Neotropical Migrant |
| Cooper's Hawk | <i>Accipiter</i> | <i>cooperii</i> | Neotropical Migrant |
| Broad-winged Hawk | <i>Buteo</i> | <i>platypterus</i> | Neotropical Migrant |
| American Woodcock | <i>Scolopax</i> | <i>minor</i> | Temperate Migrant |
| Mourning Dove | <i>Zenaida</i> | <i>macroura</i> | Resident |
| Black-billed Cuckoo | <i>Coccyzus</i> | <i>erythrophthalmus</i> | Neotropical Migrant |
| Yellow-billed Cuckoo | <i>Coccyzus</i> | <i>americanus</i> | Neotropical Migrant |
| Eastern Screech-Owl | <i>Megascops</i> | <i>asio</i> | Resident |
| Yellow-bellied Sapsucker | <i>Sphyrapicus</i> | <i>varius</i> | Temperate Migrant |
| Downy Woodpecker | <i>Picoides</i> | <i>pubescens</i> | Resident |
| Yellow-shafted Flicker | <i>Colaptes</i> | <i>auratus</i> | Temperate Migrant |
| Flicker Intergrade | <i>Colaptes</i> | <i>auratus</i> | Vagrant |
| Eastern Wood-Pewee | <i>Contopus</i> | <i>virens</i> | Neotropical Migrant |
| Yellow-bellied Flycatcher | <i>Empidonax</i> | <i>flaviventris</i> | Neotropical Migrant |
| Acadian Flycatcher | <i>Empidonax</i> | <i>virescens</i> | Neotropical Migrant |
| Trail's Flycatcher | <i>Empidonax</i> | <i>traillii or alnor</i> | Neotropical Migrant |
| Eastern Phoebe | <i>Sayornis</i> | <i>phoebe</i> | Temperate Migrant |
| Great-crested Flycatcher | <i>Myiarchus</i> | <i>crinitus</i> | Neotropical Migrant |
| Eastern Kingbird | <i>Tyrannus</i> | <i>tyrannus</i> | Neotropical Migrant |
| White-eyed Vireo | <i>Vireo</i> | <i>griseus</i> | Neotropical Migrant |
| Bell's Vireo | <i>Vireo</i> | <i>bellii</i> | Vagrant |
| Blue-headed Vireo | <i>Vireo</i> | <i>solitarius</i> | Neotropical Migrant |
| Philadelphia Vireo | <i>Vireo</i> | <i>philadelphicus</i> | Neotropical Migrant |
| Red-eyed Vireo | <i>Vireo</i> | <i>olivaceus</i> | Neotropical Migrant |
| Blue Jay | <i>Cyanocitta</i> | <i>cristata</i> | Temperate Migrant |
| Tree Swallow | <i>Tachycineta</i> | <i>bicolor</i> | Neotropical Migrant |
| Carolina Chickadee | <i>Poecile</i> | <i>carolinensis</i> | Resident |
| Eastern Tufted Titmouse | <i>Baeolophus</i> | <i>bicolor</i> | Resident |
| Red-breasted Nuthatch | <i>Sitta</i> | <i>canadensis</i> | Temperate Migrant |
| Brown Creeper | <i>Certhia</i> | <i>americana</i> | Temperate Migrant |
| Carolina Wren | <i>Thryothorus</i> | <i>ludovicianus</i> | Resident |
| House Wren | <i>Troglodytes</i> | <i>aedon</i> | Neotropical Migrant |
| Winter Wren | <i>Troglodytes</i> | <i>troglodytes</i> | Temperate Migrant |
| Sedge Wren | <i>Cistothorus</i> | <i>platensis</i> | Temperate Migrant |
| Marsh Wren | <i>Cistothorus</i> | <i>palustris</i> | Neotropical Migrant |
| Golden-crowned Kinglet | <i>Regulus</i> | <i>satrapa</i> | Temperate Migrant |
| Ruby-crowned Kinglet | <i>Regulus</i> | <i>calendula</i> | Temperate Migrant |
| Blue-gray Gnatcatcher | <i>Polioptila</i> | <i>caerulea</i> | Neotropical Migrant |
| Veery | <i>Catharus</i> | <i>fuscescens</i> | Neotropical Migrant |

Appendix A cont... Common Name, Genus and Species, and Migratory Status of all birds captured during the 2009-2010 fall passerine season on Eastern Shore of Virginia National Wildlife Refuge.

| Common Name | Genus | Species | Migratory Status |
|------------------------------|--------------------|-----------------------|-------------------------|
| Gray-cheeked Thrush | <i>Catharus</i> | <i>minimus</i> | Neotropical Migrant |
| Bicknell's Thrush | <i>Catharus</i> | <i>bicknelli</i> | Neotropical Migrant |
| Swainson's Thrush | <i>Catharus</i> | <i>ustulatus</i> | Neotropical Migrant |
| Hermit Thrush | <i>Catharus</i> | <i>guttatus</i> | Temperate Migrant |
| Wood Thrush | <i>Hylocichla</i> | <i>mustelina</i> | Neotropical Migrant |
| American Robin | <i>Turdus</i> | <i>migratorius</i> | Temperate Migrant |
| Gray Catbird | <i>Dumetella</i> | <i>carolinensis</i> | Neotropical Migrant |
| Northern Mockingbird | <i>Mimus</i> | <i>polyglottos</i> | Resident |
| Brown Thrasher | <i>Toxostoma</i> | <i>rufum</i> | Temperate Migrant |
| Cedar Waxwing | <i>Bombycilla</i> | <i>cedrorum</i> | Temperate Migrant |
| Tennessee Warbler | <i>Vermivora</i> | <i>peregrina</i> | Neotropical Migrant |
| Orange-crowned Warbler | <i>Vermivora</i> | <i>celata</i> | Temperate Migrant |
| Nashville Warbler | <i>Vermivora</i> | <i>ruficapilla</i> | Neotropical Migrant |
| Northern Parula | <i>Parula</i> | <i>americana</i> | Neotropical Migrant |
| Yellow Warbler | <i>Dendroica</i> | <i>petechia</i> | Neotropical Migrant |
| Chestnut-sided Warbler | <i>Dendroica</i> | <i>pensylvanica</i> | Neotropical Migrant |
| Magnolia Warbler | <i>Dendroica</i> | <i>magnolia</i> | Neotropical Migrant |
| Cape May Warbler | <i>Dendroica</i> | <i>tigrina</i> | Neotropical Migrant |
| Black-throated Blue Warbler | <i>Dendroica</i> | <i>caerulescens</i> | Neotropical Migrant |
| Myrtle Warbler | <i>Dendroica</i> | <i>coronata</i> | Temperate Migrant |
| Black-throated Green Warbler | <i>Dendroica</i> | <i>virens</i> | Neotropical Migrant |
| Pine Warbler | <i>Dendroica</i> | <i>pinus</i> | Temperate Migrant |
| Prairie Warbler | <i>Dendroica</i> | <i>discolor</i> | Neotropical Migrant |
| Western Palm Warbler | <i>Dendroica</i> | <i>palmarum</i> | Neotropical Migrant |
| Yellow Palm Warbler | <i>Dendroica</i> | <i>palmarum</i> | Neotropical Migrant |
| Bay-breasted Warbler | <i>Dendroica</i> | <i>castanea</i> | Neotropical Migrant |
| Blackpoll Warbler | <i>Dendroica</i> | <i>striata</i> | Neotropical Migrant |
| Black-and-white Warbler | <i>Mniotilta</i> | <i>varia</i> | Neotropical Migrant |
| American Redstart | <i>Setophaga</i> | <i>ruticilla</i> | Neotropical Migrant |
| Worm-eating Warbler | <i>Helmitheros</i> | <i>vermivorum</i> | Neotropical Migrant |
| Ovenbird | <i>Seiurus</i> | <i>aurocapilla</i> | Neotropical Migrant |
| Northern Waterthrush | <i>Seiurus</i> | <i>noveboracensis</i> | Neotropical Migrant |
| Connecticut Warbler | <i>Oporornis</i> | <i>agilis</i> | Neotropical Migrant |
| Mourning Warbler | <i>Oporornis</i> | <i>philadelphia</i> | Neotropical Migrant |
| Common Yellowthroat | <i>Geothlypis</i> | <i>trichas</i> | Neotropical Migrant |
| Hooded Warbler | <i>Wilsonia</i> | <i>citrina</i> | Neotropical Migrant |
| Wilson's Warbler | <i>Wilsonia</i> | <i>pusilla</i> | Neotropical Migrant |
| Canada Warbler | <i>Wilsonia</i> | <i>canadensis</i> | Neotropical Migrant |
| Yellow-breasted Chat | <i>Icteria</i> | <i>virens</i> | Neotropical Migrant |
| Summer Tanager | <i>Piranga</i> | <i>rubra</i> | Neotropical Migrant |

Appendix A cont... Common Name, Genus and Species, and Migratory Status of all birds captured during the 2009-2010 fall passerine season on Eastern Shore of Virginia National Wildlife Refuge.

| Common Name | Genus | Species | Migratory Status |
|------------------------|--------------------|-------------------------|-------------------------|
| Scarlet Tanager | <i>Piranga</i> | <i>olivacea</i> | Neotropical Migrant |
| Eastern Towhee | <i>Pipilo</i> | <i>erythrophthalmus</i> | Temperate Migrant |
| Chipping Sparrow | <i>Spizella</i> | <i>passerina</i> | Temperate Migrant |
| Clay-colored Sparrow | <i>Spizella</i> | <i>pallida</i> | Temperate Migrant |
| Field Sparrow | <i>Spizella</i> | <i>pusilla</i> | Temperate Migrant |
| Savannah Sparrow | <i>Passerculus</i> | <i>sandwichensis</i> | Temperate Migrant |
| Grasshopper Sparrow | <i>Ammodramus</i> | <i>savannarum</i> | Temperate Migrant |
| Seaside Sparrow | <i>Ammodramus</i> | <i>maritimus</i> | Temperate Migrant |
| Fox Sparrow | <i>Passerella</i> | <i>iliaca</i> | Temperate Migrant |
| Song Sparrow | <i>Melospiza</i> | <i>melodia</i> | Temperate Migrant |
| Lincoln's Sparrow | <i>Melospiza</i> | <i>lincolnii</i> | Temperate Migrant |
| Swamp Sparrow | <i>Melospiza</i> | <i>georgiana</i> | Temperate Migrant |
| White-throated Sparrow | <i>Zonotrichia</i> | <i>albicollis</i> | Temperate Migrant |
| Slate-colored Junco | <i>Junco</i> | <i>hyemalis</i> | Temperate Migrant |
| White-crowned Sparrow | <i>Zonotrichia</i> | <i>leucophrys</i> | Temperate Migrant |
| Northern Cardinal | <i>Cardinalis</i> | <i>cardinalis</i> | Resident |
| Rose-breasted Grosbeak | <i>Pheucticus</i> | <i>ludovicianus</i> | Neotropical Migrant |
| Blue Grosbeak | <i>Passerina</i> | <i>caerulea</i> | Neotropical Migrant |
| Indigo Bunting | <i>Passerina</i> | <i>cyanea</i> | Neotropical Migrant |
| Bobolink | <i>Dolichonyx</i> | <i>oryzivorus</i> | Neotropical Migrant |
| Baltimore Oriole | <i>Icterus</i> | <i>galbula</i> | Neotropical Migrant |
| Purple Finch | <i>Carpodacus</i> | <i>purpureus</i> | Temperate Migrant |
| House Finch | <i>Carpodacus</i> | <i>mexicanus</i> | Resident |
| American Goldfinch | <i>Carduelis</i> | <i>tristis</i> | Temperate Migrant |

Appendix B. Summary of passerine trapping on the Eastern Shore of Virginia National Wildlife Refuge, 2009-2010 fall trapping seasons.

| Common name | Total captures | % Total | Mean migration date | Mean migration date \pm sd | Date of first capture | Date of latest capture |
|---------------------------|----------------|---------|---------------------|------------------------------|-----------------------|------------------------|
| Green Heron | 1 | 0.01% | 27-Sep | Captured Once | | |
| Sharp-shinned Hawk | 110 | 0.56% | 22-Oct | 17.6 | 13-Sep | 30-Nov |
| Cooper's Hawk | 11 | 0.06% | 13-Oct | 11.5 | 1-Oct | 11-Nov |
| Broad-winged Hawk | 1 | 0.01% | 19-Oct | Captured Once | | |
| American Woodcock | 8 | 0.04% | 3-Nov | 6.9 | 29-Oct | 19-Nov |
| Mourning Dove | 4 | 0.02% | 21-Sep | 15 | 8-Sep | 13-Oct |
| Black-billed Cuckoo | 1 | 0.01% | 9-Oct | Captured Once | | |
| Yellow-billed Cuckoo | 32 | 0.16% | 2-Oct | 14.4 | 1-Sep | 3-Nov |
| Eastern Screech-Owl | 2 | 0.01% | 16-Sep | 0.7 | 16-Sep | 17-Sep |
| Yellow-bellied Sapsucker | 9 | 0.05% | 12-Oct | 10 | 5-Oct | 7-Nov |
| Downy Woodpecker | 1 | 0.01% | 29-Sep | Captured Once | | |
| Yellow-shafted Flicker | 12 | 0.06% | 30-Sep | 16.2 | 12-Sep | 9-Nov |
| Flicker Intergrade | 1 | 0.01% | 24-Nov | Captured Once | | |
| Eastern Wood-Pewee | 6 | 0.03% | 23-Sep | 11.2 | 10-Sep | 5-Oct |
| Yellow-bellied Flycatcher | 3 | 0.02% | 16-Sep | 8.4 | 11-Sep | 26-Sep |
| Acadian Flycatcher | 2 | 0.01% | 25-Sep | 5.7 | 21-Sep | 29-Sep |
| Trail's Flycatcher | 76 | 0.39% | 10-Sep | 8.8 | 31-Aug | 15-Oct |
| Eastern Phoebe | 19 | 0.10% | 15-Oct | 9.7 | 30-Sep | 29-Oct |
| Great-crested Flycatcher | 1 | 0.01% | 9-Sep | Captured Once | | |
| Eastern Kingbird | 2 | 0.01% | 10-Sep | Captured One Day | | |
| White-eyed Vireo | 11 | 0.06% | 24-Sep | 12.4 | 31-Aug | 9-Oct |
| Bell's Vireo | 1 | 0.01% | 19-Sep | Captured Once | | |
| Blue-headed Vireo | 5 | 0.03% | 24-Oct | 15.8 | 5-Oct | 16-Nov |
| Philadelphia Vireo | 8 | 0.04% | 17-Sep | 8.7 | 9-Sep | 8-Oct |
| Red-eyed Vireo | 279 | 1.43% | 20-Sep | 11.1 | 31-Aug | 2-Nov |
| Blue Jay | 12 | 0.06% | 24-Oct | 22.9 | 15-Sep | 27-Nov |
| Tree Swallow | 1 | 0.01% | 30-Sep | Captured Once | | |
| Carolina Chickadee | 13 | 0.07% | 24-Sep | 15.2 | 11-Sep | 3-Nov |
| Eastern Tufted Titmouse | 1 | 0.01% | 13-Oct | Captured Once | | |
| Red-breasted Nuthatch | 4 | 0.02% | 13-Oct | 24.3 | 15-Sep | 9-Nov |
| Brown Creeper | 22 | 0.11% | 25-Oct | 14 | 3-Oct | 19-Nov |
| Carolina Wren | 40 | 0.21% | 27-Sep | 20.9 | 31-Aug | 16-Nov |
| House Wren | 125 | 0.64% | 8-Oct | 15.2 | 14-Sep | 29-Nov |
| Winter Wren | 45 | 0.23% | 25-Oct | 11.1 | 5-Oct | 20-Nov |
| Sedge Wren | 1 | 0.01% | 21-Oct | Captured Once | | |
| Marsh Wren | 3 | 0.02% | 20-Sep | 12.8 | 9-Sep | 4-Oct |
| Golden-crowned Kinglet | 180 | 0.92% | 19-Oct | 10.8 | 2-Oct | 19-Nov |
| Ruby-crowned Kinglet | 116 | 0.59% | 19-Oct | 11.4 | 26-Sep | 29-Nov |
| Blue-gray Gnatcatcher | 4 | 0.02% | 15-Sep | 2.2 | 13-Sep | 18-Sep |

Appendix B cont... Summary of passerine trapping on the Eastern Shore of Virginia National Wildlife Refuge, 2009-2010 fall trapping seasons.

| Common name | Total # | % Total | Mean migration date | Mean migration date \pm sd | Date of first capture | Date of latest capture |
|------------------------------|---------|---------|---------------------|------------------------------|-----------------------|------------------------|
| Veery | 63 | 0.32% | 14-Sep | 7.1 | 31-Aug | 6-Oct |
| Gray-cheeked Thrush | 17 | 0.09% | 8-Oct | 4.8 | 1-Oct | 19-Oct |
| Bicknell's Thrush | 3 | 0.02% | 12-Oct | 9.3 | 6-Oct | 23-Oct |
| Swainson's Thrush | 28 | 0.14% | 22-Sep | 14.9 | 5-Sep | 23-Oct |
| Hermit Thrush | 188 | 0.96% | 30-Oct | 9.2 | 8-Oct | 30-Nov |
| Wood Thrush | 1 | 0.01% | 14-Oct | Captured Once | | |
| American Robin | 117 | 0.60% | 5-Nov | 6.3 | 19-Oct | 23-Nov |
| Gray Catbird | 1,272 | 6.52% | 7-Oct | 11.6 | 1-Sep | 30-Nov |
| Northern Mockingbird | 22 | 0.11% | 18-Oct | 25.8 | 15-Sep | 19-Nov |
| Brown Thrasher | 26 | 0.13% | 10-Oct | 15.2 | 19-Sep | 23-Nov |
| Cedar Waxwing | 2 | 0.01% | 28-Sep | 19.1 | 15-Sep | 12-Oct |
| Tennessee Warbler | 7 | 0.04% | 27-Sep | 13.4 | 5-Sep | 9-Oct |
| Orange-crowned Warbler | 13 | 0.07% | 4-Nov | 16.4 | 8-Oct | 28-Nov |
| Nashville Warbler | 9 | 0.05% | 6-Oct | 11.9 | 15-Sep | 21-Oct |
| Northern Parula | 327 | 1.68% | 30-Sep | 9.2 | 5-Sep | 1-Nov |
| Yellow Warbler | 41 | 0.21% | 12-Sep | 7.7 | 31-Aug | 6-Oct |
| Chestnut-sided Warbler | 5 | 0.03% | 18-Sep | 16 | 4-Sep | 6-Oct |
| Magnolia Warbler | 102 | 0.52% | 27-Sep | 10.9 | 31-Aug | 15-Oct |
| Cape May Warbler | 13 | 0.07% | 23-Sep | 10.9 | 5-Sep | 6-Oct |
| Black-throated Blue Warbler | 107 | 0.55% | 30-Sep | 12.3 | 1-Sep | 25-Oct |
| Myrtle Warbler | 12,409 | 63.65% | 28-Oct | 14 | 11-Sep | 30-Nov |
| Black-throated Green Warbler | 10 | 0.05% | 4-Oct | 11 | 5-Sep | 14-Oct |
| Pine Warbler | 1 | 0.01% | 10-Oct | Captured Once | | |
| Prairie Warbler | 17 | 0.09% | 20-Sep | 9 | 4-Sep | 6-Oct |
| Western Palm Warbler | 151 | 0.77% | 3-Oct | 12.3 | 4-Sep | 10-Nov |
| Yellow Palm Warbler | 77 | 0.39% | 12-Oct | 12.3 | 9-Sep | 19-Nov |
| Bay-breasted Warbler | 6 | 0.03% | 5-Oct | 2.9 | 2-Oct | 10-Oct |
| Blackpoll Warbler | 127 | 0.65% | 8-Oct | 9 | 14-Sep | 2-Nov |
| Black-and-white Warbler | 92 | 0.47% | 22-Sep | 13.1 | 31-Aug | 12-Nov |
| American Redstart | 568 | 2.91% | 19-Sep | 12.2 | 31-Aug | 29-Oct |
| Worm-eating Warbler | 1 | 0.01% | 5-Sep | Captured Once | | |
| Ovenbird | 66 | 0.34% | 18-Sep | 9.5 | 31-Aug | 15-Oct |
| Northern Waterthrush | 193 | 0.99% | 15-Sep | 10.4 | 31-Aug | 3-Nov |
| Connecticut Warbler | 12 | 0.06% | 29-Sep | 10 | 14-Sep | 23-Oct |
| Mourning Warbler | 1 | 0.01% | 10-Sep | Captured Once | | |
| Common Yellowthroat | 505 | 2.59% | 27-Sep | 11.3 | 31-Aug | 3-Nov |
| Hooded Warbler | 2 | 0.01% | 30-Sep | 0.7 | 30-Sep | 1-Oct |
| Wilson's Warbler | 4 | 0.02% | 18-Sep | 15.5 | 4-Sep | 5-Oct |
| Canada Warbler | 7 | 0.04% | 10-Sep | 6.4 | 2-Sep | 22-Sep |
| Yellow-breasted Chat | 19 | 0.10% | 20-Sep | 22.6 | 31-Aug | 18-Nov |

Appendix B cont... Summary of passerine trapping on the Eastern Shore of Virginia National Wildlife Refuge, 2009-2010 fall trapping seasons.

| Common name | Total # | % Total | Mean migration date | Mean migration date \pm sd | Date of first capture | Date of latest capture |
|------------------------|---------------|-------------|---------------------|------------------------------|-----------------------|------------------------|
| Summer Tanager | 4 | 0.02% | 10-Sep | 4.5 | 5-Sep | 16-Sep |
| Scarlet Tanager | 1 | 0.01% | 18-Sep | Captured Once | | |
| Eastern Towhee | 24 | 0.12% | 28-Oct | 13.4 | 8-Oct | 29-Nov |
| Chipping Sparrow | 27 | 0.14% | 1-Nov | 15.8 | 19-Sep | 28-Nov |
| Clay-colored Sparrow | 2 | 0.01% | 9-Oct | 2.1 | 8-Oct | 11-Oct |
| Field Sparrow | 41 | 0.21% | 30-Oct | 18.2 | 31-Aug | 30-Nov |
| Savannah Sparrow | 4 | 0.02% | 1-Nov | 24.4 | 11-Oct | 28-Nov |
| Grasshopper Sparrow | 2 | 0.01% | 2-Nov | 6.4 | 29-Oct | 7-Nov |
| Seaside Sparrow | 2 | 0.01% | 4-Oct | 12 | 26-Sep | 13-Oct |
| Fox Sparrow | 17 | 0.09% | 20-Nov | 6.4 | 3-Nov | 29-Nov |
| Song Sparrow | 298 | 1.53% | 28-Oct | 11.7 | 26-Sep | 30-Nov |
| Lincoln's Sparrow | 2 | 0.01% | 25-Oct | 4.9 | 22-Oct | 29-Oct |
| Swamp Sparrow | 430 | 2.21% | 27-Oct | 12.7 | 29-Sep | 29-Nov |
| White-throated Sparrow | 504 | 2.59% | 4-Nov | 11.3 | 5-Oct | 30-Nov |
| Slate-colored Junco | 88 | 0.45% | 4-Nov | 12.1 | 11-Oct | 30-Nov |
| White-crowned Sparrow | 7 | 0.04% | 12-Oct | 14.1 | 2-Oct | 31-Oct |
| Northern Cardinal | 118 | 0.61% | 5-Oct | 22.8 | 31-Aug | 29-Nov |
| Rose-breasted Grosbeak | 8 | 0.04% | 25-Sep | 8.3 | 10-Sep | 5-Oct |
| Blue Grosbeak | 9 | 0.05% | 13-Sep | 14.7 | 31-Aug | 17-Oct |
| Indigo Bunting | 59 | 0.30% | 3-Oct | 7.6 | 11-Sep | 15-Oct |
| Bobolink | 1 | 0.01% | 16-Sep | Captured Once | | |
| Baltimore Oriole | 18 | 0.09% | 15-Sep | 19.6 | 31-Aug | 23-Nov |
| Purple Finch | 5 | 0.03% | 31-Oct | 6.9 | 21-Oct | 8-Nov |
| House Finch | 17 | 0.09% | 24-Oct | 12.3 | 20-Sep | 19-Nov |
| American Goldfinch | 5 | 0.03% | 13-Nov | 11 | 30-Oct | 28-Nov |
| Totals | 19,497 | 100% | 21-Oct | 18.9 | 31-Aug | 30-Nov |

Appendix C. Age ratios of passerines captured on Eastern Shore of Virginia National Wildlife Refuge, 2009-2010 fall trapping seasons.

| Common Name | Age HY | % HY | Age AHY | % AHY | Age Unk. | % Unk. |
|---------------------------|---------------|-------------|----------------|--------------|-----------------|---------------|
| Green Heron | 0 | 0.00% | 1 | 100.00% | 0 | 0.00% |
| Sharp-shinned Hawk | 107 | 97.30% | 3 | 2.70% | 0 | 0.00% |
| Cooper's Hawk | 8 | 72.70% | 3 | 27.30% | 0 | 0.00% |
| Broad-winged Hawk | 1 | 100.00% | 0 | 0.00% | 0 | 0.00% |
| American Woodcock | 3 | 37.50% | 1 | 12.50% | 4 | 50.00% |
| Mourning Dove | 0 | 0.00% | 2 | 50.00% | 2 | 50.00% |
| Black-billed Cuckoo | 1 | 100.00% | 0 | 0.00% | 0 | 0.00% |
| Yellow-billed Cuckoo | 26 | 81.30% | 5 | 15.60% | 1 | 3.10% |
| Eastern Screech-Owl | 1 | 50.00% | 1 | 50.00% | 0 | 0.00% |
| Yellow-bellied Sapsucker | 9 | 100.00% | 0 | 0.00% | 0 | 0.00% |
| Downy Woodpecker | 1 | 100.00% | 0 | 0.00% | 0 | 0.00% |
| Yellow-shafted Flicker | 5 | 41.70% | 1 | 8.30% | 6 | 50.00% |
| Flicker Intergrade | 1 | 100.00% | 0 | 0.00% | 0 | 0.00% |
| Eastern Wood-Pewee | 6 | 100.00% | 0 | 0.00% | 0 | 0.00% |
| Yellow-bellied Flycatcher | 3 | 100.00% | 0 | 0.00% | 0 | 0.00% |
| Acadian Flycatcher | 2 | 100.00% | 0 | 0.00% | 0 | 0.00% |
| Trail's Flycatcher | 52 | 70.30% | 18 | 24.30% | 4 | 5.40% |
| Eastern Phoebe | 18 | 94.70% | 0 | 0.00% | 1 | 5.30% |
| Great-crested Flycatcher | 1 | 100.00% | 0 | 0.00% | 0 | 0.00% |
| Eastern Kingbird | 1 | 50.00% | 1 | 50.00% | 0 | 0.00% |
| White-eyed Vireo | 9 | 81.80% | 2 | 18.20% | 0 | 0.00% |
| Bell's Vireo | 1 | 100.00% | 0 | 0.00% | 0 | 0.00% |
| Blue-headed Vireo | 5 | 100.00% | 0 | 0.00% | 0 | 0.00% |
| Philadelphia Vireo | 8 | 100.00% | 0 | 0.00% | 0 | 0.00% |
| Red-eyed Vireo | 263 | 94.30% | 16 | 5.70% | 0 | 0.00% |
| Blue Jay | 10 | 83.30% | 2 | 16.70% | 0 | 0.00% |
| Tree Swallow | 0 | 0.00% | 1 | 100.00% | 0 | 0.00% |
| Carolina Chickadee | 7 | 53.80% | 4 | 30.80% | 2 | 15.40% |
| Eastern Tufted Titmouse | 1 | 100.00% | 0 | 0.00% | 0 | 0.00% |
| Red-breasted Nuthatch | 4 | 100.00% | 0 | 0.00% | 0 | 0.00% |
| Brown Creeper | 10 | 45.50% | 2 | 9.10% | 10 | 45.50% |
| Carolina Wren | 32 | 80.00% | 6 | 15.00% | 2 | 5.00% |
| House Wren | 121 | 96.80% | 2 | 1.60% | 2 | 1.60% |
| Winter Wren | 38 | 84.40% | 2 | 4.40% | 5 | 11.10% |
| Sedge Wren | 1 | 100.00% | 0 | 0.00% | 0 | 0.00% |
| Marsh Wren | 3 | 100.00% | 0 | 0.00% | 0 | 0.00% |
| Golden-crowned Kinglet | 143 | 79.40% | 4 | 2.20% | 33 | 18.30% |
| Ruby-crowned Kinglet | 65 | 56.00% | 9 | 7.80% | 42 | 36.20% |
| Blue-gray Gnatcatcher | 3 | 75.00% | 1 | 25.00% | 0 | 0.00% |
| Veery | 54 | 85.70% | 9 | 14.30% | 0 | 0.00% |

Appendix C cont... Age ratios of passerines captured on Eastern Shore of Virginia National Wildlife Refuge, 2009-2010 fall trapping seasons.

| Common Name | Age HY | % HY | Age AHY | % AHY | Age Unk. | % Unk. |
|------------------------------|---------------|-------------|----------------|--------------|-----------------|---------------|
| Gray-cheeked Thrush | 16 | 94.10% | 1 | 5.90% | 0 | 0.00% |
| Bicknell's Thrush | 3 | 100.00% | 0 | 0.00% | 0 | 0.00% |
| Swainson's Thrush | 26 | 92.90% | 2 | 7.10% | 0 | 0.00% |
| Hermit Thrush | 163 | 86.70% | 25 | 13.30% | 0 | 0.00% |
| Wood Thrush | 1 | 100.00% | 0 | 0.00% | 0 | 0.00% |
| American Robin | 93 | 79.50% | 21 | 17.90% | 3 | 2.60% |
| Gray Catbird | 1245 | 97.90% | 27 | 2.10% | 0 | 0.00% |
| Northern Mockingbird | 16 | 72.70% | 5 | 22.70% | 1 | 4.50% |
| Brown Thrasher | 22 | 84.60% | 4 | 15.40% | 0 | 0.00% |
| Cedar Waxwing | 1 | 50.00% | 1 | 50.00% | 0 | 0.00% |
| Tennessee Warbler | 6 | 85.70% | 1 | 14.30% | 0 | 0.00% |
| Orange-crowned Warbler | 11 | 84.60% | 1 | 7.70% | 1 | 7.70% |
| Nashville Warbler | 8 | 88.90% | 1 | 11.10% | 0 | 0.00% |
| Northern Parula | 316 | 96.60% | 11 | 3.40% | 0 | 0.00% |
| Yellow Warbler | 36 | 87.80% | 5 | 12.20% | 0 | 0.00% |
| Chestnut-sided Warbler | 5 | 100.00% | 0 | 0.00% | 0 | 0.00% |
| Magnolia Warbler | 96 | 94.10% | 6 | 5.90% | 0 | 0.00% |
| Cape May Warbler | 13 | 100.00% | 0 | 0.00% | 0 | 0.00% |
| Black-throated Blue Warbler | 102 | 95.30% | 5 | 4.70% | 0 | 0.00% |
| Myrtle Warbler | 11,331 | 91.30% | 1,047 | 8.40% | 31 | 0.20% |
| Black-throated Green Warbler | 10 | 100.00% | 0 | 0.00% | 0 | 0.00% |
| Pine Warbler | 1 | 100.00% | 0 | 0.00% | 0 | 0.00% |
| Prairie Warbler | 17 | 100.00% | 0 | 0.00% | 0 | 0.00% |
| Western Palm Warbler | 147 | 97.40% | 4 | 2.60% | 0 | 0.00% |
| Yellow Palm Warbler | 75 | 97.40% | 2 | 2.60% | 0 | 0.00% |
| Bay-breasted Warbler | 6 | 100.00% | 0 | 0.00% | 0 | 0.00% |
| Blackpoll Warbler | 81 | 63.80% | 44 | 34.60% | 2 | 1.60% |
| Black-and-white Warbler | 88 | 95.70% | 4 | 4.30% | 0 | 0.00% |
| American Redstart | 494 | 87.00% | 70 | 12.30% | 4 | 0.70% |
| Worm-eating Warbler | 1 | 100.00% | 0 | 0.00% | 0 | 0.00% |
| Ovenbird | 58 | 87.90% | 6 | 9.10% | 2 | 3.00% |
| Northern Waterthrush | 146 | 75.60% | 45 | 23.30% | 2 | 1.00% |
| Connecticut Warbler | 8 | 66.70% | 4 | 33.30% | 0 | 0.00% |
| Mourning Warbler | 1 | 100.00% | 0 | 0.00% | 0 | 0.00% |
| Common Yellowthroat | 466 | 92.30% | 39 | 7.70% | 0 | 0.00% |
| Hooded Warbler | 2 | 100.00% | 0 | 0.00% | 0 | 0.00% |
| Wilson's Warbler | 4 | 100.00% | 0 | 0.00% | 0 | 0.00% |
| Canada Warbler | 7 | 100.00% | 0 | 0.00% | 0 | 0.00% |
| Yellow-breasted Chat | 15 | 78.90% | 4 | 21.10% | 0 | 0.00% |
| Summer Tanager | 2 | 50.00% | 2 | 50.00% | 0 | 0.00% |

Appendix C cont... Age ratios of passerines captured on Eastern Shore of Virginia National Wildlife Refuge, 2009-2010 fall trapping seasons.

| Common Name | Age HY | % HY | Age AHY | % AHY | Age Unk. | % Unk. |
|------------------------|---------------|---------------|----------------|--------------|-----------------|---------------|
| Scarlet Tanager | 1 | 100.00% | 0 | 0.00% | 0 | 0.00% |
| Eastern Towhee | 21 | 87.50% | 3 | 12.50% | 0 | 0.00% |
| Chipping Sparrow | 27 | 100.00% | 0 | 0.00% | 0 | 0.00% |
| Clay-colored Sparrow | 2 | 100.00% | 0 | 0.00% | 0 | 0.00% |
| Field Sparrow | 37 | 90.20% | 3 | 7.30% | 1 | 2.40% |
| Savannah Sparrow | 4 | 100.00% | 0 | 0.00% | 0 | 0.00% |
| Grasshopper Sparrow | 2 | 100.00% | 0 | 0.00% | 0 | 0.00% |
| Seaside Sparrow | 1 | 50.00% | 1 | 50.00% | 0 | 0.00% |
| Fox Sparrow | 13 | 76.50% | 3 | 17.60% | 1 | 5.90% |
| Song Sparrow | 262 | 87.90% | 20 | 6.70% | 16 | 5.40% |
| Lincoln's Sparrow | 2 | 100.00% | 0 | 0.00% | 0 | 0.00% |
| Swamp Sparrow | 373 | 86.90% | 51 | 11.90% | 5 | 1.20% |
| White-throated Sparrow | 369 | 73.20% | 125 | 24.80% | 10 | 2.00% |
| Slate-colored Junco | 78 | 88.60% | 10 | 11.40% | 0 | 0.00% |
| White-crowned Sparrow | 7 | 100.00% | 0 | 0.00% | 0 | 0.00% |
| Northern Cardinal | 99 | 83.90% | 15 | 12.70% | 4 | 3.40% |
| Rose-breasted Grosbeak | 8 | 100.00% | 0 | 0.00% | 0 | 0.00% |
| Blue Grosbeak | 5 | 55.60% | 4 | 44.40% | 0 | 0.00% |
| Indigo Bunting | 57 | 96.60% | 2 | 3.40% | 0 | 0.00% |
| Bobolink | 1 | 100.00% | 0 | 0.00% | 0 | 0.00% |
| Baltimore Oriole | 18 | 100.00% | 0 | 0.00% | 0 | 0.00% |
| Purple Finch | 5 | 100.00% | 0 | 0.00% | 0 | 0.00% |
| House Finch | 15 | 88.20% | 1 | 5.90% | 1 | 5.90% |
| American Goldfinch | 4 | 80.00% | 1 | 20.00% | 0 | 0.00% |
| Totals | 17574 | 90.20% | 1722 | 8.80% | 198 | 1.00% |