

# History of the DVOC Bird Collection at the Academy of Natural Sciences

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The Academy of Natural Sciences of Philadelphia (ANSP) is the oldest continuously operating natural history museum in North America. Founded in 1812 by a small group of Philadelphians with a shared interest in natural history, the Academy has, over the last two centuries, grown into a premier institution for systematic and environmental research that has been conducted on regional, national, and international scales. Twenty million specimens are housed in thirteen ANSP collection departments. Ours are worldwide holdings that document particularly well an understanding of new world, pre-industrial revolution biodiversity, and they are used extensively on a daily basis by resident and visiting scientists. Our world-class systematic collections are increasingly drawn upon by researchers throughout the world to answer a plethora of environmental and biological questions.

In terms of specimen numbers, ANSP holds one of the 10 largest and taxonomically most complete ornithological collections in the world. Included in the collection are nearly 200,000 study skins, representing over 9,000 species, and nearly 15,000 tissue samples, representing over 2,700 species. The Academy's bird collection database is searchable online at <http://clade.ansp.org/ornithology/>. In addition, images of our bird type collection can be viewed, in part, at this same site. A draft of our bird type catalog can be downloaded at [www.ansp.org/research/biodiv/ornithology/collections.php](http://www.ansp.org/research/biodiv/ornithology/collections.php). The ANSP is also home to the VIREO (Visual Resources for Ornithology) collection ([www.ansp.org/vireo](http://www.ansp.org/vireo)) of 155,000 photographic images of birds (70,000 of which are available online), representing over 7,000 bird species and now including digital images of bird spread wing specimens from the ornithology collection.

Major series of birds in the collection come from South America (60,000 skins), North America (38,000 skins), Asia (20,000 skins), and Africa (19,500 skins), with additional significant holdings from Central

America and Australia. An extensive type collection (ca. 2,000 specimens) and skins of extinct and endangered species (ca. 2,500 specimens) are part of the collection. Series that are of particular importance include numerous data-rich specimens, many with associated tissue samples, collected within the last 15 years in Ecuador (10,499 skins), Guyana (2,442 skins), Australia (2,361), and Panama (1,570 skins). The collection has significant holdings from around the world, including the most complete series of Andean birds in any ornithological collection and particularly extensive collections from throughout South America and Southeast Asia. Over the last two centuries, 8,600 specimens have been collected in Pennsylvania and over 1,200 of these (14.7%) are from the former Delaware Valley Ornithological Club (DVOC) collection.

Banks et al. (1973) ranked the ANSP ornithological collection as the sixth largest in North America in size (160,000 study skins at that time). Since 1973, nearly 40,000 specimens have been added to the collection. Growth rates during a recent 10-year period range from 2.7% for study skins to 50.6% for frozen tissue samples (Table 1). Given the active research programs in the Ornithology department and the growth rates over the last few years, we expect collection growth to continue at a pace of approximately 500 specimens per year.

The early researchers and curators of the ANSP Ornithology collection include some of the most prominent names in ornithological history, including A. Wilson, C. Bonaparte, J. J. Audubon, J. Gould, J. Cassin, J. Townsend, T. Nuttall, W. Gambel, and A. Heerman, to name but a few. Following them were such famous ornithologists as W. Stone, R. Meyer de Schauensee, and J. Bond. During the tenures of these individuals, the ANSP recorded very high accession rates through the collecting efforts of field biologists M. Carriker, Jr., K. von Sneider, E. Schafer, and B. Dolan. Curators and researchers who have worked

recently at the Academy include F. Gill, F. Sheldon, J. P. Myers, M. Robbins, B. Slikas, C. Thompson, A. Mack, D. Brauning, and L. Joseph (Meyer de Schauensee 1957, Gill 1995).

The Delaware Valley Ornithological Club was founded in 1890 by a group of seven young men with a shared interest in birds and birdwatching (G. S. Morris, W. L. Baily, J. H. Reed, S. N. Rhoades, S. Trotter, C. Voelker, and W. S. Stone). Many of these early founders had already assembled personal bird skin collections, some dating back to the 1880s (Baily, Voelker, and Stone). In fact, Trotter helped Stone to transfer the Academy's bird collection from the Broad Street site to its present location. Reed and Rhoades were new to collecting at the start of the DVOC, having been educated in a boarding school that emphasized natural history but admonished scientific collecting. Although Reed didn't last long in the club, Rhoades had a long and colorful career in the DVOC and grew into a voracious collector of birds and mammals (the focus of most of his scientific pursuits). In his review of the early years of the DVOC, Street (1990) wrote that the early years of the club focused on collecting bird skins and eggs to enhance the club's collection and document important ornithological records.

The bulk of the DVOC collection was assembled in the first decade of the club's existence. Many of the study skins were assembled from the private collections of early club members such as Stone, Baily, Voelker, and Fowler. The DVOC bird collection has always been housed with the ANSP collection, but was not completely integrated until 1972. According to Academy records, the DVOC bird skin collection consisted of 2,701 specimens, most of which (64.8%) collected in the Delaware Valley region.

We used the Academy's archives and electronic collection database to study the history and composition of the former DVOC bird collection. We made specific use of the historical records of the DVOC, primarily the recorded minutes of the club (DVOC 1890–1910). Our study was hampered by the absence of any of Stone's research notes or journals and the lack of a complete historical ledger for the DVOC bird collection. Cross referencing the electronic database of the Academy's collection (including DVOC specimens) with mention of specific bird skins in the DVOC min-

utes allowed us to get a fairly strong grasp on the size and importance of the former DVOC collection.

As mentioned, we found records of 2,701 study skins from the DVOC collection. Of these, 2,152 (79.7%) are recorded in the Academy's electronic database as coming from the DVOC. This slight discrepancy (549 skins) is likely the result of DVOC specimens not being properly entered into the Academy's electronic database. We also queried Keith Russell (who in 1972 was asked by Frank Gill to integrate the DVOC collection with the ANSP regular series) about this discrepancy, and he agreed that this was probably an error in entering collection information when the Academy's collection was databased in the early 1980s. So, it is likely that the entire DVOC bird collection remains intact in the Academy's collection. Represented in the DVOC series are at least 19 bird families, 61 genera, and 111 species.

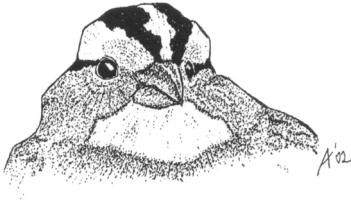
Lacking the original DVOC accession ledger (now lost or destroyed? — it did exist however, because DVOC skins have DVOC accession numbers), we surveyed the early minutes of the club for mention of birds collected by members and added to the club's collection. To our amazement, the early minutes are rich with comments regarding the early growth of the DVOC collection. The dates and species mentioned in the minutes were then cross-referenced with the Academy's electronic collection database for current accession numbers.

During the course of our study, we uncovered numerous specimen records of interest. Here we present a short discussion of unique and important specimens from the DVOC collection. Specimen catalog numbers, collection dates, collectors, and a brief story of the collection event are included to the extent possible.

This research pointed us to numerous specimens that were heretofore unknown to us in the collection. Perhaps one of the most remarkable study skins is an intergeneric hybrid of White-throated Sparrow (*Zonotrichia albicollis*) and Dark-eyed Junco (*Junco hyemalis*). This particular specimen (36159), a male according to the label, was collected by W. S. Baily on the Haverford College campus on 12 December 1882. It appears as though the specimen was originally

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made into a mount and subsequently relaxed into a study skin. According to the DVOC minutes, the bird was presented to the club on January 5, 1892 as, “Mr. Baily formally presented to the club collection the unique specimen of a hybrid between a snowbird and a white-throated sparrow, shot December 12, 1882.”



White-throated Sparrow  
© Adrian Binns

In early May 1891, Stone, Voelker, and Reed conducted a small collecting trip to Beaver Swamp in New Jersey. The results and specimens from this trip were presented to the club on May 19, 1891 and included five Hooded Warblers (*Wilsonia citrina*, 172505-172509), one Northern Parula (*Parula americana*, 172098), two Prairie Warblers (*Dendroica discolor*, 172367-8), two Pine Warblers (*Dendroica pinus*, 172349-50), two Black and White Warblers (*Mniotilta varia*, 172021-2), one Black-throated Green Warbler (*Dendroica virens*, 172223), an American Goldfinch (*Carduelis tristis*, 172987), and one Eastern Bluebird (*Sialia sialis*, 171854). It is interesting to note that not a single Hooded Warbler has been added to the ANSP bird collection since the early 1950s (from Guatemala) with the bulk of the collection (n = 118) coming from this same period in the late 1890s. In contrast, for more common Neotropical migrants like the Black-throated Green Warbler, we have added over a dozen in the last decade just from window kills alone.

There are several impressive series of skins from the DVOC collection that remain the core of the series for each particular species in the ANSP collection. W. E. C. Todd collected 9 breeding Cerulean Warblers (*Dendroica cerulea*, 172231-9) from Beaver County in 1900. This represents 20% of the Academy's holdings for this species and our only specimens from Pennsylvania. Likewise, 21 Bobolinks (*Dolichonyx oryzivorus*) were added to the DVOC collection from 1880-1900. A few others were added to the Academy collection after that time from other parts of the country, but it

wasn't until 1991 that the next skin was added from Pennsylvania (190774), 100 years since the original DVOC series. Finally, five Yellow Rail (*Coturnicops noveboracensis*) skins (70190, 170949-952) were in the DVOC collection having been collected from 1880 to 1910 and represented the Academy's only specimens of the species from Pennsylvania until August Mirabella brought in a salvaged bird on October 19, 2007 (192903).

Other individual specimens of interest include some single unique specimens collected in Pennsylvania or collections of birds from the Commonwealth. Of course the most remarkable are those that are now extinct such as the Passenger Pigeon (*Ectopistes migratorius*, 171408) collected by Rhoads on October 2, 1881 in Marple. The Academy's only Pacific Loon specimen from Pennsylvania comes from the former DVOC collection (170776). O. Behr made a very interesting collection of birds in central Pennsylvania (Sullivan and Wyoming Counties, 51 study skins) in 1899 and 1900. Behr collected primarily common breeding birds from the region, but this remains the only series of birds ever collected from this area.

The wonderful specimens of the former DVOC collection are all still housed in the ANSP collection. These specimens, along with the nearly 200,000 other specimens are available for viewing by Club members by appointment through the collection manager. Each year club members continue to add to this growing series through donations of birds found dead in the area and salvaged for the collection. All of these new specimens help to place the former DVOC collection into an important historical context, with these older specimens acting as benchmarks for the monitoring of environmental and evolutionary change in Delaware Valley bird populations.

In very recent years, the DVOC has been of invaluable help to the Ornithology collection by helping to purchase new storage cabinets for the collection, finding volunteers to help with bird preparation and curation, and funding summer internships for young ornithologists. The Academy's Ornithology Department and the DVOC started a partnered relationship in 1890 that continues today to focus global attention on the study and conservation of birds in the Delaware Valley.

**Table 1. Growth Statistics for the Ornithology Collection Over a Recent Ten-Year Period**

YEAR	NUMBER OF SKINS (% growth)	NUMBER OF TISSUES (% growth)	TOTAL
1999	667 (0.35%)	630 (4.8%)	1,297
2000	377 (0.20%)	269 (2.1%)	646
2001	516 (0.27%)	501 (3.9%)	1,017
2002	980 (0.51%)	969 (7.5%)	1,949
2003	687 (0.36%)	670 (5.2%)	1,357
2004	206 (0.11%)	204 (1.6%)	410
2005	374 (0.19%)	372 (2.9%)	746
2006	693 (0.34%)	688 (5.3%)	1,381
2007	379 (0.20%)	1,257 (9.7%)	1,636
2008	319 (0.17%)	1,020 (7.8%)	1,339
<b>Total</b>	<b>5,198</b>	<b>6,580</b>	<b>11,778</b>
<b>Average</b>	<b>519.8</b>	<b>658.0</b>	
<b>% Growth*</b>	<b>2.7%</b>	<b>50.6%</b>	

\*Based on a current collection size of 192,600 study skins and 13,000 tissue samples.

## Acknowledgements

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## Literature Cited

- Banks, R. C., Clench, M. H. & Barlow, J. C. 1973. Bird collections of United States and Canada. *Auk*. 90(1): 16-170. DVOC minutes. 1890-1910.
- Gill, F. B. 1995. Philadelphia: 180 years of ornithology at the Academy of Natural Sciences. In Davis, W. E., Jr., and J. A. Jackson (Eds.). *Contributions to the History of North American Ornithology. Memoirs of the Nuttall Ornithological Club* No. 12, Cambridge, MA.
- Meyer de Schauensee, R. 1957. History of the bird collections in the Academy of Natural Sciences of Philadelphia. Unpublished Manuscript in ANSP archives, coll. 446.
- Street, P. B. 1990. A history of the Delaware Valley Ornithological Club, The first one hundred years. *Cassinia* 63: 2-35.

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