

LINNAEUS AND THE LISTERS

by Richard K. Walton, Concord

Sometime during the twenty-first century a latter day Benton Basham will be awakened with a Code 5 call. He will receive a report of Stejneger's Petrel in the waters off Monterey, California. A short helicopter ride and it will be all over - the entire "field trip" recorded on video. Within days the ABA Lord Justice will certify the list. Our man will have become the first to have seen 800 species of birds in North America.

Birdwatchers are inveterate listers. Fortunately, there is an organization that caters to this urge to list. The American Birding Association (ABA) devotes much of its time and resources to the orderly keeping of bird lists. At first glance it may appear that the existence of such an institution is hardly necessary. However, the services that this organization provides are critical - if bird lists are to be taken seriously. Rules need to be made (and enforced), areas defined, lists drawn up, disputes arbitrated, and data published. The ABA maintains and publishes, by rank, total bird species seen by individuals for a wide variety of time frames and places. Included among the lists are life lists, annual lists, and Big Day lists. State and Provincial lists, ABA Area lists, continent lists, and ultimately world lists are all duly recorded. The ABA also spends a good deal of time educating its members on the hows and wheres of building bigger lists as well as celebrating the top listers.

Consider the case of Joe Taylor. In the early 1970s Joe was one of North America's top bird listers. A dedicated lister will go almost anywhere to add another bird to his or her list. Taylor and others like him spend a good deal of time in out-of-the-way places such as Baja California (Mexico) and Alaska. Attu Island is a perennial favorite, and it is not your standard tourist stop - even in Alaska. Attu lies at the extreme western end of the Aleutian Island archipelago in the Bering Sea. The island's only occupants are a few Loran Station technicians. Every so often Attu's population swells as a planeload of birders drops in to wander bleak beaches and scrubby hillsides in search of Asian exotics. One not so fine day in early September of 1971, Joe Taylor was with such a group. A six-mile walk to Murder Point had paid off. Taylor recorded the 699th species of bird seen by him in North America. He had sighted a Smew - a small black-and-white diving duck from Siberia. The stage was set. But I'll let Mr. Taylor tell it.

. . . It was a lousy, cold, misty, rainy morning and in spite of raincoats and all I was soaked. Only a real nut would have been out on a day like that. . . . The 700th bird was a Gray-spotted Flycatcher, a rather undistinguished looking little bird. I found it on the west shore of Casco Cove. . . . It is a small flycatcher - smaller than the Least - gray brown above and dirty white below with pronounced breast and flank streaking.

Another milestone in American bird listing had been reached.

To the backyard birdwatcher the activities of Joe Taylor and his peers may seem a bit fantastic, even foolish. But it is an unwritten ethic among listers not to judge the relative appropriateness of another lister's list. And this arrangement seems to me to be a useful one. Within its context we can appreciate the wide spectrum of the birding culture - from the pigeon fancier in the park to the seeker of exotics on Attu. In spite of this diversity, there are several common strands holding this culture together. Besides the obvious interest in birds shared by the park bench pensioners and the Attu beachcombers, there are some empirical ties. Such diverse documents as Darwin's list of the Galapagos finches and Aunt Nellie's Metro Park breeding bird census share common ground. The twentieth century student of birds can make sense out of either list. And although this may seem a trifle, it is a relatively recent state of affairs. For centuries, indeed millenia, lists of birds (and other animals and plants) were drawn up and passed along with the intent of informing future generations. Unfortunately, the major impact of many of these lists was confusion. For most of mankind's history, it was not at all clear which name referred to which organism.

If the ABA does not already have a patron saint of lists, the honor should go forthwith to Karl von Linné or, as he is more commonly known, Linnaeus. More than anyone else, Linnaeus laid the groundwork for orderly bird listing, and, as we shall see, Linnaeus was no slouch at list building himself. Once the bones of Linnaeus are enshrined in the appropriate reliquary, the ABA should set about to honor that most important date in listing history - January 1, 1758. On that day, the possibility of sensible listing became a reality.

Linnaeus (1707-1778) was born in the southeastern province of Smaland in Sweden. He was raised among the plants of his father's rectory garden. Karl's father, Niils von Linné, used family picnic outings to expand his son's knowledge of local natural history. Linnaeus' later remembrances of these trips indicate his early devotion to the natural world. "The meadows resemble more the most splendid groves and richest flower gardens, than their actual selves, so that one may sit in summer and hear the cuckoo with other different bird songs, insects piping and humming, and at the same time view the glowing and splendidly colored flowers. One cannot but turn giddy at the Creator's magnificent arrangement. . . ." Karl, an inquisitive and willing student, repeatedly asked the names of all those "colored flowers" Linnaeus was, at an early age, developing a fascination with names and lists.

Although Linnaeus' formal education and degree were in medicine, this vocation was always secondary to his work in the natural sciences. While studying at Uppsala, he wrote his first important paper. The "Praeludia Sponsalarium Plantarum" (Preliminaries to the Nuptials of Plants), 1729, was an innovative description of

the sexual functions of the floral parts of plants. It was also at Uppsala that Linnaeus and Petrus Artedi became best of friends. Together they devised a plan to enumerate and organize all of the earth's plants, animals, and minerals into three great kingdoms. Although such a scheme may have appeared sophomoric in its conception, one of Linnaeus' great strengths lay in his lack of humility. Anyone who would write no less than five autobiographies must have anticipated certain accomplishments. Linnaeus agreed to do the birds, flowers, and minerals; Artedi, the fish, amphibians, and insects. A pact between the youthful students required each to do the other's share if tragedy struck either one. Within five years Artedi was accidentally drowned in an Amsterdam canal. Linnaeus did not forget their vows.

In May of 1732 Linnaeus set out on a trip to Lapland. The purpose of the trip was to determine both the cultural and natural history of relatively unknown portions of northern Sweden and Lapland. Linnaeus went alone on horseback carrying a small leather bag. He carefully listed the contents:

This bag contained one shirt, two pairs of false sleeves and half shirts; an inkstand, pencease, microscope and spying glass, a gauze cap to protect me occasionally from gnats, a comb, my journal, and a parcel of paper stitched together for drying plants, both in folio, and my manuscripts on Ornithology, *Flora Uplandica* and *Characteres Generici*. I wore a hanger [knife] at my side, and carried a small fowling piece as well as an octangular stick, graduated for the purpose of measuring. . . .

Linnaeus' journal of his Lapland trip describes the countryside and its people as well as providing accounts of plants, birds, mammals, and insects. A typical selection is his entry for June 14.

An owl appeared, flitting every now and then at short distances from me. Laying hold of my gun, I ventured to take aim, though my horse kept going at a good rate. It was quarter past twelve at night, though not at all dark. I was lucky enough to hit the bird, but in such a manner that one side of it was too damaged to allow of stuffing it. This was *Noctua dorso fusco* etc. [hawk-owl]. Just as I was about to draw up a description of this owl, a little beetle crept out of its plumage. By its antennae it was evidently a scarab. The whole body was oblong, shaded with blue or black; the belly white.

Linnaeus rarely passed by an opportunity to draw up a list. A rather unusual entry appears in the journal for the end of June. It lists eighteen different ways in which milk and milk products are used by the citizens of Vasterboten. Although Linnaeus' Lapland venture brought him notoriety as far away as America, this may not have been altogether deserved. It turns out that Linnaeus fabricated a certain portion of the trip. Apparently he felt a story about an eight-hundred-mile trek to the inland area of Torne Fells would interest his public. And so it did. Unfortunately for Linnaeus, later researches have established

that such a trip would have been impossible - given the time needed to cover such distances.

This fanciful sidetrip created by Linnaeus is illustrative of one facet of his character. Linnaeus was more of a closet naturalist than a field man. He built his castles (and his lists) in the study while envoys did the legwork. In 1737 Linnaeus published *Systema Naturae*. The tenth edition of this work published in 1758 and Linnaeus' *Species Plantarum* (1753) and *Genera Plantarum* (1754) were epic achievements. These works revolutionized scientific nomenclature and classification. Linnaeus provided the scientific community, which was rapidly becoming worldwide, with an orderly method for naming and classifying plants and animals. The glory of his system was that it worked (for the most part). Although his specific method of classification had soon outlived its usefulness, there were enough people willing and able to use it for a long enough period to allow for systematic change. Linnaeus was the man who assured that the center would hold. One of the keys to the Linnaean system is the use of binomials (two names, e.g., *Homo sapiens*) for each organism. In hindsight, such a suggestion seems commonsensical and all too obvious. A look back at one of the Lapland journal entries, however, demonstrates the pre-Linnaean naturalist's dilemma. Linnaeus referred to the Hawk Owl as *Noctua dorso fusca* etc. It was the "etc." that was one of the problems. Names, even Latin ones, tended to be long descriptions, which could be interpreted in different ways by different naturalists. The situation was even worse when vernacular or common names were used. Besides the problems created by the language barrier, one man's wood duck was another's summer duck. Linnaeus established the practice of using a two-part Latinized name for each species. Establishing an agreed upon name clears up a host of problems. If an organism's identity was in question, it could be checked against written descriptions or the actual type specimens (the skin of an animal or botanical specimen for which the specific name was applied). If still no match was found, the Linnaean nomenclature provided an orderly way to name the new species. The system also established an efficient filing method. The naturalist was now able to find out information about related organisms as well as add new information to be used by others.

With his system soundly in place, Linnaeus set about the business of naming, describing, and classifying most of the known natural world. Although there was some grumbling as Linnaeus dismantled a large portion of the old nomenclature, most naturalists were relieved to have a workable, universal arrangement. The establishment of the new method required a firm hand, and Linnaeus left little doubt who was in charge. He answered to no one - at least no one on earth. Referring to himself in the third person, Linnaeus wrote, "God Himself guided him with His almighty hand. He caused him to see more of creation than any other mortal before him. He bestowed on him the greatest insight into natural history, greater than any other had ever received." Or, as he was fond of reminding his fellowman: "God creates, Linnaeus

arranges." As a result of his work, 12,000 plants and animals have names given by Linnaeus himself. All future students of natural history would be constantly reminded of Linnaeus as they worked with the nomenclature.

Linnaeus sent field men to all parts of the earth: Peter Thunburg to Japan, Forskal to Arabia, Solander to Australia, Kalm to America, and Hasselquist to Syria. And he sat in his study at Uppsala—building his lists. Some like Peter Collison, whose correspondences acted as a conduit for eighteenth century naturalists, complained that the road to Uppsala was a one-way street. "It is a general complaint that Dr. Linnaeus receives all and returns nothing." But Linnaeus was never short on admirers. His own greatest admirer, Linnaeus also surrounded himself with fawning students. Short collecting excursions to the countryside culminated in triumphal returns to Linnaeus' botanical gardens. The entourage of master and students made their entry complete with flying banners, drums, and trumpets, the young men cheering, "Viva scientia! Viva Linnaeus!"

Linnaeus lived a long life and received many honors, including knighthood. His old age was, however, accompanied by a certain unease. During his later years he compiled what was to be his most bizarre list. Linnaeus was convinced that God was keeping his own lists; these records enumerated the sins of each man. When the notations reached a certain length, God would visit swift and sure punishment on the evildoer. Linnaeus in an unpublished manuscript, "Nemesis Divina," painstakingly created a list which documented such retributions. He drew on literature and his own experiences to provide examples. This work continued until his death in 1778.

Whether Linnaeus continued his work as "God's Registrar" on the other side of the grave is a moot point. His earthly fame is certainly well deserved. Linnaeus instituted order where there was chaos; his system of nomenclature endures to this day. All students of nature from the lister to the researcher, thanks to Linnaeus, share a common language. Future generations will have little difficulty understanding our lists. Several ornithologists have speculated (perhaps with tongue in cheek) that, given enough time, all the bird species in the world will show up in North America. The confirmation of such an eventuality is only possible because we share a common nomenclature. The clock began ticking on January 1, 1758, with the publication of the tenth edition of *Systema Naturae*; this is the day zoologists accept as the beginning of "the list according to Linnaeus."

REFERENCES

- Black, D. 1979. *Carl Linnaeus—Travels*. Scribner's, New York.
- Gilbert, B. 1984. The Obscure Fame of Carl Linnaeus. *Audubon* 86(September): 102.
- Hanley, W. 1977. *Natural History in America*. Quadrangle: The New York Times Book Company, New York.
- Leahy, C. 1982. *The Birdwatcher's Companion*. Hill and Wang, New York.

- Kastner, J. 1977. *A Species of Eternity*. Alfred Knopf, New York.
- Keith, S. 1972. 700 in North America: A New Birding Landmark! *Birding* 4(1): 3.
- Peattie, D. C. 1936. *Green Laurels*. Garden City, New York.

RICHARD K. WALTON, author of *Birds of the Sudbury River Valley—An Historical Perspective* and a former teacher in Concord, is a free-lance writer and naturalist who is currently at work with Brian Cassie and Chris Leahy on the state Butterfly Atlas Project, sponsored by Massachusetts Audubon Society.

ANNOUNCEMENT! PROJECT FOR REPRINTING FUERTES PLATES
BY STATE DIVISION OF FISHERIES AND WILDLIFE

The original Louis Agassiz Fuertes paintings for *The Birds of Massachusetts and other New England States*, commissioned in 1925 by the Commonwealth, were recently "rediscovered" in the state archives and have been restored with a \$35,000 grant from the Massachusetts Audubon Society.

In 1985, a bill was passed enabling the Division of Fisheries and Wildlife, together with the Nongame and Endangered Species Program, to produce limited edition prints for sale to the public. All proceeds will be divided between the Inland Fisheries Fund and the Nongame Wildlife Fund and will be used for continued wildlife research, management, and habitat acquisition.

This set of watercolors is considered to be the best work of Fuertes' career. The pieces available for reproduction are considered to be more accurate, more realistic, and more detailed than those of John James Audubon. This will be a unique product. There is currently no group or individual selling Fuertes' artwork on the market.

The Nongame Wildlife Fund and the Inland Fisheries Fund need money to initiate the production of three of the available plates and are trying to locate corporate and individual donors to contribute the initial investment to begin printing the paintings. If any *Bird Observer* subscriber has a personal interest in the project or has a suggestion about an individual or corporation that might be interested, please call Dwight Galler at 727-3151.
