Conservation Biology and the 300th Anniversary of the Birth of Carl Linnaeus

In February 2007 the board and committees of the Society for Conservation Biology's European Section held consecutive meetings in Uppsala, Sweden. The choice of venue paid tribute to the 300-year anniversary of the birth of Carl Linnaeus (1707–1778), the Swedish taxonomist who developed a classification system and binary nomenclature for the description of species that is still in use today (e.g., Linnaeus 1735, 1758–1759).

We visited Linnaeus' Hammarby residence, where he completed the 10th–12th volumes of *Systema Naturae* (Linnaeus 1758–1759, 1762, 1766–1768) in which *Homo sapiens* L., among other taxa, is named. The residence is the most genuine Linnaeus site in the world. The rooms have original portraits of the family, and in the study and bedroom, the wallpapers are original prints of plants from contemporary scientific publications. In visiting we seemed to travel back 248 years. The garden still contains many plants that were planted by Linnaeus. Outside the residence the world has changed dramatically, but for at least three reasons Carl Linnaeus remains of interest to present-day conservation biologists.

First, Linnaeus played a central role in the early development of systematics and taxonomy (Godfray 2007). He laid out the first system into which all plants could be classified and made many important contributions to animal classification. He coined the term Mammalia and included whales and bats in this category (Linnaeus 1758–59). He also suggested that humans are closely related to apes (Linnaeus 1735), which was not popular among theologians of the eighteenth century. Linnaeus started a global species inventory and made rules for describing species (Linnaeus 1735). Descriptive taxonomy and systematics is still an important basis for conservation biology. Although he strongly believed that he categorized and described species that had been ingeniously designed once and for all by God, Linnaeus' discoveries made him think that new plant species could arise (Linnaeus 1744). In 1757–1759 he experimentally crossed the plants *Tragopogon pratensis* and *T. porrifolius* and created a hybrid that was intermediate in morphology. Apparently Linnaeus' studies triggered thoughts about evolution a century before Darwin (1859). Today, the continuing global investigation and mapping of biodiversity is a legacy of Linnaeus and remains crucial to increasing knowledge for biodiversity conservation.

Second, his fascination with the richness in nature and his feeling that it was both a highly valuable resource to use and a heritage to conserve is central to conservation biology today. Interestingly, even when Linnaeus' studies and teaching focused on particular details, it seemed important to him not to forget the bigger picture, for example, to explain or elaborate on character function in an ecological context. This feature of his personality and his broad fascination with the world also made him a very good teacher and multidisciplinary scientific observer. The notes he made when traveling (e.g., Linnaeus 1747, 1811) are still useful to taxonomists, ecologists, geologists, and social scientists. His formal education in medicine and research in biology makes many of his eighteenth-century examples of the utility of biological resources interesting to a wide audience.

A third highly relevant aspect for conservation biologists is Linnaeus' teaching approach. In addition to lecturing and presenting living material to his students, he took them out for excursions around Uppsala, where they examined the flora together. His students found this outdoor education and collaborative learning inspiring, and the excursions became very popular. Linnaeus' teaching approach is reflected in today's outdoor education programs. What his students especially appreciated was the keen interest and curiosity—a total fascination—that he conveyed. Inspiring children (Linnaeus himself started learning about plants when he was only 4 years old) and people in general to discover and appreciate the values of nature is a key component of biodiversity conservation. Children have reported important discoveries for nature conservation, such as new localities of threatened species (e.g., the hermit beetle [*Osmoderma eremita*] in Sweden). Some Linnean examples that will inspire present-day school children can be seen in The Linnaean Lessons—Inspiration for Knowledge (www.bioresurs.uu.se).

What would Linnaeus think of the exploitation and use of biological resources of the last 50 years? We think he would have strong and mixed feelings and be disturbed by the vast and rapid erosion of biodiversity and natural heritage throughout the world. We think he would welcome using biotic resources to cure diseases, be thrilled by the development of new scientific methods and international collaboration, and endorse actions and research to conserve biodiversity.

The 300-year anniversary of Linnaeus' birth was celebrated in Uppsala (www.linnaeus2007.se), London (www.linnean.org), and other places on 23–24 May. The 2007 Annual Meeting of the Society for Conservation Biology in South Africa would have greatly interested him. He was fascinated by the many undescribed species from this region collected by his students Carl Peter Thonberg and Anders Sparrman, and because conservation biology plays a key role in advancing the scientific legacy of Linnaeus.

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Literature Cited

Ahnfelt, A. 1877. Carl von Linnés lefnadsminnen—tecknade af honom sjelf. Oscar L. Lamm, Stockholm.

Darwin, C. 1859. The origin of species. John Murray, London.

Godfray, H. C. J. 2007. Linnaeus in the information age. Nature **446:**259–260.

Linnaeus, C. 1735. Systema naturae. Lugduni Batavorum.

Linnaeus, C. 1744. Peloria. Dissertation. Uppsala University, Uppsala.

Linnaeus, C. 1747. Wästgöta-resa, på riksens högloflige ständers befallning förrättad år 1746. Salvius, Stockholm.

Linnaeus, C. 1758–1759. Systema naturae. 10th edition. Reformata. Impensis direct. Laurentii Salvii, Holmiae.

Linnaeus, C. 1762. Systema naturae. 11th edition. Lipsiae.

Linnaeus, C. 1766–1768. Systema naturae. 12th edition. Impensis direct. Laurentii Salvii, Holmiae.

Linnaeus, C. 1811. Lachesis Lapponica, or a Tour in Lapland [1732]. White & Cochrane, London.