Next Generation Systematics

We live in an age of ubiquitous genomics. Next generation sequencing (NGS) technology, both widely adopted and advancing at pace, has transformed the data landscape, opening up an enormous source of heritable characters to the comparative biologist. Its impact on systematics, like many other fields of biology, has been felt throughout its breadth: from defining species boundaries to estimating their evolutionary histories.

This volume examines the broad range of ways in which NGS data are being used in systematics and in the fields that it underpins, from biodiversity prospecting to evo-devo. Experts in their fields draw on contemporary case studies to demonstrate state-of-the-art applications of NGS data. These, along with novel analyses, comprehensive reviews and lively perspectives, are combined to produce an authoritative account of contemporary issues in systematics that have been impacted by the adoption of NGS.

Peter D. Olson is a Researcher in the Department of Life Sciences at the Natural History Museum, London. His research integrates comparative, developmental and genomic studies of parasitic flatworms aimed at unravelling the genetic basis of their evolution. He became involved in the field of molecular phylogenetics when PCR and manual sequencing were being widely used to generate the first ribosomal-based estimates of animal phylogeny.

Joseph Hughes is an evolutionary biologist working at the Medical Research Council at the University of Glasgow Centre for Virus Research. He is especially interested in understanding the evolutionary forces that have shaped the solutions that different species have found to adapt to their environment. He has embraced the deluge of data from high-throughput sequencing platforms and currently works on non-living particles known as viruses.

James A. Cotton is a Senior Staff Scientist in the Parasite Genomics group at the Wellcome Trust Sanger Institute. His background is in phylogenetic theory and methods, and he now leads projects on comparative, evolutionary and population genomics of parasites of medical and veterinary importance.

The Systematics Association Special Volume Series

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The Systematics Association promotes all aspects of systematic biology by organizing conferences and workshops on key themes in systematics, running annual lecture series, publishing books and a newsletter, and awarding grants in support of systematics research. Membership of the Association is open globally to professionals and amateurs with an interest in any branch of biology, including palaeobiology. Members are entitled to attend conferences at discounted rates, to apply for grants and to receive the newsletter and mailed information; they also receive a generous discount on the purchase of all volumes produced by the Association.

The first of the Systematics Association's publications *The New Systematics* (1940) was a classic work edited by its then-president Sir Julian Huxley. Since then, more than 70 volumes have been published, often in rapidly expanding areas of science where a modern synthesis is required.

The Association encourages researchers to organize symposia that result in multi-authored volumes. In 1997 the Association organized the first of its international Biennial Conferences. This and subsequent Biennial Conferences, which are designed to provide for systematists of all kinds, included themed symposia that resulted in further publications. The Association also publishes volumes that are not specifically linked to meetings, and encourages new publications (including textbooks) in a broad range of systematics topics.

More information about the Systematics Association and its publications can be found at our website: www.systass.org

Previous Systematics Association publications are listed after the index for this volume.

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