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## Book Reviews

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***The Lichens of Italy. A Second Annotated Catalogue.* By Pier Luigi Nimis.** 2016. Trieste: EUT – Edizioni Università di Trieste. Pp. 739, 2 figures. Page size 296 × 205 mm, weight 3 kg. ISBN 978-88-8303-754-2. Hardback. Price: €80.00.  
doi:10.1017/S0024282917000457

In 1993, Pier Luigi Nimis published his *Lichens of Italy*, dubbed by the author as his “New York Telephone Directory”, with its 897 pages weighing in at 2.5 kg. This annotated catalogue was a real labour of love, and truly weighty in terms of thoroughness and scholarship. Apart from the extensive references to the occurrences of species for each of the (then) 20 administrative regions, brief but well-researched notes were provided on the ecology and distribution (in Italy and beyond) of each species. Since its publication, I have regularly delved into this book asking “what did Nimis have to say about it?” – I was usually rewarded with the required answer, or at least with a good lead.

This ‘second annotated catalogue’ is not merely an update of the first, but summarizes 23 years of lichenological research in Italy and reflects, up to the date of publication, the latest in taxonomic advancements and nomenclature. For records of taxa for administrative regions, most of the references in the 1993 catalogue are not repeated, but citations from over 1200 subsequent papers concerning Italian lichens are given instead. Hence this second catalogue must be regarded as a companion volume to the first.

As in the 1993 catalogue, each species entry is provided with notes on distribution, ecological preferences and taxonomic or identification problems. These are updated but what is new is a codified string of fields pertaining to growth form, photobiont, reproductive strategy, substrata, commonness-rarity in bioclimatic subdivisions of Italy, altitudinal distribution, ecological indicator values (substratum pH, solar irradiation, aridity, eutrophication), poleotolerance, and other information.

The presented order of genera and species remains alphabetic, although a systematic arrangement of genera is provided. In his introduction, the author refers to the difficulties that a compiler of a catalogue or checklist faces in order to keep abreast of the “explosion of molecular phylogeny” and the numerous nomenclatural changes that ensue, often incompletely as all the species in a group have rarely been satisfactorily sequenced. In this regard, his catalogue is remarkably up to date and he has adopted even the most recent taxonomic proposals, with the wise exception of a few that are dubious for scientific or nomenclatural reasons. To assist the reader in such matters, the generic accounts summarize these recent innovations under the ‘mother’ genus (e.g. *Aspicilia*, *Caloplaca* and *Opegrapha*), and indicates where there are major gaps in knowledge or research. A suggested ‘new’ generic placement is given for some species, but in collaboration with other authors, 15 new combinations and one *nomen novum* are formally presented.

The introductory sections include an insightful, 6-page ‘Brief history of lichenology in Italy’ and a 3-page ‘Brief outline of Italy and its lichen biota’, the latter supplementing the sections ‘The lichenological exploration of Italy’ and ‘A phytoclimatical outline’ in the 1993 book.

The increased weight of this second catalogue perhaps reflects the increase of accepted infrageneric taxa from 2145 to 2704. In the few weeks that I have possessed this book, it has become a constant source of reference, which means that my wrists have been well exercised taking it off the bookshelf – perhaps I will just leave it on my desk!

**Brian Coppins**

***Lichens of Mexico. The Parmeliaceae – Keys, Distribution and Specimen Descriptions.* Edited by Maria Herrera-Campos, Rosa Emilia Pérez-Pérez and Thomas H. Nash III.** 2016. Stuttgart: J. Cramer in Borntraeger Science Publishers. Pp. vi + 723, 17 figures (most coloured). Page size 215 mm × 140 mm, weight 995 g. (*Bibliotheca Lichenologica* No. 110.) ISBN 978-3-443-58089-6. Hardback €199.00.  
doi:10.1017/S0024282917000305

This impressive volume, the first hardback I have seen in this series, represents a huge effort involving

17 contributors, mainly based in North America and including three from Mexico.

Mexico is an extraordinarily diverse country, as anyone who has driven on the same day from humid forests near the coast to the lower slopes of the central mountains that rise to some 7500 m (18 700 ft) will be well aware. This lichen family is well represented here by 39 genera and some 450 species, around 20% of the species in the family known worldwide.

Three introductory chapters set the scene. The first is a superb synopsis of the geology, topography, climate and vegetation types that will be of value to any lichenologist visiting the country, whatever their speciality. It might come as a surprise to many that the temperature range in a single locality can be from  $-16^{\circ}\text{C}$  to  $48^{\circ}\text{C}$ . The second analyzes metacommunities by innovative phylogenetic methods, revealing temperate forests as the source of most diversity in the family, and the humid mountains and tropical forests as the least. The third provides an overview of current generic concepts in *Parmeliaceae*, now settling down as a result of intensive molecular studies over the last 15 years, and includes a key to the treated genera, something especially welcome as this has not been provided in recent phylogenetic overviews in specialist journals.

Each genus is treated as a separate chapter with clear author attributions so they can be cited separately. The format has evidently been rigorously standardized and bears the signs of being streamlined by the third editor, Tom Nash, well known for the superb job he made of the Sonoran Desert lichen volumes (Nash *et al.*, *Lichen Flora of the Greater Sonoran Desert Region*, 2002–2007, 3 vols, Tempe: Lichens Unlimited). After an abstract and background notes on each genus, there is a key to the treated species. Each species entry also includes the places of publication of accepted names and selected synonyms, followed by references to published illustrations, a full description, information on extrolites and distribution, sometimes followed by notes and always with full details of specimens examined (for the more common species this can cover several pages in small type). References cited are conveniently collected together at the end of the volume where they occupy no less than 30 pages. Sadly there is no index; one organized by species epithet would have been much appreciated by those unsure of which genus any particular species was now placed in.

The most species-rich genera proved to be *Parmotrema* (85 species), *Hypotrachyna* (80), *Xanthoparmelia* (74)

and *Usnea* (66). There are few taxonomic changes. I was pleased to see that the raising of *Canoparmelia* subgen. *Crespoa* to generic rank was not accepted, nor was *Gowardia* recognized as distinct from *Alectoria*. I was, however, sad to see *Phacopsis* still used for *Nesolechia oxyspora* despite the published molecular evidence to the contrary. Many new species found during work towards this monograph had already been published elsewhere, and just eight are newly described here, in *Alectoria* (2), *Hypotrachyna* (1), *Parmotrema* (2), *Pseudevernia* (2) and *Tuckermanella* (1). All are accompanied by fine colour photographs. Sadly, no molecular data to support these new taxa are provided, and in several cases the new species were largely based on extrolite differences, something that might prove to be unwise as it is now clear that different chemotypes can occur in a single species in this family. A few new combinations are also presented.

The decision not to include photographs of all but the newly described species and a few exemplar ones in the introductory chapters is understandable because of the large number involved. The citation of illustrations is a good second best, and especially informative are a series of scanning electron micrographs (SEMs) illustrating the development of the different categories of dual asexual propagules in *Punctelia*, with a key to their separation.

This enormous undertaking was made possible through funding provided by the US National Science Foundation, with the University of Arizona as the lead. This not only enabled numerous field excursions to be made which provided a satisfactory coverage of such a vast area and a way of involving Mexican researchers, but also facilitated the examination of numerous pertinent collections in various institutions around the world; 34 institutional plus several private collections are acknowledged. This impressive volume is an excellent example of what can be achieved if adequate funding is provided to a highly motivated and talented team. It is a 'must' for the *Parmeliaceae* community worldwide, as well as for ecologists and lichenologists working in the country. Mexican lichenologists would benefit from a set of the keys being made available in Spanish, something I would expect already to be in hand. The editors and contributors are to be congratulated on realizing such a vision.

**David L. Hawksworth**