



Using the internet to aid in discovery of unrecognized type material

BASTIAN STEUDEL², MICHAEL KESSLER¹ & RETO NYFFELER¹

¹Systematic Botany, University of Zurich, Zollikerstrasse 107, CH-8008 Zurich, Switzerland

²Biodiversity, Macroecology & Conservation Biogeography Group, Faculty of Forest Sciences and Forest Ecology, Georg-August-University of Göttingen, Büsgenweg 2, D-37077 Göttingen, Germany; email: bastiansteudel@aol.com

Abstract

Herbaria contain many specimens for which identification to species and family is not up-to-date with current classifications. However, updated species names are essential as key information for publishing digitized specimen data on internet-based online resources such as Global Biodiversity Information Facility (GBIF; www.gbif.org). Keeping herbarium collections current relative to classification of species and families poses a particular challenge to herbarium staff. Especially, families with a dynamic record of repeated changes in generic classification, such as Orchidaceae, require much curatorial attention. We used the World Checklist of Selected Plant Families (WCL; apps.kew.org/wcsp/home.do) for rapid validation of current species names of specimens of Orchidaceae housed at the combined herbaria of the University of Zurich (Z) and the Swiss Federal Institute of Technology Zurich (ZT). In order to evaluate the possible type status of specimens, we consulted the original species description when the reviewed specimens were collected prior to the date of the publication. Within 600 hours of labour, we reviewed and updated species names for about 10,000 orchid specimens and located 280 previously unrecognized type specimens. Almost half of the type specimens located in the general collections represent species described by Rudolf Schlechter, Fritz Kraenzlin, and Rudolf Mansfeld, whose original material was destroyed in 1943 in the Herbarium Berolinense (B) and for which discovery at Z+ZT is therefore particularly valuable.

Introduction

At a time when global biodiversity is under ever increasing threat, herbarium collections are gaining importance as repositories of information and sources for discovery of new species (e. g. Bebbler *et al.* 2010). Access to specimens and label information relies on accurate assignment (i. e. identification) of current species names, which is particularly crucial for internet-based information systems such as the Global Biodiversity Information Facility (GBIF; www.gbif.org). However, herbaria often hold specimens for which species names do not reflect current classification. This is especially the case for Orchidaceae (Jussieu 1789: 64). Currently, about 800 genera and at least 24,000 species of orchids are recognized (Fay & Chase 2009). However, delimitation of some orchid genera has repeatedly changed over time, resulting in a large number of species variously transferred to different genera. A prominent example is the genus *Epidendrum* (Linnaeus 1763: 1347), described in the 2nd edition of *Species plantarum*. Surprisingly, Linnaeus himself had already described a different genus *Epidendrum* (Linnaeus 1753: 952) in the 1st edition of *Species plantarum*. The older version of the name was later rejected because taxonomists had been using the name *Epidendrum* with the conserved type *E. nocturnum* Jacquin (1760: 29), which Linnaeus included in his concept of *Epidendrum* in 1763. *Epidendrum* L. (1753), lectotypified with *E. nodosum* L., is now treated as a synonym of the genus *Brassavola* (Brown 1813: 216). *Brassavola* has two additional synonyms, whereas *Epidendrum* L. (1763) currently has 32 synonyms (Pridgeon *et al.* 2006; World Checklist of Selected Plant Families [WCL]). Such confusions in orchid taxonomy are not rare and require a broad grasp of the whole family to overcome, which only few people have. A database with all known taxa linked to the current synonyms like WCL