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Seven new species of Graphidaceae (Lichenized Ascomycetes) from the Coastal Plain of southeastern North America

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Abstract

Seven new species of Graphidaceae are described from the Coastal Plain of southeastern North America: *Acanthothecis floridana* (Florida, USA), *A. leucoxanthoides* (North Carolina, USA), *A. paucispora* (North Carolina, USA), *Fissurina alligatorensis* (Florida and North Carolina, USA), *F. americana* (Florida and Georgia, USA), *F. ilicicola* (Florida and Georgia, USA), and *Phaeographis oricola* (North Carolina, USA). The ecology and distribution of each species is discussed in the broader context of the imminent need for effective conservation and management strategies to maintain the lichen biodiversity in the region. Color illustrations of all species are provided, as are keys to the genera *Acanthothecis* and *Fissurina* in North America north of Mexico.

Keywords: Biogeography, maritime forest, pocosin, Mid-Atlantic Coastal Plain

Introduction

In 2012 the authors received funding from the US National Science Foundation to implement a large scale inventory of the lichen biodiversity of the Mid-Atlantic Coastal Plain (hereafter abbreviated MACP) of southeastern North America. The MACP is a subdivision of the vast Coastal Plain of eastern North America, a region that extends along the Atlantic Coast from Massachusetts southward to the Florida Keys, and along the Gulf of Mexico from southern Florida westward through Texas, and ultimately into Mexico (CEC 1997, Omernik 1995). The MACP itself is a sprawling region, approximately the size of the State of Alabama (c. 51,600 square miles or c. 133,600 square kilometers; Ricketts *et al.* 1999) that comprises the Atlantic Coast and low-lying ecosystems from southern New Jersey to approximately the border between Georgia and Florida (Loveland & Acevedo. 2000, US EPA 2002). The region is characterized by extensive topographically homogenous landscapes dominated by marshes, wetlands, forested swamps and peatlands in the lowlands, and pine or hardwood forests on sandy soils in the uplands (Christensen 1988).

The ecosystems of the MACP are among the most biologically significant in North America (Hall & Schafale 1999) yet have also been severely impacted by anthropogenic changes (Ricketts *et al.* 1999; Drummond & Loveland 2010). The upland ecosystems have been nearly entirely altered during more than three centuries of anthropogenic change (Griffith *et al.* 2001, 2003). Although they were extensively logged, ditched, and drained, the lowland ecosystems of the MACP remained remarkably intact until modern times (Ricketts *et al.* 1999). Unfortunately these systems in particular now face numerous challenges, especially sea-level rise and saltwater intrusion associated with global climate change (Richardson & Gibbons 1993). Our inventory of the lichens of the MACP is thus timely in providing vital baseline data at a critical juncture in the development of effective regional conservation management and mitigation plans. Among the most surprising results of our work has been the discovery of numerous species that appear to be new to science. Here we formally describe seven of these in conjunction with a broader project aimed at documenting the biodiversity of the highly speciose lichen family Graphidaceae. That so many new species have, and continue to, come to light in a region long regarded as well-known serves as a stark reminder of just how little Americans, and others elsewhere in the world, have explored their own backyards (Tripp & Lendemer 2012).

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