

***Hypopterygium tamarisci* (Sw.) Brid. ex Müll. Hal. (Hypopterygiaceae, Bryopsida), new to Italy**

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Abstract – A new moss species, *Hypopterygium tamarisci* (Sw.) Brid. ex Müll. Hal., has been identified for the bryophyte flora of Italy. The species was gathered in the park of Villa San Remigio (Pallanza, Piedmont). Its presence is probably due to the introduction of exotic botanical species in the garden.

***Hypopterygium tamarisci* / Bryopsida / Mosses / distribution / ecology / Italy**

INTRODUCTION

In the course of studies on the role of bryophytes in the deterioration of monuments, *Hypopterygium tamarisci* (Sw.) Brid. ex Müll. Hal. was found in Villa San Remigio (Pallanza, Piedmont). The finding of *Hypopterygium tamarisci* is the first report for Italy (Aleffi *et al.*, 2008).

Villa San Remigio is a historic residence built in the early 1900s in Pallanza, in the municipality of Verbania, on Lake Maggiore (Piedmont Region) (Fig. 1). The villa is set in a park of about 8 Ha that borders the botanical gardens of Villa Taranto (206 m a.s.l.) and extends up to the top of Colle della Castagnola (278 m a.s.l.). The park, originally characterized by a chestnut forest that developed on the natural steep and rocky terrain, was shaped over the years with broad garden terraces, with extensive lawns bordered by majestic exotic trees. While the natural form of the chestnut forest has been maintained, it has been progressively enriched with rare botanical species.

THE NEW RECORD

The Italian locality of *Hypopterygium tamarisci* is characterized as follows: Villa San Remigio Park, Piedmont (Pallanza, Verbania), 45°55'20.91"N, 8°33'44.66"E, 278 m a.s.l., *leg. S. Ricci*, 17.07.2009, *det. M. Aleffi*. The specimens are kept in the Herbarium of the University of Camerino [CAME].

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Fig. 1. Italian locality of *Hypopterygium tamarisci* (Sw.) Brid. ex Müll. Hal.

The populations are characterized by gregarious plants in groups of dendroids or fans, medium sized, forming loose frondose tufts, mid- to dark green (Fig. 2). They were found in shaded, humid places, on soil and rocks. In the same site, it was possible to collect some specimens of *Porella platyphylla* (L.) Pfeiff., *Radula complanata* (L.) Dumort., *Rhynchostegiella tenella* (Dicks.) Limpr., *Hypnum cupressiforme* Hedw., *Fissidens serrulatus* Brid., and *F. dubius* P. Beauv.

Hypopterygium tamarisci has a pantropical, southern temperate distribution, and is the most widespread species of the genus (Kruijer, 2002). The presence of this species in Northern Hemisphere has called the attention of bryologists. The most recent collections originate from greenhouses of the botanical gardens of Berlin-Dahlem (Germany), Glasgow (Scotland, UK) and Zürich (Switzerland), as well as from the Bussaco Forest in Portugal. The latter is the only European location where *Hypopterygium tamarisci* grows outdoors (Kruijer, 1997).

Pfeiffer *et al.* (2000) based on molecular analyses, argued that the European populations originated in Australasia. Stech & Pfeiffer (2006) studied the systematic and biogeographic relationships of *Hypopterygium* populations from three European localities (greenhouses of the botanical gardens of Glasgow and Berlin, and the Bussaco arboretum in Portugal) using DNA sequences and AFLP fingerprinting. These studies indicate a close relationship of the European populations with the Australasian variant of *H. tamarisci*, and point to the origin of the European populations in Australia or New Zealand. At least two independent introduction events from the Australasian region are indicated, one concerning the closely related specimens from Glasgow and Berlin, and the other the Portuguese specimen, which probably originated in southern New South Wales.



Fig. 2. *Hypopterygium tamarisci* in the park of Villa San Remigio (Pallanza, Piedmont).

They conclude that the European *H. tamarisci* populations were most probably imported with tree ferns, although for the Portuguese population an introduction along with other Australian trees planted in the Bussaco arboretum cannot be ruled out. It would be very interesting to use similar molecular analyses to verify the provenance and the systematic and biogeographic relationships of the Italian populations, which probably were introduced with exotic botanical species planted around mid century and still present in the park.

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