



SHORT COMMUNICATION

New records of *Hindsia ramosissima* Gardner (Rubiaceae) and assessment of the species conservation status in Santa Catarina state, southern Brazil

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Received: July 17, 2018 Received after revision: September 16, 2019 Accepted: September 21, 2019

Available on-line at <http://www.ufrgs.br/seerbio/ojs/index.php/rbb/article/view/4128>

ABSTRACT: (New records of *Hindsia ramosissima* Gardner (Rubiaceae) and assessment of the species conservation status in Santa Catarina state, southern Brazil). We report here new records of occurrence of *Hindsia ramosissima* Gardner (Rubiaceae), expanding the species area of distribution in the Brazilian state of Santa Catarina. We also provide an assessment of the species conservation status. We performed eight collections at five municipalities of Santa Catarina, thereby considerably expanding the austral limit of the species extent of occurrence.

Keywords: Atlantic Forest, biodiversity, campos rupestres, conservation status, distribution.

RESUMO: (Novos registros de *Hindsia ramosissima* Gardner (Rubiaceae) e avaliação dos status de conservação para Santa Catarina, sul do Brasil). O presente estudo destaca novos registros de *Hindsia ramosissima* Gardner (Rubiaceae), ampliando a sua distribuição para o estado de Santa Catarina, Brasil, além da avaliação do status de conservação. Foram registradas oito coletas em cinco municípios de Santa Catarina, expandindo consideravelmente o limite austral da espécie.

Palavras-chave: Biodiversidade, campos rupestres, distribuição, Floresta Atlântica, status de conservação.

INTRODUCTION

Hindsia Benth., one of the less representative genera of the Rubiaceae, is an endemic genus to Brazil whose representatives are characterized by having small size and shrubby habit (Delprete & Jardim 2012). The genus has only 11 recognized species (Flora do Brasil 2020 under construction 2019): *Hindsia arianeae* Di Maio, *Hindsia cucullata* Di Maio, *Hindsia glabra* K. Schum., *Hindsia ibitipocensis* Di Maio, *Hindsia irwinii* Steyerf., *Hindsia longiflora* (Cham.) Benth., *Hindsia phyllocalyx* K. Schum., *Hindsia ramosissima* Gardner, *Hindsia republicana* Di Maio, *Hindsia sessilifolia* Di Maio, and *Hindsia violaceae* Benth. These species have been reported to occur in the Brazilian states of Bahia, Minas Gerais, Rio de Janeiro, Paraná and Santa Catarina (Flora do Brasil 2020 under construction 2018).

According to the List of Species of the Brazilian Flora (Flora do Brasil 2020 under construction), only *H. longiflora* occurs naturally in the Brazilian southern state of Santa Catarina. However, Delprete *et al.* (2005) also reported *H. ramosissima* to *campos rupestres* from the Cambirela mountain at Palhoça municipality, as well as to an unknown municipality at the borders of the Serra Geral mountain range (Delprete *et al.* 2005).

Thus, we aimed to report new confirmed records of occurrence of *H. ramosissima* to Santa Catarina state, thereby increasing the species extent of occurrence; and assess the species conservation status.

MATERIAL AND METHODS

We conducted field works across the Serra Geral mountain range in Santa Catarina, southern Brazil, from July 2009 through December 2017, in order to estimate occupancy patterns of *H. ramosissima* in the state. Additionally, we consulted herbarium collections to confirm other sites of occurrence of the species in Santa Catarina.

To assess the species conservation status in Santa Catarina, we performed analyses in software GeoCAT (Geospatial Conservation Assessment Tool) using both herbarium data and our field observations.

RESULTS AND DISCUSSION

During the field work of November 27, 2013, we found ca. 30 fertile individuals of *H. ramosissima* in *campos rupestres* at Treviso municipality (Fig. 1).

Additionally, we also obtained seven more records from collections previously performed at four municipalities across Santa Catarina state: Nova Veneza, Palhoça, Santo Amaro da Imperatriz, and Urupema (Fig. 2).

All individuals were collected on rocky outcrops from *campos rupestres*, at 742 to 1700 m altitude, and had their identities confirmed through the analysis of high-resolution images obtained from herbarium collections (herbaria FLOR, FURB, HUEFS, ICN, MBM and NY) (Table 1).

Furthermore, from June through July 2017 we also

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Figure 1. A and B. Details of flowers and leaves of *Hindsia ramosissima* Gardner (Rubiaceae) from *campos rupestres* of Treviso municipality, southern Santa Catarina state, southern Brazil. C and D. Details of rocky outcrops in the *H. ramosissima* natural habitat, on *campos rupestres* at Treviso municipality.

Table 1. Confirmed records of herbarium collections of *Hindsia ramosissima* Gardner (Rubiaceae) in Santa Catarina state, southern Brazil.

Collector	Collector Number	Herbarium Code	Long. (W)	Lat. (S)	Alt. (m)	Municipality	Locality
Cervi, A.C. <i>et al.</i>	10108	FLOR, HUEFS, MBM	49°51'31"	27°55'24"	1720	Urupema	Morro das Antenas
Santos, R. <i>et al.</i>	1000	CRI	49°27'26"	28°30'50"	742	Treviso	Dois Dedos
Dreveck, S. <i>et al.</i>	969	FURB	48°52'10"	27°48'36"	744	Santo Amaro da Imperatriz	Vargem do Braço
Klein, R.M.	9870	NY	48°40'40"	27°38'44"	900	Palhoça	Morro do Cambirela

Abbreviations: **Long.**, Longitude; **Lat.**, Latitude; **Alt.**, Altitude.

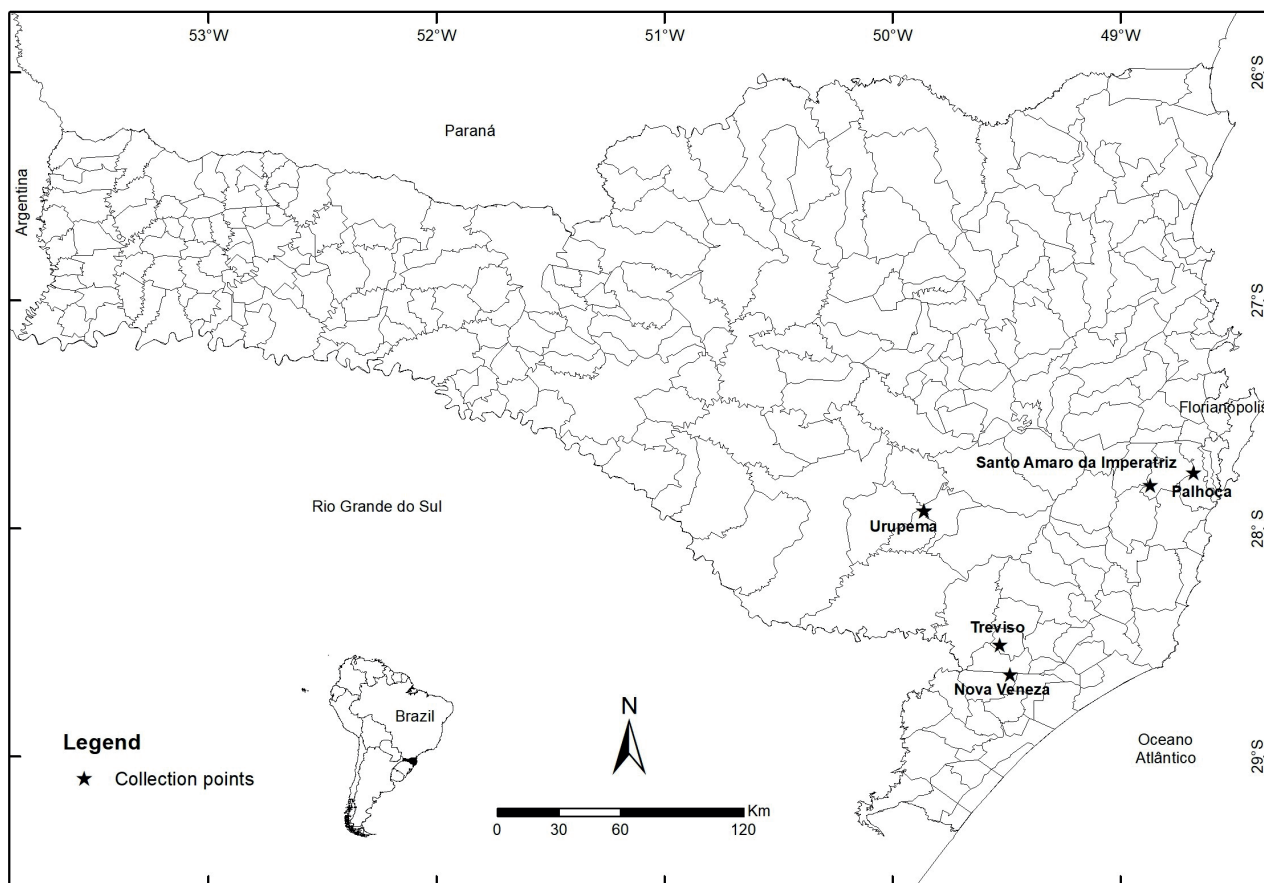


Figure 2. Collection sites in Santa Catarina state, southern Brazil, of herborized specimens of *Hindsia ramosissima* Gardner (Rubiaceae).

observed two populations with individuals at vegetative state, which were therefore not collected for herbaria, in two locations at southern Santa Catarina state: one at Serra Furada State Park (28°10'12" S – 49°23'34" W, at 805 m altitude), in Grão Pará municipality; and the other at Funil Canyon, in Bom Jardim da Serra municipality (28°20'52" S – 49°31'54" W, at 1380 m altitude).

Regarding the species conservation status, Delprete *et al.* (2005) reported *H. ramosissima* to be Critically Endangered (CR) in Santa Catarina, since only one population was then known. However, with our findings the species may be considered Endangered (EN), under criteria B2ab (i, ii, iii, iv), with EOO = 2,924.593 km² and AOO = 20 km². *H. ramosissima* populations are under constant threat not only by forestry, agriculture and cattle-raising, but also by anthropic activity, especially due to the presence of trails in the species habitat (Vibrans *et al.* 2013).

Our findings increase the knowledge on *H. ramosissima* and on the flora of *campos rupestres* from Santa Catarina. Moreover, the confirmed records of herbarium

collections along with our field observations altogether expand considerably the extent of occurrence of *H. ramosissima* in the state, thereby determining a new austral limit for the species. Lastly, we suggest the performance of a review on the genus, which will enable a better delimitation of the specimens collected in the *campos rupestres* of Santa Catarina.

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