A synopsis of the fern family Blechnaceae in Santa Catarina, Brazil: reviewing Sehnem’s 1968 flora

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Abstract: We reviewed the fern family Blechnaceae in Santa Catarina, southern Brazil, in order to update the work done by Sehnem in Flora Ilustrada Catarinense. Ten genera and 21 species in the family have been recognized. In this work, descriptions and identification keys for the species are presented, as well as comments and a comparative list of Sehnem’s nomenclature and the current state-of-the-art in Blechnaceae nomenclature.

Keywords: Blechnum, Brazil, eupolypods II, pteridophytes, ferns

Introduction

The Blechnaceae family is nested within eupolypods II clade and contains 25 genera and more than 250 species (PPG 1 2016; Molino et al. 2018). Its main characteristics are the sori that borne on a commissural vein parallel to the midvein or costae, and young red fronds (Tryon & Tryon 1982; Gasper et al. 2016). The family is subcosmopolitan and more diversified in Neotropics and Oceania (Dittrich et al., 2007).

In Neotropics, Rolleri & Prada (2006) recognized 92 taxa, based on local surveys and published floras, of which Moran (1995) registered 31 in the Mesoeamerican region. In Mexico 15 taxa are known (Smith 1981; Mickel & Beitel 1988; Mickel & Smith 2004), 20 in Peru, (Tryon & Stolze 1993), 15 in Guatemala (Stolze 1981), 34 in Brazil (Dittrich et al. 2020), 22 in Argentina (Ramos Giacosa et al. 2016), 14 in Chile (Aguiar et al. 2007) and 46 in Bolivia — the richest country in this region (Smith & Kessler 2018).

In Brazil, the first records of Blechnaceae were made by Fée (1869a, b). In these works, the author describes 17 species of Blechnum L. and eight of Lomariopsis Willd. Nowadays, numerous regional works can be referred, e.g., Pietrobom & Rosário (2008), Dittrich et al. (2007, 2015, 2017, 2018), Salino et al. (2017) and, among them, the ‘Flora Ilustrada Catarinense’, published by Aloysio Sehnem. In his Blechnaceae treatment, Sehnem (1968) recognized three genera (Blechnum, Salpichlaena, and Stenochlaena) and described 29 taxa. However, one of the species identified by Sehnem (1968) as Stenochlaena erythrodes (Kunze) Underw. is, as a matter of fact, Lomariopsis marginata (Schrad.) Kuhn, a species belonging to the family Lomariopsidaceae — leaving 28 species of Blechnaceae in his treatment (most of which were synonymized or re-circumscribed since 1968). Given nomenclatural updates throughout these 50 years, changes in species circumscription, and a new record for Santa Catarina State, our work aims to review the taxonomic treatment of Blechnaceae for Santa Catarina State, Brazil.

Material and methods

We have consulted specimens from the following herbaria: B, BHCB, B, CRI, FLOR, FURB, HB,
HBR, HUEFS, ICN, JOI, K, MB, MO, NYBG, PACA, R, RB, SJRP, SP, UPCB (herbarium abbreviations follow Thiers 2020). The terminology follows Lellinger (2002), with modifications. All species descriptions were elaborated based exclusively on examined specimens, and only a selection of them is presented. The synopsis is arranged in alphabetical order and, finally, we present a comparison between the nomenclature adopted by Sehnem (1968) and the most updated one.

**Study area**

The State of Santa Catarina, Brazil, covers an area of ≈96,000 km² and is located within the subtropical Atlantic Forest (Figure 1). The State has three dominant vegetation types (Atlantic rain and cloud forests, *Araucaria* forest, and semi-deciduous forest) and highland prairies (Oliveira-Filho et al. 2015). The climate type is Cfa and Cfb (Alvares et al. 2013), with average annual precipitation between 1,100–2,900 mm. The altitude ranges from 0 to 1800 m a.s.l.

![Figure 1. Geographical position of Santa Catarina, Brazil. The State is located within the subtropical Atlantic Forest (tea green). Samples of Blechaceae (orange-yellow) were collected throughout the whole State during the Floristic and Forest Inventory of Santa Catarina (IFFSC, still ongoing).](image)

**Results and discussion**

We recognized 21 species in 10 genera. The names applied by Sehnem (1968) and recognized here can be seen in Table 1.

**Dichotomous identification key to the species of Blechnaceae in Santa Catarina State**

1a) Sterile fronds bipinnate *Salpichlaena volubilis*  
1b) Sterile fronds entire to 1-pinnate  
2a) Fronds dimorphic, fertile fronds with few or no photosynthetic tissue visible, pinnae strongly contracted  
3  
2b) Fronds monomorphic or subdimorphic  
3a) Rhizomes scandent-epiphytic with denticulate scales *Lomaridium plumieri*  
3b) Rhizomes terrestrial, not scandent-epiphytic, clothed with scales with entire margins, never denticulate  
4  
4a) Blades fully pinnate  
5  
4b) Blades pinnatisect at least at the apex  
6  
5a) Rhizomes erect, sometimes bearing greenish stolons *Parablechnum cordatum*  
5b) Rhizomes long-creeping and nigrescent, without stolons *Parablechnum usterianum*  
6a) Rhizomes forming a stout caudex, clothed with linear scales  
7  
6b) Rhizomes erect, ascending or creeping, sometimes with a small, thin caudex, clothed with nonlinear scales  
8  
7a) Blades chartaceous, the veins clearly visible; apical pinnae surcurrent; costae deeply sulcate *Lomaria spannagelii*  
7b) Blades coriaceous, the veins hardly visible; apical pinnae not surcurrent; costae not deeply sulcate *Lomariocycas schomburgkii*  
8a) Rhizomes long-creeping *Austroblechnum penna-marina*  
8b) Rhizomes erect or ascending to short-creeping  
9  
9a) Blades truncate at base (with or without vestigial pinnae towards the base of the frond)  
10  
9b) Blades gradually reduced at base  
10a) Vestigial pinnae absent *Cranfilia mucronata*  
10b) Vestigial pinnae present  
11a) Number of pinnae ≤ 15 pairs, vestigial pinnae 0–3 *Austroblechnum organense*  
11b) Number of pinnae 15–20 pairs, vestigial pinnae 3–6 *Austroblechnum divergens*  
12a) Rhizomes stoloniferous *Austroblechnum squamipes*
12b) Rhizomes without stolons. __Austroblechnum lehmannii__

13a) Fronds subdimorphic, the sori sometimes partially discontinuous. __Blechnum auriculatum__

13b) Fronds monomorphic with continuous sori. __Austroblechnum organense__ (Brade) Gasper & V.A.O. Dittrich

14a) Pinnae articulate to the rachis; rhizomes long-creeping. __Telmatoblechnum serrulatum__

14b) Pinnae continuous with the rachis; rhizomes erect to ascending or short-creeping. __A. divergens__

15a) Scales of stipe bases > 1.5 cm, linear, nigrescent, lustrous. __Neoblechnum brasiliense__

15b) Scales of stipe bases < 1.5 cm, narrowly triangular to lanceolate, light brown to nigrescent, non-lustrous.

16a) Blade apex with an apical pinna, conform to subconform. __Blechnum gracile__

16b) Blade apex pinnatifid. __Blechnum × caudatum__

17a) Basal pinnae gradually reduced. __Blechnum polyopodioides__

17b) Apical pinna subconform, 7 or more pinnae pairs. __Blechnum laevigatum__

18a) Basal pinnae not gradually reduced. __Blechnum occidentale__

18b) Basal pinnae completely free from rachises, entire at the pinnae apices, sometimes 2x-bifurcate only at the pinnae bases, ending before the margin in a clavate apex.

2. __Austroblechnum lehmannii__ (Hieron.) Gasper & V.A.O. Dittrich

**Rhizomes** erect to decumbent; **fronds** dimorphic; **stipes** atropurpureous at the base and stramineous towards the apex; **sterile blades** pinnatisect, gradually reduced towards the apex and base, proximal pinnae reduced to semi-elliptical to semicircular lobes; **rachises** glabrous or clothed with ovate scales abaxially; **sterile pinnae** 15–19 pairs, fully adnate to the rachises, patent to slightly ascending, falcate; **veins** free, usually bifurcate, rarely simple close to the pinnae apices, sometimes 2x-bifurcate only at the pinnae bases, ending before the margin in a clavate apex.

**Selected specimens:** Joinville, Serra Dona Francisca, -26.1925, -49.04777, J.T. Cadorin 933, 10/12/2009, FURB; Treviso, Nova Brasília, -28.4436, -49.49861, M. Verdi 3533, 30/01/2010, FURB.

**Comments:** Similar to __A. squamipes__, from which it differs by its non-stoloniferous rhizome, stipe color (usually stramineous towards the apex), falcate pinnae, and pinnae apices obtuse. Furthermore, this species is found in forest formations whilst __A. squamipes__ is found in grasslands.

3. __Austroblechnum organense__ (Brade) Gasper & V.A.O. Dittrich

**Rhizomes** erect to ascending, sometimes forming a thin caudex; **fronds** dimorphic; **stipes** usually atropurpureous at the base and stramineous towards the apex; **sterile blades** pinnatisect, truncate at the base, with 1–3 pairs of vestigial pinnae; **rachises** glabrous; **sterile pinnae** 13–14 pairs, fully adnate to the rachises, ensiform; **veins** free, simple (the distal ones) or commonly bifurcate, ending before the margin in a clavate apex.

**Selected specimens:** Alfredo Wagner, -27.6783, -49.175, N.P. Smith 665, 27/09/2019, FLOR; Grão Pará, -28.05, -49.35, F.B. Matos 2018, 20/01/2012, UPCB; Rancho Queimado, R. Reitz 5481, 04/02/1953, PACA.

**Comments:** A rare species in Santa Catarina State. It is similar to __A. divergens__, from which it differs by its smaller size and lustrous rhizome scales. This species was not recorded by Sehnem (1968).

4. __Austroblechnum penna-marina__ (Poir.) Gasper & V.A.O. Dittrich

**Rhizomes** ascending to short-creeping, stoloniferous; **fronds** dimorphic; **stipes** usually atropurpureous, rare stramineous and nigrescent at the base; **sterile blades** pinnatisect, narrowly obtrullate to oblanceolate, gradually reduced at the apex and base, without vestigial pinnae; **rachises** glabrous or with brownish scales in both surfaces; **sterile pinnae** 25–45 pairs, fully adnate to the rachises, patent or the basal ones sometimes slightly reflexed, oblong; **veins** free, bi-
furcate, sometimes simple, ending in a clavate apex before the margin.

**Selected specimens:** Lages, C.Spannagel 84, 1921, NY; São Joaquim, Rodovia de acesso a São Joaquim, -28.36083, -49.97111, A.Salino 14786, 09/04/2010, BHC; Ubiruci, Campo dos Padres, -27.9816, -49.33083, A.L.Gasper 2988, 13/11/2011, FURB.

**Comments:** In Santa Catarina State the species is recorded in high altitudes, and is commonly found in rocky, open environments. It differs from the other species of the genus by its long-creeping, stoloniferous rhizome, sometimes forming dense populations in grasslands and Araucaria forest fragment edges. Furthermore, the narrower blade width and fertile fronds of this species from the others in Austrolechnum.

5. *Austrolechnum squamipes* (Hieron.) Gasper & V.A.O.Dittrich

Rhizomes erect to ascending, stoloniferous; fronds dimorphic; stipes atropurpureous throughout or stramineous at the base and atropurpureous towards the apex; sterile blades pinnatisect, narrowly oblanccelate, gradually reduced towards the apex and base; rachises adaxially glabrous, abaxially glabrous or with sparse scales; sterile pinnae 14–18 pairs, fully adnate to the rachises, fully patent or patent in the proximal region and ascendant in medial and distal region, triangular; veins free, bifurcate, ending in a clavate apex before the margin.

**Selected specimens:** Ubiruci, RPPN Leão da Montanha, -28.0149, -49.59170, A.L.Gasper 2959, 13/11/2011, FURB. Bom Jardim da Serra, Morro da Igreja, -28.1233, -49.48000, A.Salino 14737, 08/04/2010, FURB.

**Comments:** see Austrolechnum lehmannii for comparison.

6. *Blechnum auriculatum* Cav.

Rhizomes erect to ascending; fronds subdimorphic; stipes stramineous, atropurpureous or slightly whitish at the base, with light brownish, linear-lanceolate scales; blades adnate at the base, pinnatisect towards the apex, narrowly elliptic, rarely rhombiform, glabrous; rachises with linear-lanceolate, brownish scales on both surfaces, usually with hyaline, catenate hairs on the adaxial surface; pinnae 24–40 pairs, basal pinnae proximally auriculate on both sides; veins free, bifurcate or 2x bifurcate, ending at the margin.

**Selected specimens:** Bom Retiro, R. Reitz 3468, 28/12/1948, PACA; Ibacaré, Lageado Cruzeiro, -27.1355, -51.38944, A.L.Gasper 1937, 20/11/2008, FURB; São Joaquim -28.43888, -49.94777, A.L.Gasper 1800, 27/05/2008, FURB.

**Comments:** In the study region this species is the only one with subdimorphic fronds. Sehnem recognized two varieties, but here we follow Dittrich et al. (2015) who recognized only *B. auriculatum* in Santa Catarina — including the two vouchers cited by Sehnem (1968) as *B. auriculatum* var. hastatum. *Blechnum hastatum* Kaulf. (=*Blechnum auriculatum* var. hastatum (Kaulf.) Looser) occurs only in Chile and Argentina (Ramos Giacosa 2016).

7. *Blechnum austrobrasilianum* de la Sota

Rhizomes erect to ascending; fronds monomorphic; stipes atropurpureous at the base, stramineous towards the apex, with narrowly triangular to lanceolate, light brownish to nigrescent scales at the base; blades pinnate at the base, pinnatisect towards the apex, the base truncate, deltoid to lanceolate, with pinnatifid apex, glabrous; rachises with catenate, whitish or brownish hairs abaxially, sometimes with brown scales; pinnae 16–36 pairs, the first pair basiscopically free, acroscopically expanded, slightly adnate, or auriculate; veins free, bifurcate or 2x bifurcate (rarely 3x bifurcate proximally), ending in a clavate apex before the margin.

**Selected specimens:** Blumenau, Parque Ecológico Spitzkopf, -27.02575, -49.10475, L.A.Funez 1808, 25/02/2013, FURB; Lages, C.Spannagel 30, 12/1904, NY; Seara, Nova Teutônia, F.Plaumann 526, 04/08/1944, HBR.

**Comments:** This species is similar to *B. occidentale*. *Blechnum austrobrasilianum* has a chartaceous blade consistency and basal pinnae partially or fully adnate to the rachises on the acroscopic side and free from the rachis on the basiscopic side (in *B. occidentale* both sides are free). In *B. occidentale* the basal pinnae are virtually perpendicular to the longitudinal rachis axis, whilst in *B. austrobrasilianum* the pinnae are parallel to the longitudinal rachis axis, a feature difficult to observe in herbaria. It is also similar to *B. laevigatum*, however its hairs are restricted to the rachis and rare in other parts of the plant. This species was described only in 1973 by de la Sota, without records for Santa Catarina (de la Sota 1973).

8. *Blechnum gracile* Kaulf.

Rhizomes erect to ascending; fronds monomorphic; stipes stramineous throughout or atropurpureous at the base and stramineous towards the apex, with concolorous scales; blades pinnate, ovate or deltoid, at the apex reduced to a conform pinna, glabrous; rachises with linear, brownish scales on both surfaces and catenate brownish hairs adaxially; pinnae 3–4 pairs, partially adnate, narrowly elliptic to linear, the apex acute to cuspidate; veins free, bifurcate or 2x bifurcate, ending in a clavate apex before the margin.

**Selected specimens:** Garuva, -26.0267, -48.855, J.Cordeiro 2182, 10/11/2002, MBM; Grão Pará, Parque Estadual da Serra Furada, -28.1175, -49.43305, S.Z.Custódio 8, 29/06/2011, CR; Rio dos Cedros, Parque Águas de São Bernardo, -26.73472, -49.29555, L.A.Funez 2545, 06/01/2014, FURB.
Comments: The closest taxon is the hybrid Blechnum × caudatum. Blechnum gracile differs by its smaller size, fewer pinnae pairs (four pairs at most in B. gracile). Also, we can highlight the presence of auricles on the acrosopic side at basal pinnae in B. × caudatum, and the surcurrent and decurrent apical pinnae.

9. Blechnum laevigatum Cav.

Rhizomes erect to ascending; fronds monomorphic; stipes tan or atropurpureous at the base, stramineous towards the apex, bearing hyaline catenate hairs mainly distally; blades pinnate at the base, pinna-tisect towards the apex, lanceolate, hairy, the hairs similar to those found on the stipes; rachises bearing hairs identical to the ones on the stipes and blades; pinnae 17 pairs, patent, fully adnate to the rachises except the basalmost two pinnae pairs (basiscopically excavate), oblong; veins free, 2x bifurcate, ending in a in a clavate apex before/or at the margin.

Selected specimens: Sombrio, Furnas do Sombrio, O.R.Camargo 3962, 28/01/1964, PACA.

Comments: The few samples from Santa Catarina State are similar to B. occidentale and B. australis. They differ from both by its hairy and lustrous scales at the apex; glabrous; rachises glabrous or bearing hyaline, catenate hairs on both surfaces, rarely scaly; pinnae 9–15 pairs, basal pinnae petiolulate with acroscopic auricle overlapping the rachis, the basiscopic side excavate, gradually adnate towards the apex, en si-form to falcate; veins free, usually simple or bifurcate, and then only proximally, ending before the margin in a clavate apex.

10. Blechnum occidentale L.

Rhizomes erect to ascending; fronds monomorphic; stipes stramineous, blades pinnate at the base, pinnatisect towards the apex, glabrous; rachises glabrous on both surfaces or with hyaline, catenate hairs (mainly abaxially), rarely scaly abaxially; pinnae 13–23 pairs, basal pinnae reflexed, sessile, with an acrosopic auricle overlapping the rachis (rarely not), medial and distal pinnae ascending, distal pinnae fully adnate; veins free, bifurcate, ending in a clavate apex before the margin.

Selected specimens: Blumenau, Parque Ecológico Spitzkopf, -27.022, -49.11472, L.A. Funez 1806, 25/02/2013, FURB; Três Barras, Floresta Nacional de Três Barras, -26.21555, -50.29333, M.P. Reinert, 16/09/2003, JOI.

Comments: see B. occidentale and B. laevigatum for discussion. Some authors consider specimens with hairy rachises as B. appendiculatum Willd. (Mickel and Smith 2004), however, here we include this name under B. occidentale following Dittrich et al. (2015).

11. Blechnum polypodioides Raddi

Rhizomes erect to ascending; fronds monomorphic; stipes stramineous, sometimes atropurpureous at the base, usually bearing hyaline, catenate hairs; blades pinnate at the base, pinnatisect towards the apex, el liptic-lanceolate, gradually to abruptly attenuate towards base and apex, glabrous; rachises hairy, bearing hyaline and catenate hairs on both surfaces; pinnae 13–30 pairs, fully adnate to the rachises, abaxially glabrous or bearing hyaline hairs, adaxially bearing similar hairs; veins free, simple or rarely bifurcate, ending in a slightly clavate apex at the margin.

Selected specimens: Ascurra, Grarinacas, -27.0000, -49.4100, A.Korte 2834, 15/03/2010, FURB; Santa Rosa de Lima, Nova Fátima, -28.08055, -49.1369, M.Verdi 4671, 05/05/2010, FLOR; São Francisco do Sul, Vila da Glória, M.Kersling s.n., 14/05/2004, MBM.

Comments: The species can be distinguished among monomorphic species by its narrow blade and basal pinnae strongly reduced — which are fully adnate.

12. Blechnum × caudatum Cav.

Rhizomes erect; fronds monomorphic; stipes stramineous throughout or atropurpureous at the base; blades pinnate at the base, pinnatisect towards the apex, truncate, deltoid or ovate, abruptly reduced to a conform or subconform terminal pinna, glabrous; rachises glabrous or bearing hyaline, catenate hairs on both surfaces, rarely scaly; pinnae 9–15 pairs, basal pinnae petiolulate with acrosopic auricles overlapping the rachis, the basiscopic side excavate, gradually adnate towards the apex, ensiform to falcate; veins free, usually simple or bifurcate, and then only proximally, ending before the margin in a clavate apex.

Selected specimens: Ibirama, Nova Bremen, R. Reitz 3730, 20/09/1956, HBR, PACA; Luiz Alves, R. Reitz, 13/01/1941, PACA.

Comments: It differs from B. occidentale by its concolorous, dark brownish scales (biclorous and atrocostate in B. occidentale) and terminal pinnae (conform or subconform). See B. gracile for further discussion.

13. Cranfillia mucronata (Fée) V.A.O.Dittrich & Gasper

Rhizomes erect to ascending, bearing nigrescent, lustrous scales at the apex; fronds dimorphic; stipes nigrescent at the base, brownish towards the apex; sterile blades pinnatisect, rarely pinnatifid at the apex, lanceolate, truncate or slightly reduced at the base, glabrous; rachises glabrous or rarely bearing catenate hairs; sterile pinnae 14–23 pairs, some basal and medial pinnae reflexed or patent to slightly ascending, the first pair basiscopically excavate, the remaining pinnae fully adnate to the rachises; veins free, bifurcate or 2x bifurcate, ending in a slightly clavate apex before the margin.

Selected specimens: Luiz Alves, Morro do Seba, -26.77833, -48.97333, A.L.Gasper 3661, 12/04/2015, FURB; Orleans, Brusque do Sul, -28.25972, -49.41194, M.Verdi 3999, 15/03/2010, FURB; São Martinho, Chicão, -28.0900, -48.8700, J.L.Schmitt 1073, 26/01/2010, FURB.
Comments: Similar to A. divergens, but differs from it by its nigrescent stipe at the base and brownish towards the apex, no vestigial pinnae, and by having the first pinnae pair basiscopically excavate.

14. *Lomaria spannagelii* (Rosenst.) Gasper & V.A.O.Dittrich

**Rhizomes** erect, forming a stout caudex; **fronds** dimorphic; **stipes** stramineous, atropurpureous or stramineous-brownish with an atropurpureous base; **sterile blades** pinnate about two thirds of the length, then pinnatisect, gradually reduced towards the apex and base, here to auriculiform pinnae; **rachises** scaly; **sterile pinnae** 36–53 pairs, fully adnate to the rachises, the abaxial surface bearing brownish, linear scales, the adaxial one glabrous or sometimes like chises, the abaxial surface bearing brownish, linear scales, the adaxial one glabrous or sometimes like chises, the abaxial surface bearing whitish, linear scales, the abaxial one glabrous or bearing linear, brownish scales on the apex to a terminal subconform pinna; **veins** free, bifurcate or 2x bifurcate (distally rarely simple), ending before the margin.

**Selected specimens:** Anitápolis, R.Reitz 4534, 28/12/1951, PACA; Lages, C.Spannagel 86, 1906, NY; Painel, Fazenda Faroá, Trilha do Pasto Sujo atrás da sede, -27.91722, -49.8825, 03/04/2007, BHC.B.

**Comments:** The species is notably defined by its usually sulcate rachises and discolorous surfaces when herborized. It is usually found near watercourses in Araucaria forest.

15. *Lomariocycas plumieri* (Desv.) C.Presl

**Rhizomes** long-creeping, bearing denticulate scales; **fronds** dimorphic; **stipes** usually atropurpureous at the base and stramineous towards the apex; **sterile blades** pinnate at the base, pinnatisect towards the apex or pinnatisect throughout, slightly to abruptly reduced at the base, bearing (0) 1–5 pairs of vestigial pinnae, gradually reduced towards the apex to a terminal subconform pinna; **rachises** glabrous or bearing linear, brownish scales on the adaxial surface, sometimes also bearing hyaline, catenate hairs, abaxially glabrous; **sterile pinnae** 17–37 pairs, fully adnate to the rachis, sursum-current, linear-oblong, glabrous on both surfaces; **veins** free, bifurcate or not, ending before the margin in a clavate apex.

**Selected specimens:** Blumenau, RPPN Bugerkopf, -27.00422, -49.07041, 20/09/2012, FURB; Florianópolis, Morro da Lagoa, -27.57666, -49.49972, 20/09/2012, FURB.

**Comments:** This species differs from the others in the study region by its long-creeping rhizome and usually scendent habit, becoming fertile only after climbing a tree. Moreover, another distinctive feature is the marginally denticulate rhizome scales.

16. *Lomariocycas schomburgkii* (Klotzsch) Gasper & A.R.Sm.

**Rhizomes** erect, forming a stout caudex; **fronds** dimorphic; **stipes** usually stramineous with an atropurpureous base, sometime stramineous or brownish throughout; **sterile blades** pinnate at the basal and medial regions, distally pinnatisect, gradually reduced towards the apex and base (here to auricular projections), sometimes abruptly reduced at the base; **rachises** scaly on both surfaces; **sterile pinnae** 20–44 pairs (excluding auriculate pinnae), sessile, medial pinnae gradually adnate towards the apex, margin plane or slightly to strongly revolute; **veins** free, simple, ending in a clavate apex before the margin, hardly visible.

**Selected specimens:** Blumenau, Parque Nacional Serra do Itajaí - Área Virgem, -27.00422, -49.07041, 20/09/2012, FURB.

**Comments:** The most similar species is *Lomaria spannagelii*. *Lomariocycas schomburgkii* differs by its blade texture, its imnere veins in the blade and, its usually atrocostate scales at the stipe bases.

17. *Neoblechnum brasiliense* (Desv.) Gasper & V.A.O.Dittrich

**Rhizomes** erect, sometimes forming a stout caudex, bearing linear, nigrescent scales; **fronds** monomorphic; **stipes** nigrescent at the base, nigrescent or stramineous towards the apex; **blades** fully pinnatisect or pinnate at the base, oblanceolate; **rachises** glabrous on the adaxial surface, abaxially bearing scales mainly in the proximal region; **pinnae** 36–56 pairs, fully adnate to the rachis, adaxially glabrous, abaxially glabrous or bearing brownish, amorphous scales on costae; **veins** free, usually undivided, rarely bifurcate, ending in a slightly clavate apex at the margin.

**Selected specimens:** Brusque, M.H.Queiroz 483, 13/06/1991, FLOR; Lauro Müller, Rio Oratório/Cabo Aéreo, -28.3500, -48.96055, 28/03/2012, JOT; Urupema, Interior de Urupema / Rio Rufino (SC), -27.6341, -49.88688, 28/03/2012, FURB.

**Comments:** This is a monomorphic species of large size, characterized by its linear and nigrescent scales both on rhizome and stipe bases. Sehnem (1968) recognized two varieties, but here we subsume both into *Neoblechnum brasiliense.*
18. Parablechnum cordatum (Desv.) Gasper & Salino

Rhizomes erect to ascending, bearing concolorous scales; fronds dimorphic; sterile stipes usually atropurpureous (sometimes nigrescent) at the base or stramineous throughout with atropurpureous spots; sterile blades pinnate, truncate at the base, usually lanceolate, ending in a conform pinna; rachises scaly, the scales linear-lanceolate, brownish; aerophores present or not at pinnae bases, elliptical, discrete; sterile pinnae 6–26 pairs, the basal and medial petiolulate, apical pinnae decurrent, abaxially bearing brownish scales mostly on costae, sometimes in the photosynthetic tissue; veins free, simple or bifurcate, ending before the margin in a clavate apex or not.

Selected specimens: Blumenau, Parque Nacional da Serra do Itajaí, -27.05666, -49.0877, A.L.Gasper 664, 22/03/2007, FURB; Paulo Lopes, Espiraiado/Parque Estadual da Serra do Tabuleiro, -27.99000, -48.78000, M.Verdi 4909, 08/06/2010, FURB; São Bento do Sul, CEPA Rugendas Univille, APA Municipal do Rio Vermelho/Humboldt, estrada até Alojamento, -26.3225, -49.30916, F.Bittencourt 54, 13/04/2014, FURB.

Comments: This is the only species of the study region that features aerophores. This species has a broad circumscription and distinguishes itself from P. usterianum by its erect rhizome and larger and bigger pinnae. Sehnem (1968) recognized several species of Parablechnum (as Blechnum), however, systematic studies are necessary to better delimit these taxa.

19. Parablechnum usterianum (Christ) Gasper & Salino

Rhizomes long-creeping, nigrescent, bearing concolorous scales; fronds dimorphic; sterile stipes usually atropurpureous at the base or stramineous throughout with atropurpureous spots; sterile blades pinnate, truncate at the base, usually lanceolate, ending in a conform pinna; rachises slightly scaly, bearing linear-lanceolate scales, these brownish and having marginal projections or entire; aerophores absent; sterile pinnae 10–12 pairs, basal and medial petiolulate, apical decurrent, abaxially bearing brownish scales, their margin slightly revolute; veins free, simple or bifurcate, ending before the margin in a clavate apex or not.

Selected specimens: Frei Rogério, Núcleo Tritópico, -27.18, -58.76, A.Korte 6903, 18/05/2011, FURB; Garuva, Alto Quiriri, -26.03916, -48.95444, L.A.Funez 4302, 05/05/2015, FURB; Rio dos Cedros, Cachoeira Formosa, -26.7383, -49.27420, L.A.Funez 7122, 04/02/2018, FURB.

Comments: This is the only species of the genus in Santa Catarina State. It can be distinguished by its long and sturdy stipes, its narrow and elongated pinnae, and its long-creeping rhizome.

20. Salpichlaena volubilis (Kaulf.) J.Sm.

Rhizomes long-creeping; fronds monomorphic; stipes stramineous; petiolarus similar to the stipes; blades bipinnate, deltoid, truncate or obtuse at the base, gradually reduced towards the apex, ending in a subconform pinna; rachises scandent with indeterminate growth, reaching easily more than 10 meters, bearing brownish, catenate hairs (rarely hyaline) in both surfaces, the scales similar to those on rhizome or absent; veins free, simple or bifurcate, ending before the margin in a collecting vein.

Selected specimens: Botuverá, Cinema, -27.27000, -49.22999, J.L.Schmitt 308, 13/10/2009, FURB; Rio do Campo, Anta Branca (Antigo Alto Rio do Oeste), -26.91, -50.22019, A.Korte 1975, 22/02/2010, FURB; Timbé do Sul, Vila Belmiro, -28.80000, -49.85999, M.Verdi 2850, 17/10/2009, FURB.

Comments: This is the only species of the genus in Santa Catarina State. It can be distinguished by its laineous habit and indeterminate growth of the fronds.

21. Telmatoblechnum serrulatum (Rich.) Perrie, D.J.Ohlsen & Browneye

Rhizomes long-creeping; fronds monomorphic; stipes usually stramineous, rarely atropurpureous at the base; blades pinnate, truncate at the base, reduced at the apex to a conform pinna; rachises usually glabrous on both surfaces, sometimes scaly abaxially; pinnae 20–29 pairs, sessile, articulate to the rachises, the margin plane, rarely revolute, serrate; veins free, bifurcate, rarely 2x bifurcate, ending at the margin.

Selected specimens: Araquari, Canudo / WEG Floresta, -26.5525, -48.68888, S.Dreveck 2043, 08/04/2010, FURB; Balneário Barra do Sul, Canal do Languado, -26.3652, -49.0664, A.L.Gasper 4043, 30/03/2007, FURB; Palhoça, Campo do Maciambu, R.Reitz 1025, 24/09/1953, HBR.

Comments: The species differ from the others in the region by its articulate pinnae.
Table 1. Comparison of names between the treatment proposed here and Sehnem’s (1968) proposal. Author names are cited exactly as written in the original work, and we listed only species that Sehnem cited for Santa Catarina State. The names on the left column are not necessarily synonyms of the names on the right column. *: Lomariopsidaceae.

| Sehnem (1968)                      | This work (2021)                      |
|-----------------------------------|--------------------------------------|
| Blechnum auriculatum Cav. var. auriculatum | Blechnum auriculatum Cav.           |
| Blechnum auriculatum var. hastatum (Kaulf.) Hier. | Blechnum auriculatum Cav.           |
| Blechnum brasiliense Desv. var. brasiliense | Neoblechnum brasiliense (Desv.) Gasper & V.A.O.Dittrich |
| Blechnum brasiliense var. angustifolium Sehnem | Neoblechnum brasiliense (Desv.) Gasper & V.A.O.Dittrich |
| Blechnum cordatum (Desv.) Hier. | Parablechnum cordatum (Desv.) Gasper & Salino |
| Blechnum distans Presl | Blechnum laevigatum Cav.           |
| Blechnum diversgens Mett. | Austrolechnum diversgens (Kunze) Gasper & V. A. O. Dittrich |
| Blechnum euraddianum Brade | Parablechnum cordatum (Desv.) Gasper & Salino |
| Blechnum exiguum Dutra | Lomariocycas schomburgkii (Klotzsch) Gasper & A.R.Sm. |
| Blechnum glandulosum Link var. glandulosum | Blechnum occidentale L.           |
| Blechnum glandulosum var. meridionale (Presl) Sehn. | Blechnum occidentale L.           |
| Blechnum gracile Kaulf. | Blechnum gracile Kaulf.           |
| Blechnum imperiale (Fée & Glaz.) Chr. | Lomariocycas schomburgkii (Klotzsch) Gasper & A.R.Sm. |
| Blechnum lanceola Swartz | Blechnum lanceola Sw.           |
| Blechnum lanceolatum (R.Br.) St. var. achalense Hier. | Austrolechnum squamipes (Hieron.) Gasper & V. A. O. Dittrich |
| Blechnum macahense Brade | Parablechnum cordatum (Desv.) Gasper & Salino |
| Blechnum meridense (Kl.) Mett. | Lomaridium plumieri (Desv.) C.Presl |
| Blechnum occidentale L. | Blechnum occidentale L.           |
| Blechnum occidentale var. caudata (Cav.) Ros. | Blechnum × caudatum Cav.         |
| Blechnum onucleoides (Spreng.) Chr. | Austrolechnum lehmannii (Hieron.) Gasper & V. A. O. Dittrich |
| Blechnum penna-marina (Poir) Kuhn | Austrolechnum penna-marina (Poir.) Gasper & V. A. O. Dittrich |
| Blechnum plumieri (Desv.) Mett. | Cranfillia mucronata (Fée) V.A.O.Dittrich & Gasper |
| Blechnum raddianum Ros. | Parablechnum usterianum (Christ) Gasper & Salino |
| Blechnum regnellianum (Kze.) C. Chr. | Parablechnum cordatum (Desv.) Gasper & Salino |
| Blechnum serrulatum Rich. | Telmatoblechnum serrulatum (Rich.) Perrie, D.J.Ohlsen & Browney |
| Blechnum spannagelii Ros. | Lomaria spannagelii (Rosenst.) Gasper & V.A.O.Dittrich |
| Blechnum unilaterale Sw. | Blechnum polypodioides Raddi |
| Blechnum unilaterale Sw. f. maius Sehnem | Blechnum polypodioides Raddi |
| Salpichlaena volubilis (Klf.) J. Sm. | Salpichlaena volubilis (Kaulf.) J.Sm. |
| Stenochlaena erythrodes (Kze.) Und. | Lomariopsis marginata (Schrad.) Kuhn* |

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