Notes on Geographic Distribution



Aechmea muricata (Arruda) L.B. Sm. (Bromeliaceae: Bromelioideae): A new record of a threatened species for Rio Grande do Norte, Northeastern Brazil

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ABSTRACT: This paper records the first occurrence of *Aechmea muricata* (Bromeliaceae, Bromelioideae) in the state of Rio Grande do Norte, northeastern Brazil. The taxon was found inside the Mata Estrela Private Reserve, Baía Formosa municipality, southern Rio Grande do Norte. This finding is important to increase the data about the Flora of Rio Grande do Norte, one of the poorest sampled states in Brazil so far, as well as to increase the knowledge about *A. muricata* distribution, since it is officially included in the Brazilian threatened species plant red list.

The Brazilian Atlantic rain forest retains today only 11,73% of its original area (Ribeiro et al. 2009). It is considered to be a biodiversity hotspot due to the uniqueness of its biota, which is highly endangered mostly because of habitat loss (Myers et al. 2000; Ribeiro et al. 2009). Such forest is extremely important for Bromeliaceae due to high endemism, particularly for the Bromelioideae subfamily species living in this habitat (Smith 1934). So far, only four genera and eight species of bromeliads have been recorded in the Atlantic forest of Rio Grande do Norte (RN) (Martinelli et al. 2008). However, this data could be underestimated as a result of poor sampling for this family in RN. Rio Grande do Norte is considered one of the poorest Brazilian states in terms of floristic sampling and recent field surveys registered several new occurrences (Versieux et al. 2013a; Versieux et al. 2013b). Therefore, the numbers listed for the Flora of Rio Grande do Norte not based on intensive and careful fieldwork investigation is most likely outdated.

The eastern Brazilian rain forest is the center of diversity of Aechmea Ruiz & Pav., which comprises approximately 200 species in eight subgenera (Smith and Downs 1979; Luther 2010). This genus is cited in the literature as one of the largest and is among the most taxonomically complex in the entire family (Smith and Downs 1979). Aechmea muricata (Arruda) L.B. Sm. belongs to subgenus Chevaliera, which holds 21 species that are characterized by the presence of a strobiliform or capituliform and usually simple inflorescence, conspicuous peduncle bracts, flowers polystichously arranged and protected by a coriaceous floral bract (Smith and Downs 1979; Sousa and Wanderley 2000; Canela et al. 2003; Silva 2003; Sousa et al. 2008). Aechmea muricata is remarkable by its cylindrical and green spicate inflorescence, by the peduncle covered by conspicuous bracts with entire margins and sharply pointed apex, as well as by its dark blue flowers (Smith and Downs 1979; Sousa and Wanderley 2000; Sousa et al. 2008). This species is restricted to the northeastern Brazil, occurring at sandy areas near the seacoast, being either a terrestrial or an epiphyte (Smith and Downs 1979; Sousa and Wanderley 2000; Leme and Siqueira-Filho 2006). Currently, this taxon has been cited only for Pernambuco and Alagoas States (Forzza *et al.* 2013) and here we document the first vouchered occurrence of *A. muricata* for the state of Rio Grande do Norte.

The Mata Estrela Private Reserve is located at the municipality of Baía Formosa (06°22''10" S, 35°00'28" W), close to the border of Rio Grande do Norte and Paraíba states (Figure 1). This new record for *A. muricata*



FIGURE 1. Map of Northeastern Brazil, showing in pale yellow the states where *Aechmea muricata* occurs. The new occurrence in Rio Grande do Norte is indicated by a red triangle, showing ca. 180 km northern extension from earlier records (green triangles).

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represents approximately 180 km northern expansion in its distributional range. Only one small population of *A. muricata* was observed in Mata Estrela and the individuals at this locality are terrestrial, occurring in sandy soil and sunny open habitat, in the coastal sand plain scrub vegetation. The specimen was photographed in the field, collected and deposited in the herbarium of the Federal University of Rio Grande do Norte (UFRN; *R. Magalhães 19*) (Figure 2). *Aechmea muricata* is currently on the list of Brazilian endangered species (MMA 2008) and this new record is particularly important for setting strategies for its conservation and to document its occurrence inside a reserve. This new record is also important to increase the information and to update the data about the Flora of Rio Grande do Norte, which still remains poorly known (Versieux *et al.* 2013a). Also in Mata Estrela, another new occurrence was recently registered for the genus *Cryptanthus* (Bromeliaceae, Bromelioideae) (Versieux *et al.* 2013b), which provides further evidence for investigating this poorly known area and the adjacent remnants of the Rio Grande do Norte Atlantic Rain Forest.



FIGURE 2. A, B: Specimen of Aechmea muricata collected in Baía Formosa, Rio Grande do Norte (Voucher: Magalhães 19, UFRN). C: photo of a living plant in the field. Photos: R. Magalhães.

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LITERATURE CITED

- Canela, M.B.F., N.P.L. Paz and T. Wendt. 2003. Revision of the Aechmea multiflora complex (Bromeliaceae). Botanical Journal of the Linnean Society 143(2): 189–196.
- Forzza, R.C., A. Costa, J.A. Siqueira Filho, G. Martinelli, R.F. Monteiro, F. Santos-Silva, D.P. Saraiva, B. Paixão-Souza, R.B. Louzada and L. Versieux. 2013. Bromeliaceae In Lista de Espécies da Flora do Brasil. Version 2013. Accessible at http://floradobrasil.jbrj.gov.br. Captured on 23 September 2013.
- Leme, E.M.C. and J.A. Siqueira-Filho. 2006. Taxonomia das bromélias dos fragmentos de Mata Atlântica de Pernambuco e Alagoas; pp. 191– 381, in: J.A. Siqueira-Filho and E.M.C. Leme (ed.). *Fragmentos de Mata Atlântica do Nordeste, biodiversidade, conservação e suas bromélias*. Rio de Janeiro: Andrea Jakobsson Estúdio Editorial Ltda.
- Luther, H.E. 2010. *An Alphabetical List of Bromeliad Binomials*. Sarasota: Sarasota Bromeliad Society and Marie Selby Botanical Gardens. 45 pp.
- Martinelli, G., C.M. Vieira, M. Gonzalez, P. Leitman, A. Piratininga, A.F. Costa and R.C. Forzza. 2008. Bromeliaceae da Mata Atlântica brasileira: lista de espécies, distribuição e conservação. *Rodriguésia* 59(1): 209–258.
- MMA-Ministério do Meio Ambiente. 2008. Instrução normativa No. 6, de 23 de setembro de 2008. Accessible at http://www.mma.gov.br/ biodiversidade/. Captured on 11 August 2013.
- Myers, N., R.A. Mittermeier, C.G. Mittermeier, G.A. Fonseca and J. Kent. 2000. Biodiversity hotspots for conservation priorities. *Nature* 403(6772): 853–858.

- Ribeiro, M.C., J.P. Metzger, A.C. Martensen, F.J. Ponzoni and M.M. Hirota. 2009. The Brazilian Atlantic Forest: How much is left, and how is the remaining forest distributed? Implications for conservation. *Biological Conservation* 142(6): 1141–1153.
- Silva, B.R. 2003. Contributions to the understanding of Andean and Amazonian *Aechmea* subgenus *Chevaliera* (Bromeliaceae). *Selbyana* 24(1): 46–63.
- Smith, L.B. 1934. Geographical evidence on the lines of evolution in the Bromeliaceae. Botanische Jahrbücher für Systematik, Pflanzengeschichte und Pflanzengeographie 66: 446–468.
- Smith, L.B. and R.J. Downs. 1979. Bromelioideae (Bromeliaceae). Flora Neotropica 14(3): 1493–2142.
- Sousa, G.M. and M.G.L. Wanderley. 2000. Aechmea Ruiz & Pav. (Bromeliaceae) from Pernambuco State, Brazil. Acta Botanica Brasilica 14(1): 77–97.
- Sousa, G.M., M.G.L. Wanderley and M. Alves. 2008. Inflorescence architecture in Brazilian species of *Aechmea* subgenus *Chevaliera* (Bromeliaceae - Bromelioideae). *Botanical Journal of the Linnean Society* 158(4): 584–592.
- Versieux, L.M., Tomaz, E.C. and J.G. Jardim. 2013. New genus and species records of Bromeliaceae in the Caatinga of Rio Grande do Norte state, Northeastern Brazil. *Check List* 9(3): 663–665.
- Versieux, L.M., R. Magalhães and A. Calvente. 2013. Extension of the *Cryptanthus* range in Northeastern Brazil with new findings in the phenotypic variation including changes in the trichome's distribution, thus enhancing the understanding of the *Cryptanthus zonatus* complex (Bromeliaceae). *Phytotaxa* 109(1): 54–60.

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