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New botanical species are described for science

Over the last five years, 27 new botanical species have been recognized using material collected from the Vale Nature Reserve in the state of Espírito Santo, Brazil

Three new botanical species of the Atlantic Forest have been officially described for science. Named *Eugenia cataphyllea*, *Eugenia hispidiflora* and *Begonia jaguarensis*. These species were found in material collected at the Vale Nature Reserve (RNV), a conservation area of the Atlantic Forest maintained by the mining company Vale in Linhares, in the Brazilian state of Espírito Santo. It is one of the country's last remnants of Atlantic Forest, and over the last five years 27 new botanical species have been identified there and officially recognised by science.

According to Gleuza Jesué, Executive Manager for Environment at Vale, the conservation of areas rich in biodiversity such as the Vale Nature Reserve provides hope for the future of this biome. Although the most recent Atlas of Atlantic Forest Remnants contained the positive news that there has been a 24% reduction in the deforestation of the Atlantic Forest, from 2013 to 2014 this was still equivalent to 18,000 football fields. "With the actions promoted at the reserve we can contribute regionally to the conservation of the Atlantic Forest, by providing knowledge in order to improve restoration

methodologies and protect one of the last remnants of the forest in the north of Espírito Santo and the south of Bahia," explains Ms. Jesué.

The articles describing the species *Eugenia cataphyllea* and *Eugenia hispidiflora* were published in the Missouri Botanical Garden's *Nouvon* magazine. The text describing *Begonia jaguarensis* was published in *Candollea* magazine, released by The Conservatory and Botanical Garden of the City of Geneva (CJBG). These two publications are some of the most relevant relating to flora and fauna.

Endemic species

From the same family as the common guava, the strawberry guava and the Suriname cherry, *Eugenia cataphyllea* is only found in tableland forest, one of the most endangered formations of the Atlantic Forest biome, the predominant type of forest at the RNV. It is a shrub or small tree that can grow to 2-3 metres in height and which blossoms between the months of September and October. This species bears fruit between October and November.

Eugenia hispidiflora can grow to 3 metres in height and is found in the forests located on the coast of the north of Espírito Santo and the south of the state of Bahia. It flowers in November and bears fruit between January and February.

Begonia jaguarensis, whose name is a tribute to the city of Jaguaré, in the north of Espírito Santo, is a ground herb, or epiphyte, which measures from 2 to 16 centimetres in height and has multiple glands and trichomes, which are hair-like structures found on leaves. The species is also distributed throughout tableland forest and *muçununga*, another feature of the Atlantic Forest found at the RNV.

The confirmation of these three new botanical species was only possible thanks to analyses performed on both exsiccatae – dried specimens of the plants – taken from the reserve's herbarium archive, and "fresh" material collected in the field, also from the reserve.

Research on flora and the herbarium

The Vale Nature Reserve is considered to be a large genetic database and a shelter for different fauna and flora species of the Atlantic Forest. Together with the Sooretama Biological Reserve, the Vale Nature Reserve is the largest forest remnant in the state of Espírito Santo and is one of the country's most representative areas of Atlantic Forest. Since 1981, when the first publication on a new species found in the reserve was released, over 90 new plants have been officially recognised by science using material collected in the area.

As a base for its research on flora, the Vale Nature Reserve maintains a herbarium, a scientific collection that contributes to the knowledge of the flora of the Atlantic Forest. As a result of its work, around 2,800 plant species have already been registered at the reserve. Samples of botanical species collected at the RNV are also registered in the archives of a range of herbariums in Brazil and the rest of the world. These include the Virtual Botanic Garden in the New York Botanical Garden, the Missouri Botanical Garden and the Royal Botanic Gardens, some of the largest herbariums in the world that also provide material for online consultation. In Brazil, material collected at the reserve is held at the São Paulo Botanic Institute, Rio de Janeiro's Botanical Gardens, the Federal University of Espírito Santo (UFES) and the Federal University of Rio de Janeiro (UFRJ), among others.

This exchange of information, which began in 2004, has led to the discovery of species and genera of the Atlantic Forest previously unknown to science. This was the case for *Spiranthera atlantica*, a tree identified at the Vale Nature Reserve in 2010. The herbarium at the Vale Nature Reserve, a world reference that provides both an on-site and online consultation service, today contains over 14,000 plant species.

About the Vale Nature Reserve

The Vale Nature Reserve is situated in an area of the Discovery Coast Atlantic Forest Reserves (since 1999) and has Atlantic Forest Biosphere Reserve status (since 2008). This title, awarded by UNESCO, recognises actions for sustainable development, the promotion and dissemination of scientific knowledge and biodiversity conservation. Covering 23,000 hectares, the area is mainly designated for scientific and educational research and ecological restoration. Over 100 scientific articles have been published as a result of the research carried out at the RNV, and these have been cited in approximately 640 other articles.

More information



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