



## Short Communication / Nota Científica

# Land of the Giants. Remarkable botanical findings highlight a new area for conservation in Brazil

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### Abstract

The finding of *Vellozia gigantea* in an isolated Campo Rupestre massif within the Mata Atlântica Domain is a remarkable discovery that adds considerable conservation importance to the Serra do Padre Ângelo and Serra da Aliança, in the Doce River valley, Minas Gerais state, Brazil.

**Key words:** Campo Rupestre, Mata Atlântica, Serra do Padre Ângelo, Serra da Aliança, *Vellozia gigantea*.

### Resumo

A ocorrência de *Vellozia gigantea* num maciço isolado de campo rupestre no domínio da Mata Atlântica, no vale do rio Doce em Minas Gerais, é uma descoberta notável que acrescenta importância considerável à conservação da Serra do Padre Ângelo e da Serra da Aliança.

**Palavras-chave:** Campo Rupestre, Mata Atlântica, Serra do Padre Ângelo, Serra da Aliança, *Vellozia gigantea*.

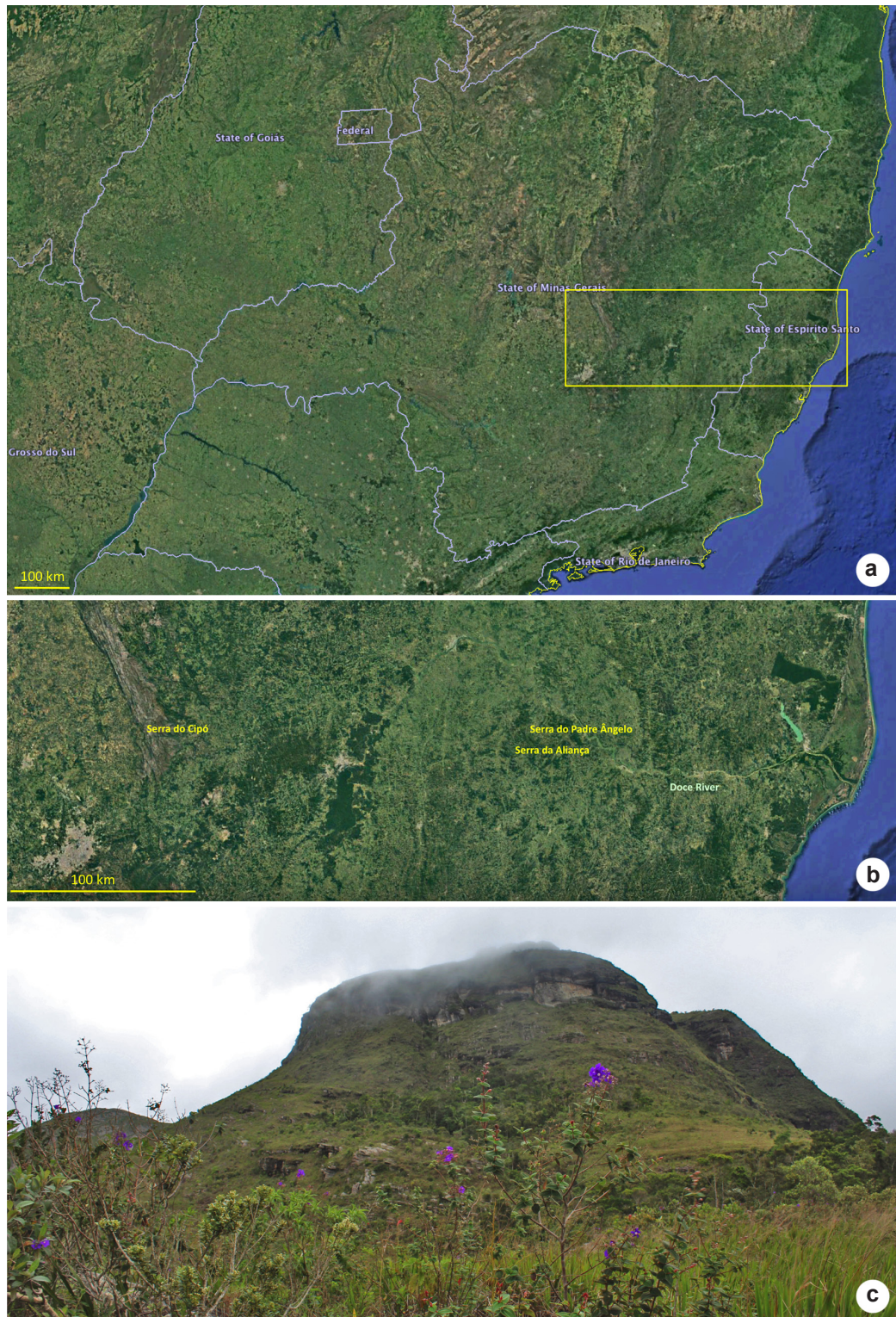
The discovery of *Vellozia gigantea* N.L.Menezes & Mello-Silva (Mello-Silva & Menezes 1999) was a remarkable event. This 6-m tall dracenoid monocot is not only the largest species of the family Velloziaceae, but also has been recognised as an endemic and emblematic species of the Serra do Cipó, a rich biodiverse area in the Espinhaço Range of Minas Gerais State, central Brazil (Fig. 1a,b). Now, *V. gigantea* is a flagship species of the Serra do Cipó National Park and of the *Campo Rupestre* archipelago (Prance 1994). *Vellozia gigantea* is a vulnerable species of a narrow known distribution that covers approximately 150 km<sup>2</sup> of disturbed area, where nine populations are divided into three geographical groups presenting different gene pools (Lousada *et al.* 2011).

Recently, another thrilling botanical discovery, that of the giant *Drosera magnifica* Rivadavia & Gonella (Gonella *et al.* 2015), the largest sundew of the Americas, called attention to the Serra do Padre Ângelo (Fig. 1c). This mountain is part of an isolated quartzitic sandstone massif situated in the municipality of Conselheiro

Pena, 215 km E of Serra do Cipó, around the very same parallel of 19°18'S. This massif also includes the mountains of the Sete Salões State Park, in the municipalities of Resplendor and Santa Rita do Itueto, and the Serra da Aliança, in the municipality of Alvarenga. These mountains, which reach 1520 m above sea level, are the most oriental outposts of the *Campo Rupestre* in Minas Gerais State (Fig. 1a,b). The phytophysiognomy of these mountains is similar to that of the Espinhaço Range and, like many Campo Rupestre sites, they are home to their share of endemics and rarities. Among others, *Alcantarea nana* Leme (Leme *et al.* 2014), *Cattleya alvarenguensis* (Campacci) Van den Berg (Campacci 2014; Van den Berg 2014), *Cattleya munchowiana* (F.E.L.Miranda) Van den Berg (Miranda 1999; Van den Berg 2008), *Chresta filicifolia* Siniscalchi & Loeuille (Siniscalchi *et al.* 2016), *Embernagra longicauda* Strickland (1844, Lopes *et al.* 2016), *Eremanthus ovatifolius* Loeuille & Pirani (2016), and *Drosera magnifica* are examples of biological richness and particularity.

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**Figure 1** – a. Section of the map of Brazil containing the states of Minas Gerais and Espírito Santo (among others) – the region between Serra do Cipó and the massif of Serra do Padre Ângelo (Serra da Aliança is highlighted); b. detail of the region between Serra do Cipó and Serra do Padre Ângelo - Serra da Aliança Massif, in Rio Doce Valley; c. Serra do Padre Ângelo. (a,b. from Google maps; c. by J. Lopes).



The implications for the biogeography of the *Campo Rupestre* biota are noteworthy (Siniscalchi *et al.* 2016) because, unlike most *Campo Rupestre* mountains, which are found either within *Caatinga* and *Cerrado* Domains, or in the boundaries of the *Mata Atlântica* and *Cerrado*, these mountains lie completely within the *Mata Atlântica* Domain, in a region dominated by granitic inselbergs (Nalini Jr. *et al.* 2005) and “mar de morros” in the Doce River valley. Its basin was once covered by lush vegetation (Wied-Neuwied 1820; Saint-Hilaire 1830), now almost completely destroyed. It has also been the place of recent environmental tragedy (*e.g.*, Meira *et al.* 2016; Nazareno & Vitule 2016; The Guardian 2016).

The Serra do Padre Ângelo has just recently been found by botanists. Many of them, who have been guided by members of the local family Caetano Ribeiro, were amazed by the presence of a huge Velloziaceae in the area. Representatives of this species reach up to six or more meters in height, and the populations occupy considerable areas, comprising thousands of individuals, including numerous seedlings. This notable species, in a recent visit, showed to be *Vellozia gigantea* (Mello-Silva 4033, K, RB, SPF, US, Fig. 2a-c; Siniscalchi 2024, SPF, Fig. 2f)! It is also present in the contiguous Serra do Pinhão (Danúbia Ribeiro, personal communication) and in the nearby Serra da Aliança (Lopes *et al.* 2016, Fig. 2e). This unexpected disjunction of a species previously considered endemic to the Serra do Cipó illustrates the very high degree of endemism of the Velloziaceae, whose members usually grow in places which are difficult to get at and little known botanically (Mello-Silva 1991), and adds considerable conservation importance to the Serra do Padre Ângelo and Serra da Aliança. Even more because, although numerous, the populations of *V. gigantea* suffer intense predation by the local people, who use their stems as fuel in wood burning stoves (Danúbia and Paulo Ribeiro, personal communication).

Flagship species and biodiversity richness have frequently been used to support the establishment of conservation units or natural reserves. For example, the presence of *Vellozia gigantea* in the Serra do Cipó, and the endemic status of many other noteworthy species, such as *Coccoloba cereifera* Schwacke (1898, Polygonaceae) and *Paepalanthus bromelioides* Silveira (1908, Eriocaulaceae), as well the exuberance of its flora (Giulietti *et al.* 1987), were used to justify the establishment of

the Serra do Cipó National Park (ICMBio 2009). Similarly, the richness of the flora from Grão Mogol with several endemic species (Pirani *et al.* 2003) helped to make the case for the recognition of the State Park of Grão Mogol (Fonseca & Lessa 2010), and the discovery of the mono-carvoeiro or muriqui-do-norte (*Brachyteles hypoxanthus* Wied-Neuwied, 1820), the biggest primate from Americas, living in the luxuriant montane Atlantic Forest of the Serra do Brigadeiro, Minas Gerais, was the urgency for the creation of a State Park (IEF 2007). Thus, the territory of Serra do Padre Ângelo and Serra da Aliança, this land of the giants, deserves conservation not only for harbouring remarkable and vulnerable species of the *Campo Rupestre* Flora, distant from its core zone, but also for being a yet conserved spot left in a region that has lost almost all of its original natural covering.

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**Figure 2** – *Vellozia gigantea* – a. stem with fruits; b. stem with flower; c. a population with adults in background and seedlings in foreground; d. a 5,5-m tall individual in Serra do Padre Ângelo; e. a 5-m tall individual in Serra da Aliança; f. a population in Serra do Padre Ângelo. (a,c,d. by R. Mello-Silva; b. by D. Ribeiro; e. by M. Morais; f. by C. Siniscalchi).

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