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SHORT COMMUNICATION

NEW DISTRIBUTION RECORD OF THE ENDEMIC AND CRITICALLY ENDANGERED GIANT STAGHORN FERN *PLATYCERIUM GRANDE* (FEE) KUNZE (POLYPODIACEAE) IN CENTRAL MINDANAO

Cherie Cano-Mangaoang & Charissa Joy Arroyo Gumban

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New distribution record of the endemic and critically endangered Giant Staghorn Fern *Platycterium grande* (Fee) Kunze (Polypodiaceae) in central Mindanao

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Abstract: *Platycterium grande* (Fee) Kunze is an endemic, Critically Endangered species of fern in the Philippines. The known distribution of this species remains limited at present and its population is threatened by various anthropogenic threats especially for ornamental collection. In our recent survey, we found high abundance of this species in Central Mindanao, southern Philippines. It can be distinguished from other species belonging to the genus *Platycterium* through its frond's vegetative leaf which is symmetrical with two equally long main lobe. Based on literatures, the known distribution range extend from Zamboanga, Lanao, and Davao (Mt. Apo); and our recent records extends the known distribution of this species in Kalamansig, Sultan Kudarat and South Upi, Maguindanao suggesting this species may still be around in other areas within the known range, however, the species may remain narrowly distributed as multiple threats to this species continue to persist.

Keywords: Conservation, fern, Maguindanao, phorophyte, Sultan Kudarat.

Platycterium Desv is a distinct genus under Polypodiaceae, and is distinguished by the morphological structure of its frond. The species under this genus is distinguishable by its frond dimorphism, formation of a basket of base fronds and the vegetative frond that is divided dichotomously (Hennipman & Roos 1998). This taxa mainly grow in a more or less open canopy

and are among the most frequent vascular plant epiphytes in subtropical to tropical lowland forests with 15 to 18 known species. There are two known species in the Philippines, viz.: *Platycterium coronarium* (König ex Müller) Desv and *Platycterium grande* (Fèe) Kunze (Copeland 1958; Hennipman & Roos 1998). The previously mentioned species can be identified from the latter by its foliage frond which is asymmetrical and its soral patch that completely covers the fertile lobe. Of these two species, *P. grande* is endemic to the Philippines (Amoroso & Amoroso 2003) and is closely related to *P. holttumii* distributed in Indochina (Kreier & Schneider 2006).

Platycterium grande also known as the Giant Staghorn Fern was recorded in Mindanao specifically in Zamboanga, Lanao, and Davao (Mt. Apo), however, Copeland's (1958) report from Mt. Cristobal in Luzon could be possibly in error (Pelser et al. 2019). Hennipman et al. (1979) stated that the specimen used to complete the description of this species was taken from the wild of Davao and traced in Cebu then brought to Leiden and Kew.

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Its unique and peculiar structure makes this species valuable as an ornamental and attractive plant for collectors and poachers (Darnaedi & Praptosuwiryo 2003). As a matter of fact, *P. grande* and other species in the genus are highly-prized ornamental species. Consequently, coupled with habitat changes in its native range, continuous over exploitation, and its poor propagation success (Amoroso & Amoroso 2003) this species is currently assessed as critically endangered (Fernando et al. 2008). In this paper, we report the new distribution records of *P. grande* in localities in Mindanao Island, Philippines.

METHODS

The study was conducted in the two provinces of Central Mindanao: Sultan Kudarat and Maguindanao, southern Philippines. The province of Sultan Kudarat is situated in the Soccsksargen region in the southwestern part of Mindanao. Kalamansig is one of its municipalities which is situated at approximately 6.554°N, 124.052°E. On the other hand, area in Maguindanao where *P. grande* exist is the municipality of South Upi which lies

at about 7.017°N, 124.176°E (Fig. 1).

Purposive sampling was done. Survey was conducted from the months of April 2018–April 2019 in various areas of Kalamansig and South Upi. Three barangays in Kalamansig, Sultan Kudarat were identified – Barangays Paril, Limulan and Poblacion and two in South Upi, Maguindanao – Barangays Kuya and Poblacion. The actual number of individuals were counted and recorded. To confirm the identity of the species, morphological characteristics of the species were examined such the base and vegetative fronds and the soral patch. These are the morphological characteristics by which the two species of *Platyserium* in the Philippines can be distinguished. Identification is further supported by the work of Copeland (1958), Hovenkamp et al. (1998) and Philippine plant list website. Furthermore, a map was generated using QGIS application.

RESULTS AND DISCUSSION

Platyserium grande was found thriving along national road for both areas in Kalamansig, Sultan Kudarat and South Upi, Maguindanao, however, individuals of this

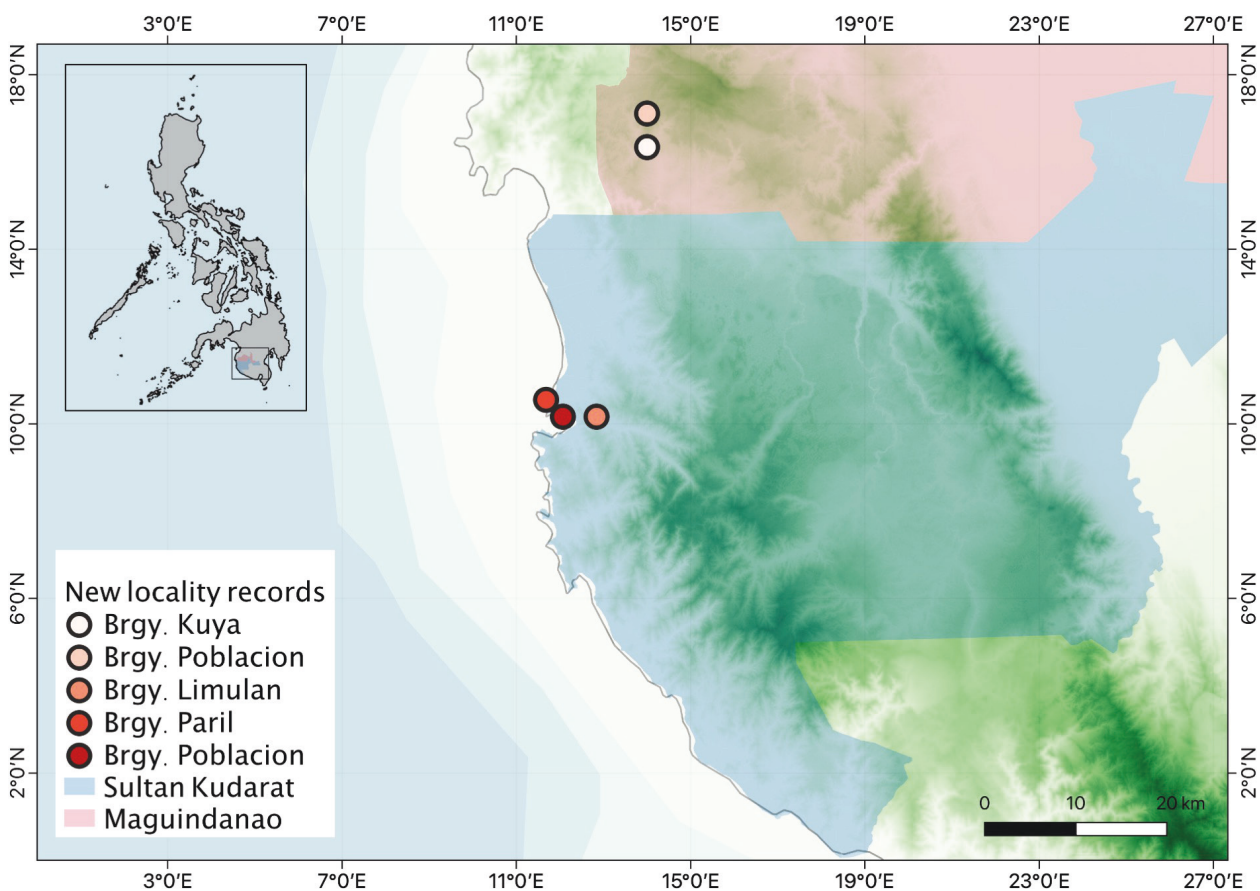


Figure 1. The updated distribution of *Platyserium grande* in Mindanao.



Image 1. Habit and morphological structure of *Platycerium grande*: A—Habit showing upper part of the base frond | B—Lower part of the base | C—Foliage fronds symmetrical | D—One of the main long lobe of the foliage frond with sori. © Authors.



Image 2. Individuals of *Platycerium grande* attaching on its phorophytes: A—Coconut *Cocos nucifera* | B—Acacia Tree *Albizia saman*. © Authors.

species in Kalamansig, Sultan Kudarat were seen in an agricultural area planted with coconut. The species was identified based on its morphological characterization in which the lower part of the base frond is strongly wavy on the margin (sinuose margin), upper part spreading and forked equally, and foliage fronds are symmetrical, with two equally long main lobes, each with a wide, horizontal soral patch and two lateral pendulous forked lobes. Soral patch of *P. grande* is semicircular and occupies the undersurface of the foliage fronds (Image 1). These are the diagnostic characteristics to identify the species as *Platycerium grande* (Copeland 1958; Hennipman & Roos 1998; Aspiras 2010). The species was found to be thriving in an open area at an elevation of 6.69–662.71 m and observed to be commonly attached on coconut and huge trees along national roads. The wild population of *Platycerium grande* is presently scarcely known. It can, however, be seen in home gardens or botanical gardens. But recently it was found out to be abundantly thriving in areas of Sultan Kudarat and Maguindanao.

A total of 212 individuals were recorded from the three barangays of Kalamansig, Sultan Kudarat and 30

Table 1. The number of individuals of *P. grande* in the two sites.

Location of <i>P. grande</i>	Latitude (N)	Longitude (E)	Number of Individuals
Kalamansig, Sultan Kudarat			
Brgy. Paril	124.033	6.567	96
Brgy. Limulan	124.083	6.550	76
Brgy. Poblacion	124.050	6.550	40
South Upi, Maguindanao			
Brgy. Kuya	124.133	6.817	3
Brgy. Poblacion	124.133	6.850	27

individuals from South Upi, Maguindanao (Table 1).

Coconut served as the phorophyte of most recorded individuals of *P. grande* in Kalamansig, however, many individuals were noticed to be thriving on an individual tree of *Albizia saman*. This might be due to fact that areas where the species was seen is an agricultural landscape which is almost planted with coconut. Its point of attachment on a coconut tree starts from 2m from the ground up to the point almost reaching the top of the tree where the fruit are located. It was also

documented that individuals growing on trees coexist with a *Drynaria* sp.

It was previously mentioned that most individuals recorded were on coconut trees, however, fewer in number compared with those on huge trees (Image 2). *P. grande* attached on coconut ranges from 1–5 individuals wherein huge trees harbors up to 30 individuals per tree. This might be due to the absence of branches on coconut trees which gives mechanical support to this plant being an epiphyte.

Result of this study will help to substantiate the distribution of *Platyserium grande* in this part of the country given that very little literature is available on its distribution in the Philippines (Pelser et al. 2019). It is presumed that more individuals can be found in the two areas and neighboring places if comprehensive surveys are conducted. Moreover, findings of this study will also be of use in reassessing its status and in the implementation of appropriate conservation strategies. Furthermore, discovering new locations of *P. grande* is an avenue for more in-depth studies of this endemic and critically endangered species of fern.

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