Discovery of a new population of *Nepenthes holdenii*

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After many years of neglect, the *Nepenthes* flora of the Indochinese peninsula has received renewed attention in the last five years. This work has resulted in the description of several new species. Due to their morphological similarities, they have been ascribed to a single group, the *Nepenthes thorelii* aggregate - named after the endemic Vietnamese taxon (Mey *et al.*, 2010, Mey, 2010). *Nepenthes holdenii* is the latest addition to this group. Endemic to Cambodia and only known from the Cardamom Mountains, it is, like its relatives, characterised by a pyrophytic habit and the development of rootstock tubers that enable its survival through drought and fires (Mey *et al.*, 2010). Within the aggregate, *N. holdenii* is readily distinguished by its male and female inflorescence structure, which is unique within the group: while *N. chang* has 2-pedicellate male flowers, its female inflorescences only develop 1-pedicellate flowers. Within the *N. thorelii* aggregate, the other Cambodian endemic, *N. bokorensis*, may occasionally develop inflorescences with scattered 2-flowered partial peduncles, but only irregularly (Catalano, 2010; Mey, 2009). Other species in the aggregate only develop 1-pedicellate inflorescences. *Nepenthes holdenii*'s closest relative appears to be *N. chang*, a fairly small species from Thailand

Figure 110 (facing page). *Nepenthes holdenii* plants growing in a bright and open, grassland habitat at the recently discovered location.

which occurs in similar habitats; open, steep, peaty terrain surrounded by forests. *Nepenthes holdenii* is distinguished from *N. chang* by its infundibular upper pitchers (vs. tubulose), its glabrous stem and leaves (vs. hairs on all plant parts except the adaxial surface of leaf) and the sinuate peristome (vs. cylindrical peristome, often larger at the sides of the pitcher opening).

Until very recently, *Nepenthes holdenii* was known only from small populations on the slopes of two peaks within the Cardamom Mountains. It was suspected that additional research in the region might reveal additional populations (Mey *et al.*, 2010). In early October 2011, a new and extensive population of *N. holdenii* was discovered in the Phnom Samkos Wildlife Sanctuary in the Cardamom Mountains (Figures 110 and 111). Prior to this discovery, five small populations of *N. holdenii* had been found. These contained fewer than 20 plants and occurred on dry, exposed slopes that are subject to annual bush fires. The altitudinal range for the plants was between 600–800 m. The new population occurs on an adjacent peak situated between the two known localities and, in keeping with what is known about *Nepenthes holdenii*, occurs at 700 m on a series of steep, grassy clearings interspersed with stands of pine. Evidence of fire was found in this area, but due to its isolation, it is likely that fires occur less frequently here than in the other known *N. holdenii* locations.

This new population is noteworthy because it is, to date, the largest grouping of *N. holdenii* plants yet found. An exhaustive survey of the area was not carried out, and so neither the full extent of the habitat nor the extent of the occurrence of *N. holdenii* plants within it could be gauged. Even so, it was clearly more extensive than any known population observed thus far. Plants were seen in all stages of development, from small rosettes growing in open ground to huge, climbing vines observed in the more forested areas. Typical morphological and colour variation was noted in the pitchers, from immaculate green through to heavily-

Figure 111 (facing page). Rosettes of *Nepenthes holdenii* growing in montane forest at the recently discovered location.

Figure 112 (above). A lower pitcher of a *Nepenthes holdenii* plant growing at the recently discovered location.

Figure 113 (above). An upper pitcher of a *Nepenthes holdenii* plant growing at the recently discovered location.

streaked red specimens. Some plants produced remarkably large lower pitchers, measuring up to 30 cm long.

It is worth recording that *Nepenthes holdenii* plants were observed in only one contiguous population. Surveys carried out in several similar locations on the peak revealed no evidence of *Nepenthes*, although they matched the ecological conditions favoured by *N. holdenii*. It appears that this species is rare or localised, even within its preferred habitat (Figures 112, 113 and 114).

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Figure 114 (facing page). Upper pitchers of *Nepenthes holdenii* hanging from vegetation at the recently discovered location.