

Passiflora

Volume 8, Number 4

Winter 1998

The Official Newsletter of Passiflora Society International

Passiflora cuneata 'Miguel Molinari' (Passifloraceae)

John Vanderplank

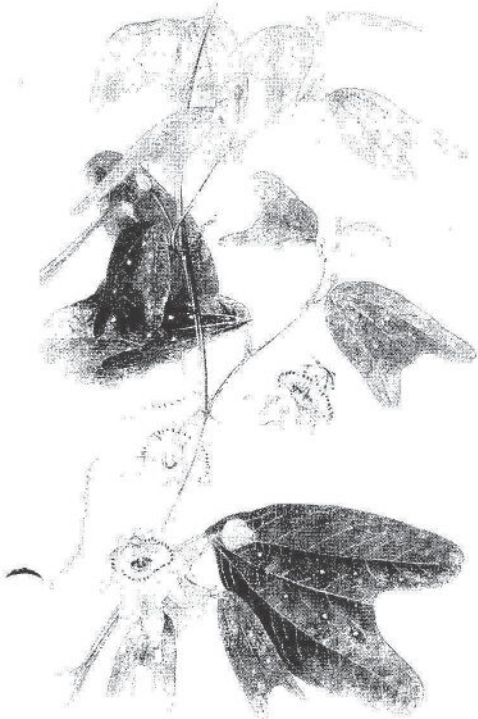
National Collection of Passiflora, Geenholm Nurseries Limited, Lampley Road, Kingston Seymour, Clevedon, North Somerset, BS21 6XS, U.K.

Summary. *Passiflora cuneata* Willd. (Passifloraceae) is a native of Venezuela and Colombia. A local geographic variant of it, from the state of Merida, Venezuela, is illustrated and named as 'Miguel Molinari'; although now extinct in the wild, this variant is maintained in cultivation at the British National Collection of Passiflora near Bristol, England, and has also been distributed to other collections. Its relationships, distribution, ecology, conservation status and cultivation requirements are discussed and a full description is provided.

The great majority of *Passiflora* species are native to the tropics and subtropics of South America, with over 455 species currently recognized and perhaps another 10 or so awaiting description (Vanderplank, 1996). In spite of a considerable amount of information already published, there is still much work to be done, particularly field studies of living material in disciplines such as pollination biology. Unfortunately the possibility exists that some species and their variants will become extinct before this can be achieved, the subject of this paper being a timely reminder of this fact.

During a visit to Venezuela in 1994 with a friend and naturalist Chris Glennie, I travelled to the north-eastern state of Merida, which is situated on the lower slopes of the Andes mountain range. The state capital Merida, which only a few years ago was a modest town, is now a rapidly growing city attracting capitalists, opportunists, developers and all the fortune-seekers who follow any successful economic boom. The rise in Merida's economic activity has been largely brought about by the construction of a modern highway from the coast and the upgrading of minor tracks into paved roads, thus making vast areas of previously unspoiled forest accessible. Although it is illegal in Venezuela to cut down virgin forest for farmland or development, many fires are started deliberately during the dry season, resulting in its destruction and subsequent occupation by opportunist farmers claiming squatters' rights.

continued on pp. 31...



Passiflora cuneata 'Miguel Molinari'
Painting by Christabel King.

In This Issue:

Letters / Announcements...	30
<i>Adenia</i> in the Wild	33
Announcement	34
Seedbank Updates	35
Officers of P.S.I.	36
Notice to Contributors	36

'Miguel Molinari'...continued from pp. 29

During one of our journeys, in the space of a few hours, we counted 30 such fires that could only have been started intentionally. It was with this depressing reality that we listened to our friend and guide Dr. Miguel Molinari who was born and grew up in Venezuela. Although the truest of patriots, he is very pessimistic about the future for the people, the forests and the biodiversity of his beloved country. Miguel had become particularly interested in *Passiflora* whilst a medical student and was encouraged in this pastime by the eminent botanist Dr. Stephen Tillet, a leading authority on the genus. The latter years of Miguel's studies involved regular visits to small villages and hamlets all over the state of Merida and during these sometimes very long journeys he started cataloguing all the *Passiflora* plants growing alongside, or in close proximity to, the roads. By the time we met he knew where every *Passiflora* was growing, large and small, in the entire state.

He knew that some species were very localized, even confined to just a single small valley, and that a number of new species had been discovered recently in Columbia in similar isolated populations. He also resolved that he would collect seeds of every *Passiflora* he found and distribute them to friends and fellow enthusiasts, regardless of rarity. A year or so later it was, as he had feared, that the only known population of the interesting local variant of *P. cuneata* depicted here was destroyed by fire and developers; however, thanks to his concern and foresight, the species survives in cultivation. From the original introduction into the British National Collection of *Passiflora* at Greenholm Nurseries, Clevedon, North Somerset, seeds and plants have been distributed to others, including the Royal Botanic Gardens, Kew. As long as it is maintained in cultivation the possibility exists that it could be reintroduced in the wild, underlining the importance of well-documented and well-curated specialist collections such as those in botanic gardens and those organized by the NCCPG and its counterparts around the world.

Recently a potentially even more serious threat to the *Passiflora* population of Venezuela has appeared in the form of a small wasp-like insect that lays its eggs in the immature fruits of all known *Passiflora* species. The growing larvae feed on the developing seeds and their surrounding arils, leaving the fruit hollowed out and void of live seeds. Earlier this year Dr. Molinari was unable to find 50 viable seeds in 100 fruits he examined. Since passionflowers are not long-lived and must be continuously regenerated if they are to survive, it would

not take many years of natural losses for the endemic populations of many of the more restricted species to fall to a point where their survival is threatened.

The lower slopes of the Andes are the natural habitat of many *Passiflora* species, including *P. cuneata* Willd. [a member of subgenus *Decaloba*, series *Punctatae*] which is a quite widespread and common plant in Venezuela and Colombia between 600 and 3200 m. The distinct local variant of *P. cuneata* which is illustrated here was formerly endemic to a comparatively small area in the state of Merida, at about 1400 m. It closely resembles other variants of the species both vegetatively and florally, except that it has distinctly larger mauve flowers in contrast to the small, pure white, flowers of typical *P. cuneata*. It seems most probable that this is a geographically isolated population, which has evolved larger, more colourful flowers, which attract a particular insect pollinator. In stature and habit it is much the same as other variants and has the same very variably shaped leaves, even on a single specimen; also it possesses the same prominent leaf nectaries which resemble eggs of Lepidoptera. These glands are considered to be egg mimicry glands, which are a defence against the keen-sighted *Heliconius* or longwing butterflies that are known to be easily discouraged from laying their eggs on plants that appear to be egg-infested.

After close examination of cultivation of *P. cuneata*, and this particular variant of it, for the past five years, and considering the geographical implications, I think it possible that there is sufficient evidence to regard it as a separate taxon, either as a species or as a subspecies of *P. cuneata*; however, for the time being it seems prudent for practical purposes to refer to it under a cultivar name, since it is now maintained wholly in cultivation. Therefore, in recognition of the work carried out by Dr. Molinari, and the part played by him in its conservation, it is named here "Miguel Molinari." In his monograph of the American species of *Passifloraceae*, E. P. Killip, (1938), recognized the very close similarities of *P. cuneata* to its nearest relatives *P. andersonii* D C., *P. luciensis* Urban and *P. rotundifolia* L. and suggested that perhaps they should all be part of one large polymorphic species with a widespread distribution. In this case I would include "Miguel Molinari" in this grouping, whatever status it is given in the future.

Cultivation

For the purposes of cultivation requirements in temperate climates, *Passiflora* can be divided into three main groups: species originating from lowland tropical regions need hot-house conditions with high intensity

supplementary lighting during the winter months; the subtropical species require a minimum temperature of 10°C, although cooler conditions may be tolerated for short periods; finally the species which inhabit the slopes and valleys of the Andes at 1500 m and above require protection from the potentially fatal combination of cold and wet during winter, so typical of the British climate. Although most of the species in this last group will tolerate short frosts to -4°C in their natural habitat, they need frost protection when in cultivation.

The illustrated plant of *P. cuneata* "Miguel Molinari" was grown at Kew in the Temperate Nursery from rooted cuttings provided by the National Collection of Passiflora. When grown in posts, the primary requirement is that the potting medium should be well drained; it has been found that a loam-based mix comprising 1/3 loam, 1/3 peat and 1/3 sand is successful. Flowering is from June to October when grown in temperate conditions and April to November in a sub-tropical environment. A specimen in the national Collection near Bristol, England, attained a height of 4 m and was then restricted by the glasshouse structure; an ultimate height of 5-6 m would therefore seem quite a reasonable estimate of its capabilities. Fruits have been produced naturally without hand pollination but growing in such close proximity to many other *Passiflora* species the likelihood of hybridization cannot be discounted. Therefore, if the species is to be increasing avoiding this risk, propagation must be by seed produced under controlled conditions or by cuttings.

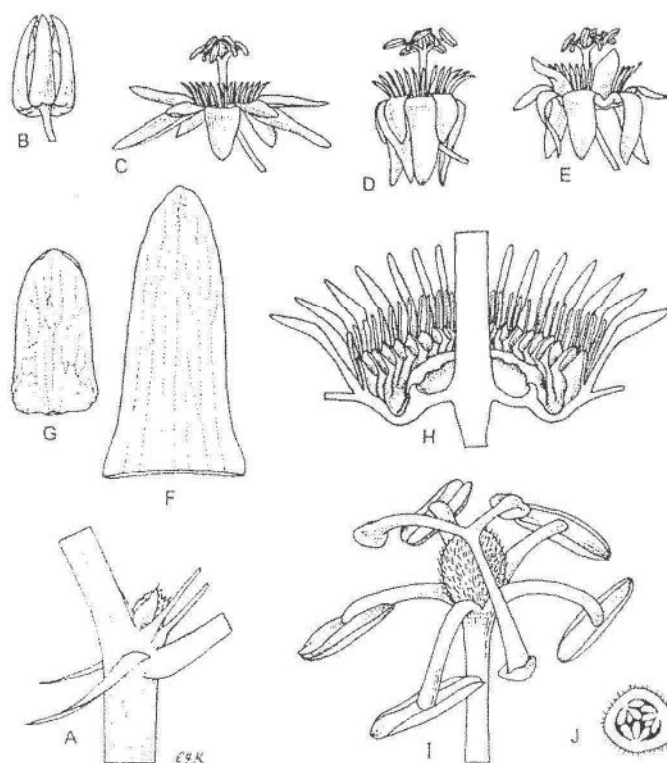
Passiflora cuneata Willd., Enum. Pl. Hort. Berol.: 696 (1809). Type: "Habitat in Caracas".

***P. cuneata* 'Miguel Molinari'**. Type: Cultivated specimen, Royal Botanic Gardens, Kew (K).

'*P. lourdesae* Molinari ined.' In Vanderplank, Passion Flowers: 117 (1996).

Description [of the cultivar "Miguel Molinari"].

Evergreen, slender, climbing vine, exceeding 4 m in height. Roots fibrous. Stems slender strongly ridged, angular-hexagonal in cross-section, minutely pubescent. Stipules hair-like, sickle-shaped, 4-5 mm long, soon deciduous. Petioles without glands, slender minutely pubescent, 1.5-2.5 cm. Long. Leaves very variable, up to 8 cm long, 7 cm wide, 3-nerved, reticulate-veined, mostly 2-lobed but occasionally 3-lobed, the third or middle lobe small, rarely more than 1 cm long; upper surface of lamina glabrous, apple green, bearing 8-12 conspicuous yellow or bright yellow nectar-bearing glands 1-1.5 mm in diameter, along and between the two main lateral nerves and the main central nerve; lower surface minutely pubescent, with nectar glands



***Passiflora cuneata* 'Miguel Molinari'**. A, leaf axil, bases of 2 tendrils and stipules, $\times 6$; B, flower bud, $\times 1$; C, flower at 0900 hrs, $\times 1$; D, flower at mid-day, $\times 1$; E, flower in the afternoon, $\times 1$; F, sepal, $\times 3$; G, petal, $\times 3$; H, corona and base of androgynophore, $\times 4$; I, androecium and gynoecium, $\times 4$; J, ovary, transverse section, $\times 4$. Drawn by Christabel King.

less obvious and showing up as pale brown circles with a single droplet of nectar on each. Pedicels solitary or in pairs, slender, 1.5-3 cm long; bracts scattered, hair-like, 1-2 mm long. Flowers 4-5 cm diameter, mauve, pinkish mauve or whitish mauve, opening at first light and partially closing after mid-day; sepals 17-19 mm long, 5-6 mm wide at base, mauve, pinkish or whitish mauve within, on the outside green edged with mauve or white; petals 10-12 mm long, 4-5 mm wide, mauve or pinkish mauve on both surfaces; corona filaments in 2 series; outer series sulcate 5-7 mm long, lower part green, central part deep purple, upper part yellow; inner series filiform, 2 mm long, green; operculum membranous, plicate, incurved, green; limen erect, 2 mm high, ridged. Ovary subglobose, pilose. Fruit globose or subglobose, very deep purple when ripe, 1-1.5 cm diameter; seeds transversely sulcate with 6-7 ridges, 2.75-3 mm long, 1.75-2 mm wide.

Distribution

Venezuela, known from only one location in the state of Merida (probably now extinct in the wild).

Habitat

Forest clearings and roadside verges, 1400 m.

Acknowledgments

My sincere thanks go to Dr. Miguel Molinari for providing the original specimen and seeds, and for information on the natural habitat and fate of this interesting local variant of *P. cuneata*. Also to Christabel King for preparing the beautiful illustration and Brian Mathew for his help and advice.

Reprinted from *Curtis's Botanical Magazine*, Vol. 15, part 2, pp. 109-114 by permission of the author. © Bentham-Moxon Trust 1998. Originally published by Blackwell Publishers, 108 Cowley Rd., Oxford OX4 1JF, UK and 350 Main Street, Malden, MA 021148, USA.

References

- Escobar, L. K. (1988). Passifloraceae. Flore de Colombia 10. Instituto de Ciencias Naturales, Museo de Historia Natural, Bogota, Colombia.
- Killip, E. P. (1938). The American species of Passifloraceae. Publications of the Field Museum of Natural History, Botanical Series 19. Chicago.
- Killip, E. P. (1960). Supplemental notes on the American species of Passifloraceae with descriptions of new species. Contributions from the United States National Herbarium 35: 1-23.
- MacDougal, J. M. (1994). A revision of *Passiflora* subgenus *Decaloba*, section *Pseudodysosmia*. Systematic Botany Monographs. American Society of Plant Taxonomy, Ann Arbor, Michigan.
- Vanderplank, J. (1996). Passion Flowers. Cassell, London.

Adenia in the Wild

Jean-Jacques Segalen

Barbadine, B.P. 100 – 97832 Le Tampon Cedex, Ile de la Reunion, France

I live on Reunion island, a French department in the Indian Ocean, between Madagascar and Mauritius. Although the island might pretend to be a reliable blueprint of paradise, with both lush tropical vegetation covering a volcanic island and French gourmet food, we do miss some essential items : passionflowers, of course. Well, we grow and eat all kinds of purple and yellow granadilla, sweet granadilla, giant granadilla, sweet calabash, and



Foliage of *Adenia gummifera* on Reunion Is.
Photo by Jean-Jacques Segalen

have ornate gardens and pergolas with *P. coccinea*, *P. 'Amethyst'*, *P. vitifolia* etc...but we (well, I do anyway) miss the excitement of running into exotic new species while roaming in the forests and gullies, a great part of my activities. *P. foetida* and *P. suberosa* grow like weeds in most places, but are so common that they would not stop anybody in their tracks.

So when a friend of mine, Roger Lavergne, a local botanist who spends more time in the wild than in his home, told me of an *Adenia gummifera* growing wild in a deep ravine in the Northern part of the island, I grabbed my camera and hiking shoes and went to meet him. Roger ran into this plant a few years ago while working in this area and was quite surprised. Of course, *Adenia* are not unknown in this part of the world, but the closest place where they grow is Madagascar and Africa.

We met at the entrance of the gully and walked for some time amongst large boulders along a small running creek. When we reached a turn Roger pointed to a place on the other side of the ravine, covered by lush plants growing some twenty metres high and said « there's the first one ». I was very impressed to see such a huge plant, really taking over trees and rocks, quite different from what I had seen in Southern Madagascar where they stay quite scraggy. This one grows by a running stream which is one reason why it is so big, but a later description of a plant made in Uganda gave a potential height of 30 meters. This same description indicates that the plant grows also in Kenya, Tanzania and Zambia.

A little further up the ravine was another place with an even more impressive plant growing. The thing is that it seems to root anytime a stem lays on the ground, giving birth to another plant and the final result is a real labyrinth of stems going in every possible direction. No flowers nor buds were seen and Roger said he never saw any, whatever time of the year he came. However, the

continued on pp. 34...