
THE NORTH QUEENSLAND NATURALIST

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NORTH QUEENSLAND NATURALIST CLUB

Founder, Presd. The late Dr. HUGO FLECKER.

OBJECTS - The furtherance of the study of the various branches of Natural History and the preservation of our heritage of indigenous fauna and flora.

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"Each Author is responsible for the opinions and facts expressed in his or her article".

DO SONNERATIA CASEOLARIS AND S. OVATA OCCUR IN QUEENSLAND OR THE NORTHERN TERRITORY?

Among the mangrove trees of Queensland there are two genera of which the species possess spurge-like, erect aerial roots massed below the tree. They belong to very different families, namely to Avicennia of the Verbenaceae and Sonneratia of the Sonneratiaceae. Besides the habit, they have in common that their leaves are opposite, but there the resemblance halts.

Avicennia has mostly hairy leaves, at least underneath, and hairy thyrses, the Sonneratias are entirely glabrous. Avicennia has many-flowered spikes or thyrses of small tubular flowers, open during the day, with 4 stamens, and rather small spindle-shaped, 1-seeded capsules opening with 2 valves emitting the already developed germinated seed.

Sonneratia on the other hand has the flowers single or rarely in threes at the end of the twigs. They are large, with a calyx splitting in 4-8 acute lobes, opening at dusk, being nocturnal. There are very many stamens far exerted like a brush. The flowers emit a rather disagreeable smell and produce copious honey. This attracts honey-suckers (according to Beccari) but surely also bats. The fruit is large, and becomes finally a kind of hard-shelled berry, containing very numerous very small seeds embedded in pulp; it is superior or half-superior and is sustained by the hard, more or less enlarged calyx lobes.

There are in the world five species of Sonneratia (1) of which two are confined to the Indian Ocean shores and Malaya. The three others are found throughout the Malesian archipelago and all three are found on the south coast of New Guinea, also in the Solomons, New Hebrides, and one even in New Caledonia, Micronesia and the Marshalls. 1)

One would suspect that all three were also found either in the mangroves of the Northern Territory or Queensland, at least in the Cape York Peninsula, but this is not so!

With Mr. J. Muller, who has made in Borneo an elaborate study of Sonneratia, mainly for the purpose of the pollen identity, and who has found in passing also locally hybrids (2), I have carefully studied all Sonneratia material in the Brisbane Herbarium and all this except two fragmentary sheets belongs to one species. This is in general accordance with Bentham's Flora Australiensis and Bailey's Flora of Queensland, and with Ewart & Davies' Flora of the Northern Territory.

This one species was by these authors sometimes called S. acida, a synonym of S. Caseolaris (L.) Engl., but also sometimes S. alba J. Sm.

However, all this material doubtless belongs to the widest distributed species of all three, ranging from the East African coast through the Indian Ocean and Malesia to Micronesia and New Caledonia (3), S. alba J. Sm.

1) In the latter three islands or island groups occurs only one species, S. alba J. Sm. From the Marshalls, specimens were sometimes distributed under the name S. caseolaris (L.) Engl. (for example Hatheway 827, D. Anderson 3748), but they were wrongly identified.

However, not only the names but also the identity seems to be confused in Queensland literature. The one collection quoted by name in Bailey's Queensland Flora p. 679, under S. alba viz "Johnstone River, Dr. T. L. Bancroft" (BRI 063649), though sterile, is presumably not S. alba, but another species, S. caseolaris. This is corroborated by a second sheet in the Brisbane Herbarium, also from Johnstone River, collected by G. H. Ladbrook, July 1917 (BRI 063648), which, though fragmentary, is accompanied by a loose fruit, which is certainly S. caseolaris.

There is thus a reasonable certainty that there are in Queensland at least two species of Sonneratia. Judging from the proximity of New Guinea, it is likely that S. ovata also occurs in Queensland, though this is on the whole scarcer than the other two.

As all the herbarium material of Queensland is scrappy, as it is in most herbaria, due to the difficulty of drying these rather fleshy plants which disintegrate easily when not rapidly dried or at least killed (by alcohol, formalin, or hot water), it would be certainly worthwhile if eager botanists not afraid of making themselves dirty and being bitten by mosquitoes, collect new material.

The most promising place would in first instance be Johnstone River.

Sonneratias occur in tidal forest, along muddy shores, in creeks and estuaries, but also often as rather isolated trees on dead coral reefs covered with some sand or mud, within high tide level.

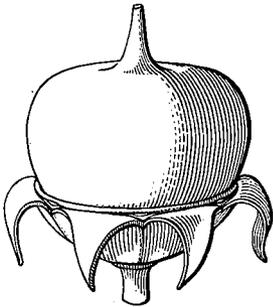
This note is mostly written to encourage the North Queensland botanists to bring more light into the occurrence of Sonneratia in northern Australia. To assist them I have prepared a key with the most essential characters and besides provided figures of the three fruit types, in order to facilitate recognition. It is not impossible that the three species occupy an ecologically slightly different niche and that one is found on, for example, firmer mud than the other, but little is known about this. In habit the tree shape and crown are also very similar, so that one has to get familiar with them by picking specimens either in fruit or in flower, preferably both. Only one of the species, the rarer S. ovata, can more or less be recognized by the leaf-shape being widest near the truncate or even slightly emarginate base.

The structure of the flowers is as decisive as that of the fruit. The calyx tube is either smooth without ribs or lines running; down from the sinuses in S. caseolaris, smooth and with such ribs in S. alba, finely verruculose and with ribs, and with a constriction at the insertion of the calyx lobes, in S. ovata.

Also the petals are decisive; if present they are implanted between the calyx lobes. In S. caseolaris they are large, wide and blood-red; in S. alba they are white or at base + tinged red, and narrow, sometimes as narrow as a filament; in S. ovata there are no petals.

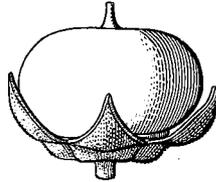
In the herbarium it is often difficult to find the petals as they are often early caducous; they can be best observed in mature buds or flowers just opening.

As to the fruits, the differential characters speak for themselves from the figure: in S. alba the fruit is half-inferior, with the sepals recurved in the fully mature fruit, in the other two species the fruit rides more or less on a flat calyx base, the calyx being wide and flat in S. caseolaris and the lobes erect in S. ovata.

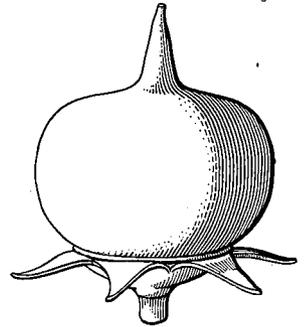


®

alba Muller 19



ovata BRUN 5144

caseolaris
Muller 20KEY TO THE SPECIES OF SONNERATIA

1. Petals absent. Calyx finely verruculose, the tube distinctly ribbed and somewhat contracted at the rim, inner side of calyx lobes red. Calyx tube in fruit low (5-10 mm high), the lobes ascending, appressed against the ripe fruit. Leaves broadly rounded or truncate to subemarginate at base, 4-10 by 3-9 cm.

S. ovata Backer
1. Petals present, though sometimes narrow. Calyx smooth, its lobes in mature fruit expanded or recurved.
 2. Petals linear, 13-20 by $\frac{1}{2}$ - $1\frac{1}{4}$ mm. white or lower half tinged red. Calyx tube not ribbed, inner side of sepals red. Calyx tube in fruit ribbed, $1\frac{1}{2}$ -2 cm high, under the ripe fruit the segments reflexed. Leaves obovate or oval from a cuneate base, c. 5-12 $\frac{1}{2}$ by 3-9.

S. alba J. Sm.
 2. Petals linear-lanceolate, dark red (also in dry state) 16-35 by $1\frac{1}{2}$ - $3\frac{1}{2}$ mm. Calyx tube not ribbed, inner side of sepals greenish or yellowish-white. Calyx tube in fruit flat-expanded, as are the lobes. Leaves lanceolate to oval-obovate, the base contracted or cuneate, 5-13 by 2-5 cm (S. acida L. f.)

S. caseolaris (L.) Engl.

Besides the two poor Sonneratia caseolaris collections, it is surprising that there are, in the Brisbane Herbarium, only four collections of Sonneratia alba from Queensland and the Northern Territory. They are the following:

QUEENSLAND: Cook District, : Pt. Douglas Beach, W. T. J. without number; Cooktown, W. E. Roth, dd. 30. 6. 1899. North Kennedy District: Hinchinbrook I., at Scraggy Point, S. T. Blake 18838.

NORTHERN TERRITORY: Point Stephens, Adam Bay, S. T. Blake 16953.

These localities may yield more species, as the species are often growing in the same mangrove complexes, though in slightly different niches. But there must be many other mangrove patches where Sonneratia has never been collected.

For those botanists or foresters who will respond, I hope, to my plea, I may ask also to be on the look-out for a smallish tree of the inner mangrove, with opposite, simply pinnate leaves which bear underneath in the

axils of the lateral nerves small hair-dots (domatia). This is a Bignoniaceous tree belonging to the genus Dolichandrone, of which three rare endemic inland species are known from the Northern Territory and the Gulf of Carpentaria area (4).

The mangrove species, however, D. spathacea (L. f.) K. Sch., which is extremely common and widely distributed, from India through Malasia to New Caledonia, has curiously never been found on the Australian continent. Its nocturnal flowers are very long, snow-white tubular trumpets up to 15-20 cm long; the pods are linear, 30-60 cm long, and contain very numerous, unwinged, rectangular, corky seeds which easily float. One would suppose that such a plant, with so-called "obvious, easy means of dispersal", which is common in South New Guinea, must also occur in North Australia (5).

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- (3) Balgooy, M. M. J. van: 1965, *Pacific Plant Areas* 2, *Blumea Suppl.* 5:248, map 137.
- (4) Steenis, C. G. G. J. van: 1929, a revision of the Queensland Bignoniaceae, *Proc. Roy. Soc. Queensland* 41:39-58.
- (5) Steenis, C. G. G. J. van: 1963, *Pacific Plant Areas* 1:248, map 1.

Rijksherbarium, Schelpenkade 6,
Leyden, Holland.

C. G. G. J. VAN STEENIS

My child, the Duck-billed Platypus,
A sad example sets for us.
From him we learn how indecision
Of character provokes derision.
This vacillating thing, you see,
Could not decide which he would be,
Fish, flesh, or fowl, and choose all three.
The scientists were sorely vexed
To classify him; so perplexed
Their brains, that they, with rage at bay,
Called him a horrid name one day -
A name that baffles, frights and shocks us -
Ornithorhynchus paradoxus.

Oliver Herford

(From an old newspaper cutting, source unknown.)

STOP PRESS!

IT IS PLEASING TO NOTE THAT THE GOVERNMENT HAS REFUSED
TO GRANT Mr. FORBES PERMISSION TO MINE ELLISON REEF.

SOME ASPECTS OF SOIL EROSION IN CAIRNS DISTRICT AND THE ATHERTON TABLELAND

On the steep grass-covered slopes of the hills behind Edge Hill suburb of Cairns one can see a number of roughly horizontal and parallel ridges which could be mistaken for animal tracks. These track-like ridges, or slump lines as they are called, occur mainly in heavier rainfall areas where steep slopes have been frequently burned and/or over-grazed. Many examples can be seen on the Atherton Tableland and parts of Cairns District, with particularly clear ones showing on the hills adjacent to the road to Crystal Cascades.

To arrive at the cause of this slumping, one must visualise the early days when most of the Tableland and much of Cairns district were covered in rain forest. Settlers arrived, cleared off forest here and there, established dairy herds or planted crops on the cleared areas. Felling and burning was the easiest way to clear new land, and each year before the "wet" saw fires which burned along the flats and up the slopes, encroaching gradually but surely on the rain forest. Regrowth of trees was impossible as seedlings were destroyed before they had a chance to mature. This, plus increased numbers of grazing stock, eventually denuded the country of most of its trees with the soil-binding properties of their deeply penetrating and intertwining root systems.

This is bad enough on flat land but on the steep slopes damage has been more apparent. Here, the top soil, held together only by shallow-rooting grass, tends to slip downwards when it becomes saturated by rain. Moving perhaps just a little each season the top crust of land forms into myriads of slump lines - or if you like, "wallaby tracks". In the heavy wet on the steepest slopes great chunks of earth fall away to wash down into the streams which drain the country. The Barron River with its tributaries is one of the main drainage systems of the country mentioned above and of course receives most of this earth. It is carried in suspension downstream by the flood waters.

When the speed of the flow slackens and the water loses its turbulence as it does, firstly when it reaches Tinaroo Dam and again below the dam at the wide river mouth and finally the sea, the silt is slowly deposited. At Tinaroo the water going over the dam is reasonably clear showing that most of the silt has been deposited on the floor of the dam. Below here the Barron receives much more highly mud-charged water, this time mainly run-off from farms that lose top soil each wet season and this is discharged into the sea just north of Trinity Bay. Here it meets the south-moving East Australian Current and is borne slowly along where the silt finally deposits in the first calm water it encounters, i. e. Trinity Bay. This accounts mainly for the mudflats fronting Cairns and Mission Bay. South of Cape Grafton until the next river mouth, mud-flats are replaced by sand-flats and clean sand beaches such as those seen at Turtle Bay and Kings Beach, indicating that at least the bulk of the mud brought from below Tinaroo Dam has been left behind on the Cairns waterfront.

Jack Cassels.

SPRING ON A N.S.W. WHEAT FARM

On a warm spring day at "Carramar", a wispy breeze stirred the air over paddocks covered in the shimmering yellow of the cape-weed. Down by the creek I sat on a white sandbank, shadowed by trees and enjoying the sounds of the running water and the scent of the golden wattles that grew close by. Opposite red banksias hung over the creek beside a patch of rushes. Insects hummed drowsily.

Presently, a grey shadow passed in front of my eyes. Looking up, I saw a grey form hop along a shadowy branch of a gum tree. Then lightly it flew from its hidden perch and darted out over the water to land on a twig, showing itself as a grey shrike-thrush. It eyed me speculatively, then it was gone; but from a wattle nearby came the ringing notes, pure and varied, of one of the most melodious of bush singers.

A flock of white winged choughs rowdily arrived and formed a circle round me, protesting in their shrill way, hopping from branch to branch and craning their necks inquisitively, their eyes flashing. Seeing no harm in me, they started probing bark on the trees and combing the ground thoroughly, tossing leaves about as they went. If one found something it would usually bring the others around and a great argument would ensue, with much pushing, shoving and complaining. So they made their way along the creek, often spreading their white-edged wings to glide for a few yards before alighting again. Even after they disappeared I could still hear their noisy progress.

A sound of scratching and rending of bark broke the stillness. A faint lisp-ing song came to my ears. There, hanging from a piece of bark above me, in yellow breast, white-throat and black crest and wings, was a male eastern shrike-tit, busily at work. Soon the sound of rending bark came from every direction and these small birds were flitting wherever I looked, hopping up the tree trunks or hanging upside down from strips of bark. One moment I was by myself and the next I was surrounded by them. They took no notice of me, coming right up. Then the flock vanished.

The soft cooing of doves drifted from a dark alleyway of greenery up the creek. A cormorant flew round a corner and seeing me, noisily flapped onwards. Opposite, a tall gum was covered in creamy-white blossom which attracted hosts of scolding lorilets, twittering silver-eyes, squawling friar birds and rowdy soldier birds (noisy miners). Over the wheat paddocks flocks of galahs rushed in wheeling, shrieking groups; a flick and the open country was full of pearly dove-coloured shapes; another flick and it was filled with blood-red darting bodies - a sight of which I never get tired. Small flocks of flashing green budgerigars also pelted over the paddocks or hurled themselves through the trees to seethe round on a sandbar, shrilly chattering and arguing amongst themselves. Crested pigeons padded over the white sand, bowing and cooing quaintly to each other.

To a last rousing chorus from the kookaburras, a typical spring day ended as the setting sun turned the tops of the trees to gold and the pearly-grey dusk came over the bush.

John Crowhurst