

IX. REVISION OF FICUS

Besides the importance of correct identification the revision of a large genus should add considerably to knowledge of phytogeography and of infrageneric diversification. In all respects Ficus has much to contribute. It is a genus which the collector meets in abundance in all parts of tropical Asia and Australasia, whether in primary or secondary environments, and which he soon learns to recognise. It can be exploited, therefore, provided the species can be identified. The purpose of this note is to request intensified collection, because I believe it is possible to name satisfactorily sterile material. Only too often, valuable sterile material is left uncollected, as I know from my own experience; for sooner or later it can be recognised as a positive record from some locality. Some figs, too, fruit rarely and are in consequence ill-represented, though really frequent.

When Miquel began the modern classification of the genus, he resolved a mass of inadequate description, but he failed to make keys and soon began to flounder, as his predecessors, in an excess of description. King amended the work of Miquel with perspicacity, but we have inherited another two generations of abundant description without an overall résumé. Among the newer species are many which break down the subgeneric groups of King and Miquel and which amplify the exceptions recorded by them. In other words the revision for the Flora Malesiana, which covers the region of greatest diversification of the genus, calls for a complete overhaul of the classification. Ideally all types should firstly be studied, but they are scattered, often miserable, sterile or representing either gall- or seed-figs: in my experience they are rarely sufficient for understanding a species. Alternatively the genus could be studied subgenus by subgenus, but as many descriptions are too inadequate for even subgeneric evaluation, this method does not work. Another procedure would be to borrow all material and deal with it together, but I think no institute could find the working space: roughly a thousand species have been described from the Malaysian region, and the collections of Bogor, arranged alphabetically, have 1335 sheets between A-Cal. I have had, therefore, to follow the longest route and to study the genus herbarium by herbarium, ab initio, correcting my mistakes and excesses as I proceed. I began with the Singapore material because it was backed by my own collections in alcohol from Malaya, and those of my friend C.E. Carr from Kinabalu and Papua: altogether there are about 350 good species in alcohol, which has facilitated the study of floral detail. But all these flowers, being very small, are hard to describe and need to be drawn, and that takes time. I have at last passed, I believe, the half-way,

and the second half should be quicker. Thus I am engaged with the herbaria of Leiden (thanks to a travel grant from the Leverhulme Research Fellowships), of the British Museum, Copenhagen, Manila, and Bogor; that of Kew I leave purposely to the end for final revision. But this long route brings home to me the necessity for identifying sterile material: daily I add to the bundles of such which I must carry on with me. At first, when faced with fifty sterile sheets from Celebes or New Guinea, I despaired, but with careful attention to venation and to the microscopic characters of the leaf, as shown by Renner and more recently by Mme Grambast (Rev. Gén. Bot. 61, 607-631, 1954), such puzzles resolve themselves. I have amassed about 1200 slides of leaf-structure, and am growing confident in what must be of considerable value to ecologist and plant-geographer: the identification of sterile material.

Nevertheless, it is essential to know the habit of the plant, whether a small or large, buttressed or unbuttressed tree on its own roots, or a banyan, epiphyte, climber, root-creeper, or shrub: yet such points are often omitted by collectors. The idea that species are polymorphic in this respect is largely erroneous, through misidentification, though there are exceptions. Thus, there is a gradation from F. tinctoria Forst. of Australasia through F. gibbosa Bl. to F. parasitica Willd. of India, with a variation east of Wallace's Line into F. virgata Reinw. (also known as F. laeta Dcne and F. philippinensis Miq.): the first and the last appear to be trees on their own roots, but F. gibbosa and F. parasitica are immense banyans with copious aerial roots; then, further, F. parasitica has superficial stomata whereas the others have sunken stomata: in fig and flower all are identical. I am obliged to regard them as subspecies of F. tinctoria.

Another point that often calls for field-studies, is the nature of the sapling leaves and of the bathyphylls, or leaves on the low-down shoots of climbers. Some of the early species are based on bathyphylls: thus, F. sagittata Koen. ex Vahl is the earliest name for the bathyphylls of either F. ramentacea or F. villosa. In the Philippines there is a remarkable series from the long, narrow and many-veined leaf of F. angustissima Merr. through F. cumingii Miq. and F. terminalifolia Elm. to F. multiramea Elm. with very short, few-veined leaves: their figs and flowers are identical, and I suspect that they are a series of sapling-to-adult gradations with the last as a ridge-form, yet all are fertile and F. angustissima seems to have a trilobed sapling leaf itself! F. ulmifolia, F. fiskei and F. copiosa have each their series of such problematic forms. Seedling-sapling specimens of F. ampelas Burm. are confused with those of F. montana Burm. (F. quercifolia Roxb.), and this is important because F. ampelas is widespread from New Guinea to Formosa, Palawan and Java, but is absent from

the Asiatic mainland, has been collected only in a few parts of the south and west coast of Sumatra, and is represented merely by two collections of Korthals from Borneo. F. montana, in contrast, is a species of continental Asia reaching Borneo, but all sterile collections east of Wallace's Line seem to be saplings of the F. ulmifolia-complex. It would be a great help if a series of seedling-sapling-adult specimens could be collected in each region for such variable species.

Some species are very widespread from India to New Guinea and China to Java, e.g. F. pilosa Reinw., F. lacor Ham., and F. subulata Bl., but to most Wallace's Line is a boundary. But it is probably a zoological boundary, because the dispersal of figs depends as much, if not more, on that of the fig-wasps, which appear to be highly specific. It is known that Malayan fig-species, introduced to Hawaii, failed to seed until their respective fig-wasps were introduced also, and Dr Fosberg informs me that these insects were first liberated on one island and then in a few years spread to the other islands, but this very interesting experiment seems not to have been published. It is well-known, too, that in general introduced fig-species never seed in foreign countries. I once bagged the cauliflorous figs of F. fistulosa and F. variegata with fine muslin to prevent the entrance of the fig-wasps and found that the figs failed to mature. I am very glad, therefore, to be able to record that Prof. J. van der Vecht (Fakultet Pertanian, Bogor) is taking up the study of the fig-wasps. There are several genera involved, and it is clear that the wasps have classified the figs better than the botanists. Therefore, I hope that collectors will remember that nearly all figs, other than the banyans, are dioecious and that ripe gall-figs with their insects in spirit (if possible) are needed as well as the seed-figs, and botanically the seed-figs are needed because the achene gives very important sectional characters.

It is not that the collections of figs are already too big, but that they are just getting big enough for us to want more. If I had to choose a special fig-journey it would be to Eastern Borneo and Celebes, but I would like to wander sycologically from Arabia to Fiji.

E.J.H. Corner