FLORISTIC DIVERSITY OF FORESTS ON ULTRAMAFIC ROCKS OF NEW CALEDONIA

T. JAFFRÉ, J.M.VEILLON & J.C. PINTAUD
Laboratoire de Botanique et d'Ecologie végétale, Centre ORSTOM - B.P. A5 Nouméa

The flora of dense humid forests on ultramafic rocks is compared with that over acidic and over calcareous rocks.

The flora of forests on ultramafic rocks (1361 species belonging to 400 genera in 118 families) is as rich in species but a little less diversified in genera and families, than the flora over acidic rocks (1370 species distributed among 430 genera and 128 families). It is in contrast significantly more diversified than forest floras over calcareous rocks that cover a smaller area.

Species associated with a specific forest type are more numerous on ultramafites than on acidic rocks and the genera are equal in number in both cases.

Gymnosperms with 31 species of which 19 are strictly associated with ultramafic rocks, have their greatest importance with this type of substrate. The reverse is true for the Pteridophytes.

The total number of Angiosperms is approximately the same for both ultramafic and acidic rocks, but is very variable according to families. Thus 33 Angiosperms have a greater importance in the former rock type, 36 in the latter, and 33 are equally important in both.

With exception of the Gymnosperms that are more numerous over ultramafic rocks, taxa representative of the antiquity of the New Caledonian flora have a similar importance in the two main types of forest. Nevertheless, the families Phellinaceae, Balanopaceae, Sphenostemonaceae, Oncothecaceae, and Strasburgeriaceae are better represented in forest over ultramafic rocks. The Monimiaceae, Amborellaceae, and Trimeniaceae are more important in forest over acidic rocks. The flora of forests over ultramafites is equally well distinguished from that over acidic rocks by a greater number of species in the Euphorbiaceae, Myrtaceae, Santalaceae, Epacridaceae, Fagaceae, and Casuarinaceae. The former is also characterised by a lesser number of species in the Rubiaceae, Myrsinaceae, Leguminaceae, Moraceae, and Verbenaceae.

The number of endemic taxa is greater in the flora of forests over ultramafic rocks (1122 species in 68 genera and 4 families) than in the flora of forests over acidic rocks. The percentages of endemism at the specific level are 82.4 and 76.6 respectively for these two categories of forest.

In its entirety, the flora of forests over ultramafic rocks, is a little less rich, more original, and more largely diversified in certain groups, than is the flora of forests over acidic rocks, and contributes greatly to the richness and originality of the flora of New Caledonia.