XI. THE COMPACT KEY

Here is given a sample of a new sort of identification key, recently developed by Dr. P. W. L e e n h o u t s of the Rijksherbarium. Having to sort many specimens of Sapindaceae into genera, he became dissatisfied with the common dichotomous key, which too often does not work when the material is not complete. When he had extracted the existing descriptions, tabulated the characters, and written them up horizontally, with the names in code, he found not only that in a given space it contained far more information than does a dichotomous key, but also that it worked far better. He then proceeded to devise

a synoptic key to the Malesian species of Santiria

The numbering of the species is the same as that in the Flora Malesiana revision (I, 5: 229), namely: 1 = tomentosa, 2 = mollis, 3 = grandiflora, 4 = laevigata, 5 = oblongifolia, 6 = ridleyi, 7 = conferta, (8 has been transferred to Dacryodes), 9 = apiculata, 10 = megaphylla, 11 = griffithii, 12 = rubiginosa.

If there are two leads only, the one: "a" with the fewest species is given, while the alternative: "b" is mentioned in brackets.

Numbers underlined have been mentioned under more than one lead in the same couplet; brackets mean that for the taxon with that number the character in question is unknown.

You start at a certain point in the key where there is a clear-cut character, and on a scrap of paper you scribble all the numbers given under the proper lead. Then you try other forks, crossing out more numbers until one remains.

1. Branchlets
   a. long remaining hairy: 1.5.(6).7.9 (b. glabrescent or glabrous).

2. Terminal bud
   a. up to 1 cm long: 1.2.4.(6).9.11.12.
   b. 1-2 cm long: 1.4.5.(6).10.
   c. 2-3 cm long: 3.4.(6).7.10.

3. Vascular strands in pith of branchlets
   a. present: 2.4.(6).11 (b. absent).

4. Bract-like cataphylls between the leaves
   a. present: (6).10 (b. absent).

5. Petiole at base
   a. terete or hardly flattened: 1.2.4.5.(6).9.11.12 (b. distinctly flattened to channelled).

6. Petiole, length
   a. up to 10 cm: 1.2.4.5.(6).7.9.11.12.
   b. 10-20 cm: 1.3.4.5.(6).7.9.
   c. more than 20 cm: 1.4.(6).7.10.

7. Petiolules, length
   a. up to 1 cm: 1.2.4.5.9.11.12.
   b. 1-2 cm: 1.3.4.5.7.9.10.
   c. 2-3 cm: 4.5.10.
   d. more than 3 cm: 6.

8. Leaflets, length
   a. up to 15 cm: 1.2.3.4.5.7.9.11.12.
   b. 15-20 cm: 1.3.4.5.6.7.9.10.11.
   c. 20-25 cm: 1.3.4.5.7.10.
   d. 25-35 cm: 1.3.4.7.10.
   e. more than 35 cm: 10.

9. Leaflets, width
   a. up to 5 cm: 1.2.3.4.5.7.9.11.12.
   b. 5-10 cm: 1.3.4.5.6.7.9.10.12.
   c. more than 10 cm: 1.4.10.

10. Mature leaves beneath, except midrib
   a. hairy: 1.2.3.9.11.12 (b. glabrous).

11. Number of nerves per side
   a. 15 or more: 1.3.4.5.7.10.11 (b. up to 15).

12. Panicle, total length
   a. up to 10 cm: 1.2.4.(6).7.9.(11).12.
   b. 10-20 cm: 1.2.3.4.5.(6).7.9.10.(11).12.
   c. more than 20 cm: 1.2.4.5.(6).9.10.

13. Peduncle, length
    a. up to 2 cm: 1.3.4.5.6.7.9.10.11.12.
    b. 2-5 cm: 1.2.3.4.5.9.10.11.
    c. more than 5 cm: 1.2.4.5.10.

14. Flower, length
    a. 4-10 mm: 3.(6).11 (b. 2-4 mm).

15. Calyx, height
    a. up to 1 mm: 1.4.(6).7.10.
    b. 1-3 mm: 2.3.5.(6).9.10.12.
    c. more than 3 mm: (6).11.

16. Number of fertile stamens in ♂ flower
    a. 3 + sometimes 3 staminodes: 12 (b. stamens 6).

17. Anthers (also visible under fruit!)
    a. adnate: 11.12 (b. basi- to dorsifixed).

18. Fruit, length
    a. up to 13 mm: 1.(3).4.5.6.7.9.11.12 (b. more than 13 mm).

19. Fruit, width
    a. less than 10 mm: 1.(3).4.7.9.11.12.
    b. 10-15 mm: 1.2.(3).4.5.6.7.9.10.11.
    c. more than 15 mm: 1.(3).4.5.11.

20. Stigma on fruit
    a. less than 90° excentric: 1.(3).4.5.12 (b. 90° or more excentric).

Distribution of the species: Malaya: 1.4.5.6.7.9.11.12; Sumatra: 1.4.5.7.9.11.12; Borneo: 1.2.3.4.5.7.9.10.11.12; Philippines: 1.4.9; Celebes: 4.9; Moluccas: 9; New Guinea: 12.

There are a few obvious advantages. You can begin with any character available, and this implies that inadequate material can be keyed out, too, with a maximum of speed and accuracy. Moreover, all taxa can be compared "numerically", although not in a compulsory quantitative way like in numerical taxonomy. This comparison may help to find similarities and thus assist in the grouping together of taxa at the next

higher systematic level. It urges taxonomists when they describe taxa to adhere closely to a scheme so that a better mutual comparability is achieved. This compact key, which can be gradually constructed while work in a group proceeds, can also serve as a basis for the compilation of conventional analytical keys. However, it includes diagnoses to a far greater degree of completeness than do the latter, and this is of special importance for concise floras and faunas.

The paper in question, P.W.LEENHOUTS: Keys in Biology, is published in Proc.Kon.Ned.Ak.Wet. sect.69 C, no 5 (1966) 571-596. The proposal of the new compact key is preceded by a consideration of the merits of the various sorts of key already in existence. -- Editor (M.J.).

VARIA

"The immense planetary buffer and reservoir of wilderness has shrunk in area and influence. Quite suddenly in these past 25 years and particularly since the last war there has been a shaking of confidence. The all-conquering technological man whose mind had the same characteristics as the bulldozers he employed to grow groundnuts on a prodigious scale in Tanganyika is already out of date, although the breed is highly inventive and has in no way accepted defeat. There is apparent in politicians an unsureness: they look longingly and hopefully at the extreme technological man, but now it is perhaps as well to listen also to the biologists, not merely the ones who overcome noxious insects with magical rapidity, but ecologists as well.

What do ecologists offer? No panaceas or quick returns, so much as a point of view which restrains, shows the consequences of different types of action, and possibly how mistakes in land-use can be rectified; and why they were mistakes. Ecology is a science if identifying causes and consequences."

F. F. Darling, The unity of ecology.
Repr. in Ann.Rep.Smithson.Inst. 1964 (1965) 461-476.
And very worth reading in entirety !