

### IX. THE MOUNTAIN ELEVATION EFFECT

For the Javanese mountain plants, all growing on separated volcanic peaks, it has been found before that to grow on a mountain there is for each species a critical altitude necessary of the total height (elevation) of the peak or mountain-complex.

This is best elucidated by an example: Albizia lophantha (montana) is found in Java from 1100-3100 m, but only on mountains of which the summit reaches at least 2500 m altitude. This means that it is not found on mountains of 2400 m summit height or lower, although it may descend on mountains of 2500 m summit height and higher as low down as 1100 m altitude. The elevation effect is calculated in this case as 2500 minus 1100 = 1400 m.

This fact was originally stated by Backer (1924), was checked to hold for many other Javanese mountain species by myself (1934) and in 1961 I succeeded in giving a general interpretation of this phenomenon.

If that interpretation would be true, it should have a universal validity, hence be also valid for mountain plants in non-volcanic alpine ranges. And it should not only be valid for plants but for animals as well.

It has now been tested on the Swiss alpine flora by my pupil, Mr. W. Backhuys, and - though I never doubted the outcome - it is very pleasing to find that the factual material based on the examination of some 6250 localities of 23 species of alpine plants fully corroborates the factual aspect found with the Javanese mountain plants. The general theory behind the interpretation is maintained by Backhuys. In addition, Backhuys has also found the law to hold for the distribution of a high-mountain snail in the Central European Alps (in press). The reading of Mr. Backhuys' paper is recommended to all botanists concerned with distribution of mountain plants (see Blumea 16, 1968, 273-320; in German, English summary).

#### References:

- Backer, C.A. & D.F. van Slooten: Geïllustreerd Handboek der Javaansche Theeonkruiden (1924) 119.
- Steenis, C.G.G.J. van: On the origin of the Malaysian mountain flora (Bull. Jard. Bot. Btzg III, 13, 1934, 289-518).
- : An attempt towards an explanation of the effect of mountain mass elevation (Proc. Kon. Akad. Wet. A'dam C 64, 1961, 435-442).

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