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BOOK REVIEW

TRANQUILLINI, W.: *PHYSIOLOGICAL ECOLOGY OF THE ALPINE TIMBERLINE*. Ecol. Studies 31. — Springer Verlag, Berlin—Heidelberg—New York 1979. 137 pp., 67 figs. Cloth bound DM 54.—, US \$ 29.70.

The author is a world acknowledged specialist who devoted almost all his research interest to alpine ecology, being at the same time the successor of Professor Arthur Pisek who was the founder of the ecology of alpine regions.

The comprehensive monograph brings ample data on what can be perhaps referred to as morphology and anatomy of the timberline. The main chapters deal with the ecological background of dry matter production and the main emphasis has been laid on carbon balance, which is of course a decisive factor in the question of life or death of trees in the described conditions.

Ecology of the timberline is a significant theoretical problem as it explains the physiological behaviour of plants (trees) in extreme conditions, that is in the situations where the individual ecological factors as well as their complex limit physiological processes in a very clear and expressive way. This yields at the same time an extremely suitable occasion for the study of general physiological problems.

Here we encounter the main field of interest of the author where he is doubtless unrivalled. An appreciable number of data on CO₂ balance is presented and evaluated, enabling a deep insight in what is happening where not only temperature and water factors are limiting and influencing photosynthesis and respiration processes in an unusual combination.

Here the question of resistance arises, comprising not only the obvious (though very complicated) question of frost-drought damage but the problem of stress and adaptation as well.

A well conceived synopsis enabling us to estimate the relative influence of factors on the growth and development of trees of the alpine timberline has been successfully attempted, bringing an up-to-date picture of the physiological ecology of trees on the upper border of their existence.

The book is excellently written and produced and represents a very mature and authoritative report in this field, yielding many impulses for the work of ecological physiology in general.

B. SLÁVÍK (*Praha*)