Proc. Int. Congr. Neth. Soc. Landscape Ecol., Veldhoven, 1981. Pudoc, Wageningen, 1981. DIVERSITY IN NATURE AS AN EXPRESSION OF SOCTAL AND ECONOMIC GIRCUMSTANCES

## P.J.Schroevers

Research Institute for Nature
Management. Leersum, The Netherlands

1. Richness in plants and animals is the main objective of the conservation of nature. It expresses the "optimalisation" of a landscape as an organic unity.
2. Richness is a ascale-bound feature: one and the same distribution of organisms over a landscape can, if interpreted at different levels of scale deliver completely different results (example: the tropical rain forest seen by a walker or by an aeroplane-passenger).
3. An example of scale-levels in a Dutch landscape: level 1: Díatoms on the surface of a Nymphaca-leaf.
" 2: Nymphaea-leafs in a littoral zone.
" 3: Littoral zones in a shallow lake.
" 4: Shallow lakes in a gradient between pleistocene and holocene All transitions between these levels are continuous; boundaries are arbitrary, not of essential character. A distinction between, and -diversity is without sense. The important thing is the distinction between "internal" and "external" after choosing an arbitrary scale.
4. If an area of low productivity is influenced by a slight eutrophication the system builds up barriers to avert the influence. Internal richness in species and communities increases. If the influence becomes too strong they will decrease. The statement that diversity increases during ologotrophication (maturation) is incorrect. A certain amount of external dynamics is favourable for the diversity within a certain area.
5. Both increase and decrease of productivity can diminish richness in species. We can speak of ocer- and underdevelopment of ecosystems, in analogy with economics.
6. The gneatest diversity in life conditions is found, where high and low production join. Therefore richness in these regions exceeds those of other places. High diversity aerises here most quickly, old structures remain here longest.
7. By influencing the energy-management of ecosystems man is able to change diversity. It may happen according to this scheme:

8. The flat country of The Netherlands is to be regarder as one largescale gradient with dunes, sea-marshes, peatland and pleistocene sands as its elements. This large-scale and internal rather uniform picture has been changed strongly by man according to the principles given above. Regional development -respectively overdevelopment- coupled with underdevelopment elsewhere. It gave rise to the development of gradients. Hence richness of plants and animals is to be regarded as an expression of economic circumstances.
9. Alterations during history can be regarded as alterations in scale. The same basic principles can be seen on different scale levels in which roughly five stages can be distinguished:
10. First settlements and pre-feudal structures. Ehemeric and smallscaled.
11. feudal structures of medieval times. Reclamations on village level ("es-villages", peat reclamations)
12. renaissance and development of the towns. Large polders. First "offensive" actions from the viewpoint that nature can be mastered.
13. Industrial revolution. Differentiation on regional scale (industrial development of Brabant and Twente, origin of "Randstad").
14. mondial system. The Netherlands as a whole as a developed country, with problems of overdevelopment.
15. Changes in the diversity of flora and fauna are connected with the macro-economic process of scale-enlarging. The process depends on the input of external energy and matter from outside (developing countries). The stages in the development mark the social structures and hence social relationships(hierarchic relations between people). Future strate gies concerning maintenance and development of richness in nature have to consider these connections (separation and segreration as a guide for large-scale limitations and small-scale developments).
