

Technical Report No. 4



Indicators for forest biodiversity in Europe:

Proposal for terms and definitions

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compiled by Michèle Kaennel Dobbertin



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User's guide

Objectives

This document was produced at the request of the participants of the European Concerted Action BEAR (Indicators for forest biodiversity in Europe).

Its main purpose is to provide an overview of the current variety of **definitions**¹ and of **terms**² applying to **concepts**³ relevant in the context of BEAR. In a later stage, this document may serve as a basis for BEAR partners to establish their own working **terminology**⁴.

General organisation

Most of the concepts defined here were gathered by the BEAR partners during meetings held in summer and fall 1998. Others, e.g. "species evenness" and "species richness", were added by the compiler as they are also relevant to BEAR.

¹ **Definition:** Statement which describes a concept and permits its differentiation from other concepts within a system of concepts.

² **Term:** Designation of a defined concept in a special language by a linguistic expression. A term may consist of one or more words or even contain symbols.

³ **Concept:** A unit of thought constituted through abstraction on the basis of properties common to a set of objects.

⁴ **Terminology:** Set of terms representing the system of concepts of a particular subject field.

(Source: ISO 1087: 1990 International standard: Terminology - Vocabulary)

This document consists of 117 key terms arranged and numbered in English alphabetical order. **Key terms** are English terms which were selected by the compiler to represent the concepts to be defined, for example "biodiversity".

For most key terms, there are one or several **entry terms** in English, German and/or French. For the purpose of this document, entry terms are defined as alternative designations of concepts, for example "biological diversity" or "Biodiversität", or designations of sub-concepts, for example "alpha (α) diversity".

This implies that entry terms under a given key term are not necessarily exact synonyms, as key terms may refer to quite broad concepts. For example, the German entry terms "Forst" and "Wald" cannot be used synonymously. Obviously, such discrepancies are even more marked *between* languages.

For the sake of simplicity for the user, entry terms such as "biological diversity," "Biodiversität" and "alpha (α) diversity" are all to be found under the key term "biodiversity", rather than being listed separately.

Entry and key terms in all three languages are listed in a single alphabetical index (see p. 7).

Limitations

The approach followed for the production of this document was strictly terminological, i.e. it was concerned with the systematisation and representation of concepts. This implies that e.g. *definitions* are provided for the concept of

“forest type”, but not a *list* of forest types.

The selection of definitions presented here is necessarily non-exhaustive and arbitrary, as these definitions were collected only from printed and on-line documents available to the compiler. However, all definitions found in the available sources were included, i.e. the compiler did not deliberately exclude definitions. Further inclusions of terms and/or definitions in any of the three languages (English, German, French) are possible on request.

For some of the German terms for which definitions had been requested by BEAR partners, i.e. “Wuchsgebiet” (*growth region), no equivalent terms have been identified in original documents in English (translations were excluded). One reason for this may be that these terms refer to concepts specific to German schools of thought in ecology or silviculture.

Suggestions for English equivalents – validated by a written source – and/or written sources for definitions in German are welcome, and will be included in the next version.

In the mean time, for the sake of transparency for non-German speaking users, provisional English equivalent key terms are provided to refer to these concepts. They are marked with an * and should not be used until validation is completed.

Michèle Kaennel Dobbertin
Birmensdorf, 21 October 1998

Index of terms compiled

Defined terms in English, German and French are listed alphabetically in this index.

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Standard: other entry terms

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Terms and definitions

1 abundance

528 intensity of abundance

The number of individuals per habitable site in a community. (cf. Prevalence of abundance)

Source: Begon M., Harper J.L., Townsend C.R., 1996. Ecology: Individuals, populations and communities. Third edition. Oxford, Blackwell. Pp. 1068.

527 prevalence of abundance

The proportion or percentage of habitable sites or areas in which a particular species is present.

Source: Begon M., Harper J.L., Townsend C.R., 1996. Ecology: Individuals, populations and communities. Third edition. Oxford, Blackwell. Pp. 1068.

2 *adapted species⁵

568 standortsgemäß

Standortsgemäß ist ein Baum oder Baumbestand, wenn er am Ort des Anbaus befriedigende Wuchsleistungen mit ausreichender Stabilität gegenüber abiotischen und biotischen Schadfaktoren vereint und keine nachteiligen Einflüsse auf den Standort hat.

Source: Wald und Boden. 1996. Schriftenreihe der Sächsischen Landesanstalt für Forsten 7/96.

583 standortsgemäss

= standortsgerecht.

Auch die Schreibweise ohne Genitiv-S im Wortmitte kommt vor.

Source: P. Brang (WSL Birmensdorf)

588 standortsgerecht

Auf einem Standort gedeihend und diesen nicht schädigend.

Auch die Schreibweise ohne Genitiv-S im Wortmitte kommt vor.

Source: P. Brang (WSL Birmensdorf)

3 alien species

216 alien species

Species of fish or wildlife, deliberately or accidentally introduced in an ecosystem, which [has] become permanently established; alien species often, but not always, have undesirable effects on native species; called "non-native species" in National Forest Management Act regulations (36 CFS 219)

Source: Marcot B.G., Wisdom M.H., Li H.W., Castillo G.C., 1994. Managing for featured, threatened, endangered, and sensitive species and unique habitats for ecosystem sustainability. General Technical Report PNW 329, Portland, OR, USDA Forest Service, Pacific Northwest Research Station, 39 p.

217 exotic species

[Alien species], called "non-native species" in National Forest Management Act regulations (36 CFS 219)

Source: Marcot B.G., Wisdom M.H., Li H.W., Castillo G.C., 1994. Managing for featured, threatened, endangered, and sensitive species and unique habitats for ecosystem sustainability. General Technical Report PNW 329, Portland, OR, USDA Forest Service, Pacific Northwest Research Station, 39 p.

322 hemerochore

(...) taxa imported to a certain region due to direct or indirect human action.

Source: Sukopp H., 1972. Wandel von Flora und Vegetation in Mitteleuropa unter dem Einfluss des Menschen. Ber. Ldw. 50: 112-139.

⁵ Unverified key terms are marked with *.

218 **non-native species**

Species of fish or wildlife, deliberately or accidentally introduced in an ecosystem, which [has] become permanently established; alien species often, but not always, have undesirable effects on native species; called „non-native species“ in National Forest Management Act regulations (36 CFS 219)

Source: Marcot B.G., Wisdom M.H., Li H.W., Castillo G.C., 1994. Managing for featured, threatened, endangered, and sensitive species and unique habitats for ecosystem sustainability. General Technical Report PNW 329, Portland, OR, USDA Forest Service, Pacific Northwest Research Station, 39 p.

509 **allochthon**

Von außerhalb eines bestimmten Biotops stammend, biotopfremd (fremdbürtig).

Source: Brünig E., Mayer H., 1980. Waldbauliche Terminologie. Wien, Universität für Bodenkultur. Pp. 207.
<http://efern.boku.ac.at/forex/wbterm/>

494 **Hemerochor**

(...) Sippen, die nur infolge direkter oder indirekter Mithilfe des Menschen in ein Gebiet gelangt sind.

Source: Sukopp H., 1972. Wandel von Flora und Vegetation in Mitteleuropa unter dem Einfluss des Menschen. Berichte über Landwirtschaft 50: 112-139.

484 **standortfremde Baumart**

Baumart, die von Natur aus nicht auf dem Standort wächst.

Source: Schütz J.P., Brang P., Bonfils P., Bucher H.U., 1993. Darstellung der Standortansprüche wichtiger Baumarten im Ökogramm und Gesellschaftsanschluss der Baumarten. In: Schmider P., Küper M., Tschander B., Käser B. (eds), Die Waldstandorte im Kanton Zürich. Vdf, Zürich, pp. 254-258.

502 **standortfremde Baumart**

Bei der Baumartenwahl jene Baumarten, die im Vergleich zu den standortsheimischen und standortstauglichen Baumarten ausgeschaltet werden müssen, um Produktionsverluste zu vermeiden.

Source: Brünig E., Mayer H., 1980. Waldbauliche Terminologie. Wien, Universität für Bodenkultur. Pp. 207.

<http://efern.boku.ac.at/forex/wbterm/>

583 **standortsfremd**

Auf einem Standort nicht von Natur aus vorkommend.
Auch die Schreibweise ohne Genitiv-S im Wortmitte kommt vor.

Source: P. Brang (WSL Birmensdorf)

36 **hémérochore**

(...) espèces qui n'ont pénétré dans une région que grâce à l'aide directe ou indirecte de l'homme.

Source: Sukopp H., 1972. Wandel von Flora und Vegetation in Mitteleuropa unter dem Einfluss des Menschen. Berichte über Landwirtschaft 50: 112-139.

4 **authenticity**

465 **authenticity**

Authenticity, as used here, is a reflection of the extent to which a forest corresponds to a naturally functioning forest in terms of composition and ecology.

It will often, but not always, relate to how closely a secondary forest resembles the original natural forest. However, authenticity is more concerned with present conditions than with a theoretical ‚original‘ forest. (...)

Four components are important:

- *the composition of tree species and other plant and animal species;*
- *the pattern of intraspecific variation, as shown in trees by canopy and stand structure, age-class, understory, etc;*
- *the functioning of plant and animal species in the forest;*
- *the process by which the forest changes and regenerates itself over time, as demonstrated by disturbance patterns, forest succession, etc.*

Authenticity is one of the four general forest criteria identified by WWF.

Source: Dudley N., 1996. Authenticity as a means of

7 biodiversity

5 baseline data

325 baseline data

Fundamental units of basic inventory information that are crucial for biodiversity conservation planning and management. These are both biotic and abiotic and usually include: (1) the presence and/or abundance of species and other units; (2) other dependant biotic data (e.g. plant cover for macroarthropods); (3) the appropriate influential abiotic variables, and (4) human variables.

Source: Heywood V.H., Watson R.T., Baste I. (eds), 1995. Global biodiversity assessment. Cambridge, Cambridge University Press. Pp. 1140.

6 *befitting species

490 standorttaugliche Baumart

Standortheimische bzw. standorfremde Baumart, die bis zu einem gewissen Bestockungsanteil auf einem Standort gedeiht, ohne diesen zu schädigen.

Source: Schütz J.P., Brang P., Bonfils P., Bucher H.U., 1993. Darstellung der Standortansprüche wichtiger Baumarten im Ökogramm und Gesellschaftsanschluss der Baumarten. In: Schmider P., Küper M., Tschander B., Käser B. (eds), Die Waldstandorte im Kanton Zürich. Vdf, Zürich, pp. 254-258.

585 standortstauglich

= standortsgerecht (s. „adapted species“)

Auch die Schreibweise ohne Genitiv-S im Wortmitte kommt vor.

Source: P. Brang (WSL Birmensdorf)

243 alpha (α) diversity

Alpha (α) diversity is within-area diversity, measured as the number of species occurring within an area of a given size (Huston, 1994). It therefore measures the richness of a potentially interactive assemblage of species.

Source: Bisby F.A., Coddington J., Thrope J.P., Smartt J., Hengeveld R., Edwards P.J., Duffield S.J. (lead authors), 1995. Characterization of biodiversity. In: Heywood V.H., Watson R.T., Baste I. (eds), Global biodiversity assessment. Cambridge, Cambridge University Press, pp. 21-106.

246 alpha (α) diversity

The diversity of species and the complexity of community structure in a particular forest stand or local ecosystem. Species diversity may simply be species richness (number of species) or one of several indices that combine species richness with some measure of relative commonness or rareness (species evenness), or some other measure of the relative abundance of species.

Source: Kimmins J.P., 1997. Forest ecology. 2nd ed. Upper Saddle River, NJ, Prentice Hall. Pp. 596.

244 beta (β) diversity

Beta (β) diversity was introduced by Whittaker (1960) to designate the degree of species change along a given habitat or physiographic gradient. As such it is a measure of between-area diversity. It cannot be expressed in numbers of species because it is a rate or proportion: it is normally represented in terms of the similarity index or of a species turnover rate.

Source: Bisby F.A., Coddington J., Thrope J.P., Smartt J., Hengeveld R., Edwards P.J., Duffield S.J. (lead authors), 1995. Characterization of biodiversity. In: Heywood V.H., Watson R.T., Baste I. (eds), Global biodiversity assessment. Cambridge, Cambridge University Press, pp. 21-106.

247 **beta (β) diversity**

Variation in species richness or some other measure of alpha species diversity, and of stand-level structural diversity, across a local environmental gradient such as elevation, or soil moisture and fertility gradients. The variation in measures of alpha diversity between the different ecosystem types or seral stages in a local landscape.

Source: Kimmins J.P., 1997. Forest ecology. 2nd ed. Upper Saddle River, NJ, Prentice Hall. Pp. 596.

245 **gamma (γ) diversity**

Gamma (γ) diversity is also a measure of within-area diversity; however, it usually refers to overall diversity within a large region (Cornell 1985) and its comprehension has direct connotations with dealing with biodiversity at the landscape level.

Source: Bisby F.A., Coddington J., Thrope J.P., Smartt J., Hengeveld R., Edwards P.J., Duffield S.J. (lead authors), 1995. Characterization of biodiversity. In: Heywood V.H., Watson R.T., Baste I. (eds), Global biodiversity assessment. Cambridge, Cambridge University Press, pp. 21-106.

234 **biodiversity**

Biodiversity is the totality of genes, species, and ecosystems in a region. (...) Biodiversity can be divided into three hierarchical categories - genes, species, and ecosystems- that describe quite different aspects of living systems and that scientists measure in different ways: genetic diversity (...), species diversity (...), ecosystem diversity (...).

Besides ecosystem diversity, many other expressions of biodiversity can be important. These include the relative abundance of species, the age structure of populations, the pattern of communities in a region, changes in community composition and structure over time, and even such ecological processes as predation, parasitism, and mutualism. More generally, to meet specific management or policy goals, it is often important to examine not only compositional diversity - genes, species, and ecosystems- but also diversity in ecosystem structure and function.

Source: World Resources Institute (WRI), The World Conservation Union (IUCN), United Nations Environment

Programme (UNEP), 1992. Global biodiversity strategy: guidelines for action to save, study, and use earth's biotic wealth sustainably and equitably. Washington, DC, World Resources Institute (WRI). Pp. 244.

235 **biodiversity**

Biodiversity is the total variety of life on earth. It includes all genes, species and ecosystems and the ecological processes of which they are part.

Source: Bibby C.J., Collar N.J., Crosby M.J., Heath M.F., Imboden C., Johnson T.H., Long A.J., Stattersfield A.J., Thirgood S.J., 1992. Putting biodiversity on the map: priority areas for global conservation. (2nd printing). Girton, International Council for Bird Preservation. Pp. 90.

236 **biodiversity**

Biodiversity is the property of living systems of being distinct, that is, different, unlike. The word is a contraction of Biological Diversity, i.e. the diversity of living beings. (...) Diversity is therefore not an entity, a resource, but a property, a characteristic of nature. Species, populations, certain kinds of tissues are resources, but not their diversity as such. (...)

Source: Solbrig O.T., 1994. Biodiversity: an introduction. In: Solbrig O.T., van Emden H.M., van Oordt P.G.W.H.J. (eds), Biodiversity and global change. Wallingford, CAB International, International Union of Biological Sciences, pp. 13-20.

237 **biodiversity**

The variety and variability of living organisms and the ecological complexes in which they occur; the variety of the world's species, including their genetic diversity and the assemblages they form.

Source: Reid W.V., Miller K.R., 1989. Keeping options alive: the scientific basis for conserving biodiversity. Washington, World Resources Institute. Pp. 128.

238 **biodiversity**

The variety of living organisms considered at all levels, from genetics through species, to higher taxonomic levels, and including the variety of habitats and ecosystems.

Source: Meffe G.K., Carroll C.R. (eds), 1994. Principles of conservation biology. Sunderland, Ma, Sinauer. Pp. 600.

239 biodiversity

(...) the structural and functional variety of life forms at genetic, population, species, community, and ecosystem levels.

Source: Sandlund O.T., Hindar K., Brown A. H. D. (eds), 1992. Conservation of biodiversity for sustainable development. Oslo, Scandinavian University Press. Pp. 324.

240 biodiversity

Thus we have several kinds of phenomena masquerading under the general rubric of biodiversity. There are (1) ecological diversity: the number of different sorts of organisms present in a local ecosystem; (2) genealogical diversity: the number of taxa within a monophyletic clade - for example, the number of species within a family; (3) phenotypic diversity, or the amount of variation (or differentiation) within or among populations, or within species or still larger taxa. Gould (1989) calls this latter category of diversity "disparity".

Source: Eldredge N., 1992. Where the twain meet: causal intersections between the genealogical and ecological realms. In: Eldredge N. (ed), Systematics, ecology, and the biodiversity crisis. New York, Columbia University Press, pp. 1-14.

241 biodiversity

The variety, distribution, and abundance of different plants, animals and microorganisms, the ecological functions and processes they perform, and the genetic diversity they contain at local, regional or landscape levels of analysis. Biodiversity has five principal components: (1) genetic diversity (the genetic complement of all living things); (2) taxonomic diversity (the variety of organisms); (3) ecosystem diversity (the three dimensional structures on the earth's surface, including the organisms themselves); (4) functions or ecological services (what organisms and ecosystems do for each other, their immediate surroundings, and for the

ecosphere as a whole (i.e. processes and connectedness through time and space); and (5) the abiotic matrix within which the above exists (the unity of the soil, water, air, and organisms, with each being interdependent on the continued existence of the other).

Source: Dunster K., Dunster J., 1996. Dictionary of natural resource management. Vancouver, UBC Press. Pp. 363.

242 biodiversity

(...) the simplest operational definition of biodiversity can be formulated as the ensemble and the interactions of the genetic, the species and the ecological diversity, in a given place and at a given time (...). It should be stressed that these interactions are of a hierarchical nature.

(...) In summary, hierarchy is a central phenomenon of biodiversity, and there needs to be a general theory integrating the hierarchical levels of biodiversity, how they come to be and interact. In this way biodiversity, rather than amalgamating disconnected pieces of scientific research, will become a transdisciplinary scientific field in its own, the unique trilogy of biodiversity.

Source: di Castri F., Younès T., 1995. Introduction: Biodiversity, the emergence of a new scientific field - its perspectives and constraints. In: di Castri F., Younès T. (eds), Biodiversity, science and development: towards a new partnership. Wallingford, CAB International, pp. 1-11.

326 biodiversity

The term biodiversity refers to the totality of species, populations, communities and ecosystems, both wild and domesticated, that constitute the life of any one area or of the entire planet. It is a more impressive, all-encompassing term than "nature", but it conveys a similar meaning even though it specifically includes cultural modifications of the natural world.

Source: Dasmann R.F., 1991. The importance of cultural and biological diversity. In: Oldfield M.L., Alcorn J.B. (eds), Biodiversity: culture, conservation, and ecodevelopment. Boulder, Westview Press, pp. 7-15.

327 biodiversity

... biodiversity means the variability among living organisms from all sources and the ecological systems of which they are a part; this includes diversity within species, between species and of ecosystems. Were life to occur on other planets, or living organisms to be rescued from fossils preserved millions of years ago, the concept could include these as well. It can be partitioned, so that we can talk of the biodiversity of a country, of an area, or of an ecosystem, of a group of organisms, or within a single species.

Biodiversity can be set in a time frame so that species extinctions, the disappearance of ecological associations, or the loss of genetic variants in an extant species can all be classed as losses of biodiversity. New elements of life – by mutation, by natural or artificial selection, by speciation or artificial breeding, by biotechnology, or by ecological manipulation – can similarly be viewed as additions to biodiversity.

Source: Bisby F.A., Coddington J., Thrope J.P., Smartt J., Hengeveld R., Edwards P.J., Duffield S.J. (lead authors), 1995. Characterization of biodiversity. In: Heywood V.H., Watson R.T., Baste I. (eds), *Global biodiversity assessment*. Cambridge, Cambridge University Press, pp. 21-106.

328 biodiversity

Strictly speaking the word biodiversity refers to the quality, range or extent of differences between the biological entities in a given set. In total it would thus be the diversity of all life and is a characteristic or property of nature, not an entity or a resource. But the word has also come to be used in a looser fashion for the set of diverse organisms themselves, i.e. not the diversity of all life on earth, but all life itself. (...)

For the purposes of the Global Biodiversity Assessment, biodiversity is defined as the total diversity and variability of living things and of the systems of which they are a part. This covers the total range of variation in and variability among systems and organisms, at the bioregional, landscape, ecosystem and habitat levels, at the various organismal levels down to species, population and genes. It also covers the complex sets of structural and functional relationships within and between these different levels of organization, including human action, and their origins and evolution in space and time.

Source: Heywood V.H., Baste I., Gardner K.A. (lead authors), 1995. Introduction. In: Heywood V.H., Watson R.T., Baste I. (eds), *Global biodiversity assessment*. Cambridge, Cambridge University Press, pp. 1-19.

329 biodiversity

Although there is no point in dreaming of general agreement on, or even rules for, biodiversity terminology, conceptual rigor is necessary within specific contexts.

Source: Haila V., Kouki J., 1994. The phenomenon of biodiversity in conservation biology. *Annales Zoologici Fennici* 31(1): 5-18.

330 biodiversity

Diversity of the biotic components of ecosystems at the levels of organization, such as genes, species, populations, communities (e.g. tree community or forest ecosystem) and regions (landscape ecosystems, biogeographic units) (for details see Solbrig, 1991a,b) (compare 'ecosystem'). Biodiversity is more than, but includes, species richness. It denotes the entirety of the life-forms in a system at any level. At a-level in forestry it denotes, as dominance diversity, the pattern of mixture of species within a community (evenness or unevenness of mixture) in terms of their contribution to the number of individuals or biomass of the community; at b-level it denotes the patterns of between-community diversity within a geographic unit at the scale of landscapes; at g-level it denotes differences at larger regional scale. Biodiversity at a-level and b-levels are crucially important elements of sustainable forest conservation and management. Biodiversity determines structural diversity and organizational complexity, and is the key to ecological and economic self-sustainability and sustainability of forest management.

Source: Bruenig E.F., 1996. Conservation and management of tropical rainforests: an integrated approach to sustainability. Wallingford, CAB International. Pp. 339.

331 biodiversity

In its broader definition, biodiversity is the diversity of

life in all its forms and all its levels of organization (Hunter 1990), including the ecological structures, functions, and processes at all of these levels (Society of American Foresters 1991). In an attempt to provide a more operational definition, Crow et al. (1994) have identified three broad types or subgroups of biodiversity: compositional, structural, and functional. "Compositional diversity" is the variety of items within an area, such as species in a forest stand. "Structural diversity" can be characterized by the vertical or horizontal distribution of plants, plant sizes, or age distributions. "Functional diversity" is characterized by ecological processes, such as nutrient cycling, decomposition, energy flow, and trophic-level relationships. In addition to its different types, biodiversity can also be considered at various hierarchical levels of biological organization. For example, compositional diversity can be viewed at the genetic, species, or ecosystem levels (Probst and Crow 1991).

Source: Roberts M.R., Gilliam F.S., 1995. Patterns and mechanisms of plant diversity in forested ecosystems: implications for forest management. *Ecological Applications* 5(4): 969-977.

250 biodiversity

Variation in the biotic community. Used synonymously with the term biological diversity. There are many measures of biodiversity: genetic diversity, local species richness and evenness, and local diversity in community structure (alpha diversity); variation in species richness and community structure across the local landscape (beta diversity); and changes over time in these measures of biodiversity (temporal diversity). All of these measures can occur within one landscape unit. Landscape (physical or ecological) diversity provides a framework for regional biodiversity (gamma diversity).

Some people would prefer the term to be restricted to the biological diversity of ecosystems unaltered by human activity, but the term is now so widely used it is unlikely that this will happen.

Source: Kimmins J.P., 1997. *Forest ecology*. 2nd ed. Upper Saddle River, NJ, Prentice Hall. Pp. 596.

232 biological diversity

Biological diversity (or biodiversity, as it has come to be called) refers to the variety and variability among living

organisms and the ecological complexes in which they occur. Diversity can be defined as the number of different items and their relative frequency. For biological diversity, these items are organized at many levels, ranging from chemical structures that are the molecular basis of heredity to complete ecosystems. Thus, the term encompasses different genes, species, ecosystems, and their relative abundance (OTA, 1987).

Source: Panel of the Board on Science and Technology for International Development, 1992. *Conserving biodiversity: a research agenda for development agencies*. Report of a Panel of the Board on Science and Technology for International Development U.S. National Research Council. (2nd printing). Washington, D.C., National Academy Press. Pp. 127.

253 biological diversity

The diversity of life: diversity in species, behavior, physiology, morphology, life cycles, ecological characteristics, ecological function, habitat requirements, etc.; often used interchangeably with biodiversity.

Source: Kimmins J.P., 1997. *Forest ecology*. 2nd ed. Upper Saddle River, NJ, Prentice Hall. Pp. 596.

332 biological diversity

For the purposes of this Convention:

„Biological diversity“ means the variability among living organisms from all sources including, inter alia, terrestrial, marine and other aquatic ecosystems and the ecological complexes of which they are part; this includes diversity within species, between species and of ecosystems.

Source: United Nations Environment Programme (UNEP), 1992. *Convention on Biological Diversity*. Text and annexes. Geneva, UNEP. Pp. 34.

576 Biodiversität

Die häufigste Verwendung umfasst die drei Aspekte genetische Vielfalt, Vielfalt der Arten und der Ökosysteme. Der Begriff steht damit praktisch gleichbedeutend für die Gesamtheit der belebten Natur.

Source: Brassel P., Brändli U.B. (Red.), (in press). Schweizerisches Landesforstinventar. Ergebnisse der Zweitaufnahme 1993–1995. Bern, Haupt.

38 biodiversité

Précisons que biodiversité est synonyme de diversité biologique. Sous cette notion très globale, on entend la diversité que présente le monde vivant à tous les niveaux :

- la diversité écologique ou diversité des écosystèmes ;
- la diversité spécifique ou diversité interspécifique ;
- la diversité génétique ou diversité intraspécifique.

Ces distinctions ont l'avantage de la commodité, mais il faut se garder de les considérer comme absolues. La biologie moderne tend à effacer les différences entre diversités spécifique et génétique. Et surtout, tous ces niveaux entretiennent des relations complexes, ce qui justifie l'emploi d'un mot nouveau pour désigner l'ensemble.

Source: Chauvet M., Olivier L., 1993. La biodiversité, enjeu planétaire: préserver notre patrimoine génétique. Paris, Sang de la Terre. Pp. 413.

49 diversité biologique

Concept traduit par un indice (il en existe plusieurs), destiné à évaluer, en un lieu donné, la richesse relative en espèces animales et végétales.

Source: Delpech R., Dume G., Galmiche P., Timbal J., 1985. Vocabulaire: typologie des stations forestières. Paris, Institut pour le Développement Forestier. Pp. 243.

8 bioindication

475 Akkumulationsindikatoren

Organismen, die ein bzw. mehrere Elemente und/oder Verbindungen aus ihrer Umwelt anreichern. Effekt- oder Wirkungsindikatoren [sind] Organismen, die auf eine Exposition mit einem bestimmten Element, einer Verbindung oder einer Anzahl von Stoffen mit spezifischen oder unspezifischen Effekten antworten.

Diese Effekte können Änderungen ihrer morphologischen, histologischen oder zellulären Struktur, ihrer stoffwechselfysiologisch-biochemischen Abläufe, ihrer Verhaltens oder ihrer Populationsstruktur umfassen.

Source: Markert B., Oehlmann J., Roth M., 1997. Biomonitoring von Schwermetallen - eine kritische Bestandsaufnahme. Zeitschrift für Ökologie und Naturschutz 6: 1-8.

476 aktive Bioindikatoren

Organismen, die meist aus Laborzuchten stammen und nach Exposition im Untersuchungsgebiet über einen definierten Zeitraum auf Akkumulation, spezifische oder unspezifische Effekte untersucht werden.

Source: Markert B., Oehlmann J., Roth M., 1997. Biomonitoring von Schwermetallen - eine kritische Bestandsaufnahme. Zeitschrift für Ökologie und Naturschutz 6: 1-8.

527 Bioindikator

Pflanzen und Tiere, die auf bestimmte Umwelteinflüsse besonders empfindlich reagieren. So kann z.B. der Rückgang einzelner Pflanzenarten (Flechten) oder Tierarten (Regenwürmer) Hinweise auf eine verstärkte Luftbelastung mit SO₂, Fluorverbindungen, Flugasche oder Metallstäube geben.

Source: Brünig E., Mayer H., 1980. Waldbauliche Terminologie. Wien, Universität für Bodenkultur. Pp. 207. <http://efern.boku.ac.at/forex/wbterm/>

577 Bioindikatoren

a) Arten, aus deren Vorkommen oder Eigenschaften auf andere Eigenschaften des Ökosystems geschlossen wird (TWF). Oft werden als Indikatoren bedrohte Arten (z.B. Auerwild) ausgewählt.

b) Pflanzen und Tiere, die auf bestimmte Umwelteinflüsse besonders empfindlich reagieren (WT); vgl. Indikatoren.

Source: Brassel P., Brändli U.B. (Red.), (in press). Schweizerisches Landesforstinventar. Ergebnisse der Zweitaufnahme 1993–1995. Bern, Haupt. <http://efern.boku.ac.at/forex/wbterm/>

473 **Bioindikatoren**

Organismen oder Organismengemeinschaften, deren Gehalte an bestimmten Elementen bzw. Verbindungen und/oder ihre morphologische, histologische oder zelluläre Struktur, ihre stoffwechselphysiologisch-biochemischen Abläufe, ihr Verhalten oder ihre Populationsstruktur(en) sowie Veränderungen dieser Parameter Informationen über die Quantität der Umwelt(veränderungen) ergeben.

Source: Markert B., Oehlmann J., Roth M., 1997. Biomonitoring von Schwermetallen - eine kritische Bestandsaufnahme. Zeitschrift für Ökologie und Naturschutz 6: 1-8.

480 **Biomarker**

Meßbarer biologischer Parameter auf suborganismischer (genetischer, enzymatischer, physiologischer, morphologischer) Ebene, dessen strukturelle oder funktionelle Veränderung dazu geeignet ist, Umwelteinflüsse im allgemeinen und Schadstoffeinwirkungen im besonderen qualitativ und z.T. auch quantitativ anzuzeigen.

Beispiele: Enzym- oder Substrainduktion von Cytochrom P-450 und anderer Phase-I-Enzyme durch diverse halogenierte Kohlenwasserstoffe; Inzidenz industriemelanitischer Formen als Marker für Luftverschmutzung; Hautbräunung beim Menschen durch UV-Strahlung; Veränderungen in der morphologischen, histologischen oder Ultrastruktur [sic] von Organismen oder Monitororganen (z.B. Leber, Thymus, Hoden) nach Schadstoffexposition.

Source: Markert B., Oehlmann J., Roth M., 1997. Biomonitoring von Schwermetallen - eine kritische Bestandsaufnahme. Zeitschrift für Ökologie und Naturschutz 6: 1-8.

478 **passive Bioindikatoren**

Organismen, die aus ihrem natürlichen Lebensraum entnommen und auf Akkumulation, spezifische oder unspezifische Effekte analysiert werden.

Source: Markert B., Oehlmann J., Roth M., 1997. Biomonitoring von Schwermetallen - eine kritische Bestandsaufnahme. Zeitschrift für Ökologie und Naturschutz 6: 1-8.

9 **biomonitoring**

474 **Akkumulationsmonitoren**

Organismen, die ein bzw. mehrere Elemente und/oder Verbindungen aus ihrer Umwelt anreichern. Effekt- oder Wirkungsmonitoren [sind] Organismen, die auf eine Exposition mit einem bestimmten Element, einer Verbindung oder einer Anzahl von Stoffen mit spezifischen oder unspezifischen Effekten antworten. Diese Effekte können Änderungen ihrer morphologischen, histologischen oder zellulären Struktur, ihrer stoffwechselphysiologisch-biochemischen Abläufe, ihrer Verhaltens oder ihrer Populationsstruktur umfassen.

Source: Markert B., Oehlmann J., Roth M., 1997. Biomonitoring von Schwermetallen - eine kritische Bestandsaufnahme. Zeitschrift für Ökologie und Naturschutz 6: 1-8.

477 **aktive Biomonitorer**

Organismen, die meist aus Laborzuchten stammen und nach Exposition im Untersuchungsgebiet über einen definierten Zeitraum auf Akkumulation, spezifische oder unspezifische Effekte untersucht werden.

Source: Markert B., Oehlmann J., Roth M., 1997. Biomonitoring von Schwermetallen - eine kritische Bestandsaufnahme. Zeitschrift für Ökologie und Naturschutz 6: 1-8.

472 **Biomonitorer**

Organismen oder Organismengemeinschaften, deren Gehalte an bestimmten Elementen oder Verbindungen und/oder ihre morphologische, histologische oder zelluläre Struktur, ihre stoffwechselphysiologisch-biochemischen Abläufe, ihr Verhalten oder ihre Populationsstruktur(en) sowie Veränderungen dieser Parameter Informationen über die Quantität der Qualität [sic] der Umwelt(veränderungen) ergeben.

Source: Markert B., Oehlmann J., Roth M., 1997. Biomonitoring von Schwermetallen - eine kritische Bestandsaufnahme. Zeitschrift für Ökologie und Naturschutz 6: 1-8.

479 **passive Biomonitoren**

Organismen, die aus ihrem natürlichen Lebensraum entnommen und auf Akkumulation, spezifische oder unspezifische Effekte analysiert werden.

Source: Markert B., Oehlmann J., Roth M., 1997. Biomonitoring von Schwermetallen - eine kritische Bestandsaufnahme. Zeitschrift für Ökologie und Naturschutz 6: 1-8.

10 **centre of diversity**

333 **centre of diversity**

An area with a high number of species, which might be recognized on a global, regional or local scale.

Source: Heywood V.H., Watson R.T., Baste I. (eds), 1995. Global biodiversity assessment. Cambridge, Cambridge University Press. Pp. 1140.

11 **character species**

192 **character species**

Indicator of qualitatively defined community type.

Source: Colinvaux P.A., 1993. Ecology 2. 2nd ed. New York, Wiley. Pp. 688.

261 **character species**

A plant species that is largely restricted to, and is indicative of, a particular plant association or vegetation or ecosystem unit under consideration.

Source: Kimmins J.P., 1997. Forest ecology. 2nd ed. Upper Saddle River, NJ, Prentice Hall. Pp. 596.

469 **Charakterart**

Nach allen Richtungen differenzierende Arten sind die sog. Kennarten oder Charakterarten (Braun-Blanquet 1951). Diese Charakter- oder Kennarten sind in 3 Stufen

zu unterteilen:

- **treu:** ausschließlich oder nahezu ausschließlich an eine Gesellschaft gebunden;
- **fest:** ARten mit deutlicher Bindung, eine bestimmte Gesellschaft bevorzugend, aber auch in anderen Gesellschaften, wenn auch mehr oder weniger spärlich, vorhanden;
- **hold:** in mehreren Gesellschaften \pm reichlich vertreten, aber unter Bevorzugung einer bestimmten Gesellschaft.

Source: Winkler S., 1980. Einführung in die Pflanzenökologie. Stuttgart, Gustav Fischer Verlag. Pp. 256.

468 **Charakterart**

(...) Arte[n], die nur auf diese eine Einheit beschränkt [ist] und in allen anderen fehlen oder schlechter [gedeiht].

Source: Ellenberg H., Klötzli F., 1972. Waldgesellschaften und Waldstandorte der Schweiz. Mitteilungen EAFV 48: 587-930.

531 **Charakterart**

Pflanzensoziologischer und tierökologischer Begriff für Arten, die in einem größeren Gebiet ganz oder vorzugsweise in einer bestimmten Pflanzenassoziation oder einem bestimmten Biotoptyp vorkommen und in anderen Gesellschaften weitgehend fehlen.

Source: Brünig E., Mayer H., 1980. Waldbauliche Terminologie. Wien, Universität für Bodenkultur. Pp. 207. <http://efern.boku.ac.at/forex/wbterm/>

470 **Kennart**

Nach allen Richtungen differenzierende Arten sind die sog. Kennarten oder Charakterarten (Braun-Blanquet 1951). Diese Charakter- oder Kennarten sind in 3 Stufen zu unterteilen:

- **treu:** ausschließlich oder nahezu ausschließlich an eine Gesellschaft gebunden;
- **fest:** Arten mit deutlicher Bindung, eine bestimmte Gesellschaft bevorzugend, aber auch in anderen Gesellschaften, wenn auch mehr oder weniger spärlich, vorhanden;
- **hold:** in mehreren Gesellschaften \pm reichlich vertreten, aber unter Bevorzugung einer bestimmten Gesellschaft.

Source: Winkler S., 1980. Einführung in die Pflanzenökologie. Stuttgart, Gustav Fischer Verlag. Pp. 256.

35 espèce caractéristique

(...) espèce qui [n'est] propre qu'à [une] seule unité et manque – ou réussit plus mal – chez toutes les autres.

Source: Ellenberg H., Klötzli F., 1972. Waldgesellschaften und Waldstandorte der Schweiz. Mitteilungen EAFV 48: 587-930.

12 climax

262 climax

The end point of autogenic succession: the final seral stage in a sere. A self-replacing community that is relatively stable over several generations of the dominant plant species, or very persistent in comparison with other seral stages. The character of the climax community depends on the frequency and intensity of ecosystem disturbance relative to the rate of autogenic succession for the site. In many humid parts of the world, forests are the climax vegetation. In some northern and high elevation forests, or in very cool humid areas, closed forest is not the climax condition. Sphagnum bog (muskeg) or open woodland dominated by ericaceous shrubs is the climax in the very long-term absence of disturbance.

Source: Kimmins J.P., 1997. Forest ecology. 2nd ed. Upper Saddle River, NJ, Prentice Hall. Pp. 596.

541 Klimax

Die oder der Klimax ist eine abstrakte Pflanzengesellschaft, die den gegebenen Umweltbedingungen (Klima, Boden, Topographie, biotische Faktoren, Mensch) optimal angepaßt ist und sich daher dauernd erhält. Die Klimax ist die relativ stabile Optimalphase, das Endstadium der Vegetationsentwicklung, das unter den gegebenen Klimabedingungen erreichbar ist, z.B. Steppe, sommergrüner Laubwald, Eichen-Hainbuchenwald. Die Entwicklung kann eine primäre oder sekundäre Sukzession sein.

Es werden unterschieden: klimatischer, physiognomischer edaphischer und biologischer Klimax. Der Klimax ist produktionsökologisch nicht der Optimalzustand maximaler Produktivität, der meist weit vor dem Klimaxzustand liegt. Die Klimaxpflanzengesellschaft besitzt aber häufig den höchsten Grad von Diversität innerhalb von Beständen (α -Diversität) und den niedrigsten zwischen Beständen (β -Diversität). Die Bezeichnung Klimax wird meist auf die Assoziation der Schlußgesellschaft begründet, d.h. auf die (bestandesstrukturell) relativ instabile und selten völlig erreichte Endphase (Zerfallsphase) der Sukzessionsentwicklung.

In Wirklichkeit wird durch vielfältige Umwelteinwirkungen und die Einmaligkeit jedes einzelnen Standortes die Entwicklung in unterschiedliche Richtungen gelenkt (Klimaxgruppe statt des hypothetischen Monoklimax) und in der Regel vor Erreichen der Schlußphase wieder rückgängig oder vorübergehend fixiert (arrested).

Source: Brünig E., Mayer H., 1980. Waldbauliche Terminologie. Wien, Universität für Bodenkultur. Pp. 207. <http://efem.boku.ac.at/forex/wbterm/>

13 community

264 community

The assemblage of living organisms (plants, animals, microbes) that interact with each other in energy flow and nutrient cycling processes in an ecosystem. The biotic component of a particular ecosystem.

Source: Kimmins J.P., 1997. Forest ecology. 2nd ed. Upper Saddle River, NJ, Prentice Hall. Pp. 596.

429 community

All the organisms that live in a given habitat and affect one another as part of the food web or through their various influences on the physical environment.

Source: Heywood V.H., Watson R.T., Baste I. (eds), 1995. Global biodiversity assessment. Cambridge, Cambridge University Press. Pp. 1140.

14 condition indicator

335 condition indicator

A characteristic of the environment that provides quantitative estimates of the state of ecological resources and is conceptually tied to a value.

(New term 1993; replaces environmental indicator.)

Source: Environmental Monitoring and Assessment Program (EMAP). Master Glossary [online]. Updated 09/15/97 [cited 1998-08-31]. Available from World Wide Web:

<<http://www.epa.gov/emfjulte/html/glossary.html>>

15 continuum

195 continuum

Community unit describing changing species composition along a gradient.

Source: Colinvaux P.A., 1993. Ecology 2. 2nd ed. New York, Wiley. Pp. 688.

202 continuum

Generally refers to a continuous gradient, but specifically when associated with the definite article, it refers to an aspect of vegetation science. A conceptual view of patterns of variability in vegetation wherein there is compositional continuity along environmental gradients. The environmental gradient may not be geographically continuous and may demand piecing together geographically disjunct representatives of intermediate environmental conditions. Also seen as causal of the presumed vegetation continuum is the gradual and continuous process of species invasion and population demise.

Source: Allen T.F.H., Starr T.B., 1982. Hierarchy. Perspectives for ecological complexity. Chicago, University of Chicago Press. Pp. 310.

267 continuum

Variation in species composition along an environmental

gradient in which there is no obvious grouping or association of species. Each species is distributed along the gradient solely in response to its genetically controlled tolerances to, and requirements for, factors of the environment.

Source: Kimmins J.P., 1997. Forest ecology. 2nd ed. Upper Saddle River, NJ, Prentice Hall. Pp. 596.

47 continuum (de végétation)

Végétation dont la composition floristique varie d'une manière continue et très progressive, au sein de laquelle il serait impossible de distinguer, sans étude floristico-statistique préalable, des individus d'association.

Source: Delpech R., Dume G., Galmiche P., Timbal J., 1985. Vocabulaire: typologie des stations forestières. Paris, Institut pour le Développement Forestier. Pp. 243.

16 criterion

336 criteria

[Plural] The broad forest values that society seeks to maintain.

Source: Montreal Process Implementation Group, 1998. A framework of regional (sub-national) level criteria and indicators of sustainable forest management in Australia. Canberra, Commonwealth of Australia. Pp. 108.

337 criterion

A criterion is a state or aspect of the dynamic process of the forest ecosystem, or a state of the interacting social system, which should be in place as a result of adherence to a principle of sustainable forest management (or well managed forest). The way criteria are formulated should give rise to a verdict on the degree of compliance in an actual situation.

Source: van Bueren E.M.L., Blom E.M., 1997. Hierarchical framework for the formulation of sustainable forest management standards. Leiden, The Netherlands, Backhuys Publishers. Pp. 82.

338 **criterion**

A category of conditions or processes by which sustainable forest management may be assessed. A criterion is characterized by a set of related indicators which are monitored periodically to assess change. (Montreal process)

Source: Granholm H., Vähänen T., Sahlberg S. (compilers), 1996. Background document. Intergovernmental Seminar on Criteria and Indicators for Sustainable Forest Management, August 19-22, 1996, Helsinki. Helsinki, Ministry of Agriculture and Forestry, Intergovernmental Seminar on Criteria and Indicators for Sustainable Forest Management. Pp. 131.

339 **criterion**

Corresponds to an element of sustainability in regard to which forest management can be evaluated (Tarapoto process)

Source: Granholm H., Vähänen T., Sahlberg S. (compilers), 1996. Background document. Intergovernmental Seminar on Criteria and Indicators for Sustainable Forest Management, August 19-22, 1996, Helsinki. Helsinki, Ministry of Agriculture and Forestry, Intergovernmental Seminar on Criteria and Indicators for Sustainable Forest Management. Pp. 131.

17 **critical species**

340 **critical species**

50% probability of extinction within 5 years or 2 generations, whichever is longer. (See „Extinction risk“)

Source: Mace G.M., Lande R., 1995. Assessing extinction threats: toward a reevaluation of IUCN threatened species categories. In: Ehrenfeld D. (ed), To preserve biodiversity: an overview. Cambridge, Massachusetts, Blackwell Science, pp. 51-60.

39 **espèce critique**

Probabilité d'extinction en 5 ans, ou deux générations au maximum, de 50%. (Voir „Extinction risk“)

Source: Aird P.L., 1994. Conservation for the sustainable development of forests worldwide - a compendium of

concepts and terms. Forestry Chronicle 70(6): 666-674.

18 ***differential species**

532 **Differentialart**

Pflanzensoziologischer und tierökologischer Begriff für die sich in ihrem Vorkommen in einem bestimmten Gebiet fast oder ganz ausschließenden (d.h. ökologisch vikariierenden) Arten. Sie dienen zur Unterscheidung und Kennzeichnung nahe verwandter Pflanzengesellschaften bzw. Lebensgemeinschaften.

Source: Brünig E., Mayer H., 1980. Waldbauliche Terminologie. Wien, Universität für Bodenkultur. Pp. 207. <http://efern.boku.ac.at/forex/wbterm/>

19 **disturbance**

206 **disturbance**

An event that causes a significant change from the normal pattern in an ecological system.

Source: Forman R.T.T., Godron M., 1986. Landscape ecology. New York, Wiley. Pp. 619.

444 **disturbance**

A discrete event, either natural or human-induced, that causes a change in the existing condition of an ecological system.

Source: British Columbia Forest Service, March 1997: Glossary of Forestry Terms. Available from the World Wide Web: <http://www.for.gov.bc.ca/pab/publctns/glossary/GLOSSARY.HTM>. Cited 01-Oct-98

502 **disturbance**

In community ecology, an event that removes organisms and opens up space which can be colonized by

individuals of the same or different species.

Source: Begon M., Harper J.L., Townsend C.R., 1996. Ecology: Individuals, populations and communities. Third edition. Oxford, Blackwell. Pp. 1068.

521 disturbance

An event that significantly alters the pattern of variation in the structure or function of a system.

Usually this refers to natural phenomena, and „human activity“ is used instead of „human disturbance“.

Source: Forman R.T.T., 1995. Land mosaics. The ecology of landscapes and regions. Cambridge, Cambridge University Press. Pp. 632.

20 disturbance patch

205 disturbance patch

An area that has been disturbed within a matrix.

Source: Forman R.T.T., Godron M., 1986. Landscape ecology. New York, Wiley. Pp. 619.

21 disturbance regime

488 set of disturbance regimes

The intensities, frequencies, and types of perturbations (disturbances) characterizing each ecosystem type in a cluster of ecosystem types.

Source: Forman R.T.T., Godron M., 1986. Landscape ecology. New York, Wiley. Pp. 619.

522 natural disturbance regime

Natural disturbances fall into two categories: abiotic and biotic. (...) The characteristics of these natural disturbance agents combine to define a natural disturbance regime based on the area affected, the return

interval, and the magnitude of the disturbances.

Source: Parminter J., 1998. Natural disturbance ecology. In: J. Voller, S. Harrison (eds), Conservation biology principles for forested landscapes. Vancouver, UBC, pp. 3-41.

22 ecological diversity

272 ecological diversity

Variation in the physical characteristics of ecosystems across a landscape caused by variations in soil, slope, aspect, elevation, climate, and geology, and the accompanying variation in biotic communities. Ecological diversity provides the ecological framework within which biological diversity develops. Much of the biological diversity across landscapes is a direct reflection of ecological diversity.

Source: Kimmins J.P., 1997. Forest ecology. 2nd ed. Upper Saddle River, NJ, Prentice Hall. Pp. 596.

23 ecological integrity

342 ecological integrity

The quality of a natural unmanaged or managed ecosystem in which the natural ecological processes are sustained, with genetic, species and ecosystem diversity assured for the future.

Source: Aird P.L., 1994. Conservation for the sustainable development of forests worldwide - a compendium of concepts and terms. Forestry Chronicle 70(6): 666-674.

525 ecosystem integrity

The maintenance of an ecosystem within the range of conditions or seral stages in which the processes of autogenic succession operate normally to return the ecosystem to, or toward, its predisturbance condition. Ecosystem integrity is very different from the integrity of a particular seral stage or condition, such as the integrity of the old growth condition. An ecosystem that

has been regressed from an old growth condition to an earlier seral stage may not have experienced any loss of ecosystem integrity, but there will have been a loss in the integrity of the old growth condition of that ecosystem.

Source: Kimmins J.P., 1997. Forest ecology. 2nd ed. Upper Saddle River, NJ, Prentice Hall. Pp. 596.

37 **intégrité écologique**

Qualité d'un écosystème naturel aménagé ou non où se produisent des phénomènes écologiques naturels et où la diversité génétique, spécifique et écosystémique est assurée pour l'avenir.

Source: Aird P.L., 1994. Conservation for the sustainable development of forests worldwide - a compendium of concepts and terms. Forestry Chronicle 70(6): 666-674.

40 **intégrité écologique d'un écosystème**

= intégrité écologique

Source: Aird P.L., 1994. Conservation for the sustainable development of forests worldwide - a compendium of concepts and terms. Forestry Chronicle 70(6): 666-674.

24 ecosystem

343 **ecosystem**

The aggregate of all living organisms and their interactions with each other and the non-living parts of the environment for a defined place or kind of habitat.

Source: Montreal Process Implementation Group, 1998. A framework of regional (sub-national) level criteria and indicators of sustainable forest management in Australia. Canberra, Commonwealth of Australia. Pp. 108.

344 **ecosystem**

A dynamic complex of plant, animal, fungal, and micro-organism communities and their associated non-living environment interacting as an ecological unit; the

organisms living in a given environment, such as a tropical forest or a lake, and the physical part of the environment that impinges on them.

Source: Heywood V.H., Watson R.T., Baste I. (eds), 1995. Global biodiversity assessment. Cambridge, Cambridge University Press. Pp. 1140.

443 **ecosystem**

A functional unit consisting of all the living organisms (plants, animals, and microbes) in a given area, and all the non-living physical and chemical factors of their environment, linked together through nutrient cycling and energy flow. An ecosystem can be of any size-a log, pond, field, forest, or the earth's biosphere-but it always functions as a whole unit. Ecosystems are commonly described according to the major type of vegetation, for example, forest ecosystem, old-growth ecosystem, or range ecosystem.

Source: British Columbia Forest Service, March 1997: Glossary of Forestry Terms. Available from the World Wide Web:

<http://www.for.gov.bc.ca/pab/publctns/glossary/GLOSSARY.HTM>. Cited 01-Oct-98

524 **ecosystem**

An ecological system composed of living organisms (plants, animals, and microbes) and their nonliving environment (climate and soil in the case of terrestrial ecosystems; aqueous environment and substrate in aquatic ecosystems). To be an ecosystem, these components must be spatially arranged and have the appropriate interactions that lead to the capture and storage of energy as biomass, a trophic structure, a circulation of nutrients, and change over time (ecological succession). Ecosystems are characterized by five major attributes: structure, function, complexity, interaction of the components, and change over time.

Source: Kimmins J.P., 1997. Forest ecology. 2nd ed. Upper Saddle River, NJ, Prentice Hall. Pp. 596.

25 ecosystem site type

276 ecosystem site type

A specific type of ecosystem, characterized by relatively homogeneous soil conditions, microclimatic conditions, a characteristic climax plant association, and associated animals and microbes. Generally the smallest, most homogeneous unit of ecosystem classification. A subdivision of an ecosystem (site) association according to variation in soil condition.

Source: Kimmins J.P., 1997. Forest ecology. 2nd ed. Upper Saddle River, NJ, Prentice Hall. Pp. 596.

26 edge effect

345 edge effect

Processes that characterize habitat fragmentation and the concomitant creation of edges.

Source: Heywood V.H., Watson R.T., Baste I. (eds), 1995. Global biodiversity assessment. Cambridge, Cambridge University Press. Pp. 1140.

536 Grenzlinienwirkung

Meist günstige Wirkung von Grenzbereichen benachbarter-unterschiedlicher Biotoptypen auf die Besiedlungsmöglichkeit für Wildtiere (z.B. Wald- oder Bestandesränder, Wald-Wiesen- und Feld-Brachland-Grenzbereiche). Da die Habitat-Ansprüche vieler Wildtierarten nicht in einem Biotop (-typ) befriedigt werden können, sondern nur in verschiedenen (z.B. Äsung auf Frei- oder Verjüngungsflächen, Deckung in Dickungen, Suhlen in sumpfigem Gelände, usw.), ist insbesondere für standortstreue, revierbildende Wildarten (wie z.B. Rehwild, Auerwild, viele Singvögel) die Tragfähigkeit eines Verbreitungsgebietes um so höher, je vielfältiger die Gemengelage der hauptsächlich von ihnen genutzten Vegetationsgesellschaften bzw. Biotope ist. Wo immer zwei unterschiedliche Biotoptypen aneinandergrenzen, bildet der Grenzlinien oder Randzonenbereich dieser beiden ein insgesamt günstigeres Wildtierhabitat als

jeder dieser noch so günstigen Biotope für sich allein genommen.

Source: Brünig E., Mayer H., 1980. Waldbauliche Terminologie. Wien, Universität für Bodenkultur. Pp. 207. <http://efern.boku.ac.at/forex/wbterm/>

537 Randzonenwirkung

Source: Brünig E., Mayer H., 1980. Waldbauliche Terminologie. Wien, Universität für Bodenkultur. Pp. 207. <http://efern.boku.ac.at/forex/wbterm/>

27 endangered habitat

461 threatened or endangered habitats

Ecosystems that are:

- restricted in their distribution over a natural landscape (e.g., freshwater wetlands within certain biogeoclimatic) or are restricted to a specific geographic area or a particular type of local environment; or
- ecosystems that were previously widespread or common but now occur over a much smaller area due to extensive disturbance or complete destruction by such practices as intensive harvesting or grazing by introduced species, hydro projects, dyking, and agricultural conversion.

Source: British Columbia Forest Service, March 1997: Glossary of Forestry Terms. Available from the World Wide Web:

<http://www.for.gov.bc.ca/pab/publctns/glossary/GLOSSARY.HTM>. Cited 01-Oct-98

28 endangered species

346 endangered species

20% probability of extinction within 20 years or 10 generations, whichever is longer.

Source: Mace G.M., Lande R., 1995. Assessing extinction threats: toward a reevaluation of IUCN threatened species

categories. In: Ehrenfeld D. (ed), To preserve biodiversity: an overview. Cambridge, Massachusetts, Blackwell Science, pp. 51-60.

347 **endangered species**

Taxa in danger of extinction and whose survival is unlikely if the causal factors continue operating. Included are taxa whose numbers have been reduced to a critical level or whose habitats have been so drastically reduced that they are deemed to be in immediate danger of extinction. Also included are taxa that may be extinct but have definitely been seen in the wild in the past 50 years.

Source: UCN Conservation Monitoring Centre, Cambridge U.K. (compiler), 1994. IUCN red list of threatened animals. Gland, IUCN.

348 **endangered species**

Species in danger of extinction and whose survival is unlikely if causal factors continue operating.

Source: Montreal Process Implementation Group, 1998. A framework of regional (sub-national) level criteria and indicators of sustainable forest management in Australia. Canberra, Commonwealth of Australia. Pp. 108.

462 **threatened or endangered species**

Species identified as red listed by the Ministry of Environment, Lands and Parks; these are indigenous species that are either threatened or endangered.

Source: British Columbia Forest Service, March 1997: Glossary of Forestry Terms. Available from the World Wide Web:
<http://www.for.gov.bc.ca/pab/publctns/glossary/GLOSSARY.HTM>. Cited 01-Oct-98

29 endemic species

349 **endemic species**

A species originating in, or belonging to, a particular region.

Both „endemic“ and „indigenous“ are the adjectives preferred over „native“.

Source: Aird P.L., 1994. Conservation for the sustainable development of forests worldwide - a compendium of concepts and terms. Forestry Chronicle 70(6): 666-674.

508 **autochthon**

Bodenständig, biotopeigen, indigen im selben Gebiet oder Biotop entstanden.

Source: Brünig E., Mayer H., 1980. Waldbauliche Terminologie. Wien, Universität für Bodenkultur. Pp. 207.
<http://efern.boku.ac.at/forex/wbterm/>

377 **indigenous species**

A species originating in, or belonging to, a particular region.

Both „endemic“ and „indigenous“ are the adjectives preferred over „native“.

Source: Aird P.L., 1994. Conservation for the sustainable development of forests worldwide - a compendium of concepts and terms. Forestry Chronicle 70(6): 666-674.

378 **indigenous species**

Species or genotypes which have evolved in the same area, region or biotope and are adapted to the specific ecological conditions predominant at the time of establishment.

Source: Loiskekosti M., Halko L. (eds), 1993. Ministerial Conference on the Protection of Forests in Europe, 16-17 June 1993 in Helsinki. European list of criteria and most suitable quantitative indicators. Helsinki, Ministry of Agriculture and Forestry. Pp. 20.

390 **native species**

A species originating in, or belonging to, a particular region.

Both „endemic“ and „indigenous“ are the adjectives preferred over „native“.

Source: Aird P.L., 1994. Conservation for the sustainable development of forests worldwide - a compendium of concepts and terms. Forestry Chronicle 70(6): 666-674.

489 **standortheimische Baumart**

Baumart, die von Natur aus auf einem Standort vorkommt.

Source: Schütz J.P., Brang P., Bonfils P., Bucher H.U., 1993. Darstellung der Standortansprüche wichtiger Baumarten im Ökogramm und Gesellschaftsanschluss der Baumarten. In: Schmider P., Küper M., Tschander B., Käser B. (eds), Die Waldstandorte im Kanton Zürich. Vdf, Zürich, pp. 254-258.

584 **standortsheimisch**

Auf einem Standort von Natur aus vorkommend.

Auch die Schreibweise ohne Genitiv-S in Wortmitte kommt vor.

Source: P. Brang (WSL Birmensdorf)

30 environmental resource patch

207 **environmental resource patch**

An area where environmental resources, such as soil moisture or rock type, differ from the surrounding matrix.

Source: Forman R.T.T., Godron M., 1986. Landscape ecology. New York, Wiley. Pp. 619.

31 equilibrium

519 **competitive equilibrium**

A persistent coexistence of species resulting directly from competition.

Source: Forman R.T.T., Godron M., 1986. Landscape ecology. New York, Wiley. Pp. 619.

431 **equilibrium theory**

Theory that suggests that under natural circumstances,

species addition and loss are balanced, and furthermore, that displacement from the equilibrium value results in changes in speciation or extinction rate that tend to restore the system to its equilibrium rate.

Source: Heywood V.H., Watson R.T., Baste I. (eds), 1995. Global biodiversity assessment. Cambridge, Cambridge University Press. Pp. 1140.

529 **biozönotisches Gleichgewicht**

Das dynamische Abhängigkeits- und Wirkungsgefüge in einer Lebensgemeinschaft (Biozönose), das trotz der Bevölkerungsschwankungen der einzelnen Arten oder anderer Störfaktoren die Stabilität des Gesamtsystems erhält, solange nicht grundsätzliche Milieuänderungen eintreten; vgl. Biologisches Gleichgewicht.

Source: Brünig E., Mayer H., 1980. Waldbauliche Terminologie. Wien, Universität für Bodenkultur. Pp. 207. <http://efern.boku.ac.at/forex/wbterm/>

434 **non-equilibrium theory**

Suggests that the number of species increases or decreases depending on how the environment influences species production, exchange and extinction at any particular time.

Source: Heywood V.H., Watson R.T., Baste I. (eds), 1995. Global biodiversity assessment. Cambridge, Cambridge University Press. Pp. 1140.

513 **unstable equilibrium**

In an ecological context, a level of a population, or populations, or of resources, from which slight displacements lead to larger displacements.

Source: Begon M., Harper J.L., Townsend C.R., 1996. Ecology: Individuals, populations and communities. Third edition. Oxford, Blackwell. Pp. 1068.

32 extinct species

351 extinct species

Species not definitely located in the wild during the past 50 years.

Source: UCN Conservation Monitoring Centre, Cambridge U.K. (compiler), 1994. IUCN red list of threatened animals. Gland, IUCN.

33 extinction

352 extinction

The termination of a species caused by failure to reproduce and death of all remaining members of the species.

Source: Aird P.L., 1994. Conservation for the sustainable development of forests worldwide - a compendium of concepts and terms. Forestry Chronicle 70(6): 666-674.

353 extinction

The death of any lineages of organisms. Extinction can be local, (when it is known as extirpation) in which one population of a given species vanishes while others survive elsewhere, or total, in which all its populations vanish.

Source: Heywood V.H., Watson R.T., Baste I. (eds), 1995. Global biodiversity assessment. Cambridge, Cambridge University Press. Pp. 1140.

34 extinction risk

354 extinction risk

The risk of premature extinction may be defined in terms of the probability of extinction within a specific time period. It is based on the theory of extinction times for single populations and on meaningful time scales for conservation action. Three categories are defined on the basis of decreasing probabilities of extinction risk over

increasing time periods: critical species, endangered species, vulnerable species.

Source: Aird P.L., 1994. Conservation for the sustainable development of forests worldwide - a compendium of concepts and terms. Forestry Chronicle 70(6): 666-674.

35 extirpation

355 extirpation

Local extinction; a species or subspecies disappearing from a locality or region without becoming extinct throughout its range (McNeely et al. 1990).

Source: Aird P.L., 1994. Conservation for the sustainable development of forests worldwide - a compendium of concepts and terms. Forestry Chronicle 70(6): 666-674.

36 flagship species

221 flagship species

A highly charismatic species, typically a large-bodied mammal or bird, that is in some peril of extirpation and that can be managed so as to also provide habitats and resources for other species; compare with umbrella species.

Source: Marcot B.G., Wisdom M.H., Li H.W., Castillo G.C., 1994. Managing for featured, threatened, endangered, and sensitive species and unique habitats for ecosystem sustainability. General Technical Report PNW 329, Portland, OR, USDA Forest Service, Pacific Northwest Research Station, 39 p.

356 flagship species

Popular, charismatic species that serves as symbol and rallying point to stimulate conservation awareness and action.

Source: Heywood V.H., Watson R.T., Baste I. (eds), 1995. Global biodiversity assessment. Cambridge, Cambridge University Press. Pp. 1140.

37 forest

See Appendix 1 for additional definitions.

180 forest

1. Ecology: Generally, an ecosystem characterized by a more or less dense and extensive tree cover. More particularly, a plant community predominantly of trees and other woody vegetation, growing more or less closely together.

2. Silviculture/Forest management: An area managed for the production of timber and other forest produce, or maintained under woody vegetation for such indirect benefits as the protection of watersheds, the provision of recreation areas, or the preservation of natural habitat.

Source: Policy and Economics Directorate Forestry Canada / Direction Générale des politiques et de l'Économie, Forêts Canada, 1992. *Silvicultural terms in Canada / Terminologie de la sylviculture au Canada* (trad. et adapté de la version anglaise). Ottawa, Science and Sustainable Development Directorate, Forestry Canada. Pp. 74.

184 forest

An ecosystem characterized by a more or less dense and extensive tree cover often consisting of stands varying in characteristics such as species composition, structure, age class, and associated processes and commonly including meadows, streams, fish, and wildlife.

Forests include special kinds such as industrial forests, nonindustrial private forests, plantations, public forests, protection forests, urban forests, as well as parks and wilderness.

Source: Helms J.A., 1998. *The Dictionary of Forestry*. Bethesda, MD, Society of American Foresters. Pp. 224.

185 forest

1. Ecology: An ecosystem characterized by a more or less dense and extensive tree cover.

2. Ecology: A plant community predominantly of trees and other woody vegetation, growing more or less closely together.

3. Silviculture, management: An area managed for the production of timber and other forest produce, or

maintained under woody vegetation for such indirect benefits as protection of catchment areas or recreation.

Forests include special kinds such as industrial forests, nonindustrial private forests, plantations, public forests, protection forests, urban forests, as well as parks and wilderness.

Source: Ford-Robertson F.C. (ed), 1983. *Terminology of forest science, technology, practice and products*. 2nd printing with addendum. Washington, D.C., Society of American Foresters. Pp. 370.

187 forest

A plant community predominantly of trees and other woody vegetation, growing more or less closely together.

Forests include special kinds such as industrial forests, nonindustrial private forests, plantations, public forests, protection forests, urban forests, as well as parks and wilderness.

Source: Haddon B.D. (ed), 1988. *Forest inventory terms in Canada / Terminologie de l'inventaire des forêts du Canada*. 3rd ed. Ottawa, Canadian Forest Inventory Committee, Forestry Canada. Pp. 113 + 109

191 forest

A complex assemblage of plants, animals, and environment dominated by trees.

Source: Jensen E.C., Anderson D.J., 1995. *The reproductive ecology of broadleaved trees and shrubs: glossary*. Research Contribution 9f, Corvallis, Forest Research Laboratory, Oregon State University, 8 p.

196 forest

Land which is at least 10% stocked with any combination of trees found in the FHM [Forest Health Monitoring] species AND at least one acre in size. Adjacent non-forest inclusions less than one acre in size are considered forest land.

Source: Tallent-Halsell N.G. (ed), 1994. *Forest health monitoring 1994. Field methods guide*. EPA/620/R-94/027. Washington, D.C., U.S. Environmental Protection Agency. Pp. [mult. pag.].

197 forest

Land which is at least 10% stocked with any combination of trees found in the FHM [Forest Health Monitoring] species AND at least one acre (0.4 ha) in size and 120 ft. (36.6 m) wide. Adjacent nonforest inclusions less than one acre in size are considered forest land.

Source: USDA Forest Service, 1998. Forest health monitoring 1998. Field methods guide. Research Triangle Park, NC, USDA Forest Service, National Forest Health Monitoring Program. Pp. [mult. pag.].

226 forest

(...) The legal definitions of what has to be considered as forest land differ between countries (...). The quantitative criteria found in most definitions for forest area are crown cover (10% in France, 30% in Austria, 20% in Switzerland, in Scandinavia not applied), width of the stand (10 to 25 m) and minimum area (0.05 ha ... 0.5 ha). In general, clearcut areas and young stands which do not fulfil the requirements are included in the forest area. (...)

Source: Köhl M., Päivinen R., 1996. Definition of a system of nomenclature for mapping European forests and for compiling a pan-European forest information system. Luxembourg, Office for Official Publications of the European Communities. Pp. 238.

358 forest

Land with tree crown cover (stand density) of more than about 20% of the area. Continuous forest with trees usually growing to more than about 7 m in height and able to produce wood [sic]. This includes both closed forest formations where trees of various layers and undergrowth cover a high porportion of the ground and open forest formations with a continuous grass layer in which tree synusia cove at least 10% of the ground.

Source: Loiskekosti M., Halko L. (eds), 1993. Ministerial Conference on the Protection of Forests in Europe, 16-17 June 1993 in Helsinki. European list of criteria and most suitable quantitative indicators. Helsinki, Ministry of Agriculture and Forestry. Pp. 20.

359 forest

An area, incorporating all living and non-living

components, that is dominated by trees having usually a single stem and a mature or potentially mature stand height exceeding two metres and with existing or potential crown cover of overstorey strata about equal to or greater than 20 per cent. This definition includes Australia's diverse native forests and plantations, regardless of age. It is also sufficiently broad to encompass areas of trees that are sometimes described as woodlands.

Source: Montreal Process Implementation Group, 1998. A framework of regional (sub-national) level criteria and indicators of sustainable forest management in Australia. Canberra, Commonwealth of Australia. Pp. 108.

445 forest

As defined by the Forest Practices Code of British Columbia Act includes all of the following: forest land, whether Crown land or private land; Crown range; Crown land or private land that is predominantly maintained in one or more successive stands of trees, successive crops of forage, or wilderness.

Source: British Columbia Forest Service, March 1997: Glossary of Forestry Terms. Available from the World Wide Web: <http://www.for.gov.bc.ca/pab/publctns/glossary/GLOSSARY.HTM>. Cited 01-Oct-98

490 forest

(Definition applied for developed countries) Land with tree crown cover (stand density) of more than about 20 percent of the area. Continuous forest with trees usually growing to more than about 7 m in height and able to produce wood. This includes both closed forest formations where trees of various storeys and undergrowth cover a high proportion of the ground, and open forest formations with a continuous grass layer in which tree synusia cover at least 10 percent of the ground.

Source: Food and Agriculture Organization (ed), 1997. State of the world's forests 1997. Rome, Food and Agriculture Organization. Pp. 200. <http://www.fao.org/waicent/faoinfo/forestry/SOFOTOC.htm>

491 forest

(Definition applied for developing countries) Ecosystem with a minimum of 10 percent crown cover of trees and/or bamboos, generally associated with wild flora, fauna and natural soil conditions, and not subject to agricultural practices. The term forest is further subdivided, according to its origin, into two categories:

i) Natural forests: a subset of forests composed of tree species known to be indigenous to the area; and

ii) Plantation forests:

- established artificially by afforestation on lands which previously did not carry forest within living memory;

- established artificially by reforestation of land which carried forest before, and involving the replacement of the indigenous species by a new and essentially different species or genetic variety.

Source: Food and Agriculture Organization (ed), 1997. State of the world's forests 1997. Rome, Food and Agriculture Organization. Pp. 200.
<http://www.fao.org/waicent/faoinfo/forestry/SOFOTOC.htm>

498 forest

Austria:

Forests are areas of min 1000 m² and cover percentage 30% with tree species, according to forest law.

Source: Köhl M., Päivinen R., 1996. Definition of a system of nomenclature for mapping European forests and for compiling a pan-European forest information system. Luxembourg, Office for Official Publications of the European Communities. Pp. 238.

499 forest

Forest in the sense of the National Forest Inventory/Forest Law in Germany is, independently of the entries on cadastral maps or similar inventories, every area stocked with forest plants.

Forests also include clearcut or opened areas, forest tracks and roads, forest meadows, game grazing areas, wood storage areas, corridors for utilities (e.g. pylone), as well as recreation structures connected to the forest, heaths and bogs that are reverting to forests, former meadows and pastures, alpine grazing and other roughgrazing that are reverting to forests and areas of „krummholz“ pine and green alder.

Heaths, bogs, meadows, alpine grazing and rough grazing count as reverted to forest when the cover of

resprouting trees reaches at least 50% and a mean age of 5 years.

Agricultural land and built-up areas with woodland areas under 1000 sqm, woodland strips under 10 m wide, christmas tree plantations and other areas such as gardens belong to parkland and are not considered as forest by the NFI. Rivers less than 5 m wide do not constitute a division for a forest area.

Source: Bundesministerium für Ernährung, Landwirtschaft und Forsten: Bundesinventur 1986-1990, Vol. I, p. 115. Translation and comments: J. Innes, H. Ellenberg, Jyllinge. Cited in: Frank G., Halbritter K., 1998: Regional BEAR support meeting, 11-12 July 1998, Göttingen, Germany. Minutes. 15 pp.

529 forest

Land with tree crown cover (or equivalent stocking level) of more than 10 percent and area of more than 0.5 ha. The trees should be able to reach a minimum height of 5 m at maturity in situ. May consist either of closed forest formations where trees of various storeys and undergrowth cover a high proportion of the ground; or of open forest formations with a continuous vegetation cover in which tree crown cover exceeds 10 percent. Young natural stands and all plantations established for forestry purposes which have yet to reach a crown density of 10 percent or tree height of 5 m are included under forest, as are areas normally forming part of the forest area which are temporarily unstocked as a result of human intervention or natural causes but which are expected to revert to forest.

Includes: Forest nurseries and seed orchards that constitute an integral part of the forest; forest roads, cleared tracts, firebreaks and other small open areas within the forest; forest in national parks, nature reserves and other protected areas such as those of special environmental, scientific, historical, cultural or spiritual interest; windbreaks and shelterbelts of trees with an area of more than 0.5 ha and a width of more than 20 m. Rubberwood plantations and cork oak stands are included.

Excludes: Land predominantly used for agricultural practices.

Source: UN-ECE/FAO, 1997. UN-ECE/FAO Temperate and Boreal Forest Resources Assessment 2000. Terms and definitions. New York and Geneva, United Nations. Pp. 13.

535 Forst

Im deutschen Sprachgebrauch auf den zur Produktion von Rohstoffen und Infrastrukturleistungen bewirtschafteten Wald bezogen. Engl. „forest“ umfaßt dagegen auch den Urwald (z.B. tropical rain forest).

(1) Einforsten (forest reservation, establishment of permanent forests). Die Begründung und Sicherung aufgrund hoheitlicher Rechte (forstgesetzliche Bestimmungen) und flächenmäßige Festlegung und Markierung (demarcation) von Landflächen zum Zweck der forstlichen Bewirtschaftung.

(2) Forstliche Landfläche (forested land, forest land). In der Flächenstatistik alle Flächen, welche von Bäumen beherrscht werden, gleichgültig, ob sie genutzt werden oder nicht, soweit sie in der Lage sind, Holz und Nebenprodukte zu produzieren, einen Einfluß auf Klima und Wasserhaushalt auszuüben und Schutz für Vieh und Wild bieten zu können. Durch Kahlhieb baumfrei gewordene Flächen sind eingeschlossen, wenn diese in absehbarer Zeit wieder bestockt werden. Außerdem sind eingeschlossen Savannen bis zu einem Beschirmungsgrad von mindestens 0,05 und Flächen, die nach Wanderfeldbau liegengelassen wurden und sich in einer Rückentwicklung zur ursprünglichen Waldvegetation befinden (sekundäre Sukzession), sowie andere degradierte Vegetationsformen wie z.B. Gebüsche und Gehölze auf Standorten, die ohne den Einfluß der Degradationsfaktoren mit Wald bestockt sein würden.

Source: Brünig E., Mayer H., 1980. Waldbauliche Terminologie. Wien, Universität für Bodenkultur. Pp. 207. <http://efern.boku.ac.at/forex/wbterm/>

564 Wald

(1) Eine Pflanzengesellschaft, die vorwiegend aus Phanerogamen (Bäumen) besteht, die im Reifealter (maturity) mindestens 5 m hoch werden (in subpolaren und subalpinen Zonen auch über 3 m). Neben Bäumen bilden Sträucher, Kräuter und Moose den Pflanzenbestand. Der Wald hat ein besonderes Waldinnenklima. Der natürliche und der bewirtschaftete Wald ist eine Lebensgemeinschaft von Pflanzen und Tieren, deren Zusammenleben durch ökologische Kontrollmechanismen so geregelt wird, daß ein dynamisches, die Erhaltung des Systems sicherndes Gleichgewicht erhalten wird. Dies Gleichgewicht ist kein statistischer Zustand und schließt Katastrophen

nicht aus.

Geschlossener Wald (dense forest). Der natürliche Überschirmungsgrad ist im Reifestadium 0,6.

Offener Wald (open forest). Der natürliche Überschirmungsgrad ist im Reifestadium 0,3 bis 0,6 (vgl. Gehölz, Gebüsch, Savanne).

(2) Eine bestimmte Landfläche, auf der Forstprodukte und forstliche Infrastrukturleistungen erzeugt werden.

(3) Rechtlich eine Landfläche, die als Wald unter den bestehenden Gesetzen ausgewiesen ist und den entsprechenden gesetzlichen Vorschriften unterliegt.

Source: Brünig E., Mayer H., 1980. Waldbauliche Terminologie. Wien, Universität für Bodenkultur. Pp. 207. <http://efern.boku.ac.at/forex/wbterm/>

420 Wald

Vegetationsform, an der Bäume oder Sträucher wesentlich beteiligt sind.

*Wird in der *Sanasilva-Inventur gemäss LFI definiert (EAFV 1988).*

Source: LWF/SSI (WSL BIRMENS DORF)

582 Walddefinition

Entscheidungsgrundlage zur Abgrenzung von Wald und Nichtwald. Im LFI sind die Kriterien Mindestbreite, minimaler Deckungsgrad und minimale Oberhöhe für den Wald-/ Nichtwaldentscheid massgebend; siehe Anl. LFI S. 32.

Source: Brassel P., Brändli U.B. (Red.), (in press). Schweizerisches Landesforstinventar. Ergebnisse der Zweitaufnahme 1993–1995. Bern, Haupt.

23 forêt

Désigne un ensemble de types d'écosystèmes dont le rôle est primordial pour l'ensemble de la biosphère terrestre.

Les forêts se définissent comme des écosystèmes dont la couverture végétale dominante est constituée par des arbres.

En écologie, le terme de forêt concerne des formations végétales dont la frondaison est continue (forêt fermée). Lorsque la couverture est discontinue, on parle de boisements ouverts.

Source: Ramade F., 1993. Dictionnaire encyclopédique de l'écologie et des sciences de l'environnement. Paris, Ediscience international. Pp. 822.

29 forêt

1. Ecologie: Formation végétale ligneuse, ou écosystème, à prédominance d'arbres, comportant en général un couvert relativement dense. Plus particulièrement, formation végétale où prédominent les arbres et autres végétaux ligneux poussant relativement près les uns des autres.

2. Sylviculture/Aménagement forestier: Zone affectée à la production de bois d'oeuvre, et (ou) d'autres produits forestiers, ou que l'on maintient boisée pour en tirer des avantages divers tels que la protection des bassins versants, les bassins de réception, la récréation, etc.

Source: Policy and Economics Directorate Forestry Canada / Direction Générale des politiques et de l'Economie, Forêts Canada, 1992. Silvicultural terms in Canada / Terminologie de la sylviculture au Canada (trad. et adapté de la version anglaise). Ottawa, Science and Sustainable Development Directorate, Forestry Canada. Pp. 74.

34 forêt

Formation végétale ligneuse, ou écosystème, à prédominance d'arbres, comportant en général un couvert relativement dense.

Source: Haddon B.D. (ed), 1988. Forest inventory terms in Canada / Terminologie de l'inventaire des forêts du Canada. 3rd ed.. Ottawa, Canadian Forest Inventory Committee, Forestry Canada. Pp. 113 + 109 .

38 forest ecosystem

360 forest ecosystem

An ecological system composed of interacting biotic and abiotic components of the environment in which trees are a major constituent, such that their canopies cover 20% or more of the area (Maini 1991).

Source: Aird P.L., 1994. Conservation for the sustainable development of forests worldwide - a compendium of concepts and terms. Forestry Chronicle 70(6): 666-674.

39 forest health

222 forest health

As a specific condition, refers to a growing forest having many or all of its native species of plants and animals; as a management objective, refers to maintaining or restoring the capacity of a forest to achieve health.

Source: Marcot B.G., Wisdom M.H., Li H.W., Castillo G.C., 1994. Managing for featured, threatened, endangered, and sensitive species and unique habitats for ecosystem sustainability. General Technical Report PNW 329, Portland, OR, USDA Forest Service, Pacific Northwest Research Station, 39 p.

446 forest health

A forest condition that is naturally resilient to damage; characterized by biodiversity, it contains sustained habitat for timber, fish, wildlife, and humans, and meets present and future resource management objectives.

Source: British Columbia Forest Service, March 1997: Glossary of Forestry Terms. Available from the World Wide Web:
<http://www.for.gov.bc.ca/pab/publctns/glossary/GLOSSARY.HTM>. Cited 01-Oct-98

91 Gesundheitszustand des Waldes

Fähigkeit des Ökosystems Wald, *Stress in historischem Umfang ohne wesentliche dauernde Änderungen in Zusammensetzung, Struktur und Funktion *Stress zu überstehen und sich an *Stress, der den historischen Umfang übersteigt, durch Änderungen in Zusammensetzung, Struktur und Funktion anzupassen.

Das Ökosystem Wald umfasst alle Sukzessionsstadien.

Source: LWF/SSI (WSL BIRMENS DORF)

137 Waldzustand

Der Begriff ist nicht selbsterklärend, wurde aber häufig verwendet.

Der Begriff ist hier enger gefasst als im Landesforstinventar (EAFV 1988, S. 223).

40 forest management type

493 Waldform

Grundform des Waldes: Hochwald (gleichförmig, ungleichförmig, plenterartig). Mittelwald, Niederwald und als Spezialformen Selven und Plantagen.

Source: Schütz J.P., Brang P., Bonfils P., Bucher H.U., 1993. Darstellung der Standortansprüche wichtiger Baumarten im Ökogramm und Gesellschaftsanschluss der Baumarten. In: Schmider P., Küper M., Tschander B., Käser B. (eds), Die Waldstandorte im Kanton Zürich. Vdf, Zürich, pp. 254-258.

41 forest management unit

357 FMU

Source: van Bueren E.M.L., Blom E.M., 1997. Hierarchical framework for the formulation of sustainable forest management standards. Leiden, The Netherlands, Backhuys Publishers. Pp. 82.

524 forstliche Betriebsfläche

Die forstliche Betriebsfläche umfaßt alle Flächen des Betriebes, die den Zwecken des forstlichen Betriebes dienen oder keine eigenwirtschaftliche Bedeutung haben (z.B. Hof- und Gebäudeflächen der Dienst- und Werkwohnungen). Sie wird unterteilt in Holzbodenfläche und in Nichtholzbodenfläche. Der Holzboden gliedert sich in Wirtschaftswald und in Wirtschaftswald im außerregelmäßigen Betrieb (a.r.B.).

Source: Brünig E., Mayer H., 1980. Waldbauliche Terminologie. Wien, Universität für Bodenkultur. Pp. 207. <http://efern.boku.ac.at/forex/wbterm/>

361 forest management unit

An area of forest, planned and managed as an unit to achieve specified management objectives.

Source: Montreal Process Implementation Group, 1998. A framework of regional (sub-national) level criteria and indicators of sustainable forest management in Australia. Canberra, Commonwealth of Australia. Pp. 108.

362 forest management unit

An FMU may be defined as a clearly demarcated area of land covered predominantly by forests, managed to a set of explicit objectives and according to a long-term management plan.

Source: van Bueren E.M.L., Blom E.M., 1997. Hierarchical framework for the formulation of sustainable forest management standards. Leiden, The Netherlands, Backhuys Publishers. Pp. 82.

363 forest management unit

A working plan area or any subdivision thereof; mainly, in descending order of importance, working circle, felling series, cutting section.

Source: Ford-Robertson F.C. (ed), 1983. Terminology of forest science, technology, practice and products. 2nd printing with addendum. Washington, D.C., Society of American Foresters. Pp. 370.

526 Bewirtschaftungseinheit

Die Fläche eines Betriebsplanes (working plan) oder eines Teiles davon (Betriebsklasse - working circle, Schlagfolge - felling series). Eine großräumigere, lose (working plan circle) oder straff integrierte (regional management plan, regional forest development plan) Zusammenfassung von Betriebsplaneinheiten zu übergeordneten Planungs- und Vollzugseinheiten wird in zunehmendem Maße zur Verbesserung und Sicherung der nachhaltigen Erfüllung der Rohstofffunktion und Infrastrukturleistung des Waldes durchgeführt.

Source: Brünig E., Mayer H., 1980. Waldbauliche Terminologie. Wien, Universität für Bodenkultur. Pp. 207. <http://efern.boku.ac.at/forex/wbterm/>

42 forest type

364 forest type

A class in the hierarchy of vegetation classification of forests characterised by the taxonomic and/or structural composition of canopy trees (usually by the dominant species).

Source: Montreal Process Implementation Group, 1998. A framework of regional (sub-national) level criteria and indicators of sustainable forest management in Australia. Canberra, Commonwealth of Australia. Pp. 108.

476 forest type

A grouping, or association, of species which comprise plurality of stocking on a given site at the present time. Forest type is most often selected from the species which make up the forest canopy, not the understory. In cases of recent disturbance, forest type may be determined from the current regeneration. In some regions outside the U.S., „Forest Land Types“ are substituted for U.S. Forest Types.

Source: USDA Forest Service, 1998. Forest health monitoring 1998. Field methods guide. Research Triangle Park, NC, USDA Forest Service, National Forest Health Monitoring Program. Pp. [mult. pag.].

535 forest type

A category of forest defined by its vegetation, particularly composition, and/or locality factors, as categorized by each country in a system suitable to its situation.

Source: Criteria and indicators for the conservation and sustainable management of temperate and boreal forests. The Montreal Process, December 1998, 15 p.

43 fragmentation

223 habitat fragmentation

The splitting and isolating of patches of habitat, typically forest cover (but could also apply to grass fields, shrub patches, and other habitats); habitat can be fragmented from natural conditions, such as thin or variable soils, or from forest management activities, such as clearcut logging.

Source: Marcot B.G., Wisdom M.H., Li H.W., Castillo G.C., 1994. Managing for featured, threatened, endangered, and sensitive species and unique habitats for ecosystem sustainability. General Technical Report PNW 329, Portland, OR, USDA Forest Service, Pacific Northwest Research Station, 39 p.

24 fragmentation des habitats

Action par laquelle des phénomènes d'origine naturelle ou anthropique fractionnent les habitats d'un écosystème qui étaient jointifs dans des conditions initiales.

La déforestation due à l'homme, la sécheresse accrue au cours de la dernière glaciation, représentent des exemples de fragmentation des habitats de forêts pluvieuses d'Afrique et d'Amérique tropicale.

Source: Ramade F., 1993. Dictionnaire encyclopédique de l'écologie et des sciences de l'environnement. Paris, Ediscience international. Pp. 822.

281 fragmentation

A term used in conservation biology to refer to the process that converts large areas of relatively uniform vegetation into a mosaic of small patches of vegetation of different age class and wildlife habitat potential across the landscape.

Where old growth forest is fragmented, it may not sustain certain old growth-dependent species even if a significant portion of the landscape still has old growth on it. Such animals or plants may require large patches of mature or old growth forest for their survival.

Source: Kimmins J.P., 1997. Forest ecology. 2nd ed. Upper Saddle River, NJ, Prentice Hall. Pp. 596.

432 fragmentation

The breaking up of extensive landscape features into disjunct, isolated, or semi-isolated patches as a result of land-use changes.

Source: Heywood V.H., Watson R.T., Baste I. (eds), 1995. Global biodiversity assessment. Cambridge, Cambridge University Press. Pp. 1140.

447 fragmentation

The process of transforming large continuous forest patches into one or more smaller patches surrounded by disturbed areas. This occurs naturally through such agents as fire, landslides, windthrow and insect attack. In managed forests timber harvesting and related activities have been the dominant disturbance agents.

Source: British Columbia Forest Service, March 1997: Glossary of Forestry Terms. Available from the World Wide Web: <http://www.for.gov.bc.ca/pab/publctns/glossary/GLOSSARY.HTM>. Cited 01-Oct-98

470 fragmentation

A term used to describe a landscape where areas of forest have been removed in such a way that the remaining forest exists as „islands“ of trees in a cutover environment. The major concern with fragmentation is the effect of the loss of contiguous forest cover on species movement and dispersal.

Source: Natural Resources Canada (eds), 1995. The State of Canada's forests 1994. Ottawa, Natural Resources Canada. Pp. 111.

44 functional diversity

365 functional diversity

This can refer to two rather different concepts: the diversity of the ecological functions performed by different species, and the diversity of species performing a given ecological function.

Source: Heywood V.H., Watson R.T., Baste I. (eds), 1995. Global biodiversity assessment. Cambridge, Cambridge University Press. Pp. 1140.

45 genetic diversity

366 genetic diversity

Variation in the genetic composition of individuals within or among species; the heritable genetic variation within and among populations/

Source: Heywood V.H., Watson R.T., Baste I. (eds), 1995. Global biodiversity assessment. Cambridge, Cambridge University Press. Pp. 1140.

46 grain

486 grain size of a landscape

The average, and the variability in, diameter or area of the landscape elements present.

Source: Forman R.T.T., Godron M., 1986. Landscape ecology. New York, Wiley. Pp. 619.

516 grain

The resolution of an image or the minimum area perceived as distinct by an organism.

Source: Farina A., 1998. Principles and methods in landscape ecology. London, Chapman & Hall. Pp. 235.

47 *growth region

565 Wuchsgebiet

Öko-geographisch und vegetationskundlich einheitliches Gebiet, das durch besondere Pflanzengesellschaften, durch Arealgrenzen von Arten und durch besondere edaphische und klimatische Eigenheiten gekennzeichnet ist. Wuchsgebiete können auf Grund geologischer oder topographischer Unterschiede in Wuchslandschaften unterteilt werden; regionale Zusammenfassung mehrerer Einzelwuchsbezirke.

Source: Brünig E., Mayer H., 1980. Waldbauliche Terminologie. Wien, Universität für Bodenkultur. Pp. 207. <http://efern.boku.ac.at/forex/wbterm/>

567 Wuchsgebiet

Eine Großlandschaft, die sich durch geomorphologischen Aufbau, Klima und Landschaftsgeschichte von anderen Großlandschaften unterscheidet. Das Wuchsgebiet ist in Wuchsbezirke mit möglichst einheitlichem physiogeographischen Charakter untergliedert.

Source: Wald und Boden. 1996. Schriftenreihe der Sächsischen Landesanstalt für Forsten 7/96.

48 guidelines

367 guidelines

The function of guidelines is to translate criteria and indicators into practical guidance for actions to meet the requirements of criteria and indicators. Guidelines will often be formulated in terms of prescriptions showing how the requirements should be met.

Source: van Bueren E.M.L., Blom E.M., 1997. Hierarchical framework for the formulation of sustainable forest management standards. Leiden, The Netherlands, Backhuys Publishers. Pp. 82.

49 habitat

368 habitat

The space used by an organism, together with the other organisms with which it coexists, and the landscape and climate elements that affect it; the place where an animal or a plant normally lives and reproduces.

Source: Heywood V.H., Watson R.T., Baste I. (eds), 1995. Global biodiversity assessment. Cambridge, Cambridge University Press. Pp. 1140.

538 Habitat

Auf LINNE zurückgehender Begriff für den charakteristischen Wohn- oder Standort einer Art. Dieser autökologische Begriff wird oft (besonders in der angelsächsischen Literatur) in synökologischem Sinne als Synonym zu Biotop gebraucht; Umwelt I.e.S.

Source: Brünig E., Mayer H., 1980. Waldbauliche Terminologie. Wien, Universität für Bodenkultur. Pp. 207. <http://efern.boku.ac.at/forex/wbterm/>

50 hemeroby

323 hemeroby

(No definition given)

Source: Sukopp H., 1972. Wandel von Flora und Vegetation in Mitteleuropa unter dem Einfluss des Menschen. Berichte über Landwirtschaft 50: 112-139.

495 Hemerobie

Ein Maß für den menschlichen Kultureinfluß auf Ökosysteme, wobei die Einschätzung des Hemerobiegrades nach dem Ausmaß der Wirkungen derjenigen anthropogenen Einflüsse vorgenommen wird, die der Entwicklung des Systems zu einem Endzustand entgegenstehen.

Ahemerobe Vegetation kann also auch im Zuge der Sukzession einer anthropogenen Pflanzengesellschaft zu einer natürlichen Schlußgesellschaft auf irreversibel veränderten Standorten entstehen.

Source: Kowarik I., 1988. Zum menschlichen Einfluß auf Flora und Vegetation. Theoretische Konzepte und ein Quantifizierungsansatz am Beispiel von Berlin (West). Landschaftsentwicklung und Umweltforschung 56, Berlin, Technische Universität Berlin, 280 S.

496 Hemerobie

Bezugsgröße der Hemerobiewertung ist die ‚potentiell natürliche Waldgesellschaft‘ (PNWG).

Source: Koch G., Kirchmeier H., 1997. Methodik der Hemerobiewertung. Österreichische Forstzeitung (1): 24-26.

51 indicator

32 indicator

A characteristic of the environment that, when measured, quantifies the magnitude of stress, habitat characteristics, degree of exposure to the stressor, or degree of ecological response to the exposure. Indicators

may be of a biotic or abiotic nature.

Source: USDA Forest Service, 1998. Forest health monitoring 1998. Field methods guide. Research Triangle Park, NC, USDA Forest Service, National Forest Health Monitoring Program. Pp. [mult. pag.].

369 indicator

In EMAP, characteristics of the environment both abiotic and biotic, that can provide quantitative information on ecological resources. (Revised definition 1993. Preferred term for environmental indicator, deleted 1993.) „In biology, an organism, species, or community whose characteristics show the presence of specific environmental conditions, good or bad“ (EPA 1992, 15).

Source: Environmental Monitoring and Assessment Program (EMAP). Master Glossary [online]. Updated 09/15/97 [cited 1998-08-31]. Available from World Wide Web:
<<http://www.epa.gov/emfjulte/html/glossary.html>>

370 indicator

An indicator is a quantitative or qualitative parameter which can be assessed in relation to a criterion. It describes in an objectively verifiable and unambiguous way features of the ecosystem or the related social system, or it describes elements of prevailing policy and management conditions and human driven processes indicative of the state of the eco- and social system.

Source: van Bueren E.M.L., Blom E.M., 1997. Hierarchical framework for the formulation of sustainable forest management standards. Leiden, The Netherlands, Backhuys Publishers. Pp. 82.

371 indicator

[Indicators] show changes over time for each criterion and demonstrate how well each criterion reaches the objective set for it. A typical indicator in the Helsinki process is a quantitative measure of change. (Helsinki Process)

Source: Granholm H., Vähänen T., Sahlberg S. (compilers), 1996. Background document. Intergovernmental Seminar on Criteria and Indicators for Sustainable Forest Management, August 19-22, 1996, Helsinki. Helsinki, Ministry of Agriculture and Forestry,

Intergovernmental Seminar on Criteria and Indicators for Sustainable Forest Management. Pp. 131.

372 indicator

[Indicators] are ways of measuring achievements built in criteria, and thus translate the criteria into more direct operational tools, they support the reporting process, and make the reporting internationally credible. (Helsinki Process)

A change in an indicator does not, in itself, tell whether the change has a positive or negative effect. The indicators should therefore be judged on a scale of acceptable „standards of performance“, which may vary widely from region to region and from time to time. (Helsinki Process)

Source: Granholm H., Vähänen T., Sahlberg S. (compilers), 1996. Background document. Intergovernmental Seminar on Criteria and Indicators for Sustainable Forest Management, August 19-22, 1996, Helsinki. Helsinki, Ministry of Agriculture and Forestry, Intergovernmental Seminar on Criteria and Indicators for Sustainable Forest Management. Pp. 131.

373 indicator

A measure (measurement) of an aspect of the criterion. A quantitative or qualitative variable which can be measured or described and which, when observed periodically, demonstrates trends. (Montreal Process)

Source: Granholm H., Vähänen T., Sahlberg S. (compilers), 1996. Background document. Intergovernmental Seminar on Criteria and Indicators for Sustainable Forest Management, August 19-22, 1996, Helsinki. Helsinki, Ministry of Agriculture and Forestry, Intergovernmental Seminar on Criteria and Indicators for Sustainable Forest Management. Pp. 131.

467 indicator

An attribute that characterises another attribute, which is not directly assessed or available.

Source: Köhl M., Päivinen R., 1996. Definition of a system of nomenclature for mapping European forests and for compiling a pan-European forest information system. Luxembourg, Office for Official Publications of the European Communities. Pp. 238.

405 **qualitative indicator**

A qualitative indicator is expressed as situation, object, or process, and is to be assessed in terms of good/sufficient/unsatisfactory and yes/no.

Source: van Bueren E.M.L., Blom E.M., 1997. Hierarchical framework for the formulation of sustainable forest management standards. Leiden, The Netherlands, Backhuys Publishers. Pp. 82.

406 **quantitative indicator**

A quantitative indicator is expressed and assessed in terms of amount, numbers, volume, percentages, etc.

Source: van Bueren E.M.L., Blom E.M., 1997. Hierarchical framework for the formulation of sustainable forest management standards. Leiden, The Netherlands, Backhuys Publishers. Pp. 82.

93 **Indikator**

Eigenschaft der Umwelt, deren Auftreten auf das Vorhandensein, das Ausmass oder die Einwirkungsdauer von Stress hindeutet, oder auf die Reaktion auf diesen Stress. Ein Indikator kann auch auf Habitateigenschaften hindeuten.

Source: LWF/SSI (WSL BIRMENS DORF)

52 indicator development

374 **indicator development**

The process through which an indicator is identified, tested, and implemented. A candidate indicator is identified and reviewed by peers before it is selected for further evaluation as a research indicator. Existing data are analyzed, simulation studies are performed with realistic scenarios, and limited field tests are conducted to evaluate the research indicator. In the past, this research indicator was called a „probationary core indicator“ or a „development indicator“ as it was evaluated in regional demonstration projects. An indicator is considered a core indicator when it is selected for long-term, ecological monitoring as a result of its acceptable performance, demonstrated ability to

satisfy the data quality objectives.

Source: Environmental Monitoring and Assessment Program (EMAP). Master Glossary [online]. Updated 09/15/97 [cited 1998-08-31]. Available from World Wide Web: <<http://www.epa.gov/emfjulte/html/glossary.html>>

53 indicator species

219 **ecological indicator species**

A species whose population size and trend is assumed to reflect population size and trend of other species associated with the same geographical area and habitats; one type of management indicator species (see that term).

Source: Marcot B.G., Wisdom M.H., Li H.W., Castillo G.C., 1994. Managing for featured, threatened, endangered, and sensitive species and unique habitats for ecosystem sustainability. General Technical Report PNW 329, Portland, OR, USDA Forest Service, Pacific Northwest Research Station, 39 p.

284 **indicator species**

A species that has a sufficiently consistent association with some environmental condition or other species that its presence can be used to indicate or predict that environmental condition or the potential for that other species.

Source: Kimmins J.P., 1997. Forest ecology. 2nd ed. Upper Saddle River, NJ, Prentice Hall. Pp. 596.

375 **indicator species**

A plant, animal, or microbial species characteristic of, or that displays characteristic responses to, a specific site, habitat, ecosystem, or environmental condition.

Source: Aird P.L., 1994. Conservation for the sustainable development of forests worldwide - a compendium of concepts and terms. Forestry Chronicle 70(6): 666-674.

376 **indicator species**

A species whose status provides information on the overall condition of the ecosystem and of other species in that ecosystem. Species which flag changes in biotic or abiotic conditions. They reflect the quality and changes in environmental conditions as well as aspects of community composition.

Source: Heywood V.H., Watson R.T., Baste I. (eds), 1995. Global biodiversity assessment. Cambridge, Cambridge University Press. Pp. 1140.

220 **management indicator species**

A species of fish or wildlife for which a set of management guidelines have been written, chosen for simplifying land management planning; one type of management indicator species is the ecological indicator species.

Source: Marcot B.G., Wisdom M.H., Li H.W., Castillo G.C., 1994. Managing for featured, threatened, endangered, and sensitive species and unique habitats for ecosystem sustainability. General Technical Report PNW 329, Portland, OR, USDA Forest Service, Pacific Northwest Research Station, 39 p.

492 **Zeigerpflanzen**

Arten, deren Vorkommen oder Fehlen bestimmte Verhältnisse anzeigt wie z.B. Nährstoffarmut oder -reichtum, Bodenfeuchtigkeit, basische oder saure Bodenreaktion, Licht- und Wärmeverhältnisse usw.

Source: Schütz J.P., Brang P., Bonfils P., Bucher H.U., 1993. Darstellung der Standortansprüche wichtiger Baumarten im Ökogramm und Gesellschaftsanschluss der Baumarten. In: Schmider P., Küper M., Tschander B., Käser B. (eds), Die Waldstandorte im Kanton Zürich. Vdf, Zürich, pp. 254-258.

54 **insurance value**

380 **insurance value**

The value of biodiversity in maintaining ecosystem functions over a range of environmental conditions.

Source: Heywood V.H., Watson R.T., Baste I. (eds), 1995. Global biodiversity assessment. Cambridge, Cambridge University Press. Pp. 1140.

55 **inventory**

384 **inventorying**

The surveying, sorting, cataloguing, quantifying and mapping or entities such as genes, individuals, populations, species, habitats, ecosystems and landscapes or their components, and the synthesis of the resulting information for the analysis of process.

Source: Heywood V.H., Watson R.T., Baste I. (eds), 1995. Global biodiversity assessment. Cambridge, Cambridge University Press. Pp. 1140.

56 **isolation**

26 **isolement**

Désigne le fait qu'un groupe d'individus d'une population sédentaire ou une propagule se trouve génétiquement isolé de la population principale, ce qui favorise sa dérive génétique.

Source: Ramade F., 1993. Dictionnaire encyclopédique de l'écologie et des sciences de l'environnement. Paris, Ediscience international. Pp. 822.

57 **keystone species**

385 **keystone species**

A species whose loss from an ecosystem would cause a greater than average change in other species populations or ecosystems processes; species that have a disproportionately large effect on other species in a community.

Source: Heywood V.H., Watson R.T., Baste I. (eds), 1995. Global biodiversity assessment. Cambridge, Cambridge University Press. Pp. 1140.

517 **keystone species**

Species that shapes the habitat in which it lives and allows the presence of other species.

Source: Farina A., 1998. Principles and methods in landscape ecology. London, Chapman & Hall. Pp. 235.

28 **espèce clef**

A l'intérieur d'une communauté existent des espèces qui, sans être nécessairement les plus abondantes – ou les plus spectaculaires par leur taille – jouent un rôle essentiel car elles assurent la structuration de la communauté et même conditionnent la richesse spécifique de cette dernière.

Source: Ramade F., 1993. Dictionnaire encyclopédique de l'écologie et des sciences de l'environnement. Paris, Ediscience international. Pp. 822.

58 **landscape**

428 **landscape**

An extensive area of terrain.

Source: Freedman B., 1989. Environmental ecology. The impacts of pollution and other stresses on ecosystem structure and function. San Diego, Academic Press. Pp. 424.

448 **landscape**

The fundamental traits of a specific geographic area, including its biological composition, physical environment and anthropogenic or social patterns.

Source: British Columbia Forest Service, March 1997: Glossary of Forestry Terms. Available from the World Wide Web: <http://www.for.gov.bc.ca/pab/publctns/glossary/GLOSSARY.HTM>. Cited 01-Oct-98

471 **landscape**

Areas of land that are distinguished by differences in landforms, vegetation, land use, and aesthetic characteristics.

Source: Natural Resources Canada (eds), 1995. The State of Canada's forests 1994. Ottawa, Natural Resources Canada. Pp. 111.

484 **landscape**

A heterogeneous land area composed of a cluster of interacting ecosystems that are repeated in similar form throughout. Landscapes vary in size, down to a few kilometers in diameter.

Source: Forman R.T.T., Godron M., 1986. Landscape ecology. New York, Wiley. Pp. 619.

514 **landscape**

There are several definitions of landscape:

1. „the total character of a region“ (von Humboldt);
2. „landscapes dealt with in their totality as physical, ecological and geographical entities, integrating all natural and human (,caused‘) patterns and processes...“ (Naveh 1987);
3. „landscape as a heterogeneous land area composed of a cluster of interacting ecosystems that is repeated in similar form throughout“ (Forman and Godron 1986);
4. „a particular configuration of topography, vegetation cover, land use and settlement pattern which delimits some coherence of natural and cultural processes and activities“ (Green et al. 1996);
5. Haber has defined the landscape as „a piece of land which we perceive comprehensively around us, without looking closely at single components, and which looks familiar to us“ (pers. com. 1996).

Source: Farina A., 1998. Principles and methods in landscape ecology. London, Chapman & Hall. Pp. 235.

542 **Landschaft**

Ein Teil der Erdoberfläche, der durch die besondere Konstellation der Landschaftselemente (Topographie, Klima, Boden, bio-geographische Verhältnisse) geprägt ist und sich hierdurch gegenüber anderen Landschaften unterscheidet. Das Zusammenwirken der Landschaftselemente bewirkt strukturell die Landschaftsstruktur, visuell das Landschaftsbild und funktionell den Landschaftshaushalt. Man unterscheidet die ursprüngliche Naturlandschaft und die vom Menschen gestaltete Kulturlandschaft.

Im allgemeinen Sinne spricht man von Agrarlandschaft, Seenlandschaft, Industrielandschaft u.a. Hinter dieser äußeren Gestalt steht ein inneres Gefüge, wobei Naturausstattung, die Nutzungsformen, die Tätigkeit des Menschen, die Bauwerke u.a. in einem engen räumlichen Zusammenhang stehen und aufeinander in vielfältiger Weise einwirken.

Source: Brünig E., Mayer H., 1980. Waldbauliche Terminologie. Wien, Universität für Bodenkultur. Pp. 207. <http://efern.boku.ac.at/forex/wbterm/>

55 **paysage**

Portion structurée de territoire observable globalement à partir d'un point donné, comprenant un ensemble d'éléments naturels géomorphologiques, hydrologiques (éventuellement), végétaux (formations végétales), et/ou d'origine artificielle liés à l'action humaine : terres cultivées, constructions, voies de communication, etc.

Source: Delpech R., Dume G., Galmiche P., Timbal J., 1985. Vocabulaire: typologie des stations forestières. Paris, Institut pour le Développement Forestier. Pp. 243.

59 **landscape structure**

485 **landscape structure**

The distribution of energy, materials, and species in relation to the sizes, shapes, numbers, kinds, and configurations of landscape elements or ecosystems.

Source: Forman R.T.T., Godron M., 1986. Landscape ecology. New York, Wiley. Pp. 619.

60 ***man-made**

482 **naturferner Bestand**

Bestand mit mittlerem, im allgemeinen tragbarem Anteil an standortfremden Baumarten und erkennbaren natürlichen Merkmalen.

Source: Schütz J.P., Brang P., Bonfils P., Bucher H.U.,

1993. Darstellung der Standortansprüche wichtiger Baumarten im Ökogramm und Gesellschaftsanschluss der Baumarten. In: Schmider P., Küper M., Tschander B., Käser B. (eds), Die Waldstandorte im Kanton Zürich. Vdf, Zürich, pp. 254-258.

497 **naturfern**

Vom Menschen geschaffen und vollständig von ihm abhängig; Synonym zu anthropogen. Beispiel: landwirtschaftliche Kulturen.

Source: Schaefer M., 1992. Wörterbuch der Biologie. Ökologie. 3. Auflage. Jena, Gustav Fischer Verlag. Pp. 433.

61 **matrix**

209 **matrix**

The most extensive and most connected landscape element type present, which plays the dominant role in landscape functioning. Also, a landscape element surrounding a patch.

Source: Forman R.T.T., Godron M., 1986. Landscape ecology. New York, Wiley. Pp. 619.

62 **minimum viable population**

386 **minimum viable population**

The smallest isolated population having a good chance of surviving for a given number of years despite the foreseeable effects of demographic, environmental, and genetic events and natural catastrophes. (The probability of persistence and the time of persistence are often taken to be 99% and 1000 years, respectively.)

Source: Heywood V.H., Watson R.T., Baste I. (eds), 1995. Global biodiversity assessment. Cambridge, Cambridge University Press. Pp. 1140.

63 monitoring

84 monitoring

The collection of information over time to determine the effects of resource management and to identify changes in natural systems.

Source: USDA Forest Service, 1998. Forest health monitoring 1998. Field methods guide. Research Triangle Park, NC, USDA Forest Service, National Forest Health Monitoring Program. Pp. [mult. pag.].

387 monitoring

The intermittent (regular or irregular) surveillance to ascertain the extent of compliance with a predetermined standard or degree of deviation from an expected norm.

Source: Hellawell J.M., 1991. Development of a rationale for monitoring. In: B. Goldsmith (ed), Monitoring for conservation and ecology. London, Chapman and Hall, pp. 1-14.

64 multiple use

188 multiple-use forestry

Any practice of forestry fulfilling two or more objects of management, more particularly in forest utilization, e.g. production of both wood and pasture.

Source: Ford-Robertson F.C. (ed), 1983. Terminology of forest science, technology, practice and products. 2nd printing with addendum. Washington, D.C., Society of American Foresters. Pp. 370.

543 Mehrzwecknutzung

Die Erzeugung und Nutzung von mehr als einem Forstprodukt und bzw. oder mehr als einer Infrastrukturleistung, entweder gleichzeitig auf einer Forstfläche oder auf getrennten Flächen innerhalb einer forstlichen Betriebseinheit. Gebirgswälder meist mit kombinierter Ertrags- und Schutzfunktion.

Source: Brünig E., Mayer H., 1980. Waldbauliche

Terminologie. Wien, Universität für Bodenkultur. Pp. 207.
<http://efern.boku.ac.at/forex/wbterm/>

189 multiple-purpose forestry

Source: Ford-Robertson F.C. (ed), 1983. Terminology of forest science, technology, practice and products. 2nd printing with addendum. Washington, D.C., Society of American Foresters. Pp. 370.

388 multiple use

Two or more activities, such as hiking, hunting, or logging, occurring together on the same area either (a) intermixed, (b) confined to separate zones, or (c) in sequence.

Source: Aird P.L., 1994. Conservation for the sustainable development of forests worldwide - a compendium of concepts and terms. Forestry Chronicle 70(6): 666-674.

65 native forest

389 native forest

Any locally indigenous forest community containing species and habitats normally associated with that community.

Source: Montreal Process Implementation Group, 1998. A framework of regional (sub-national) level criteria and indicators of sustainable forest management in Australia. Canberra, Commonwealth of Australia. Pp. 108.

66 natural forest

391 natural forest

A forest that has evolved and reproduced itself naturally from organisms previously established, and that has not been significantly altered by human activity. A natural forest may include, but is not equivalent to, an „old-growth forest“.

Source: Aird P.L., 1994. Conservation for the sustainable

development of forests worldwide - a compendium of concepts and terms. *Forestry Chronicle* 70(6): 666-674.

<http://efern.boku.ac.at/forex/wbterm/>

392 **natural forest**

A forest which has evolved as a sequence of natural succession but is still showing anthropogenic influences. Also, forests that have developed from unmanaged pastures or from fallow land. Often natural parks are included in this category.

Source: Loiskekosti M., Halko L. (eds), 1993. Ministerial Conference on the Protection of Forests in Europe, 16-17 June 1993 in Helsinki. European list of criteria and most suitable quantitative indicators. Helsinki, Ministry of Agriculture and Forestry. Pp. 20.

472 **open forests**

Proposed name for the natural forests commonly found in northern Canada. These forests are a mixture of wetlands and small trees, occasionally interspersed with highly productive forests.

Source: Natural Resources Canada (eds), 1995. *The State of Canada's forests 1994*. Ottawa, Natural Resources Canada. Pp. 111.

545 **Naturwald**

Ohne Eingriffe des Menschen entstandener Wald. Er entspricht in seinen Strukturmerkmalen etwa dem Klimaxwald, wenn die natürliche Entwicklung durch „Naturkatastrophen“ (Wind, Schnee, Feuer, Überschwemmung) nicht gehemmt wurde.

Source: Brünig E., Mayer H., 1980. *Waldbauliche Terminologie*. Wien, Universität für Bodenkultur. Pp. 207. <http://efern.boku.ac.at/forex/wbterm/>

578 **Naturwald**

Wald, der nur soweit beeinflusst ist, dass sich Baumartenmischung und Struktur innerhalb einer Baumgeneration in den ursprünglichen Zustand zurückentwickeln können (Wasser und Frehner 1996).

Source: Brassel P., Brändli U.B. (Red.), (in press). *Schweizerisches Landesforstinventar. Ergebnisse der Zweitaufnahme 1993–1995*. Bern, Haupt.

67 **natural landscape**

211 **natural landscape**

An area where human effects, if present, are not ecologically significant to the landscape as a whole.

Source: Forman R.T.T., Godron M., 1986. *Landscape ecology*. New York, Wiley. Pp. 619.

68 **natural regeneration**

178 **natural regeneration**

Renewal of a tree crop by natural seeding, sprouting, suckering, or layering.

Source: Policy and Economics Directorate Forestry Canada / Direction Générale des politiques et de l'Economie, Forêts Canada, 1992. *Silvicultural terms in Canada / Terminologie de la sylviculture au Canada* (trad. et adapté de la version anglaise). Ottawa, Science and Sustainable Development Directorate, Forestry Canada. Pp. 74.

186 **natural regeneration**

Renewal [of a tree crop] by self-sown seed or by vegetative means (regrowth), e.g. coppicing, root suckers, lignotubers, as also the resultant crop.

Forests include special kinds such as industrial forests, nonindustrial private forests, plantations, public forests, protection forests, urban forests, as well as parks and wilderness.

Source: Ford-Robertson F.C. (ed), 1983. *Terminology of forest science, technology, practice and products*. 2nd printing with addendum. Washington, D.C., Society of American Foresters. Pp. 370.

530 **natural regeneration**

Re-establishment of a forest stand by natural means, i.e. by natural seeding or vegetation regeneration. It may be assisted by human intervention, e.g. by scarification or fencing to protect against wildlife damage or domestic animal grazing.

Source: UN-ECE/FAO, 1997. UN-ECE/FAO Temperate and Boreal Forest Resources Assessment 2000. Terms and definitions. New York and Geneva, United Nations. Pp. 13.

513 **Aufschlag**

Bestand im jugendlichen Alter, der aus nicht flugfähigen Samen durch Naturverjüngung entstanden ist (z.B. Eiche, Buche).

Source: Brünig E., Mayer H., 1980. Waldbauliche Terminologie. Wien, Universität für Bodenkultur. Pp. 207. <http://efern.boku.ac.at/forex/wbterm/>

471 **Naturverjüngung**

Natürlich durch Ansamung oder durch vegetative Vermehrung entstandene Verjüngung, im Gegensatz zur Kunstverjüngung.

Source: Brassel P., Brändli U.B. (Red.), (in press). Schweizerisches Landesforstinventar. Ergebnisse der Zweitaufnahme 1993–1995. Bern, Haupt.

486 **Naturverjüngung**

Natürlich aufkommende, d.h. weder gesäte noch gepflanzte Verjüngung.

Source: Schütz J.P., Brang P., Bonfils P., Bucher H.U., 1993. Darstellung der Standortansprüche wichtiger Baumarten im Ökogramm und Gesellschaftsanschluss der Baumarten. In: Schmider P., Küper M., Tschander B., Käser B. (eds), Die Waldstandorte im Kanton Zürich. Vdf, Zürich, pp. 254–258.

544 **Naturverjüngung**

(1) Begründung eines Bestandes durch Selbstansamung oder vegetative Vermehrung von einem Altbestand aus.
(2) Durch Selbstansamung oder vegetative Vermehrung entstandener junger Bestand.

Source: Brünig E., Mayer H., 1980. Waldbauliche Terminologie. Wien, Universität für Bodenkultur. Pp. 207. <http://efern.boku.ac.at/forex/wbterm/>

33 **régénération naturelle**

Renouvellement naturel d'un peuplement forestier par voie de semences, par des rejets, par drageonnement ou par marcottage.

Source: Policy and Economics Directorate Forestry Canada / Direction Générale des politiques et de l'Economie, Forêts Canada, 1992. Silvicultural terms in Canada / Terminologie de la sylviculture au Canada (trad. et adapté de la version anglaise). Ottawa, Science and Sustainable Development Directorate, Forestry Canada. Pp. 74.

69 **near-natural**

485 **naturnaher Bestand**

Bestand mit kleinem Anteil an standortfremden Baumarten. Er besteht zum grössten Teil aus standortheimischen Baumarten mit einem weitgehend naturnahem Beziehungsgefüge.

Source: Schütz J.P., Brang P., Bonfils P., Bucher H.U., 1993. Darstellung der Standortansprüche wichtiger Baumarten im Ökogramm und Gesellschaftsanschluss der Baumarten. In: Schmider P., Küper M., Tschander B., Käser B. (eds), Die Waldstandorte im Kanton Zürich. Vdf, Zürich, pp. 254–258.

498 **naturnah**

Ohne direkten Einfluß des Menschen entstanden und in geringem Maße von ihm beeinflusst.

Source: Schaefer M., 1992. Wörterbuch der Biologie. Ökologie. 3. Auflage. Jena, Gustav Fischer Verlag. Pp. 433.

70 niche

282 fundamental niche

The geographical range and habitat a species can occupy and the ecological (functional) role it can fulfill in the ecosystem (i.e., its ecological niche) as determined by its genetically determined tolerances and requirements. The niche a species can occupy in the absence of competition or other antagonistic interactions with other species.

Source: Kimmins J.P., 1997. Forest ecology. 2nd ed. Upper Saddle River, NJ, Prentice Hall. Pp. 596.

181 microsite

The ultimate unit of the habitat, i.e., the specific spot occupied by an individual organism. By extension, the more or less specialized relationships existing between an organism and its environment.

Source: Policy and Economics Directorate Forestry Canada / Direction Générale des politiques et de l'Economie, Forêts Canada, 1992. Silvicultural terms in Canada / Terminologie de la sylviculture au Canada (trad. et adapté de la version anglaise). Ottawa, Science and Sustainable Development Directorate, Forestry Canada. Pp. 74.

193 niche

Role, function, or place of organism.

Source: Colinvaux P.A., 1993. Ecology 2. 2nd ed. New York, Wiley. Pp. 688.

203 niche

A confused word used in several different ways over the last half-century. Sometimes it refers to the habitat of an organism or species, and sometimes it refers to the role the organism or species plays in the larger community of which it is part. More recent definitions refer to the resource base upon which the organism or species is characteristically dependent.

Source: Allen T.F.H., Starr T.B., 1982. Hierarchy. Perspectives for ecological complexity. Chicago, University of Chicago Press. Pp. 310.

291 niche

The geographical range and habitat a species can or does occupy, and the ecological (functional) role it can or does fulfill in an ecosystem. The functional, adaptational, and distributional characteristics of a species. A species has a genetically controlled fundamental niche, but it generally occupies only a subset of this (the realized niche) because of competition and other antagonistic community interactions.

Source: Kimmins J.P., 1997. Forest ecology. 2nd ed. Upper Saddle River, NJ, Prentice Hall. Pp. 596.

393 niche

The unique environment used to sustain the existence of an organism or species.

Source: Aird P.L., 1994. Conservation for the sustainable development of forests worldwide - a compendium of concepts and terms. Forestry Chronicle 70(6): 666-674.

394 niche

The place occupied by a species in its ecosystem and its role: where it lives, what it feeds on and when it performs all its activities.

Source: Heywood V.H., Watson R.T., Baste I. (eds), 1995. Global biodiversity assessment. Cambridge, Cambridge University Press. Pp. 1140.

194 niche space

Environmental parameters defining a niche, or the resource flux required for an individual to survive and reproduce.

Source: Colinvaux P.A., 1993. Ecology 2. 2nd ed. New York, Wiley. Pp. 688.

297 realized niche

The geographical area and habitat a species can occupy, and the functional role it can play in an ecosystem, in face of competition and other antagonistic interactions from other species.

Source: Kimmins J.P., 1997. Forest ecology. 2nd ed. Upper

547 Nische

Ökologische Nische, vielseitige Definition.

(1) Bezeichnung für das Wirkungsfeld, die Rolle, die Stellung einer Art in einem Ökosystem. Beziehungssystem zwischen Tier und Umwelt.

(2) Von einigen Autoren auch als Synonym zu Minimalumwelt einer Art gebraucht; dann ist auch die räumliche Komponente mit eingeschlossen; Habitat, Monotop, minimale Umwelt eines Tieres, ökologisch besonders geeigneter Raum, ökologischer Aufenthaltsraum, Nahrungsnische.

(3) Die Spezialisierung einer Art innerhalb einer Gesellschaft; die besondere Weise, in der eine Art sich in Bezug auf andere Arten der gleichen Lebensform und auf die sonstigen biotischen und abiotischen Umweltbedingungen innerhalb der Biozönose einstellt.

Source: Brünig E., Mayer H., 1980. Waldbauliche Terminologie. Wien, Universität für Bodenkultur. Pp. 207. <http://efern.boku.ac.at/forex/wbterm/>

71 norm

396 norm

A norm is the reference value of the indicator and is established for use as a rule or a basis for comparison. By comparing the norm with the actual measured value, the result demonstrates the degree of fulfilment of a criterion and of compliance with a principle.

Source: van Bueren E.M.L., Blom E.M., 1997. Hierarchical framework for the formulation of sustainable forest management standards. Leiden, The Netherlands, Backhuys Publishers. Pp. 82.

72 ownership

439 ownership

A classification of forest land based on the legal owner at the time of the current inventory. Also indicates private lands leased to forest industry. Individual ownerships are logically organized into ownership groups and classes for reporting purposes [national forest, other public, forest industry, other private].

Source: Southern Region Forest Inventory and Analysis, Forest Inventory - Definitions of Terms (no date). Available from the World Wide Web: <http://www.srsfia.usfs.msstate.edu/fidef2.htm>. Cited 01-Oct-98

531 private ownership (in)

Forest/other wooded land owned by individuals, families, co-operatives and corporations which may be engaged in agriculture or other occupations as well as forestry; private forest enterprises and industries; private corporations and other institutions (religious and educational institutions, pension and investment funds, nature conservation societies, etc.)

Source: UN-ECE/FAO , 1997. UN-ECE/FAO Temperate and Boreal Forest Resources Assessment 2000. Terms and definitions. New York and Geneva, United Nations. Pp. 13.

532 public ownership (in)

Forest/other wooded land belonging to the State or other public bodies.

Source: UN-ECE/FAO , 1997. UN-ECE/FAO Temperate and Boreal Forest Resources Assessment 2000. Terms and definitions. New York and Geneva, United Nations. Pp. 13.

73 parameter

379 input parameter

An input parameter is an object, capacity, or intention, put in, or taken in, or operated on by any human driven process.

Source: van Bueren E.M.L., Blom E.M., 1997. Hierarchical framework for the formulation of sustainable forest management standards. Leiden, The Netherlands, Backhuys Publishers. Pp. 82.

Source: van Bueren E.M.L., Blom E.M., 1997. Hierarchical framework for the formulation of sustainable forest management standards. Leiden, The Netherlands, Backhuys Publishers. Pp. 82.

398 **output parameter**

An output parameter is the actual or desired result of a management process which describes the state or capacity of the ecosystem, the state of a physical component or the state of the related social system or its components.

An output parameter may also be referred to as an output or performance parameter.

Source: van Bueren E.M.L., Blom E.M., 1997. Hierarchical framework for the formulation of sustainable forest management standards. Leiden, The Netherlands, Backhuys Publishers. Pp. 82.

466 **parameter**

A value, known or unknown, applied to a population rather than a sample, which is used to define a statistical model, usually a theoretical distribution.

Source: Köhl M., Päivinen R., 1996. Definition of a system of nomenclature for mapping European forests and for compiling a pan-European forest information system. Luxembourg, Office for Official Publications of the European Communities. Pp. 238.

479 **parameter**

Any of the numerical constants which appear in a mathematical expression of relationship among variables. A parameter is called dimensionless if the related variables are expressed in the same physical units, e.g. gm/m²/yr.

Source: Allen T.F.H., Starr T.B., 1982. Hierarchy. Perspectives for ecological complexity. Chicago, University of Chicago Press. Pp. 310.

404 **process parameter**

A process parameter is the management process or a component of the management process, or other human action, describing human activities and not the result of the activity (planning process, field operations).

74 **patch**

212 **patch**

A nonlinear surface area differing in appearance from its surrounding.

Source: Forman R.T.T., Godron M., 1986. Landscape ecology. New York, Wiley. Pp. 619.

75 **patch dynamics**

506 **patch dynamics**

The concept of communities as consisting of a mosaic of patches within which abiotic disturbances and biotic interactions proceed.

Source: Begon M., Harper J.L., Townsend C.R., 1996. Ecology: Individuals, populations and communities. Third edition. Oxford, Blackwell. Pp. 1068.

76 **patch turnover**

213 **patch turnover**

The rate of appearance and disappearance of patches.

Source: Forman R.T.T., Godron M., 1986. Landscape ecology. New York, Wiley. Pp. 619.

77 **plantation**

162 **plantation**

Forest stands established by planting or/and seeding in the

process of afforestation or reforestation. They are either:
- of introduced species (all planted stands), or
- intensively managed stands of indigenous species which meet all the following criteria: one or two species at plantation, even age class, regular spacing. Excludes: Stands which were established as plantation but which have been without intensive management for a significant period of time. These should be considered semi-natural.

Source: UN-ECE FAO Temperate and Boreal Forest Resources Assessment 2000. Terms and Definitions. July 1997. GE. 97-2223I. 13 p.

32 **plantation**

Le résultat d'une plantation:

1. Au sens large, action de planter des arbres par ensemencement direct ou par mise en terre de plants ou de boutures.
2. Au sens strict, action de créer une forêt en plantant de jeunes plants et non pas par ensemencement direct.

Source: Policy and Economics Directorate Forestry Canada / Direction Générale des politiques et de l'Economie, Forêts Canada, 1992. Silvicultural terms in Canada / Terminologie de la sylviculture au Canada (trad. et adapté de la version anglaise). Ottawa, Science and Sustainable Development Directorate, Forestry Canada. Pp. 74.

183 **plantation**

A forest crop established artificially, either by sowing or planting.

Source: Policy and Economics Directorate Forestry Canada / Direction Générale des politiques et de l'Economie, Forêts Canada, 1992. Silvicultural terms in Canada / Terminologie de la sylviculture au Canada (trad. et adapté de la version anglaise). Ottawa, Science and Sustainable Development Directorate, Forestry Canada. Pp. 74.

190 **plantation**

A forest crop or stand raised artificially, either by sowing or planting.

Source: Ford-Robertson F.C. (ed), 1983. Terminology of forest science, technology, practice and products. 2nd printing with addendum. Washington, D.C., Society of American Foresters. Pp. 370.

399 **plantation**

Intensively managed stand of trees of either native or exotic species, created by the regular placement of seedlings or see.

Source: Montreal Process Implementation Group, 1998. A framework of regional (sub-national) level criteria and indicators of sustainable forest management in Australia. Canberra, Commonwealth of Australia. Pp. 108.

78 **population**

473 **population**

A group of organisms of the same species inhabiting a particular geographical area at a particular time.

Source: Natural Resources Canada (eds), 1995. The State of Canada's forests 1994. Ottawa, Natural Resources Canada. Pp. 111.

548 **Population**

(1) In der Statistik eine Menge, deren Elemente mindestens in einem Merkmal Gemeinsamkeiten aufweisen.

(2) In der Genetik eine Gemeinschaft von gemischterbigen Pflanzen oder Tieren, die auf einem begrenzten Raum leben, sich durch Fremdbefruchtung vermehren und an einem gemeinsamen „gen-pool“ teilhaben.

(3) In der Ökologie eine Gemeinschaft von Individuen der gleichen Art, die in gegenseitiger Wechselbeziehung stehen und die sich in einem einheitlichen Raum (z.B. Biotop) befinden und im allgemeinen durch mehrere Generationen genetische Kontinuität zeigen.

Source: Brünig E., Mayer H., 1980. Waldbauliche Terminologie. Wien, Universität für Bodenkultur. Pp. 207. <http://efern.boku.ac.at/forex/wbterm/>

510 PVA

Source: Begon M., Harper J.L., Townsend C.R., 1996. Ecology: Individuals, populations and communities. Third edition. Oxford, Blackwell. Pp. 1068.

79 population vulnerability analysis

400 population viability analysis

Source: Gilpin M.E., Soulé M.E., 1986. Minimum viable populations: processes of species extinction. In: M.E. Soulé (ed), Conservation biology: the science of scarcity and diversity. Sunderland, Mass., Sinauer Associates, Inc.

401 population viability analysis

A comprehensive analysis of the many environmental and demographic factors that affect survival of a population, usually small.

Source: Heywood V.H., Watson R.T., Baste I. (eds), 1995. Global biodiversity assessment. Cambridge, Cambridge University Press. Pp. 1140.

402 population vulnerability analysis

An analytical technique that estimates the minimum viable population of a species required to sustain its existence.

Source: Gilpin M.E., Soulé M.E., 1986. Minimum viable populations: processes of species extinction. In: M.E. Soulé (ed), Conservation biology: the science of scarcity and diversity. Sunderland, Mass., Sinauer Associates, Inc.

509 population vulnerability analysis

An analysis, generally applied to populations or species in danger of extinction, of the population's chances of extinction.

Source: Begon M., Harper J.L., Townsend C.R., 1996. Ecology: Individuals, populations and communities. Third edition. Oxford, Blackwell. Pp. 1068.

80 primary forest

559 Urwald

Naturwald mit natürlichem Bestandaufbau ohne jeden anthropogenen Einfluß in Vergangenheit und Gegenwart; primärer Urwald. Sekundärer Urwald: natürlicher (naturnaher) Waldzustand, der heute keinen offensichtlichen anthropogenen Einfluß mehr erkennen läßt, bzw. frühere menschliche Einwirkungen nicht oder nur in unwesentlichen Merkmalen aufweist.

Source: Brünig E., Mayer H., 1980. Waldbauliche Terminologie. Wien, Universität für Bodenkultur. Pp. 207. <http://efern.boku.ac.at/forex/wbterm/>

81 principle

403 principle

A principle is a fundamental law or rule, serving as a basis for reasoning and action. Principles have the character of an objective or attitude concerning the function of the forest ecosystem or concerning a relevant aspect of the social system that interacts with the ecosystem. Principles are explicit elements of a goal e.g. sustainable forest management or well managed forests.

Source: van Bueren E.M.L., Blom E.M., 1997. Hierarchical framework for the formulation of sustainable forest management standards. Leiden, The Netherlands, Backhuys Publishers. Pp. 82.

82 provenance

296 provenance

The geographical location and its physical features where a particular genotype evolved. Generally used to describe the location of plant seed collection, and described by latitude, longitude, elevation, aspect, and climate.

Source: Kimmins J.P., 1997. Forest ecology. 2nd ed. Upper Saddle River, NJ, Prentice Hall. Pp. 596.

474 provenance

The geographical area or place of origin of a collection of genetic material (generally in the form of seed, pollen or cuttings) for which the process of natural selection has resulted in some common or shared population characteristics.

Source: Natural Resources Canada (eds), 1995. The State of Canada's forests 1994. Ottawa, Natural Resources Canada. Pp. 111.

83 rare species

407 rare species

Taxa with small world populations that are not at present „endangered“ or „vulnerable“ but at risk. These taxa are usually localised within restricted geographical areas or habitats or are thinly scattered over a more extensive range.

Source: UCN Conservation Monitoring Centre, Cambridge U.K. (compiler), 1994. IUCN red list of threatened animals. Gland, IUCN. Cited in Loiskekosti M., Halko L. (eds), 1993. Ministerial Conference on the Protection of Forests in Europe, 16-17 June 1993 in Helsinki. European list of criteria and most suitable quantitative indicators. Helsinki, Ministry of Agriculture and Forestry. Pp. 20.

84 rarity

526 rarity

See Prevalence (of abundance) and Intensity of abundance.

Source: Begon M., Harper J.L., Townsend C.R., 1996. Ecology: Individuals, populations and communities. Third edition. Oxford, Blackwell. Pp. 1068.

25 rareté

Propriété de nombreuses espèces végétales ou animales d'être représentées par des populations très peu nombreuses. On peut distinguer deux types d'espèces rares. Les premières peuvent se rencontrer en un assez grand nombre d'habitats géographiquement éloignés, mais elles présentent toujours une densité de population très faible. A l'opposé, il existe un second type d'espèces très sténocéciques et inféodées à des niches écologiques, elles-mêmes peu fréquentes. Dans ce cas, ces espèces peuvent avoir dans leur habitat une forte densité mais ne se rencontrent qu'en un nombre très faible de biotopes.

Source: Ramade F., 1993. Dictionnaire encyclopédique de l'écologie et des sciences de l'environnement. Paris, Ediscience international. Pp. 822.

85 regenerated patch

214 regenerated patch

An area that becomes free of disturbance within a chronically disturbed matrix.

Source: Forman R.T.T., Godron M., 1986. Landscape ecology. New York, Wiley. Pp. 619.

215 remnant patch

An area remaining from a former large landscape element and now surrounded by a disturbed area.

Source: Forman R.T.T., Godron M., 1986. Landscape ecology. New York, Wiley. Pp. 619.

86 regeneration

533 regeneration

Re-establishment of a forest land by natural or artificial means following the removal of the previous stand by felling or as a result of natural causes, e.g. fire or storm.

Source: UN-ECE/FAO, 1997. UN-ECE/FAO Temperate and Boreal Forest Resources Assessment 2000. Terms and definitions. New York and Geneva, United Nations. Pp. 13.

501 Verjüngung

Bestandesbegründung (Vorgang): Schlagen der alten Bäume zur Einleitung der Jungwaldphase.

Jungwald (Zustand): Ansamung, Keimlinge und junge Bäumchen in der Krautschicht.

Source: Schütz J.P., Brang P., Bonfils P., Bucher H.U., 1993. Darstellung der Standortansprüche wichtiger Baumarten im Ökogramm und Gesellschaftsanschluss der Baumarten. In: Schmider P., Küper M., Tschander B., Käser B. (eds), Die Waldstandorte im Kanton Zürich. Vdf, Zürich, pp. 254-258.

562 Verjüngung

(1) Die Population der Verjüngung (recruitment). Sie kann aus Sämlingen (seedlings) bis zum Ende des Keimlingsstadium aus Lohden (saplings) von ca. 0,5-2,5 m Höhe und bis etwa 5-10 cm Durchmesser sowie aus Stangen größerer Dimensionen (larges poles) bestehen.

(2) Die Summe der natürlichen Ereignisse und waldbaulichen Maßnahmen zur Erzielung und Förderung der Verjüngung (regeneration).

(3) Auf künstlichem oder natürlichem Wege wiederbegründeter Bestand im jugendlichen Alter, natürliche oder künstliche Bestandesbegründung.

Source: Brünig E., Mayer H., 1980. Waldbauliche Terminologie. Wien, Universität für Bodenkultur. Pp. 207. <http://efern.boku.ac.at/forex/wbterm/>

87 resilience

278 elasticity

The speed with which an ecosystem returns to its original condition following disturbance. Also called resilience. A measure of ecosystem stability.

Source: Kimmins J.P., 1997. Forest ecology. 2nd ed. Upper Saddle River, NJ, Prentice Hall. Pp. 596.

468 ecological or ecosystem resilience

Ecological resilience can be defined in two ways. The first is a measure of the magnitude of disturbance that can be absorbed before the (eco)system changes its structure by changing the variables and processes that control behaviour. The second, a more traditional meaning, is a measure of resistance to disturbance and the speed of return to the equilibrium state of an ecosystem.

Source: Heywood V.H., Watson R.T., Baste I. (eds), 1995. Global biodiversity assessment. Cambridge, Cambridge University Press. Pp. 1140.

88 riparian

449 riparian

An area of land adjacent to a stream, river, lake or wetland that contains vegetation that, due to the presence of water, is distinctly different from the vegetation of adjacent upland areas.

Source: British Columbia Forest Service, March 1997: Glossary of Forestry Terms. Available from the World Wide Web: <http://www.for.gov.bc.ca/pab/publctns/glossary/GLOSSARY.HTM>. Cited 01-Oct-98

523 riparian area

There is no standard definition of a riparian area. (...)The following two definitions describe a natural riparian ecosystem.

The Willamette National Forest's definition of riparian area is: „The aquatic ecosystem and the portions of the adjacent terrestrial ecosystem that directly affect or are

affected by the aquatic environment. This includes streams, rivers, and lakes and their adjacent side channels, floodplains and wetlands. The riparian area includes portions of hillslope that serve as streamside habitats for wildlife“ (Gregory and Ashkenas 1990). The definition in the British Columbia Forest Practices Code is: „The land adjacent to the normal high water line in a stream, river, or lake, extending to the portion of land that is influenced by the presence of the adjacent ponded or channeled water. Riparian areas typically exemplify a rich and diverse vegetative mosaic reflecting the influence of available surface water“. (B.C. Ministry of Forests 1994)

B.C. Ministry of Forests. 1994. British Columbia Forest Practices Code: Standards. 216 pp.

Gregory S., Ashkenas L. 1990. Riparian management guide. Willamette National Forest. 120 pp.

Source: Voller J., 1998. Riparian areas and wetlands. In: J. Voller, S. Harrison (eds), Conservation biology principles for forested landscapes. Vancouver, UBC, pp. 98-129.

475 riparian forest

At a large scale, it is the band of forest that has a significant influence on a stream ecosystem or is significantly affected by the stream. At a smaller scale, it is the forest at the immediate water's edge, where some specialized plants and animals form a distinct community.

Source: Natural Resources Canada (eds), 1995. The State of Canada's forests 1994. Ottawa, Natural Resources Canada. Pp. 111.

492 riparian

Of vegetation growing in close proximity to a watercourse, lake, swamp or spring, and often dependent on its roots reaching the water table.

Trees forming a strip along a watercourse may be termed gallery forest = fringing forest.

Source: Ford-Robertson F.C. (ed), 1983. Terminology of forest science, technology, practice and products. 2nd printing with addendum. Washington, D.C., Society of American Foresters. Pp. 370.

450 Riparian Management Area (RMA)

A classified area of specified width surrounding or adjacent to streams, lakes, riparian areas, and wetlands. The RMA includes, in many cases, adjacent upland areas. It extends from the top of the streambank (bank full height) or from the edge of a riparian area or wetland or the natural boundary of a lake outward to the greater of: 1) the specified RMA distance, 2) the top of the inner gorge, or 3) the edge of the flood plain. Where a riparian area or wetland occurs adjacent to a stream or lake, the RMA is measured from the outer edge of the wetland.

Source: British Columbia Forest Service, March 1997: Glossary of Forestry Terms. Available from the World Wide Web:

<http://www.for.gov.bc.ca/pab/publctns/glossary/GLOSSARY.HTM>. Cited 01-Oct-98

514 Auwald

Laubmischwaldgesellschaften im Überflutungs- bzw. Strömungsgebiet der Flüsse.

Source: Brünig E., Mayer H., 1980. Waldbauliche Terminologie. Wien, Universität für Bodenkultur. Pp. 207. <http://efern.boku.ac.at/forex/wbterm/>

499 Auwald

Auwälder sind edaphisch bedingte Dauergesellschaften im Überschwemmungsgebiet der Flüsse.

(...) Charakteristisch sind kontinuierliche und plötzliche Standortveränderungen durch Anlandung und Erosion. Auwälder unterliegen deshalb einer sehr differenzierten Entwicklungsdynamik.

Source: Mayer H., 1984. Wälder Europas. Stuttgart, Gustav Fischer. Pp. 691.

569 Auenwald

Im Überschwemmungsbereich von Flüssen gelegener Wald mit feuchtigkeitsliebenden, nährstoffreichen Boden bevorzugenden und an den stark wechselnden Grundwasserspiegel angepassten Pflanzenarten. Je nach Häufigkeit und Dauer der Überschwemmung bilden sich Weichholzaunen oder Hartholzaunen.

Source: Schütt P., Schuck H.J., Stimm B. (eds), 1992. Lexikon der Forstbotanik. Landsberg/Lech (Germany), ecomed Verlag. Pp. 581.

570 Hartholzaue

Im Spitzenhochwasserbereich des Mittel- und Unterlaufs von Flüssen gelegener Teil des Auenwaldes, der nur selten und dann kurzzeitig überflutet wird. Hartholzauen gleichen Edellaubwäldern und werden deshalb in der pflanzensoziologischen Systematik im Verband der Erlen- und Edellaub-Auenwälder (Alno-Ulmion) zusammengefaßt. T

Typische Vertreter der Hartholzauen sind Fraxinus excelsior, Prunus padus, Ulmus laevis und Ulmus minor, Quercus robur, die Kletterpflanzen Vitis vinifera, Humulus lupulus und Clematis vitalba, Nährstoffzeiger wie Sambucus nigra und Urtica dioica sowie Kryptophyten wie Ranunculus ficaria, Anemone ranunculoides, Galanthus nivalis und Arum maculatum.

Source: Schütt P., Schuck H.J., Stimm B. (eds), 1992. Lexikon der Forstbotanik. Landsberg/Lech (Germany), ecomed Verlag. Pp. 581.

571 Weichholzaue

Im Hochwasserbereich von Flüssen gelegener Teil des Auenwaldes, der von raschwüchsigen Bäumen mit relativ weichem, wenig haltbarem Holz besiedelt ist.

Source: Schütt P., Schuck H.J., Stimm B. (eds), 1992. Lexikon der Forstbotanik. Landsberg/Lech (Germany), ecomed Verlag. Pp. 581.

63 ripicole

(adj.) Se dit d'espèces, de communautés ou de formations végétales localisées au bord des cours d'eau.

Source: Delpech R., Dume G., Galmiche P., Timbal J., 1985. Vocabulaire: typologie des stations forestières. Paris, Institut pour le Développement Forestier. Pp. 243.

64 ripisylve

A éviter d'après Delpech et al. (1985). = forêt ripicole.

Source: Delpech R., Dume G., Galmiche P., Timbal J., 1985. Vocabulaire: typologie des stations forestières. Paris, Institut pour le Développement Forestier. Pp. 243.

89 secondary forest

408 secondary forest

Forest that has regenerated after the original (primary) forest cover has been removed.

Source: Montreal Process Implementation Group, 1998. A framework of regional (sub-national) level criteria and indicators of sustainable forest management in Australia. Canberra, Commonwealth of Australia. Pp. 108.

409 secondary forest

Natural forest growth after some major disturbance (e.g. logging, serious fire, or insect attack).

Source: Heywood V.H., Watson R.T., Baste I. (eds), 1995. Global biodiversity assessment. Cambridge, Cambridge University Press. Pp. 1140.

90 sensitive area

454 sensitive areas

Small areas designated to protect important values during forest and range operations. These areas, established by a Ministry of Forests district manager in consultation with a designated B.C. Environment official, guide operations on a site-specific basis and require a combination of forest practices. Sensitive areas will be mapped by resource agencies, and include regionally significant recreational areas, scenic areas with high visual quality objectives, and forest ecosystem networks.

Source: British Columbia Forest Service, March 1997: Glossary of Forestry Terms. Available from the World Wide Web:
<http://www.for.gov.bc.ca/pab/publctns/glossary/GLOSSARY.HTM>. Cited 01-Oct-98

455 sensitive slopes

Any slope identified as prone to mass wasting.

Source: British Columbia Forest Service, March 1997: Glossary of Forestry Terms. Available from the World Wide Web:

<http://www.for.gov.bc.ca/pab/publctns/glossary/GLOSSARY.HTM>. Cited 01-Oct-98

456 **sensitive soils**

Forest land areas that have a moderate to very high hazard for soil compaction, erosion, displacement, mass wasting or forest floor displacement.

Source: British Columbia Forest Service, March 1997: Glossary of Forestry Terms. Available from the World Wide Web:

<http://www.for.gov.bc.ca/pab/publctns/glossary/GLOSSARY.HTM>. Cited 01-Oct-98

457 **sensitive watershed**

A watershed that is used for domestic purposes or that has significant downstream fisheries values, and in which the quality of the water resource is highly responsive to changes in the environment. Typically, such watersheds lack settlement ponds, are relatively small, are located on steep slopes, and have special concerns such as extreme risk of erosion.

Source: British Columbia Forest Service, March 1997: Glossary of Forestry Terms. Available from the World Wide Web:

<http://www.for.gov.bc.ca/pab/publctns/glossary/GLOSSARY.HTM>. Cited 01-Oct-98

91 **site**

493 **site**

An area considered in terms of its environment, particularly as this determines the type and quality of the vegetation the area can carry.

Sites are classified either qualitatively, by their climate, soil and vegetation, into site types, or qualitatively, by their potential wood production, into site classes.

Source: Ford-Robertson F.C. (ed), 1983. Terminology of forest science, technology, practice and products. 2nd printing with addendum. Washington, D.C., Society of American Foresters. Pp. 370.

488 **Standort**

Gesamte Umwelt, die auf eine Pflanzengesellschaft einwirkt (Klima, Boden, Relief, andere Lebenswesen).

Source: Schütz J.P., Brang P., Bonfils P., Bucher H.U., 1993. Darstellung der Standortansprüche wichtiger Baumarten im Ökogramm und Gesellschaftsanschluss der Baumarten. In: Schmider P., Küper M., Tschander B., Käser B. (eds), Die Waldstandorte im Kanton Zürich. Vdf, Zürich, pp. 254-258.

549 **Standort**

(1) Ein bestimmter Teil der Erdoberfläche, der durch relativ einheitliche Verhältnisse und geographische Lage ausgezeichnet und abgegrenzt ist.

(2) Die reale und typische ökologische Umwelt (habitat) eines realen oder typischen Organismus (Einzelbaum) eines Taxons (Art, Rasse) oder einer heterogenen Gemeinschaft (Bestand, Pflanzengesellschaft).

(3) Die Geländequalität ohne Bezug auf die vorhandenen Organismen, z.B. die Gesamtheit der wachstumsbestimmenden, lage- und raumbezogenen Faktoren eines Geländeabschnittes.

Die räumliche Aneinanderreihung von Standorten ergibt die Standortsreihe (bodenkundlich Catena).

(a) Forstlicher Standort (forest site). Der Komplex physikalischer (klimatischer und edaphischer) und biologischer Faktoren (natürliche Umwelteinflüsse) bestimmt, welche Art von Wäldern und Beständen der Standort tragen kann. Die Eigenart des Standortes begrenzt die Wahl der Baumarten, des Bestandesaufbaus und der Betriebszieltypen und entscheidet über die potentielle Produktivität der Baumarten, Bestandestypen und Betriebsformen.

(b) Standortsklasse (site class). Die ertragskundliche Einstufung eines forstlichen Standortes hinsichtlich seines Ertragsvermögens an Forstprodukten und Dienstleistungen. Das Ertragsvermögen eines Standortes kann anhand der Wuchsleistung vorhandener Bestände oder durch Vergleich mit den Leistungen auf anderen Standorten mit analogen klimatischen und edaphischen Verhältnissen geschätzt werden.

Source: Brünig E., Mayer H., 1980. Waldbauliche Terminologie. Wien, Universität für Bodenkultur. Pp. 207. <http://efern.boku.ac.at/forex/wbterm/>

92 *site adaptedness

507 Standortstolerance

Grössere Anpassungsfähigkeit von Baumarten (Ökotypen) an die örtlichen Klima- und Bodenbedingungen, z.B. Universalarassen.

Source: Brünig E., Mayer H., 1980. Waldbauliche Terminologie. Wien, Universität für Bodenkultur. Pp. 207. <http://efern.boku.ac.at/forex/wbterm/>

93 site class

440 site class

A classification of forest land in terms of inherent capacity to grow crops of industrial wood. The class identifies the average potential growth in cubic feet/acre/year (trees 5 inches diameter or larger to a 4-inch top) and is based on the culmination of mean annual increment of fully stocked natural stands.

Source: Southern Region Forest Inventory and Analysis, Forest Inventory - Definitions of Terms (no date). Available from the World Wide Web: <http://www.srsfia.usfs.msstate.edu/fidef2.htm>. Cited 01-Oct-98

495 site class

A measure of the relative productive capacity of a site for the crop or stand under study, based e.g. on volume or height (dominant, co-dominant or mean) or the maximum mean annual increment, that is attained or attainable at a given age.

Source: Ford-Robertson F.C. (ed), 1983. Terminology of forest science, technology, practice and products. 2nd printing with addendum. Washington, D.C., Society of American Foresters. Pp. 370.

94 site type

494 site type

Sites are classified either qualitatively, by their

climate, soil and vegetation, into site types, or qualitatively, by their potential wood production, into site classes.

Source: Ford-Robertson F.C. (ed), 1983. Terminology of forest science, technology, practice and products. 2nd printing with addendum. Washington, D.C., Society of American Foresters. Pp. 370.

504 Standortstyp

Zusammenfassung von waldbaulich-ökologisch gleichwertigen Standorten nach einheitlichen Merkmalen (Geologie, Klima, Boden) zu einem Typ für Zwecke der Kartierung, Planung und Behandlung (Standortseinheit).

Source: Brünig E., Mayer H., 1980. Waldbauliche Terminologie. Wien, Universität für Bodenkultur. Pp. 207. <http://efern.boku.ac.at/forex/wbterm/>

95 species diversity

309 species diversity

One of the measures of biological diversity in forest ecosystems. The number of species in the ecosystem (species richness), or one of several indices that reflect the relative commonness of different species (species evenness).

Source: Kimmins J.P., 1997. Forest ecology. 2nd ed. Upper Saddle River, NJ, Prentice Hall. Pp. 596.

310 species diversity

We define and measure species diversity as a parameter of average rarity within a forest stand (Patil and Taillie 1982). In a diverse community, average rarity is the probability that a particular species will be comparatively rare; therefore, in a single community, such as a red pine (*Pinus resinosa* Ait.) plantation, the average rarity or diversity measure is expected to be near zero.

Source: Niese J.N., Strong T.F., 1992. Economic and tree diversity trade-offs in managed northern hardwoods. Canadian Journal of Forest Research 22: 1807-1813.

311 species diversity

Species diversity is a function of the number of species present (species richness or species abundance) and the evenness with which the individuals are distributed among these species (species evenness or species equitability) (Margalef 1958, Lloyd and Ghelardi 1964, Pielou 1966). If the term "species diversity" is to retain any usefulness (and this seems doubtful) its meaning probably should be restricted to at least this extent. Its use in other senses has been one cause of the term's present ambiguity. Some workers appear to synonymize species richness with species diversity or at least consider species richness to be one of several possible measures of species diversity (e.g. MacArthur 1965, Whittaker 1965, Paine 1966, Pianka 1966, 1967, Hutchinson 1967: 372, Hessler and Sanders 1967, MacArthur and Wilson 1967, Odum 1967, McNaughton 1967, 0968, Johnson, Mason, and Raven 1968, Sanders 1968, Whittaker and Woodwell 1969).

Source: Hurlbert S.H., 1971. The nonconcept of species diversity: a critique and alternative parameters. *Ecology* 52(4): 577-586.

96 species evenness

313 species evenness

Species evenness usually has been defined as the ratio of observed diversity to maximum diversity, the latter being said to occur when the species in a collection are equally abundant (...).

Source: Hurlbert S.H., 1971. The nonconcept of species diversity: a critique and alternative parameters. *Ecology* 52(4): 577-586.

97 species richness

312 species richness

Species richness can refer to the number of species present, without any particular regard for the exact area or number of individuals examined. However, it is useful to distinguish between numerical species richness

(hereinafter referred to simply as species richness), the number of species present in a collection containing a specified number of individuals, or, possibly, amount of biomass; and areal species richness or species density (Simpson 1964), the number of species present in a given area or volume of the environment.

Source: Hurlbert S.H., 1971. The nonconcept of species diversity: a critique and alternative parameters. *Ecology* 52(4): 577-586.

410 species richness

The number of species within a region. (A term commonly used as a measure of species diversity, but technically only one aspect of diversity).

Source: World Resources Institute (WRI), The World Conservation Union (IUCN), United Nations Environment Programme (UNEP), 1992. Global biodiversity strategy: guidelines for action to save, study, and use earth's biotic wealth sustainably and equitably. Washington, DC, World Resources Institute (WRI). Pp. 244.

98 species-area curve

314 species-area curve

A graphical representation of the rate of change in number of species in a sample plot as the size of the plot is increased.

Source: Kimmins J.P., 1997. Forest ecology. 2nd ed. Upper Saddle River, NJ, Prentice Hall. Pp. 596.

511 Arten-Arealkunde

Das Verhältnis von Artenzahl zur Flächengröße. Sie steigt mit zunehmender Flächengröße zuerst steil an und verläuft dann immer flacher.

Source: Brünig E., Mayer H., 1980. Waldbauliche Terminologie. Wien, Universität für Bodenkultur. Pp. 207. <http://efem.boku.ac.at/forex/wbterm/>

99 stand

458 stand

A community of trees sufficiently uniform in species composition, age, arrangement, and condition to be distinguishable as a group from the forest or other growth on the adjoining area, and thus forming a silviculture or management entity.

Source: British Columbia Forest Service, March 1997: Glossary of Forestry Terms. Available from the World Wide Web:
<http://www.for.gov.bc.ca/pab/publctns/glossary/GLOSSARY.HTM>. Cited 01-Oct-98

519 Bestand

Ein Kollektiv von in gegenseitiger Wechselwirkung stehenden Bäumen von ausreichender Einheitlichkeit nach Artenzusammensetzung, Entwicklungszustand, Alter, Struktur und Aufbau, um sie von anderen Beständen zu unterscheiden und von ausreichender Ausdehnung, um ein typisches Innenklima zu entwickeln. Der Bestand ist vielfach die kleinste Einheit für die Planung und Durchführung forstlicher, insbes. waldbaulicher Maßnahmen. Mindestfläche 1.0 (0.5) ha.

- (1) Ausscheidender Bestand (thinnings): Der Teil des Bestandes, der zur Entnahme im Zuge der Durchforstung heransteht, bzw. natürlich abstirbt.
- (2) Verbleibender Bestand (residual stand, remaining stand): Der nach erfolgter Durchforstung verbleibende Teil des Bestandes.
- (3) Wildbiologisch ein Kollektiv von Wildtieren einer Art, (Stock), vgl. Wildbestand.

Source: Brünig E., Mayer H., 1980. Waldbauliche Terminologie. Wien, Universität für Bodenkultur. Pp. 207.
<http://efern.boku.ac.at/forex/wbterm/>

574 Bestand

Baumkollektiv, das sich von der Umgebung durch Baumartenzusammensetzung, Bestandesalter oder Aufbau wesentlich unterscheidet (nach SAFE), im LFI mit einer Minimalfläche von 5 Aren.

Source: Brassel P., Brändli U.B. (Red.), (in press). Schweizerisches Landesforstinventar. Ergebnisse der Zweitaufnahme 1993–1995. Bern, Haupt.

100 stand structure

459 stand structure

The distribution of trees in a stand, which can be described by species, vertical or horizontal spatial patterns, size of trees or tree parts, age, or a combination of these.

Source: British Columbia Forest Service, March 1997: Glossary of Forestry Terms. Available from the World Wide Web:
<http://www.for.gov.bc.ca/pab/publctns/glossary/GLOSSARY.HTM>. Cited 01-Oct-98

101 stand type

460 stand types

See „stand“, „stand structure“.

Source: British Columbia Forest Service, March 1997: Glossary of Forestry Terms. Available from the World Wide Web:
<http://www.for.gov.bc.ca/pab/publctns/glossary/GLOSSARY.HTM>. Cited 01-Oct-98

521 Bestandestyp

Bestände gleicher oder sehr ähnlicher Bestockung hinsichtlich Baumartenzusammensetzung (Holzsortenanteil), Struktur, Altersaufbau und Wuchsverhältnisse, die waldbaulich ähnlich behandelt werden können. Der Bestandeszieltyp ist der angestrebte Bestandeszustand (vgl. Betriebszieltyp).

Source: Brünig E., Mayer H., 1980. Waldbauliche Terminologie. Wien, Universität für Bodenkultur. Pp. 207.
<http://efern.boku.ac.at/forex/wbterm/>

102 standard

411 standard

A standard is a set of principles, criteria and indicators, or at least some combinations of these hierarchical levels, that serves as a tool to promote sustainable forest management, as a basis for monitoring and reporting or as a reference for assessment of actual forest management.

The term „standard“ is also used as reference for one particular aspect of forest management, e.g. desirable species composition, tolerable erosion levels etc. In [van Bueren and Blom 1997] the term „norm“ is used for reference to one particular aspect.

Source: van Bueren E.M.L., Blom E.M., 1997. Hierarchical framework for the formulation of sustainable forest management standards. Leiden, The Netherlands, Backhuys Publishers. Pp. 82.

103 stressor indicator

412 stressor indicator

A characteristic of the environment that is suspected to elicit a change in the state of an ecological resource, and they include both natural and human-induced stressors. Selected stressor indicators will be monitored in EMAP only when a relationship between specific condition and stressor indicators are known or if a testable hypothesis can be formulated.

(New term 1993; replaces environmental indicator.)

Source: Environmental Monitoring and Assessment Program (EMAP). Master Glossary [online]. Updated 09/15/97 [cited 1998-08-31]. Available from the World Wide Web:

<<http://www.epa.gov/emfjulte/html/glossary.html>>

104 structural diversity

317 structural diversity

One of the measures of biological diversity in forest ecosystems. It refers to the variation in tree size and canopy layering, the variety of different life forms of vegetation (trees, herbs, shrubs, mosses, climbers, epiphytes, etc.), and the relative size and abundance of standing dead trees (snags) and decaying logs on the ground (coarse woody debris). Structural diversity refers to these features within a particular local ecosystem (alpha structural diversity), or to variations in them between local ecosystems across the local landscape (beta structural diversity).

Source: Kimmins J.P., 1997. Forest ecology. 2nd ed. Upper Saddle River, NJ, Prentice Hall. Pp. 596.

105 succession

231 allogenic succession

The changes in the living community and in the soil and microclimatic characteristics of an ecosystem as a result of alterations in the physical environment that are independent of changes in the living community. Floods, wind, landslides, fire, drought, climate change, or sediment deposition by a river are examples of factors that can cause allogenic succession.

Source: Kimmins J.P., 1997. Forest ecology. 2nd ed. Upper Saddle River, NJ, Prentice Hall. Pp. 596.

249 autogenic succession

The change in the living community and in the soil and microclimatic characteristics of an ecosystem caused by the living community itself (auto=self; genic=caused or generated); refers to effects caused by the plant community. The major mechanisms of autogenic succession are invasion and colonization, environmental alteration, and species exclusion.

Source: Kimmins J.P., 1997. Forest ecology. 2nd ed. Upper Saddle River, NJ, Prentice Hall. Pp. 596.

251 **biogenic succession**

The change in the living community and in the soil and microclimatic characteristics of an ecosystem caused mainly by the animal and microbial components of the living community. Insect outbreaks, mammalian herbivores, and epidemics of plant disease organisms are examples of biotic factors that can substantially alter the patterns of ecosystem development that would result from autogenic or allogenic processes acting alone.

Source: Kimmins J.P., 1997. Forest ecology. 2nd ed. Upper Saddle River, NJ, Prentice Hall. Pp. 596.

274 **ecological succession**

The process by which a series of different plant communities and associated animals and microbes successively occupy and replace each other over time in a particular ecosystem or landscape location following a disturbance to that ecosystem. Includes the accompanying change in the nonliving environment (soil and microclimate).

Source: Kimmins J.P., 1997. Forest ecology. 2nd ed. Upper Saddle River, NJ, Prentice Hall. Pp. 596.

512 **succession**

The non-seasonal, directional and continuous pattern of colonization and extinction on a site by populations.

Source: Begon M., Harper J.L., Townsend C.R., 1996. Ecology: Individuals, populations and communities. Third edition. Oxford, Blackwell. Pp. 1068.

553 **allogenetische Sukzession**

Der Wechsel wird durch Änderung der Standortverhältnisse von außen verursacht (z.B. forstliche Maßnahmen).

Source: Brünig E., Mayer H., 1980. Waldbauliche Terminologie. Wien, Universität für Bodenkultur. Pp. 207. <http://efern.boku.ac.at/forex/wbterm/>

554 **autogenetische Sukzession**

Die Pflanzengesellschaft verändert ihre eigene Umwelt (habitat) in einer Weise, daß sie von einer anderen Gesellschaft verdrängt werden kann (z.B. autotoxische Substanzen, Humusanhäufungen).

Source: Brünig E., Mayer H., 1980. Waldbauliche Terminologie. Wien, Universität für Bodenkultur. Pp. 207. <http://efern.boku.ac.at/forex/wbterm/>

555 **primäre Sukzession**

Beginnt auf vegetationslosem Substrat (Lava, Küstenschlick, Geröll, Sanddüne, verlandendes Seeufer) und führt durch ein Kontinuum von Serien oder Phasen zur Schlußgesellschaft. Auch nach natürlichen Katastrophen (Feuer, Insekten, Überflutung).

Source: Brünig E., Mayer H., 1980. Waldbauliche Terminologie. Wien, Universität für Bodenkultur. Pp. 207. <http://efern.boku.ac.at/forex/wbterm/>

556 **sekundäre Sukzession**

Beginnt nach mehr oder weniger vollständiger Zerstörung der ursprünglichen Vegetation infolge direkter oder indirekter Einflußnahme durch den Menschen und führt durch eine Folge von Gesellschaftstypen als Subserie schließlich zurück zum ursprünglichen Klimax, oder bleibt bei andauernder Einwirkung des auslösenden oder anderer Umweltfaktoren (z.B. Feuer) auf einem Stadium des Disklimax oder Plagioklimax fixiert (z.B. Savannen). (Sekundärwald).

Source: Brünig E., Mayer H., 1980. Waldbauliche Terminologie. Wien, Universität für Bodenkultur. Pp. 207. <http://efern.boku.ac.at/forex/wbterm/>

491 **Sukzession**

Natürliche Abfolge von Entwicklungsphasen im Wald, z.B. Kahlfäche – Pionierwald – Optimalphase der Baumentwicklung – Alters- und Zerfallsphase – wieder Kahlfäche oder Hochstaudenflur – Pionierwald usw.

Source: Schütz J.P., Brang P., Bonfils P., Bucher H.U., 1993. Darstellung der Standortansprüche wichtiger Baumarten im Ökogramm und Gesellschaftsanschluss der Baumarten. In: Schmider P., Küper M., Tschander B., Käser B. (eds), Die Waldstandorte im Kanton Zürich. Vdf, Zürich, pp. 254-258.

552 Sukzession

Eine zeitliche Folge von Veränderungen der Struktur und Funktionen der Vegetation (und ihrem Standort) infolge unterschiedlicher Wachstums- und Regenerationsraten sowie Konkurrenzwirkungen der sie zusammensetzenden Pflanzenarten.

(1) Das Verdrängen einer Pflanzengesellschaft durch eine andere im Verlauf ontogenetischer oder phylogenetischer Zeiträume.

(2) Der fortschreitende Wechsel der Vegetation von der Pioniergesellschaft bis zur Schlußgesellschaft.

Allogenetische (allogene) Sukzession (allogenic succession). Der Wechsel wird durch Änderung der Standortverhältnisse von außen verursacht (z.B. forstliche Maßnahmen).

Autogenetische (autogene) Sukzession (autogenic succession). Die Pflanzengesellschaft verändert ihre eigene Umwelt (habitat) in einer Weise, daß sie von einer anderen Gesellschaft verdrängt werden kann (z.B. autotoxische Substanzen, Humusanhäufungen).

Primäre Sukzession (primary succession). Beginnt auf vegetationslosem Substrat (Lava, Küstenschlick, Geröll, Sanddüne, verlandendes Seeufer) und führt durch ein Kontinuum von Serien oder Phasen zur Schlußgesellschaft. Auch nach natürlichen Katastrophen (Feuer, Insekten, Überflutung).

Sekundäre Sukzession (secondary succession). Beginnt nach mehr oder weniger vollständiger Zerstörung der ursprünglichen Vegetation infolge direkter oder indirekter Einflußnahme durch den Menschen und führt durch eine Folge von Gesellschaftstypen als Subserie schließlich zurück zum ursprünglichen Klimax, oder bleibt bei andauernder Einwirkung des auslösenden oder anderer Umweltfaktoren (z.B. Feuer) auf einem Stadium des Disklimax oder Plagioklimax fixiert (z.B. Savannen). (Sekundärwald).

Verschiedenen Phasen (vgl. Phase) einer Waldsukzessionsreihe werden gekennzeichnet durch bestimmte physio-ökologische Eigenschaften der Baumarten.

- a) Pionierbaumarten (pioneers, ephemerals), kurzlebig (10-20 Jahre), Weichholz, breitkronig, lichtbedürftig, rasch wachsend;
- b) Hauptphasenbaumarten (persistent, serals), länger

lebend (etwa 50-300 Jahre), in der Jugend schnell wachsend, dann langandauerndes langsames Wachstum, Licht- bis Schattbaumarten;

c) Schlußphasenbaumarten (slow-living, late phase species), langlebige, langsam wachsende, dichtkronige, schattenertragende Baumarten.

Eine genaue Kenntnis der natürlichen Boden- und Vegetationsentwicklung mit deutlich unterscheidbaren Phasen (Stadien) ist Voraussetzung für gezielte waldbauliche Maßnahmen, z.B. Wiederbesiedlung von Blaiken. Aus dem räumlichen Nebeneinander von Sukzessionsstadien darf nicht ohne weiteres auf ein zeitliches Nacheinander geschlossen werden.

Source: Brünig E., Mayer H., 1980. Waldbauliche Terminologie. Wien, Universität für Bodenkultur. Pp. 207. <http://efern.boku.ac.at/forex/wbterm/>

106 sustainable forest management

413 sustainable forest management

Sustainable forest management is the process of managing permanent forest land to achieve one or more clearly specified objectives of management with regard to the production of a continuous flow of desired forest products and service without undue reduction of its inherent values and future productivity and without undue undesirable effects on the physical and social environment. (Definition adopted by the International Tropical Timber Council (ITTC) in 1992)

Source: van Bueren E.M.L., Blom E.M., 1997. Hierarchical framework for the formulation of sustainable forest management standards. Leiden, The Netherlands, Backhuys Publishers. Pp. 82.

414 sustainable forest management

Sustainable forest management means the stewardship and use of forests and forest lands in a way, and a rate, that maintains their biological diversity, productivity, regeneration capacity, vitality and their potential to fulfil, now and in the future, relevant ecological, economic and

social functions, at local, national and global levels, and that does not cause damage to other ecosystems. (Ministerial Conference on the Protection of European Forests, 1993. Resolution H1)

Source: Granholm H., Vähänen T., Sahlberg S. (compilers), 1996. Background document. Intergovernmental Seminar on Criteria and Indicators for Sustainable Forest Management, August 19-22, 1996, Helsinki. Helsinki, Ministry of Agriculture and Forestry, Intergovernmental Seminar on Criteria and Indicators for Sustainable Forest Management. Pp. 131.

107 temporal diversity

320 temporal diversity

The change over time in measures of alpha species and structural diversity, or in measures of landscape (beta) diversity, due to disturbance and autogenic succession.

Source: Kimmins J.P., 1997. Forest ecology. 2nd ed. Upper Saddle River, NJ, Prentice Hall. Pp. 596.

108 texture

515 texture measures

This is NOT a definition!

Texture measures are used to analyse patterns of brightness variation within an image (...). These measures can be used profitably in landscape ecology to analyse the complexity of the mosaic and the contrast between patches.

Source: Farina A., 1998. Principles and methods in landscape ecology. London, Chapman & Hall. Pp. 235.

109 threatened species

415 threatened species

A general term to denote species which are endangered, vulnerable, rare, indeterminate, or insufficiently known.

Source: UCN Conservation Monitoring Centre, Cambridge U.K. (compiler), 1994. IUCN red list of threatened animals. Gland, IUCN.

416 threatened species

Species that are, often genetically impoverished, of low fecundity, dependent on patchy or unpredictable resources, extremely variable in population density, persecuted or otherwise prone to extinction in human-dominated landscapes.

Source: Heywood V.H., Watson R.T., Baste I. (eds), 1995. Global biodiversity assessment. Cambridge, Cambridge University Press. Pp. 1140.

110 tree

436 tree

Woody plants that generally have a single main stem and have more or less definite crowns. In instances where life form cannot be determined, woody plants equal to or greater than 5 m in height will be considered trees.

Source: Vegetation Subcommittee, Federal Geographic Data Committee, June 1997: Vegetation Classification Standard. Appendix III: Definitions (normative). Available on World Wide Web: <http://biology.usgs.gov/fgdc/veg/standards/appendix3.htm> Last updated: 06-Nov-1997. Cited: 01-Oct-98
<http://biology.usgs.gov/fgdc/veg/standards/appendix3.htm>

441 tree

A woody plant usually having one or more perennial stems, a more or less definitely formed crown of foliage, and a height of at least 12 feet at maturity.

Source: Southern Region Forest Inventory and Analysis, Forest Inventory - Definitions of Terms (no date). Available from the World Wide Web: <http://www.srsfia.usfs.msstate.edu/fidef2.htm>. Cited 01-Oct-98

442 tree

A woody, self-supporting perennial plant usually with a single main stem and generally growing more than 20 feet tall.

Source: GardenWeb, 1998: Glossary of Botanical Terms. Available from the World Wide Web: <http://www.gardenweb.com/glossary/> Last updated 26-Sept-98. Cited 01-Oct-98

477 tree

A generic term for tree species of any size — seedlings, saplings, subplot trees, timberland species, and woodland species. Trees less than 5.0 inches (12.7 cm) DBH/DRC are measured on microplots, larger trees are measured on subplots.

Source: USDA Forest Service, 1998. Forest health monitoring 1998. Field methods guide. Research Triangle Park, NC, USDA Forest Service, National Forest Health Monitoring Program. Pp. [mult. pag.].

534 tree

A woody perennial with a single main stem or, in the case of coppice, with several stems, having a more or less definite crown.

Includes: bamboos, palms and other woody plants meeting the above criterion.

Source: UN-ECE/FAO, 1997. UN-ECE/FAO Temperate and Boreal Forest Resources Assessment 2000. Terms and definitions. New York and Geneva, United Nations. Pp. 13.

515 Baum

Eine perennierende Pflanze mit einem durchgehenden, verholzten Stamm und einer mehr oder weniger wohlausgebildeten Krone; in der Regel über 5 m hoch werdend.

Source: Brünig E., Mayer H., 1980. Waldbauliche Terminologie. Wien, Universität für Bodenkultur. Pp. 207. <http://efern.boku.ac.at/forex/wbterm/>

111 umbrella species

417 umbrella species

Species whose occupancy area (plants) or home range (animals) are large enough and whose habitat requirements are wide enough that, if they are given a sufficiently large area for their protection, will bring other species under that protection.

Source: Heywood V.H., Watson R.T., Baste I. (eds), 1995. Global biodiversity assessment. Cambridge, Cambridge University Press. Pp. 1140.

224 umbrella species

A large-bodied, popular species having a large home range and broad requirements for habitats and resources, that can be managed to also provide habitats and resources for other species; similar to flagship species.

Source: Marcot B.G., Wisdom M.H., Li H.W., Castillo G.C., 1994. Managing for featured, threatened, endangered, and sensitive species and unique habitats for ecosystem sustainability. General Technical Report PNW 329, Portland, OR, USDA Forest Service, Pacific Northwest Research Station, 39 p.

112 unitype species

225 unitype species

A wildlife species that uses and requires only one kind of habitat or successional stage, typically their interiors.

Source: Marcot B.G., Wisdom M.H., Li H.W., Castillo G.C., 1994. Managing for featured, threatened, endangered, and sensitive species and unique habitats for ecosystem sustainability. General Technical Report PNW 329, Portland, OR, USDA Forest Service, Pacific Northwest Research Station, 39 p.

113 *unnatural

483 naturfremder Bestand

Bestand mit hohem Anteil an standortfremden Baumarten.

Source: Schütz J.P., Brang P., Bonfils P., Bucher H.U., 1993. Darstellung der Standortansprüche wichtiger Baumarten im Ökogramm und Gesellschaftsanschluss der Baumarten. In: Schmider P., Küper M., Tschander B., Käser B. (eds), Die Waldstandorte im Kanton Zürich. Vdf, Zürich, pp. 254-258.

114 *unsuitable species

503 standortwidrig

Die spezifische Baumart eignet sich nicht für den Anbau am betreffenden Standort, da Wuchs, Schädlingsresistenz, Ausformung und nachhaltige Massen- und Wertleistung nicht befriedigen.

Source: Brünig E., Mayer H., 1980. Waldbauliche Terminologie. Wien, Universität für Bodenkultur. Pp. 207. <http://efern.boku.ac.at/forex/wbterm/>

587 standortwidrig

Bei Vorkommen den Standort schädigend.

Auch die Schreibweise ohne Genitiv-S im Wortmitte kommt vor.

Source: P. Brang (WSL Birmensdorf)

115 vegetation

437 vegetation

The collective plant cover over an area.

Source: Vegetation Subcommittee, Federal Geographic Data Committee, June 1997: Vegetation Classification Standard. Appendix III: Definitions (normative). Available on World Wide Web: <http://biology.usgs.gov/fgdc/veg/standards/appendix3.htm>. Last updated: 06-Nov-1997.

Cited: 01-Oct-98

<http://biology.usgs.gov/fgdc.veg/standards/appendix3.htm>

560 Vegetation

(1) Pflanzen allgemein und die Gesamtheit des Pflanzenlebens in einem Gebiet;
(2) Potentiell natürliche Vegetation: Pflanzengesellschaft, die sich heute auf Grund der Umweltbedingungen eines Standortes vorfindet oder langfristig wieder einstellt, wenn der Einfluß des Menschen ausgeschaltet wurde.

Source: Brünig E., Mayer H., 1980. Waldbauliche Terminologie. Wien, Universität für Bodenkultur. Pp. 207. <http://efern.boku.ac.at/forex/wbterm/>

572 Vegetation

Gesamtheit der Pflanzengesellschaften eines Gebietes.

Source: Schütt P., Schuck H.J., Stimm B. (eds), 1992. Lexikon der Forstbotanik. Landsberg/Lech (Germany), ecomed Verlag. Pp. 581.

116 *vegetation type

561 Vegetationstyp

Eine bestimmte Form der Vegetation oder Pflanzengesellschaft gleich welcher Größenordnung (Flächenausdehnung), Rang oder Phase der Sukzession.

Source: Brünig E., Mayer H., 1980. Waldbauliche Terminologie. Wien, Universität für Bodenkultur. Pp. 207. <http://efern.boku.ac.at/forex/wbterm/>

117 verifier

418 verifier

A verifier is the source of information for the indicator or for the reference value for the indicator.

Source: van Bueren E.M.L., Blom E.M., 1997.

Hierarchical framework for the formulation of sustainable forest management standards. Leiden, The Netherlands, Backhuys Publishers. Pp. 82.

118 vulnerable species

419 vulnerable species

10% probability of extinction within 100 years.

Source: Mace G.M., Lande R., 1995. Assessing extinction threats: toward a reevaluation of IUCN threatened species categories. In: Ehrenfeld D. (ed), To preserve biodiversity: an overview. Cambridge, Massachusetts, Blackwell Science, pp. 51-60.

420 vulnerable species

Taxa believed likely to move into the „Endangered“ category in the near future if the causal factors continue operating. Included are taxa of which most or all the populations are decreasing because of over-exploitation, extensive destruction of habitat or other environmental disturbance. Taxa with populations that are still abundant but are under threat from severe adverse factors throughout their range [sic]. In practice, „Endangered“ and „Vulnerable“ categories may include, temporarily, taxa whose populations are beginning to recover as a result of remedial action, but whose recovery is insufficient to justify their transfer to another category.

Source: UCN Conservation Monitoring Centre, Cambridge U.K. (compiler), 1994. IUCN red list of threatened animals. Gland, IUCN. Cited in Loiskekosti M., Halko L. (eds), 1993. Ministerial Conference on the Protection of Forests in Europe, 16-17 June 1993 in Helsinki. European list of criteria and most suitable quantitative indicators. Helsinki, Ministry of Agriculture and Forestry. Pp. 20.

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Appendices

1. Definitions of „land use“, „land cover“, „tree“, „forest“ and related terms.

Source: Lund G. (ed), 1998. Definitions of deforestation, afforestation and reforestation [on line].

Cited 2-Oct-98. Available from the World Wide Web <<http://home.att.net/~gklund/DEFpaper.html>>

2. Reference nomenclature for „forest area“ and „other woodland“.

Source: Köhl M., Päivinen R., 1996. Definition of a system of nomenclature for mapping European forests and for compiling a pan-European forest information system.

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The author is responsible for the view expressed in this document.
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