

Zeitschrift: Berichte des Geobotanischen Institutes der Eidg. Techn. Hochschule, Stiftung Rübel

Herausgeber: Geobotanisches Institut der Eidg. Techn. Hochschule, Stiftung Rübel

Band: 36 (1964)

Artikel: Ordination and classification of Swiss and Canadian coniferous forests by various biometric and other methods

Autor: Groenewoud, H. van

Kapitel: 9: Acknowledgements

DOI: <https://doi.org/10.5169/seals-377646>

Nutzungsbedingungen

Die ETH-Bibliothek ist die Anbieterin der digitalisierten Zeitschriften auf E-Periodica. Sie besitzt keine Urheberrechte an den Zeitschriften und ist nicht verantwortlich für deren Inhalte. Die Rechte liegen in der Regel bei den Herausgebern beziehungsweise den externen Rechteinhabern. Das Veröffentlichen von Bildern in Print- und Online-Publikationen sowie auf Social Media-Kanälen oder Webseiten ist nur mit vorheriger Genehmigung der Rechteinhaber erlaubt. [Mehr erfahren](#)

Conditions d'utilisation

L'ETH Library est le fournisseur des revues numérisées. Elle ne détient aucun droit d'auteur sur les revues et n'est pas responsable de leur contenu. En règle générale, les droits sont détenus par les éditeurs ou les détenteurs de droits externes. La reproduction d'images dans des publications imprimées ou en ligne ainsi que sur des canaux de médias sociaux ou des sites web n'est autorisée qu'avec l'accord préalable des détenteurs des droits. [En savoir plus](#)

Terms of use

The ETH Library is the provider of the digitised journals. It does not own any copyrights to the journals and is not responsible for their content. The rights usually lie with the publishers or the external rights holders. Publishing images in print and online publications, as well as on social media channels or websites, is only permitted with the prior consent of the rights holders. [Find out more](#)

Download PDF: 01.04.2026

ETH-Bibliothek Zürich, E-Periodica, <https://www.e-periodica.ch>

(2) If classification is not possible, it accords the investigator an alternative in the ordination; and

(3) if classification is possible, one often would like to know if the levels of the factors in which one is interested are significantly different in the community-types recognized. This could be investigated by a variance analysis or by a "t" test. If the relationships among the factors and the axes are known, however, it can easily be shown that, in most cases, only those habitat features, that show a significant relationship with the axes, have significantly different means for the different community-types. This does not mean that they have to be significantly different. This depends on the relative position of the clusters in relation to the axes.

It was hypothesized that the correlations or covariances between the quantitative measures of the different species were not due to chance, but were reflections of the reaction of the species to their environment, including the interactions between the species. The relationships which were found to exist between the principal axes and certain habitat factors are an indication of the correctness of this concept.

The fact that the ordinations of the Canadian sample plots are not related either to the height-growth or to the nitrogen content of the white spruce foliage attracts attention. To obtain an ordination which also would be related to these factors, certain soil factors, which were not measured in this study, should be included in the analysis, or better yet they should be analyzed separately for their relationships with the height-growth and nitrogen content of the foliage.

9. Acknowledgements

During the execution of the work published here, many people have readily extended to me their cooperation, for which I wish to express my sincere gratitude.

In particular I wish to thank Professor Dr. H. Ellenberg, Director of the Geobotanical Institute of the Swiss Federal Institute of Technology in Zürich for his help in the application of the differential species-group method to my data, his constructive criticism regarding my work, and his general support, and Professor Dr. H. LeRoy, of the Departement of Animal Husbandry, of the Swiss Federal Institute of Technology for his support and consideration in his capacity as co-referendary.

I am grateful for the financial assistance provided by the Zentener Fund of the Swiss Federal Institute of Technology. The Departement of Forestry

of the Federal Government of Canada granted me leave of absence and financial aid, for which I am much obliged.

I am much indebted to Dr.P.Ihm of the Euratom Research Centre at Ispra, Italy, whose invaluable help came at a moment when it was critically needed, for allowing me to use his computer programs and for giving most valuable advice.

I take pleasure in expressing many thanks to Dr.N.Sklov, Professor of Statistics at the University of Saskatchewan and to Dr.D.Brown of the Statistical Research Service of the Federal Department of Forestry at Ottawa for their advice and the use of certain facilities.

I wish to thank Dr.C.G.Riley, recently retired Officer-in-Charge of the Forest Pathology Laboratory at Saskatoon, for his valued support on different occasions and for his editorial comments.

Further, I am happy to name Mr.H.H.Weegar who has most efficiently and faithfully assisted me during the different phases of the work over a number of years and Mr.J.Chamberlain, who ably assisted with the field work and whose intimate knowledge of the countryside surrounding Candle Lake was of considerable benefit.

Also, I wish to express my appreciation to Mr.Siegl of the Geobotanical Institute for his help with the light measurements.

I like to recall the enjoyable visits and discussions with Mr.Peter Meyer, Chief Forester of Langenthal and with Mrs.Meyer.

Finally, I wish to express my very special thanks to Marguerite and Rein Kuin for their wonderful hospitality extended to me during my stay in Switzerland.

10. References

- AALTONEN, V.T., 1940: Metsämaa. Metsämaatieteen opi-ja kasikirja, Porvoo, Helsinki.
- ACTON, D.F., J.S.CLAYTON, J.G.ELLIS, E.A.CHRISTIANSEN, and W.O.KUPSCH, 1960: Physiographic divisions of Saskatchewan. Saskatchewan Soil Survey in co-operation with Geol.Div.Sask.Res. Council and Geol.Dept.Univ. of Saskatchewan.
- BAKER, F.S., 1950: Principles of silviculture. McGraw-Hill Co. Inc., New York.
- BERTSCH, K., 1959: Moosflora von Südwestdeutschland. E. Ulmer, Stuttgart.
- BINZ, A., 1961: Schul- und Exkursionsflora für die Schweiz. 10th ed., rewritten by A.BECHERER.
- BRAY, J.R., 1956: A study of mutual occurrence of plant species. *Ecology* 37, 21-28.
- BRAY, J.R., and J.T.CURTIS, 1957: An ordination of the upland forest communities of southern Wisconsin. *Ecol.Monogr.* 27, 325-349.
- CANFIELD, R.H., 1941: Application of the line interception method in sampling range vegetation. *J.For.* 39, 388-394.