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THE FUNGI OF MT. BABIA GORA. II. INDICATIVE VALUE OF MACROMYCETES IN FOREST ASSOCIATIONS. a. INITIAL CONSIDERATIONS AND CHARACTERISTICS OF LOWER SUBALPINE FORESTS

Anna Bujakiewicz

Translation of "Grzyby Babiej Gory. II. Wartosc wskaznikowa macromycetes w zespolach lesnych. a. Uwagi wstepne i charakterystyka lasow regla dolnego," Acta Mycologica, Vol. 17, Nos. 1-2, 1981, pp 63-125.

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16. Abstract

Mycosociological investigations were performed in the course of an 8-year observation on 65 permanent plots, set by a phytosociologist in homogenous patches of 8 strictly defined forest associations, developed on Mt. Babia Gora on slopes of north and south exposure. In this part of the elaboration only preliminary remarks, methods of investigation and mycofloristic description of forests confined to the lower montane forest zone is comprised.

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THE FUNGI OF MT. BABIA GORA. II. INDICATIVE VALUE OF MACROMYCETES IN FOREST ASSOCIATIONS. a. INITIAL CONSIDERATIONS AND CHARACTERISTICS OF LOWER SUBALPINE FORESTS

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Introduction

Mycosociological studies have arisen from the need for more complete information concerning the complicated structure of plant communities. These studies are aimed at a complete understanding of the grouping of fungi and the definition of their role in the biocenosis.

Many authors (for example Hoefler 1937; Wasilkow 1938; Haas 1953 and Nespiak 1958) have already turned their attention to the need, indeed the necessity of this type of research. In Poland, this type of research was begun by Nespiak (1955, 1959) in natural, narrowly defined plant associations, chiefly forest associations. Bialowiesky National Park provided a good methodological basis. Presently, our mycosociological literature numbers several tens of observational studies of this type. These concern most of the lower forest communities of Poland (Nespiak 1955, 1959; Lisiewska 1961, 1963, 1965, 1966, 1974; Lawrynowicz 1973; Endler 1971; Bujakiewicz 1969, 1973 and others) and valleys and uplands (Wojewoda 1960, 1975; Salata 1972; bujakiewicz 1975 and others). One of them (Lisiewska 1974) encompasses beech forests in Central and Western Europe.

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[1]Numbers in the margin indicate pagination in the foreign text.

Poland is one of the leading countries in the field of mycosociology. Few of our studies, however, have been aimed at utilizing larger fungi (macromycetes) as indicative species, which would facilitate the vary precise determination of the traits of diverse settlements or the consequences of the affects of human activity on these settlements (Domanski, S. Kowalski, T. Kowalski 1976, 1977).

The purpose of this paper is to test the determination of the role and indicative value of fungi in forest associations of the Mt. Babia Gora massif (this work is partially funded by the Ecological Committee of the Polish Academy of Sciences). Of great help for specialized mycosociological reserch were the phytosociological and cartographical works of this area, and especially of Mt. Babia Gora National Park (Walas 1933; Celinski, Wojterski 1961, 1963, 1978 and others).

Presented in the first part of this work (Bujakiewicz 1979) were the general physiographic characteristics of the research terrain, the distribution of the fungi sites, a list of the 618 taxons noted in the subalpine forests of Mt. Babia Gora and the initial characteristics of the forest mycoflora of this massif.

Contained in this part are initial considerations, a description of the research methods used and the characteristics of the mycoflora of the lower subalpine forests. The characteristics of the upper subalpine forests and the work's synthesis is found in part III of this work.

I wish to thank sincerely all those individuals who aided me

during my research both in the field and in the laboratory. I wish to thank, above all, Prof. Dr. T. Wojtersky for encouraging me to study such an interesting area, for designating the permanent research plots in the forests of Mt. Babia Gora and for his manifold help. I also wish to thank Prof. Dr. A Skirgiello, Prof. Dr. A. Nespiak, Doc. Dr. B. Guminska, Doc. Dr. M. Lisiewska and Dr. W. Wojewoda for providing me access to literature from their private collections and for their esteemed advice and recommendations.

I wish to thank Dr. K. Rybnichek of Brno for phytosociological consultations concerning the systematic position of communities occurring on peat substrata and for his help in studies on the Slovak side of Mt. Babia Gora.

I wish to thank Mgr. Eng. S. Kalew, Director of Mt. Babia Gora National Park and the workers of the park's directorate for their gracious help during my field research and for providing me necessary meteorological data.

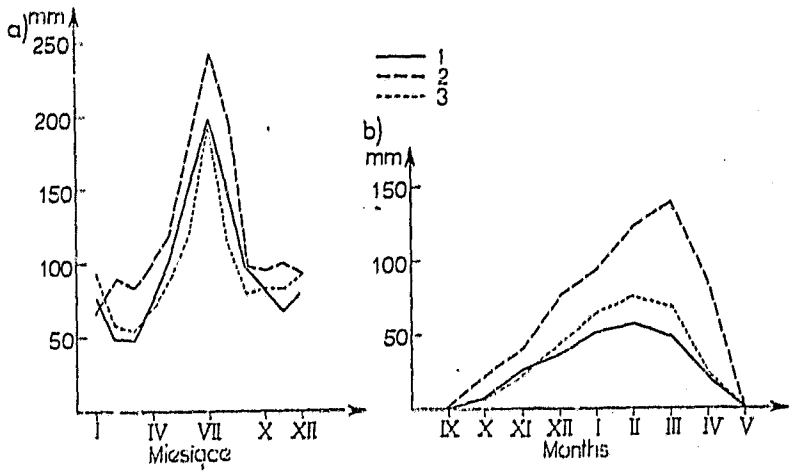
The Main Physiographical Traits of Mt. Babia Gora

Mt. Babia Gora is a small, but high (1725 meters above sea level), remote and compact massif. It is characterized by a pronounced configuration of climatic-plant levels and considerable areas of well preserved Carpathian wilderness. It is one of the few massifs in the Beskids, on whose sculpture the montane glaciers have left their mark. 65

The characteristic trait of Mt. Babia Gora is the parallel course of the massif and the pronounced differences in the slopes' incline.

The northern slope is steep, with an incline ranging within the scope of 35° to 65°. In the levels above the forest boundry occur numerous treeless regions, walls and escarpments. Landslides and rock falls often take place in the subalpine forests. The southern slope, charaterized by a monotonous sculpturing, descends gradually to the Orawska Valley. Its incline on the upper part of the massif fluctuates within the range of 15° to 25°, and 25° to 35° on the lower part (Niemirowski 1963).

The remoteness of Mt Babia Gora and its unique formation has led to the fact that the climatic conditions on this small massif are very specific and are characterized by a great diversity (illustrations 1, 2).



Ryc. 1. a — Średnia suma miesięcznych opadów w mm dla stacji na Babiej Górze (1968-77)

1 — Zawoja (stok północny, 700 m n.p.m., średnia suma roczna 1202,2 mm), 2 — Markowe Szczawiny (stok północny, 1180 m n.p.m., średnia suma roczna za okres 1968-73, 1465,5 mm), 3 — Stańcowa (stok południowy, 850 m n.p.m., średnia suma roczna 1127,5 mm)

b — Średnia grubość pokrywy śnieżnej w cm dla stacji na Babiej Górze (1968-77)

1 — Zawoja, 2 — Markowe Szczawiny (1968-73), 3 — Stańcowa

Fig. 1. a — Mean monthly sum of precipitation in mm for station on Mt. Babia Góra (1968-77)

1 — Zawoja (N slope, 700 m. alt., mean annual precipitation 1202,2 mm), 2 — Markowe Szczawiny (N slope 1180 m alt., mean annual precipitation for period 1968-73 equals 1465.5 mm), 3 — Stańcowa (S slope, 850 m. alt., mean annual precipitation 1127.5 mm)

b — mean thickness of snow in cm for station on Mt. Babia Góra (1968-77)

1 — Zawoja, 2 — Markowe Szczawiny (1968-73), 3 — Stańcowa

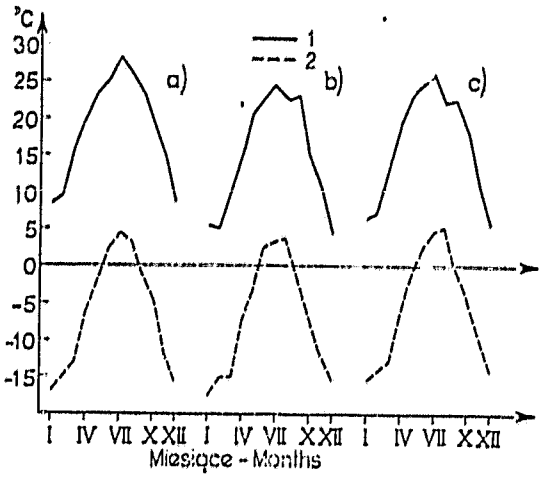


Illustration 2. The mean maximum and minimum ar temperature in ^{o}C Centigrade for stations on Mt. Babia Gora (1968-77)
1--maximum, 2--minimum; a--Zawoja (mean annual $6^{o}C$), b--Markowe Szczawiny (mean annual temp. for period 1968-73 equals $3.2^{o}C$), c--Stancowa (mean annual temp. $5,2^{o}C$)

The northern slope experiences a higher annual rate of precipitation and is less sunny. The warm and dry foehn blows here in fall and winter for an average of 20 to 24 days annually (Obrebska-Starklowa 1963). On the southern slope, where better sunshine conditions dominate, the annual precipitation rate is considerably smaller than on the northern slope. This is connected to the location of the southern slope in the rain shadow. The effect of the rain shadow is especially pronounced in Stancowa, located at the base of the steep and high slope. There is a confluence of cold air toward the Orawska Valley in winter on the intensive heated southern slope. The average annual temperature amplitude is, therefore, greater and amounts to 18.8° at Stancowa (850 m), while on the northern slope at Zawoja at 700 m, it only reaches 17.9°, 17.8° at Markowe Szczawiny (1180 m). The average January temperature on the northern slope is 3.5° at Zawoja, 4.9° at Markowe Szczawiny, and on the southern slopes 3.3° at Stancowa, while the average July temperature is 14.9° at Zawoja, 13.5° at Markowe Szczawiny and 14.2° at Stancowa.

Southern, southwestern and western winds predominate on Mt. Babia Gora. The precipitation in the southern months accumulates during the period from June to August (illustration 1). Early hoar frost appears in the lower subalpine forests generally at the end of September and the beginning of October, and at the end of September in the upper subalpine forests. The first snow, which lasts until winter, falls in the middle of October. The thickest snow cover reaches 178 cm at Zawoja, 200 cm at Markowe Szczawiny and 150 cm at Stancowa, and lasts an average of 106 days at Zawoja, 163 days at Markowe Szczawiny and 133 days at Stancowa. The snow cover disappears in the lower subalpine forests more or less at the end of April and the beginning of May, and in the middle (and sometimes the end) of May in the upper subalpine forests. The vegetation period

lasts an average of 6 months in the lower and 5 months in the upper subalpine forests, while it lasts only 3 months on the peaks (Obrebska-Starklowa 1963).

The soil of Mt. Babia Gora, developed from very weathered sandstone, for the most part devoid of $CaCO_3$, is distinguished by its great diversity connected with the slopes' exposure, the sculpturing and the climate. The wealth of the plant life of the northern slopes indicates a greater heterogeneity and fertility of the soil on that side of the massif.

The differences between the slopes of Mt. Babia Gora are also manifested in the layer configuration of plants and in the differentiation level of the plant life. The line of the upper limit of the forest, for example, on the northern slopes, very contoured, runs at an average elevation of 1336 m, and on the southern slopes, less differentiated, at an elevation of 1400 m (Celinski, Wojterski 1978).

Classical formed patches of many units of rich Carpathian beeches--Dentario glandulosae-Fagetum--occur on the northern slope of occur on the northern slope of Mt. Babia Gora, while on the southern slopes in Poland there is a total lack of beech forests. The beech occurs only in mixes in the lower subalpine forests and even then mainly in the form of undergrowth. The lack of beeches on the southern slopes of Mt. Babia Gora is probably the result of human activity, dating back in this area for centuries (Jostowa 1974). A few beech fragments are found only on the southwest slopes on the Slovak side of Mt. Babia Gora. On the northern slopes of the massive, moreover, patches of lower subalpine stands have developed--Abieti-Piceetum montanum, marsh alders--Cathooo-Alnetum, Carpathian

sycamores--Sorbo-Aceretum and upper subalpine stands--Piceetum excelsae carpaticum. Fir forests-Galio-Abietetum--have been formed here in a fragmented way.

Exceptionally well preserved on the southern slopes are patches of the Piceetum excelsae carpaticum association. Patches of the Galio-Abietetum and Abieti-Piceetum montanum associations occupy much space. The difficult descent of water from the southern slopes has caused conditions favorable for the occurrence of peat bogs at the base of these slopes. Spruce and wet spruce stands grow in this peat substratum. There are no conditions on the northern slopes for the occurrence of this type of community. Moreover, on the southern slopes marsh alder patches have been formed only in fragments. Also, there are only a few patches of Carpathian sycamore. 68

The differences between the characteristics of the slopes of Mt. Babia Gora are also expressed in the degree of the preservation of plant communities. Mt. Babia Gora National Park encompasses mainly the region of the northern slopes, which is distinguished by the greater naturalness of plant life. On the southern slopes within the boundries of the Park are found only an upper subalpine level, a dwarf pine level and an alpine level. The entire southern slope, therefore, below 1100 m is used for commercial purposes. Only one reserve, in the region of the upper forest boundry, has been hitherto created on the Slovak side of Mt. Babia Gora (Czerwieniec 1974). In the future, the entire boundry area, which encompasses the terrain located above the upper forest boundry, will have to be protected (Zembrzuski 1974; Gawlowska 1974).

The State of Mycosociological Research in the Montane Forests of Poland and Europe

The pioneering work in the field of mycosociology has been performed by German and Austrian scientists in forest communities in mountain and upland regions. These include: Haas (1932) of the Black Forest, Hoefler (1937) of the Wieden Forest and Leischner-Siska (1939) of the foothills of the Salzburg Alps. In the 1930's, mycological work, making up the beginnings of the development of phytosociology, was performed in plant communities, which was not always well defined phytosociologically. These were defined on the basis of species which dominated or called only a type of forest. The work of Leischner-Siska (l.c.) is an exception to this, since it was performed mainly in patches of the Fagetum praealpinum association, as well as in fir forests (Abietetum, mixed with accinium myrtillus) which occurred on steep slopes.

This was a period marked by the quest for research methods in mycosociology. The subject of the research at the beginning, however, became exclusively fungi, which formed large fructifications, visible to the naked eye. These fungi, representing various systematic groups, were later defined as macromycetes (Hueck 1953; Wojewoda 1973 and others).

Aknowledgement for the first Polish mycosociological work of mountains goes to that done in the Bieszczads (Domanski and others 1960, 1963, 1967, 1970). This research was performed in patches of the Dentario glandulosae-Fagetum and Luzulo-Fagetum associations, as well as in Caltho-Alnetum marsh alder stands. In these works are contained many interesting considerations concerning the share of fungi in oak-hornbeam and spruce forests, and in mountain pastures, meadows, pastures and forest fields.

Floristic-ecologial, and at the same time, sociological studies on fungi were performed by Guminska (1962 b, 1966) in the Beskids in beech (Dentario glandulosae-Fagetum and Luzulo-Fagetum) and fir forests.

The results of the research performed on the share of fungi in patches of various subassociations of upper subalpine spruce Piceetum hercynicum stands in Karkonoszy (Nespiak 1971) are very interesting. The work of Lisiewska (1972, 1974) on the problem of the diagnostic role of fungi in several communities of beech forests in Europe, for example in montane beech forests in Poland, deserves special emphasis. In the High Beskids initial mycosociological research has been carried out in forest associations on the northern slopes of has been carried out on the northern slopes of Mt. Babia Gora (Bujakiewicz 1974, 1978).

In the Podgorske Valleys and the Srodkowy Uplands interesting mycosociological work has been done in many forest associations in the Switokrzyske Mountains (Lisiewska 1978), in Poztocz (Salata 1972), in the area of Jura Krakowska (Wojewoda 1960, Guminska 1962 b) and in the Ojcowsky National Park (Wojewoda 1975).

Of European studies on mycosociological characteristics, the work of Hoefler (1955), performed in patches of Piceetum montanum in the Alps and the ecological studies of Horak (1963), carried out in patches of Piceetum subalpinum and Rhodoreto-Vaccinietum in the region of the Rhaetic Alps, deserve attention. The research of Favre (1948 in the peat bogs and the forests of the Swiss Jura have a sociological character, as does the work performed in the Alps by Moser (1949, 1959), for example in stone-pine-larch forests at the

upper forest boundry, and that by Friedrich (1942) in pine-spruce forests.

In the 1960's, very interesting mycosociological research was performed in Hungary in many patches of desiduous forests in the Matra, Buekk, Bakony and other mountains (Bohus, Babos 1960, 1967). This work can serve as models of mycosociological endeavors.

In the FRG, research has been performed in the mountains above the Weser in beech patches (Jahn, Nespiak, Tuexen 1967). Numerous studies on sociological characteristics have also been performed in the mountains of Yugoslavia, mainly in beech and fir forests, for example in the region of Gorski Kotar (Tortich, 1966), in the Tara Mountains (Lisiewska, Jelich 1971), in Vranica (Tortich, Lisiewska 1974-1975) and in the Jakupica mountains (Tortic, Cekova 1975).

Cooke (1955) performed one of the first mycological studies in narrowly defined plant communities in mountains outside of Europe, for example in patches of communities of Abies grandis-Pachistima, which occur on the slopes of the Rocky Mountains. This work makes an important contribution to the study of the total concept of phytocenosis, since the author considered in her observations a large group of sporiferous plants (fungi, lichens, mosses) and compares their share in all of the studied plant communities. 70

The Share of Macromycetes in the Forest Associations of Mt. Babia Gora

In the history of the study of the role of fungi in the biocenosis, a unique diversity of research methods has been used.

This is the consequence of the variable nature and huge variability of the morphological traits of fungi. This leads to the fact that the methods used in phytosociology do not fully adapt to mycosociological research. Either their modification is necessary (Moser, 1949) or completely different methods must be used (Bohus, Babos 1960, 1967; Jahn, Nespiak, Tuexen 1967; Nespiak 1968, 1971; Kalamees 1968 and others). Presently, mycologists agree that it is necessary to conduct research in permanent plots located, if possible, in homogenous patches of plant associations, over a period of time no less than several years. Barkman (1973) considers, that this period ought to be 5 to 10 years, while Hueck (1953) finds that observations should be carried out long enough to see a braking in the increase of the number of species in a studied plant patch. The problem of defining the abundance of the fructifications of fungi occurring in studied plant communities has been an open one for a long time, and the diversity of methods with regard to this depend on the goal of the research and the technical possibilities (Hueck 1953; Bohus, Babos 1960, 1967; Nespiak 1968; Guminska 1976).

In studies on the share and role of macromycetes in the forest associations of Mt. Babia Gora, the research area has been the entire subalpine forest region of this massif, while the object of special observations was 49 permanent research and 16 comparison plots, hence a total of 65 points. The need to use observations in permanent plots simultaneously with studies of the entire research area has been stressed by many authors, for example Kalamees (1968) and Wojewoda (1975).

Systematic mycosociological studies were performed from May 1968 (with breaks in 1970 and 1971) until September 1977, in permanent plots located for the most part by phytosociology in the most representative patches of 8 forest associations, on both slopes of the

massif, both within Mt. Babia Gora National Park (22 plots) and outside of it (27 plots). In 1974 and 1976 supplemental observations were performed in 16 plots in the forests on the Slovak side of Mt. Babia Gora.

The size, form and number of plots were based on the settlement conditions of a given forest association and on the degree of the homogeneity of its patches. The number of plats was proportional to the area occupied by a given association on Mt. Babia Gora.

The characteristics of the forest associations of the studied massif were plotted on the basis of an analysis of phytosociological records made by the author according to the Braun-Blanquet method in all of the observational plots and on works on the forest associations of this terrain (Celinski, Wojterski 1978). Tests of the initial definition of communities developing on peat substratum, which were not included in the mentined works on the forests of Mt. Babia Gora, and in which mycological research was systematically performed, were undertaken. The soils were characterized on the basis of an analysis of the soil profile done in and near permanent plots (Celinski, Wojterski 1978). Additionally, soil reactions were performed by a field method, taking samples from the plot layers of the profile at depths of plus or minus 3 to 5 cm, which for the majority of cases corresponded to the fermentation substrata of A_{OF}.

The studies in the designated plots were performed over a period of 4 to 5 years, predominately 3 to 4 times a year (spring, summer, fall), and yielded on the average of 10 to 14 observations per plot, for a sum total of around 600 observations in all of the studied patches (table 1).

in a plot, each time all of the fungi species were noted, their fructifications or basidia were counted and their affinity and substrata in which they appeared, were defined.

9 ecological groups of fungi species were studied in relation to the substratum, from which their fructifications were collected. These fungi grew: 1--in soil (saprophytic, symbiotic), 2--on rotted plant remains (fallen leaves, shoots, needles, cones, fruit, fructifications), 3--on fallen twigs, branches and bark fragments, 4--on rotting stumps and logs and on live trees, 5--among moss, 6--on fireplaces, 7--in excrement, 8--on rotted fungi (and parasitizing on fungi), 9--on insects and their pupa. In cases, where the fungus species occurred in different substrata, it was counted in that ecological group, in which it was most frequently represented during the entire study.

A synthetic-comparative method, which subjected to verification the relationship between the occurrence of fungi species and the aggregate of the traits of the settlement represented by a given forest association, was adopted in the mycosociological study. The basis for the evaluation of these connections was an analysis of the loyality and stability of occurrence and the abundance of the fructification of 465 species, 11 mutations and 3 forms (a total of 479 taxons) of fungi collected in the observation plots in the studied forest associations. The tabular comparison was perfomred on the basis of the sociological defintion of the indicative values of fungi (Hoefler 1937) as species characteristic for a forest association (or group of associations) and as species which differentiate patches of smaller units from an association.

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The number of the plots (1-65) corresponds to that of the site on the map (Bujakiewicz 1979) and the number of the phytosociological records made in the studied plots. These records are arrayed in the tables in accord with the configuration of the phytosociological records, according to the settlement's fertility, from richest to poorest.

At the top of the tables is found information concerning the observation plots and some traits of the settlements have an affect on the character of the mycoflora in the studied patches. Defined here, for example, is the degree of changes caused by human activity, and the felling of trees and the results connected with this, the presence of fireplaces, the use of pastures, etc. A scale of 4 grades was adopted: 0--no changes noted; 1--insignificant changes in the stand; 2--greater change in the stand, fireplace, traces of grazing, 3--very significant changes leading to the patch's devastation (felling, changes in the forest's structure, mulch destruction, fireplaces, etc.).

The ecological groups of fungi are tracked in the tables separately and compared with each other on the basis of the entire scale of differentiations of forest associations.

In the mycosociological tables, the first number gives the number of the appearances of fungi species in a studied plot (or in a given forest association) over the entire research period, while the exponent sign defines the abundance of the fructifications according to the scale used in the work of Jahn, Nespiak, Tuexen (1967), namely: a (abundant), n (numerous), r (rare). With regard to the fact that in the studies on the relationship of fungi with a forest association, the qualitative relations are more important than the quantitative

ones, and with the aid of this estimated scale, both the abundance and the affinity of fungi were defined. Using this scale, moreover, those species of fungi, for whom the degree of abudance was difficult or impossible to obtain, could be included in the tabular comparisons.

Mycological Characteristics of Lower Subalpine Forests

The lower subalpine forests on Mt. Babia Gora reaches from the massif's base to 1150 meters above sea level. Associations of Dentario glandulosae-Fagetum, Galio-Abietetum and Abieti-Piceetum montanum are limited exclusively to ths geobotanical region. 73
Patches of Sorbo-Acertum, which occur as a rule on the edges of this subalpine forest, are also found in the upper subalpine forests, and even on the upper edge of these forests. The azonal Caltho-Alnetum association occupies a small area in the lower subalpine forest, while azonal Bazzanio-Piceetum and Sphagnetum magellanici communities occur on the southern slopes in a peat substratum.

Caltho-Alnetum incanae (Jasiewicz 1965) em. Stuchlik 1968--Marsh Alders (tab. 2 and 3)

Patches of marsh alders (sub Alnetum incanae-Bujakiewicz 1974) occur in local depressions of river valleys. Typical patches, floristically rich occur on the northern slopes of the massif, while small alder fragments appear, for the most part due to artificial reforestation, on the southern slopes.

The alders occur in montane marshes, which are very flooded. These are peat-silt outgrowths (Celinski, Wojterski 1978). The

brown black level of humus with a sticky consistency is around 20 cm thick. Under this appears a thick layer of clay. The reaction of the upper layers of the humus level is alkaline or approaches being alkaline.

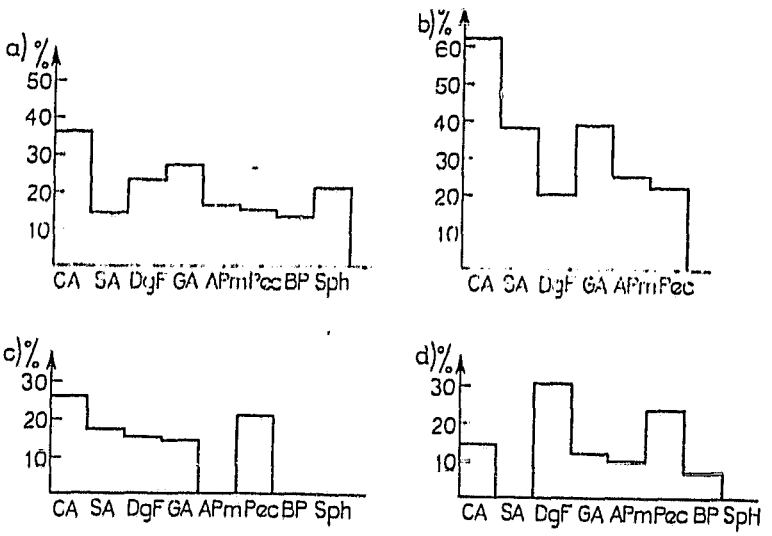
Many of the patches are made up of a mixture of spruce and fir. The undergrowth is rich and luxurious, but in some locales, not covered by flowering plants, patches of Conocephalum conicum create a dense cover on the marshy soil.

93 species of fungi were collected in stands of marsh alders. Terrestrial fungi dominated, especially those which are symbiotic with alder (Alnus incana, A. glutinosa), such as: Naucoria escharoides, N. scolecina, Lactarius obscuratus, Cortinarius helvelloides and C. bibulus (Moser 1953; Jahn 1964 a; Engel, Friederichsen 1976). The rather common fructification of Paxillus filamentosus and Russula pumila in some patches deserves attention. Both species have a permanent affinity for alder (Kotlaba, Pouzar 1960; Jahn 1976) and have hitherto been noted in Poland in small sites (Skirgiello 1968, Jahn 1976). The fructifications of Gerronema setipes grow rather abundantly in clumps of moss; Cortinarius bibulus also occurs frequently in these locations.

The wealth of plant life in alder patches and the considerable moisture of the settlements favor the development of fungi fruiting on the rotting remains of plants. Pezizella alniella appear massively on the blackened fructifications of alder, while on the rotted remnants of Petasites, Calyptella cfr. flos-alba, Typhula sclerotioides and Pistillaria typhuloides, known from a few sites in Poland, massively occur (Gulminska 1976). Cyathicula coronata also occurs abundantly.

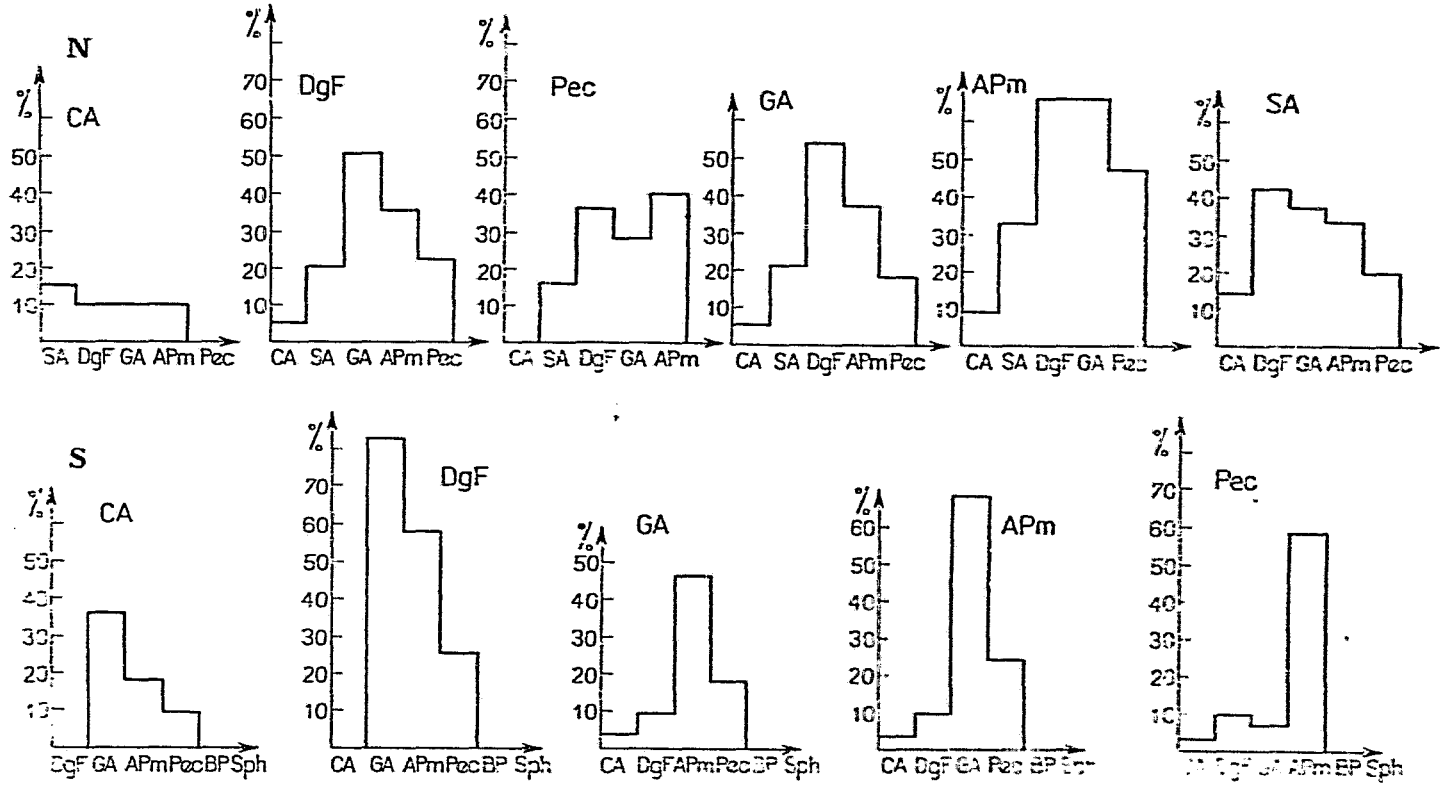
The following occur on the fallen twigs of alder only in alder patches: Mycena speirea and M. vitilis; a no smaller number in this association is made up by Tubaria furfuracea. Of the group of fungi growing on stumps and logs, Phaeomarasmius erinaceus and Pholiota alnicola have an indicative value for alder. The fructifications of Phaeomarasmius erinaceus were collected on the trunks of alder or on the twigs remaining on the tree, usually at considerable heights. This species is probably acromycophitic. The fructifications of this fungus collected by the author in marshy maritime forests of Alnus glutinosa on the island of Seili (southwest Finland) show a similar biology.

Connected with the spruce occurring in alder patches is the appearance of such species as Naematoloma capnoides and Pseudohydnum gelatinosum.



Ryc. 3. Gatunki grzybów wyłączne w badanych zespołach leśnych na Babiej Górze
a — wszystkie grupy ekologiczne, b — grzyby naziemne, c — grzyby na opadłych gałązkach, d — grzyby na pniakach i kłodach

Fig. 3. Species of macromycetes exclusive in the investigated forest associations on Mt. Babia Góra
a — all ecological groups, b — terrestrial macromycetes, c — fungi on fallen twigs, d — fungi on stupms and logs, *CA — Caltho-Alnetum, SA — Sorbo-Aceretum, DgF — Dentario glandulosae-Fagetum, GA — Gallo-Abietetum, APm — Abieti-Piceetum montanum, Pec — Piceetum excelsae carpaticum, BP — Bazzanio-Piceetum, Sph — Sphagnetum magellanici*



Ryc. 4. Gatunki grzybów naziemnych w danym zespole leśnym wspólne z innymi zespołami leśnymi na północnych i południowych stokach Babiej Góry (legenda jak na ryc. 3)

Fig. 4. Species of terrestrial macromycetes in a given forest association in common with other forest associations on the north- and south-facing slopes of Mt. Babia Góra, (legend see Fig. 3)

Marsh alder are differentiated from among all the studied forest associations of Mt. Babia Gora (Bujakiewicz 1974, 1978) by the greatest diversity of fungal flora. The number of species collected in comparison with the number of permanent plots and the number of observations performed in these patches is indeed large. Many fungi, especially symbiotic species, fruit here very abundantly. Species exlusive for this association comprise the largest percentage in alder stands both with respect to all the differentiated ecological groups and in the case of only terrestrial fungi (illustration 3). The alder patches on the northern slopes indicate a marked connection with patches of Carpathian sycamores (illustration 4), which is caused probably by the soil's fertility and considerable moisture in the patches of both these associations. A mutual species is, for example, Pholiotina blattaria, a fungus occurring abundantly in marshy forests (Bujakiewicz 1973). Fungi growing in forests of Alno-Padion comprise a significant percentage in marsh alder patches, while despite the closeness of alder stands to stands of Carpathian beech, the share of common fungi in both associations is insignificant. This should be interpreted by the great settlement differences in these forests.

A significant percentage of fungi species common for fir patches, Galio-Abietetum, has been observed in the alder forests on the southern slope of Mt. Babia Gora, which have arisen for the most part due to reforestation. The reason for this is the fragmentary formation of alder forests surrounded on all sides by fir forests.

Marsh alder patches were also the subject of mycological research in Bieszczady (Domanski and others 1960, 1963, 1967, 1970). The numerous occurrence of Lactarius lilacinus in them, as well as Gyrodon lividus, which occurs more rarely in Poland, deserves attention. These fungi have not been observed on Mt. Babia Gora.

Several species from grey alders have been noted by Wojewoda (1964, 1965) in Gorce (for example Gyrodon lividus) and on Mt. Babia Gora.

Sorbo aucupariae-Aceretum carpaticum Cel. et Wojt. (1961) 1978--Carpathian Sycamore (tab. 4, 5)

The occurrence of Carpathian sycamore is essentially limited to the massif's northern slope, where it occurs azonally, most frequently in the transitional zones between the subalpine forests.

Sycamore patches are connected with very steep slopes subjected to constant erosion. The substratum is very rocky, and boulders tumble through the low plant cover, destroying the mulch and the upper layers of soil. The substratum is sandstone, and in sycamore patches is rather rich in $CaCO_3$. Brown, weakly acidic, soil has been formed from it (Celinski, Wojterski 1978). The humus layers, reaching to 40 cm, fill in the fissures among the stones and rocks, not creating, in general, a pronounced level. The soil's structure is good, and the reaction of thhee upper layers approach alkaline. 77

The undergrowth in sycamore forests is luxurious, but not very dense. Ferns and species of herbs play an important role. The share of nitrophilic plants attests to the soil's fertility.

A total of 94 species of fungi wre collected in the studied sycamore patches, which--in comparison with the number of permanent plots and performed observations--puts this association in first place among the studied forests of Mt. Babia Gora. Despite the fact that the sycamore settlement does not create conditions favorable to

fungi, the mycoflora of the patches of this association is indeed rather rich and characteristic. Attention has been turned, above all, to terrestrial fungi, connected with fertile, humus soils (Bujakiewicz 1974, 1978) such as Phodophyllus juncinus, species of the Conocybe family, as well as Tubaria conspersa and Inocybe godeyi. Some of these fungi occur abundantly in marshy forests (Bujakiewicz 1973).

Fungi growing on the remains of ferns and sycamore wood, such as Mycena pterigena, Psilocybe crobula and Rutstroemia luteovirescens, also have an indicative value for sycamore patches. Also Calocera cornea, which grows on beech logs, and Mycena erubescens, which occurs among moss on the bark of live sycamores, deserve attention.

The azonal character of sycamore patches is reflected in the mycoflora's composition. Fungi from beech forests occur with great constancy here (illustration 4), for example Mycena crocata, Marasmius alliaceus var. alliaceus and Hymenoscyphus serotinus. Sycamore forests, therefore, show a small percentage of exclusive species, that is species which occur only in this association (illustration 3). In the case of terrestrial fungi, however, this association derives greater use, equal to that of patches of the much wider distributed fir forest. The occurrence of the montane species, Porphyrellus pseudoscaber, in sycamore forests deserves to be stressed. In Northern Europe it occurs mainly in deciduous forests in rather fertile soils, while sites in Southern Europe are found, for the most part, in coniferous forests (Lange 1974). This species, probably in connection with fir (Salata 1972), occurs infrequently on Mt. Babia Gora, above all, in Abieti-Piceetum montanum.

In sycamore forests, despite the proximity of patches of it with

patches of upper subalpine forests, only a few fungi connected with this association occur (illustration 4).

The fungi in the sycamore forests were also collected in several sites on Mt. Babia Gora outside of the permanent plots. Attention was turned to the presence in these patches of Chlorosplenium versiforme, which fruits on the fallen twigs of mountain-ashes.

In patches of the thicket association of Sorbetum santae crucianum, mycosociological observations were performed by Lisiewska (1968). These thickets, with a more variable character than Carpathian sycamore, are characterized by a dearth of fungal flora, 78
especially terrestrial species.

Dentario glandulosae-Fagetum Klika 1927 em. Mat. 1964--Rich Carpathian Beech (tab. 6, 7) (=Fagetum carpaticum Klika 1927 p.p.)

The rich Carpathian beech is one of the main associations of the lower subalpine 9rest. It occurs, above all, on the northern slopes of Mt. Babia Gora, while on the southwest slopes a few fragments of it occur only in the region of Bukowy Gron and Wezowec on the Slovak side of the massif. Beech and fir, often mixed with spruce, occur in Carpathian beech forests. The undergrowth is rich, especially in summer.

The beech forests on Mt. Babia Gora occupy all types of settlements in the lower subalpine region and therefore, has significant floristic-ecological differences. The permanent observation plots are located in all of the patches of smaller units

differentiated within the confines of this association.

182 species were collected in the beech patches, the largest percentage of which is made up by fungi (39 percent) growing on rotted stumps and logs of beech, fir and spruce. The dearth of terrestrial fungi in the montane beech forests, emphasized by Pilat (1969), was also verified by the research on Mt. Babia Gora. Terrestrial fungi here comprise only 24 percent of the total species collected in beech forests. The number of species of terrestrial fungi nver exceeded the number of species of vascular plants (illustration 4), which is similar to the results in the marsh alder and sycamore forests.

Research performed on Mt. Babia Gora on mycotrophism in Carpathian beech forests (Boullard, Dominik 1960) indicated to the significant share of mycotrophic species (58 percent) and to the greater wealth of the mycorrhizic families, which attests to the natural character of the beech forests of Mt. Babia Gora.

Dentario glandulosae-Fagetum allietosum ursini

Beech patches with ramson occupy the most moist settlements within the confines of the beech forest and occur only on the massif's northern side, in a few plots above streams on rather inclined slopes, on which the water widely flows and abundantly saturates the soil. These patches occur in fertile, humus, brown soil, which is very moist, and develops as an outgrowth of dusty soil (Celinski, Wojterski 1978). The humus level with a cloddish structure is around 30 cm thick. The soil reaction is weakly acidic. In many locales of the studied patch in the plot the soils appear to be loose, facilitating the slide of a few boulders, usually not covered with vascular plants.

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The most characteristic trait of this subassociation is the massive occurrence in spring of Allium ursinum.

Agravala's laboratory studies (1978) have shown the retarding affect of Allium sativum and A. cepa on the development of terrestrial fungi in the rhizosphere of of such plants. It is not known if a similar phenomenon takes place also in the case of Allium ursinum even under natural conditions, but it can be assumed that the mass appearance of this plant is not favorable to the development of fungi, especially terrestrial fungi. Of the fungi of this type Inocybe calamistrata, a rather rare species, connected with fertile and moist settlements, deserves attention (Lange 1935-1940). The following occur here in relative abundance: Marasmius alliaceus, M. recubans and Mycena capillaris (tab. 8). The fructifications of the rare species, Ceriporia rhodella, were collected only in patches with ramson on logs of Dentipellis fragilis beech and hidden among moss growing on the logs.

The majority of fungi collected in the discussed patch had small and delicate fructifications, hidden usually among the abundant mulch made up of beech leaves.

Mycosociological studies in beech patches with ramson were also performed in Gory Swietokrzyske, in which the beech forests were represented by the submontane form Dentario glandulosae-Fagetum, connecting a type of dry forest to the lower forests in regard to its mycoflora (Lisiewska 1978). Of the 15 common species appearing in the comparison patches with ramson, the majority of the fungi occurred in deciduous forests. Marasmius alliaceus var. alliaceus, Mycena capillaris, Lactarius subdulcis and Omphalina epichysium, species growing in montane beech forests have received attention (Lisiewska

1974). O. epichysium grows on Mt. Babia Gora also in fir forests in the mixed lower subalpine stands.

Dentario glandulosae-Fagetum typicum

Patches of this type of subassociation overs a considerable area on Mt. Babia Gora. They occur on montane brown soil, slightly moist, created from loamy outgrowths, which arise from sandstone or argillaceous slate (Celinski, Wojterski 1978). The reaction of the upper layers of soil is weakly acidic, and the level of biological accumulation is 15 to 20 cm thick.

Within the confines of patches of this type of beech subassociation were distinguished 4 facies. Patches of the facies of Stellaria nemorum occupy an insignificant area on the slopes with flowing water, and are rather rich in calcium compounds. The facies with Impatiens noli-tangere is formed in moist and very fertile locales. The facies with Mercurialis perennis, occurring on very steep slopes, is characterized by fertile soil and a share of sycamore, whle the facies with Asperula odorata occupies a slightly moist locale on a gradual slope. 80

In the patches of this type of beech on Mt. Babia Gora occur a series of fungi species generally found in beech forests, even at lower elevations. The good state of knowledge concerning the mycoflora of deciduous forests, and especially beech forests in Poland and outside its borders (Nespiak 1968; Lisiewska 1972, 1974) permits the assertion that for the most part these are fungi which are characteristic for Fagetalia associations (Marasmius bulliardii, Mycena amygdalina, M. pura, Hygrohorus eburneus and others), as well

as well as species characteristic of beech (Hericium coralloides, Mycena capillaris) and those which occur in lowlands (Oudemansiella mucida, Mycena crocata) (tab. 8).

The following fruit abundantly in the patches of this type of subassociation on Mt. Babia Gora: Xylosphaera carpophila X. hypoxylon, Hymenoscyphus serotinus and H. calyculus. Hypoxylon fragiforme and Diatrype disciformis, with an inseparable affinity for beech also reach their optimum development in these patches (Truszkowska 1963). Amply represented is the Mycena family (16 species). In the facies with Mercurialis perennis the occurrence of Rhodophyllus juncinus, which indicates the considerable fertility of the soil in beech forests, deserves attention. This is a common species with carpathian sycamore patches. Mycena erubescens also points to a connection with the sycamore forest. The fertility of the soil of patches of this type of beech subassociations is emphasized by the fructifications of the following terrestrial fungi: Rhodophyllus griseorubellus and R. raditus noted in rich marsh forests at lower elevations (Bujakiewicz 1973). Lentinellus castoreus, a rather rare species occurring usually in forests characterized as wilderness were also noted in the discussed beech forests (Kotlaba, Pouzar 1962; Svrchek, Kubichka 1964).

Outside the permanent plots in patches of this type of beech the Hygrophorus leucophacus, Lactarius pterosporus and L. pallidus, fungi connected with beech, were noted (Jahn 1964 b; Jahn, Nespiak, Tuexen 1967). Also noted were Peziza emileia, a rare species in Poland, and Mycena pelianthina, Clitocybe odora, Psathyrella hydrophila and Clitocybe cerussata, which form a "devil's ridge" on Mt. Babia Gora.

Dentario glandulosae-Fagetum festucetosum silvaticae

This is the poorest beech subassociation settlement-wise on Mt. Babia Gora. Patches of it occur on rocky, rather steep slopes, in brown acidic soil, which arises most frequently from large grain, carbonateless sandstone (Celiński, Wojterski 1978). The reaction of the upper layers of the humus level is acidic. The soil's structure is not positive.

The share of fir and spruce in patches of this subassociation is increased, and the role of beech is lessened. In the undergrowth in place of species of rich habitats occur sylvan species. Within the confines of the discussed subassociation 2 facies are distinguished: facies with Oxalis acetosella occur on gradually inclined and less rocky slopes, and facies with Festuca silvatica--on steep, less moist slopes.

Changes in the settlement and in the stand of patches of this subassociation are reflected in the composition of the mycoflora. Some fungi species, which are common in this type of subassociation, were not noted in patches with fescue (for ex. Oudemansiella mucida, Marasmius bulliardii), and fungi like Marasmius alliaceus v. subtilis and Mycena crocata fruit here in very small numbers. Sylvan fungi, however, occur here, which grow most abundantly in patches of the fir forest in mixed lower subalpine stands, for ex. Cystoderma carcharias and Mycena sanguinolenta, known as typical for forests in connection with Piceion (Kubichka 1963a, 1964), and Agaricus abruptibulbus. Fungi grow here, moreover, which occur on Mt. Babia Gora, above all, in the upper subalpine forest, for ex. Russula ochroleuca, Hygrophorus olivaceoalbus and Mycena luteoalcalina (tab. 8). In Beskid Sadecky Russula ochroleuca is one of the most common fungi in Carpathian beech

forests (Guminska 1962 b), while it shows a very broad ecological scale on Mt. Babia Gora, and hence the most abundant fructifications in the upper subalpine forests.

The beech forests of Mt. Babia Gora are characterized by a relatively low percentage of exlusive species, especially in the group of terrestrial fungi (illustration 3). Occurring as natural components of beech forests, spruce and fir introduce a series of symbiotic fungi, for example Hygrophorus olivaceoalbus and H. pustulatus (Jahn 1969). This is caused to a significant degree by a weakening in the differences in the mycoflora between beech and the other forests of the lower subalpine region (Bujakiewicz 1974). Both on the northern slopes and the southwestern ones in Czechoslovakia do the beech forests show the largest percentage of species common for patches of fir forest (illustration 4).

The group of fungi growing on the rotted stumps and logs of beech and fir, which find optimal conditions for development in this terrain in beech forests, distinguish well the beech forests on Mt. Babia Gora (table 7, illustration 3). Many authors (for ex. Salata 1972) 82
consider that fungi growing on rotted wood do not indicate a relation of plant associations. These fungi, similar to those of other ecological groups, are developed under the predominate influence of specific microsettlement conditions in a given forest association. If, however, they occur exclusively in a certain forest association and fruit abundantly, it can be concluded with great probability that they have found optimum conditions for their development in it. In the face of this it is possible to aknowledge this, more or less locally, as species characateristic for this association. A significantly weaker relationship has been observed with regard to the group of fungi growing on fallen twigs.

The moist microclimate of the northern slopes of Mt. Babia Gora favors the moldering process of wood. Beech, nonresistant and not durable, makes an especially good substratum for the development of saprophytic fungi. Truszkowska (1963) and Fischer (1970) turned their attention to the wealth of mycoflora connected with beech, and Pirk, Tuexen (1957) described the community of Trametetum gibbosae fungi connected with this substratum. Fungi develop on stumps and logs of beech in relationship to the level of the wood's decomposition (Kreisel 1961). An example of this is the group of 7 species noted on September 6, 1976 on a 150 year old, fresh beech log on the Slovak side of Mt. Babia Gora. These include: Oudemansiella mucida, Fomes fomentarius, Stereum rugosum, Marasmius alliaceus varietas alliaceus, Armillariella mella, Coryne sarcoides and Calycella citrina. We probably also have to take into account the community of fungi growing on fresh beech logs (Runge 1967), which is demonstrated by the presence of Oudemansiella mucida, a fungus growing on beech logs during the early stage of the log's decomposition or even growing on the trunk of living beeches.

Many fungi were noted by Wojewoda (1965) in the beech forests of Mt. Babia Gora. Plicatura crispa, Humenoscyphus serotinus and Hygrophorus eburneus received a good deal of attention. Beech forests in Gorcy (Wojewoda 1964) and in Bieszczady (Domanski and others 1960) had many montane fungi (or those growing in the mountains) in common with those of Mt. Babia Gora. These include Polyporus varius, Trametes hoehnelii, Plicatura crispa and Datronia mollis. Of the fungi fruiting in the beech forests of Beskid Sadecky (Guminska) the following species common with the beech forests of Mt. Babia Gora deserve mention: Hygrophorus eburne;us, Mycena capillaris, Marasmius alliaceus, Oudemansiella mucida, Russula cyanoxantha and Lycoperdon echinatum.

Galio-Abietitum M. Wraber (1955) 1959--Lower Subalpine Fir Forest (tab. 9 and 10)

The occurrence of patches of the association, Galio Abietetum was verified or the first time in Poland on Mt. Babia Gora. Fir forests are widely distributed here, especially on the southern slopes, occupying as a rule Carpathian beech settlements, which occur on this side of the massif only in Slovakia.

The studied patches of fir forest occur on gradually inclined slopes, on brown, acidic soil, developed from thick clay with a significant skeletal part (Celinski, Wojterski 1978) The reaction of the upper layers of the humus level is acidic. In the heavily cut fir forests, the soil's reaction is weakly acidic or approaches neutral (plots no. 31 and 32).

In natural patches, the stands of the fir forest are built of fir and beech. In many places both species are absent due to cutting and in their place is spruce.

The fir forest of Mt. Babia Gora is the settlement richest in fungi (254 species). In some studied patches, the number of terrestrial fungi species considerably exceeds that of the species of vascular plants, which is a rare phenomenon in the forests of Mt. Babia Gora (illustration 5).

The largest percentage of exlusive species after marsh alder has been verified in the fir forest of Mt. Babia Gora (illustration 3).

In the group of terrestrial fungi it is even a bit larger than in Carpathian sycamore patches. Of the fungi characteristic for the fir forest on Mt. Babia Gora, the following should be mentioned: Cystoderma fallax, Thelephora palmata, Cudonia circinans and Russula mustelina. Both Cystoderma fallax and Russula mustelina are montane fungi (Moser 1967; Kotlaba, Pouzar 1962; Romagnesi 1967; Doerfelt 1969), which stresses their role as fungi characteristic for lower fir subalpine forests.

Early spring fungi, like Mycena strobilicola and the rare in Poland, Clitocybe radicellata occur exclusively in the fir forest of Mt. Babia Gora (Guminska 1972). Cortinarius sanguineus, common in fir forests (Nespiak 1975, but not numerous in mixed forests, deserve attention. This also concerns the occurrence of Russula delica and amanita prophyria.

Piceompphale bulgarioides and Strobilurus esculentus, which develop in early spring on fallen, somewhat rotten spruce cones, find the optimum conditions for development in the fir forest. Mycena amicta and M. viscosa occur rather abundantly. On Mt. Babia Gora, M. viscosa grows more commonly on the wood of spruce than of fir, which Kubichka has already noted in the Bielske Tatras (1963a).

Both fungi typical for deciduous forests, mainly beech, and species growing, above all, in coniferous forests, occur in the fir forest. This is especially visible with a comparison of the mycoflora of the subassociations of the fir forest (tab. 11), as well as with a precise analysis of the composition of the mycoflora in the Galio-Abietetum fagetosum subassociation, in beech forests, in patches of Galio-Abietetum homogynetosum and in coniferous forests (lower and upper subalpine). 84

Galio-Abietetum fagetosum

Of the two subassociations distinguished within the confines of the fir forest, patches of the richer Galio-Abietetum subassociation are characterized by the significant role of beech both in the stand and in the undergrowth, and by the presence of a series of beech species in the undergrowth.

Patches of this subassociation are also distinguished by the presence of a series of fungi which grow mainly in beech forests, for ex. Hygrophorus eburneus, Lactarius blennius and Pholiota lenta. Some of them, known to be characteristic for Fagetalia forests (Nespiak 1968; Lisiewska 1974), occur most abundantly on Mt. Babia Gora, for ex. Russula cyanoxantha, or exlusively, for ex. Lactarius blennius, precisely in patches of this subassociation of the fir forest, while others from the same group, for ex. Russula alutacea and Mycena pura, re found in patches of both subassociations. The presence in the fir forest of Mycena fagetorum, a species characteristic for Fagion, which prefers montane beech forests, deserves special stress (Lisiewska 1974).

Galio-Abietetum homogynetosum

In patches of the poorer subassociation, Galio-Abietetum homogynetosum, there is a lack of beech, but coniferous species play a significant role. Fungi, connected with the needles of spruce and fir, fruit here abundantly. The Mycena family, for ex. Mycena aurantiomarginata and M. flavoalba, considered to be typcial species

for Piceetalia forests, are abundantly represented here (Kubichka 1962, 1964). Also known for the fir forests of Mt. Babia Gora are: Mycena rosella, M. phyllogena, M. vulgaris, M. stylobates and Lactarius aurantiacus. Fungi from the Mycena family, known as the most important reducers of organic substance (Burowa, for Holownia 1977), play an important role in the fir forest in the decomposition of needle mulch. The presence of Clitocybe ditopa, Lactarius lignyotus, Cystoderma sublongisporum, Hygrophorus pustulatus and H. olivaceoalbus, that is fungi occurring on Mt. Babia Gora mainly in the upper subalpine coniferous forests, point to the connection of fir forests with coniferous ones (tab. 11).

The above considerations prove that the differentiation of the subassociations of the fir forest, Galio-Abietetum fagetosum and Galio-Abietetum homogynetosum is appropriate. This finds additional verification in the group of sporiferous plants, which, as a rule, are considered in phytosociological research. 85

The patches of fir forest, which occupy only a few plots among the Carpathian beech forests on the massif's northern slopes, have the largest percentage of species in common with this association (illustration 4). On the southern slopes this proportion changes, since the beech forest on this side of Mt. Babia Gora is basically non-existent, while more plots are made up by mixed conifers, with which the fir forest has many species in common.

The fir forests on the southern slopes of Mt. Babia Gora are areas of especially intensive logging. The massive appearance of fireplace fungi occurs in many studied plots, for ex. Geopyxis carbonaria, Peziza violacea, Pholiota carbonaria, Lyophyllum anthracophilum and others. The grouping of fireplace fungi, which

has a pronounced synatropic character, was aknowledged by Ebert (in Wojewoda 1975) for the independent association Geopyxietum carbonariae, which corresponds to the Geopyxis carbonaria-Aleuria violacea community, distinguished earlier by Moser (1949). The phenomenon of coprophilic fungi, which create a characteristic grouping aknowledged by Vojewoda (1975) for the separate association of Stropharietum semiglobatae, has a close connection with logging in the studied fir forests. Representatives of this group of fungi on Mt. Babia Gora are: Stropharia stercoraria (=S. semiglobata), Psilocybe copropnila and Panaeolus sphinctrinus.

In some patches of the fir forest an insignificant mixture in the stand is made up of pine (Pinus sylvestris, P. strobus), larch (Larix sp.) and aspen (Populus trmula). In connection with the presence of these trees appear, for example connected with larch, Suillus grevillei and ZLachnellula willkommii, ad with pine Strobilurus tenacellus, S. stephanocystis, Suillus granulatus and S. luteus.

The fir forest in the Beskids in the Dubny range (Guminska 1966) contains a series of fungi noted for Galio-Abietetum. Of the tens of species common for the fir forests of Mt. Babia Gora, Russula mustelina, Mycena rosella and M. aurantiomarginata deserve attention. Also, Lentinus adhaerens, a rather rare fungus in Poland, was noted in the fir forests of both compared regions.

The fir forests (Abietetum polonicum at Roztocz (Salata 1972) and Gory Swietokrzyske (Lisiewska 1978) have many species in common with lower subalpine fir forests. These are, for example, Cystoderma carcharias, Mycena phyllogena and M. aurantiomarginata (Lisiewska 1978) and Clitocybe radicellata, Cortinarius sanguineus, Mycena vulgaris and Lactarius aurantiacus (Salata 1972). Similar to that on

Mt. Babia Gora, the fir forests at Roztocz are also the richest in terrestrial fungi. 86

Also compared are the results of the study perfored by Leischner-Siska (1939) in Austria on the separate association of Abietetum in the facies with Vaccinium myrtillus. It was claimed that this patch showed in respect to the mycoflora a transitional character between the fir forest of Mt. Babia Gora and mixed coniferous forests. Of the fungi common for both regions Cortinarius sanguineus and Russula nigricans deserve mention, fulfilling the role of indicative species for the group of associations, Galio-Abietetum and Abieti-Piceetum montanum, Lactarius lignyotus and L. rufus, which appear mainly in these associations, and Russula mustelina, a species characteristic for patches of the Galio-Abietetum association.

Abieti-Piceetum montanum Szaf., Pawl., Kulcz., 1923--Lower Subalpine Mixed Coniferous Forests (tab. 12, 13)

Patches of mixed conifers occupy a significant area on Mt. Babia Gora, especially on the southern slopes. They occur on numerous rises and ridges between the river valleys.

The process of bleaching is quite marked in the soils occuring beneath mixed conifer stands, the soil's reaction is acidic and the mulch layer is rather considerable (Celinski, Wojterski 1978).

The mixed conifer forest is floristically the poorest forest community of the lower subalpine region. The stands are composed of spruce and fir, beech make up a considerable admixture on the massif's

northern slopes. In patches, in which the beech's role is slight, the conditions for the development of moss are especially favorable. Patches of mixed conifers assume the physiognomy and character of upper subalpine spruce forests. Both associations represent the Vaccinio-Piceion connection.

The mixed coniferous forest on Mt. Babia Gora is the richest in fungi (204 species) after the fir forest. Terrestrial fungi comprise 38 percent and in serveral studied patches exceed the number of vascular plant species (illustration 5). Species exclusive to mixed plots, however, are relatively few (illustration 3). These are, for example, Lactarius camphoratus, Cantharellus cibarius, Cordyceps ophioglossoides, Skeletocutis amorpha and Morchella elata, playing the role, for the most part, of indicative species for this forest association in the studie area. Cortinarius collinitus, as well as Galerina hypnorum, which is connected with the strong development of a moss layer in this association, occur mainly in mixed forests.

On the northern slopes the mixed forest shows a pronounced mycofloristic relationship with the beech and fir forests. The presence of beech on these slopes affect the mycoflora composition of almost all the associations of the lower subalpine forest. Upon closer analysis it is seen, however, that the common species here are, for the most part, those fungi which occur on a broad ecological scale, mainly connected with beech wood (Marasmius alliaceus, Trametes hoehnelii, Calycella citrina, Pholiota aurivella, Omphalina epichysium and others), while fewer species of terrestrial fungi (for ex. Russula alutacea, R. cyanoxantha and Lactarius subdulcis) go from the beech to mixed forests. In the discussed pateches Gloeophyllum odoratum fruits abundantly and Hymenochaete cruenta occurs in smaller numbers.

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The mycofloristic similarity of the mixed forest to the fir forest on the southern slopes, as has already been mentioned, is much greater. Most numerous in patches of both associations are: Albatrellus ovinus and Lentinellus cochleatus, which most commonly grow in the mountains (Somanski, Orlos, Skirgiello 1967; Wojewoda 1965), Lactarius picinus and L. lignyotus, connected with spruce stands (Shmarda 1969), as well as Mycena rubromarginata, Lycoperdon umbrinum, L. foetidum and Russula densifolia. The occurrence in the mixed forest of fungi connected mainly with the fir is characteristic, observed more frequently than on the northern slopes. These species include: Hymenochaete cruenta and Aleurodiscus amorphus. The fructifications of the Ciboria rufofusca, an interesting and rather rare species, was noted only on the southern slopes in both mentioned associations on fallen fir cones.

The mycofloristic similiarity of the mixed forest and the upper subalpine spruce forest is marked, above all, by the presence of fungi, which grow among moss (Galerina sahleri, G. mniophila), and by the occurrence of, for ex., Naematoloma radicosmu, N. dispersum, Hygrophorus olivaceoalbus and Cystoderma sublongisporum, species common in the upper subalpine forest.

One of the consequences of logging is the appearance of fireplace fungi in many patches of mixed coniferous forest. Among those deserving attention is Coprinus angulatus, an interesting and rare species in Poland (Guminska 1972). Coprophilic fungi appear here in small numbers.

In patches of mixed forest on the southern slopes, moreover, the occurrence of Isaria sphecophila, a fungus growing in the studied area on Vespa wasps, was often observed.

Bazzanio-Piceetum Br. Bl. et Siss. 1939 (tab. 14, 15)

An analysis of the records made in the patches of moss spruce forests showed a great similarity of this forest to patches of the Bazzanio-Piceetum Br. Bl. et Siss. 1939 association, while high moor patches (a non-forest community of Sphagnum magellanicum--in Bujakiewicz 1979) where spuce grow are similar to patches of the Sphagnetum magellanici (Malc. 1939) Schwick. 1933 association. Both associations are known in the mountain regions of Czechoslovakia (Rybnichek oral information). The verification of the affinity of the studied patches to the above mentioned associations requires penetrating studies and the both complete phytosociological and soil documentation. In the present paper these patches will be defined in the meantime by the current names. Oberdorfer (1957) and Hartmann and Jahn (1967) have provided the characteristics of this this type of forest, as have Mikyshka and others (1968) for the part of Czechoslovakia, neighboring Poland.

In the Polish literature there is a lack of data concerning the occurrence of the Bazzanio---Piceetum association in Poland. Studied patches on Mt. Babia Gora resemble the physiognomy of spruce patches on peat (Sphagno girgensohnii-Piceetum) described by Polakowsky (1962) from northwest Poland. The occurrence of the upland-montane spruce and the numerical share of Bazzania trilobata speak to the affinity of the studied patches of the Bazzanio-Piceetum association.

Patches of the Bazzanio-Piceetum association occur at the base of the southern slopes of Mt. Babia Gora in fringe peat bogs, at elevations of around 800 meters above sea level, above the village of Lipnica Mala and near the settlement of Slona Woda in Slovakia. It is

a tall, dark, damp, mossy spruce stand. The level of ground water is shallow in connection with the weak water run-off. Th surface layers of peat have an acidic reaction. The ample layer of mulch, composed of needles, twigs, spruce cones and shoots of Vaccinium myrtillus is rather thick.

Spruce develops and regenerates here well. The moss level here, in which peat dominates, is especially amply developed. The plants of the undergrowth are few. Of the species characteristic of the association (Oberdorfer 1957), Bazzania trilobata and Plagiothecium undulatum, as well as species from the Sphagnum girgensohnii family, deserve mention. The presence of Carex brizoides and Equisetum silvaticum, which are distinguished within the confines of Bazzanio-Piceetum as a subassociation with Carex brizoides and Equisteum silvaticum (hartmann, Jahn 1967) also is characteristic.

The studied patches resemble those of the upper subalpine spruce forest because of the share of Plagiothecium undulatum, P. curvifolium, Luzula flavescens and Bazzania trilobata, as well as because of the the dominate role placed by moss in this association.

In patches of Bazzanio-Piceetum a total of 51 fungi species were collected, 54 percent of which were made up of fungi growing among peat and moss. There were relatively few species exclusive to this association.

The mycoflora of the mossy Bazzanio-Piceetum forest on Mt. Babia Gora has a special transitional character for the fungal flora of the peat bog and spruce forest. The group of fungi connected with peat clumps (Galerina mycenoides, Lactarius theiogalus, Laccaria proxima

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and others), above all, distinguish it in the studied area. Cortinariius paleaceus, Hebeloma helodes and Russula decolorans also play a greater role. The abundant occurrence in these patches of Inocybe lanuginosa, whose fructifications grow both among peat and on rotted wood or fallen spruce cones, is very interesting. This attests to the broad ecological scale of this species, which also grows on the ground in the studied area. Xeromphalina campanella and Notopanus porrigens, as well as the rare Pholiota astragalina, occur here in great number on rotted spruce stumps.

The above mentioned floristic similarity of mossy forests to upper subalpine forests is underlined in the patches of Bazzanio-Piceetum, as well as by the presence of fungi. These include the Cystoderma sublongisporum, Naematoloma dispersum and Hygrophorus olivaceoalbus, which grow most abundantly in the upper subalpine forest, and those, which are also known for the montane spruce forests in the Tatras and Alps: Pholiota scamba, Lactarius lignyotus, Hygrophorus tephroleucus, Cortinarius brunneus and C. atrocoeruleus (Nespiak 1960, 1971; Horak 1963). Mitrula vitellina, a rare fungus occurring in the Alps also merits attention (Rehm 1896).

Shmarda (1973) performed mycosociological research on the Bazzanio-Piceetum association in Moravia. The mycoflora of the patches of this associaton is very rich and diverse in Moravia. Of the characteristic species the fungi, Pholioto (scambi)-Inocybetum acutae, distinguished in the forests of this association, the following deserve mention: Lactarius theiogalus, L. helvus and Corinarius paleaceus. The question of distinguishing the mycocenosis in plant communities is still a matter for discussion, to which Doerfelt (1974), subjecting the work of Shmarda to critical evaluation, has turned his attention.

Sphagnetum magellanici (Malc. 1929) Schwick. 1933 (tabl. 15 and 16)

The peat bogs occurring on the southern slopes of Mt. Babia Gora represent a type of high moor, soligenic, which is created on the slopes of mountains and fed additionally by run-off water. There is a lack of the mozaic configuration of the tuft and dale associations.

There are few paragraphs in Polish literature concerning the occurrence of the association of Sphagnetum magellanici in our country. This type of moss was distinguished in western Pomerania by Jasnowski and others (1968), giving it the rank of a specific association, Sphagnetum magellanici boreale. This association, 90
however, has a subatlantic character and has a character different from the studied patches of slope peat bogs. Very similar high moor patches, however, occur at the foot of Polica (Stuchlikowa 1967), a massif neighboring Mt. Babia Gora on the east, but these communities have not been phytosociologically defined.

A complete description of the Sphagnetum magellanici association, which takes into account its occurrence in Europe and provides an exhaustive bibliography, can be found in the work of Neuhaeusl (1972), which stresses the heterogeneous character of the association, its wide-spread nature and its great geographical diversity. Among the many phytosociological records of Sphagnetum magellanici, which Neuhaeusl considers in his paper, the patches of the montane form of this association, described from the Beskids in Czechoslovakia under the names, Sphagneto-Caricetum pauciflorae and Sphagneto-Eriopnoretum vaginati (Duda in Neuhaeusl 1972), deserve attention. In relation to these patches, the studied peat bogs show the greatest floristic and phytosociological similarity.

The most characteristic species of the montane variety of the mentioned association is the Carex pauciflora. This sedge, relative rare in Poland, occurs rather abundantly in some places in the studied area. Among the 46 species mentioned in the collectived table of the Sphagnetum magellanici associaton (Neuhaeusl l.c.), 20 are in common for the peat bogs occurring on Mt. Babia Gora. There are also many high moor plants here, charateristic for the class, Oxycocco-Sphagnetea. With regard to the formation of the peat bogs within the confines of the forest level, species of the class, Vaccinio-Piceetea, have a rather large share. The studied patches of peat bog were treated like a forest association with respect to the large share of spruce in these patches.

Patches of the Sphagnetum magellanici association occupy a small area in the studied area on gradually inclined slopes at elevations around 790 meters above sea level, above the village of Lipnica Mala and the settlement of Slona Woda. Dwarf specimens of spruce occur in them, around which are gathered tufts of Vaccinium myrtillus. The level of ground water is very high. The reaction of the upper layers of peat is very acidic. Compact and dense tufts of peat plaited cross-wise by cranberry shoots make up the surface of the peat bogs.

Patches of Sphagnetum magellanici bogs are the poorest in mycoflora of all the studied associations on Mt. Babia Gora. A significant percentage of exclusive species (illustration 3) has facilited its differentiation from patches of Bazzanio-Piceetum. Of the 28 fungi specieces collected in these patches, up to 89 percent are comprised by fungi growing among peat, while a few are fungi found on rotted wood. The following typical peat fungi play a dominant role: Lyophyllum palustre, Naematoloma elongatipes, Galerina paludosa, G. 94

tibiicystis, Omphalina sphagnicola and Cortinarius uliginosus. The occurrence of Monilinia oxycocci, a fungus which grows on rotted cranberries, also merits mention. It was collected in peat bogs, for ex. at Lubelszczyznia (Salata, Bednarczyk 1977).

Data concerning the mycoflora of the Sphagnetum magellanici type of high moor is not found in the accessible literature. With respect to the fact that the peat bogs are characterized, in general, by a great homogeneity of mycoflora, the studied patches of Sphagnetum magellancic show many traits in common with, for example, the Sphagnetum medii pinetosum high moors in the Bialowiesky National Park (Nespiak 1959) and with the transitional bogs in Czechoslovakia (Kotlaba 1953). The peat bogs of Mt. Babia Gora are distinguished by the occurrence of fungi typical for montane spruce forests, such as Cortinarius collinitus, C. callisteus and C. brunneus (Stern 1969; Horak 1963; Nespiak 1971), and by the mass fruiting of Galerina tibiicystis and Cortinarius uliginosus.

Tabela 1—Table 1

Liczba powierzchni i obserwacji przeprowadzonych w zespołach leśnych Babiej Góry
Number of plots and observations carried out in the forest associations of Mt. Babia Góra

Strefa Zone	Jednostka fitosocjologiczna Phytosociological unit		Wysokość n.p.m. Altitude m	Liczba powierzchni Number of plots: na stoku: on slope	Liczba powierzchni Number of plots: łącznie total	Liczba obserw. Number of observ.
Regiel dolny Lower montane forests	*Dentario glandulosae-Fagetum*		820-1030	N— 7	13	82
			925-1060	SW*— 6		6
	Galio-Abietetum		730- 743	N — 2	14	23
			815- 910	S, SW—12		137
	Abieti-Piceetum montanum		880-1070	N— 3	13	33
			850-1085	S, SW—10		108
	Caltho-Alnetum	azonalne azonal	710- 935	N— 2	5	23
			810-1015	S, SW— 3		7
	Sorbo-Aceretum		1040-1100	N— 2	2	22
	Bazzanio-Piceetum		780	S, SW— 2	2	11
	Sphagnetum magellanici		765- 790	S, SW— 3	3	21
Ogółem — Total number					52	473
Regiel górny Upper mont. for.	*Piceetum excelsae carpaticum*		1185-1310	N— 5	13	65
			1220-1345	S, SW— 8		55
Łącznie — Total					65	593

N — zbocza północne (north-facing slopes)
S — zbocza południowe (south-facing slopes)
SW* — zbocza południowo-zachodnie, obszar Czechosłowacji (south-western slopes, Czechoslovakia)

Tabela 2—Table 2

Caltho-Alnetum incanae (Jasiewicz 1965 n.n.) em. Stuchlik 1968

Nr kolejny (Serial number)	1	2	3	4	5	
Nr zdjęcia w terenie (Number of record)	15	16	65	49	48	
	28	1	9	28	29	
	6	7	9	5	5	
Data (Date)	69	69	70	70	70	
Miejsce zdjęcia (Locality)	BPN	SB	Cz	NT	NT	
Ekspozycja (Exposition)	NW	N	SW	S	S	
Nachylenie (Inclination)	5	0	10	5	3	
Wysokość n.p.m. w m (Altitude in m)	935	710	1015	870	810	
Zwarcie warstwy drzew w % a_1	60	90	60	60	50	
Zwarcie warstwy drzew w % a_2 (Density of trees in %)		10				
Zwarcie warstwy krzewów w % b (Density of shrubs in %)	30	20	—	20	20	
Pokrycie warstwy zielnej w % c (Cover of herb layer in %)	100	100	90	80	90	
Pokrycie warstwy mszystej w % d (Cover of moss layer in %)	30	30	40	20	20	
Średnia wysokość drzew w m (Mean height of trees in m)	15	12	12	10	10	
Średnia średnica drzew w cm (Mean diameter of trees in cm)	.	25	.	12	9	
Klasa wieku (Age class)	IV	IV	II	II	II	
Powierzchnia zdjęcia w m^2 (Area of record in sq. m.)	200	200	100	100	100	
Liczba gatunków w 1 zdjęciu (Number of species in one record)	41	45	29	27	22	
Ch. *Caltho-Alnetum*+ i (and) *Alno-Padion:*						
Alnus incana a	4.4	5.5	4.4	4.4	3.3	5
„ „ b	1.1	.	.	.	1.1	2
„ „ c	1.1	.	.	+	1.1	3
+*Crepis paludosa* c	2.1	2.1	+	3.3	2.3	5
+*Caltha laeta* et *palustris*	+.2	3.3	2.2	1.1	1.1	5
+*Chaerophyllum hirsutum* v. *cicutaria*	2.1	2.2	1.1	2.3	+	5
Carex remota	3.3	2.2	.	1.2	.	3
Poa remota	2.1	.	.	.	.	1
Chrysosplenium alternifolium	3.3	+	.	1.2	.	3
Circaea alpina	2.2	.	.	.	.	1
Mnium undulatum	2.2	1.2	2.3	2.2	1.2	5

Stałość—Constancy

Sporadyczne (Sporadic):

Glyceria nemoralis 65, **Listera ovata* 48, *Stachys silvatica* 16, *Stellaria nemorum* 15(1.1), 49(2.3)

Ch. *Fagetalia silvaticae:*						
Carex silvatica	2.2	1.2	1.2	1.2	1.2	5
†*Lysimachia nemorum*	2.2	+ 2	.	.	.	2
Impatiens noli-tangere	2.1	+	.	1.2	.	3
Pulmonaria obscura	.	2.2	.	.	.	1
Symphytum tuberosum	.	1.2	.	.	.	1
Paris quadrifolia	+	+	.	1.1	.	3

Sporadyczne (Sporadic):

Asperula odorata 65, *Dentaria bulbifera* 16, *D. glandulosa* 15, 49, *Euphorbia amygdaloides* 16, *Galeobdolon luteum* 16, *Phyteuma spicatum* 16, *Primula elatior* 16, 49, 46(1.1), *Viola silvestris* 15

Ch. *Molinietalia*† i (adn)						
Molinio-Arrhenatheretea						
†*Myosotis palustris*	1.1	+	.	.	2.2	3
Cirsium oleraceum	.	.	3.3	.	.	1
†*Genum rivale*	.	.	.	+	1.2	2

Sporadyczne (Sporadic):

Cirsium palustre 65, *Filipendula ulmaria* 48, 65, *Prunella vulgaris* 65

Ch. *Betulo-Adenostyletea*						
Petasites albus	3.3	4.4	+	.	.	3
Senecio nemorensis et *fuchsii*	+	1.1	.	2.2	+	4

Sporadyczne (Sporadic):

Aconitum firmum 65, *Calamagrostis arundinacea* 15, *Thalictrum aquilegifolium* 16

Towarzyszące (Accompanying):						
Picea excelsa a_1	.	2.2	1.2	1.1	1.1	2
„ „ a_2	.	2.2	.			1
„ „ b	2.2	2.2	.	1.1	+	4
„ „ c	.	+	.	+	+	3
Abies alba b	+	.	.		.	1
„ „ c	.	+	.	.	.	1
Salix caprea a	+	.	.	.	.	1
„ „ b	.	+	+	.	.	2
Alnus glutinosa a	1.1	.	.	1.1	1.1	3
Equisetum silvaticum	5.5	2.1	+	3.3	+	5
Athyrium filix-femina	+	1.2	+	1.2	.	4
Urtica dioica	1.1	r	.	1.1	+	4
Ranunculus repens	2.3	r	.	.	.	2
Valeriana simplicifolia	1.2	+	.	.	.	2
Luzula silvatica	r	+.2	.	.	.	2
Ajuga reptans	.	+.2	2.1	.	.	2
Oxalis acetosella	.	1.1	.	+	.	2

c.d. tab. 2

Conocephalum conicum	1.2	2.2	2.3	1.2	+	5
Mnium punctatum	2.2	+.2	.	.	.	2
Brachythecium rivulare	+.2	2.3	.	.	.	2
Climacium dendroides	.	.	.	.	2.2	1

Sporadyczne (Sporadic):

Carex fusca 48(1.2), *Chaerophyllum aromaticum* 16, *Equisetum arvense* 65(2.3), *Fragaria vesca* 15, *Gentiana asclepiadea* 16, *Geranium robertianum* 49, 48(1.1), *Geum urbanum* 65, *Hylocomium splendens* d 65, *Lonicera nigra* b 15, *Lysimachia nummularia* 49(1.2), 65(1.2), *Majanthemum bifolium* 16, 65, *Mnium affine* 48, 49(1.2), 16, *M. seligeri* 15, *Myosotis silvatica* 65, *Orchis latifolia* 15, 48, 49, *O. maculata* 16, *Phegopteris dryopteris* 15, *P. polypodioides* 15, *Plagiochila asplenioides* 65(1.2), *Rhodobryum roseum* 49, *Rubus idaeus* 16, *Sedum fabaria* 15, *Soldanella carpatica* 16, *Stellaria media* 65, *Trichocolea tomentella* 16, *Vaccinium myrtillus* 65, *Veronica beccabunga* 15(2.2)

Objaśnienia (Explanations):
BPN — Babiogórski Park Narodowy (Babia Góra National Park)
SB — Nadleśnictwo Sucha Beskidzka (Forest Inspectorate Sucha Beskidzka)
Cz — Czechosłowacja (Czechoslovakia)
NT — Nadleśnictwo Nowy Targ (Forest Inspectorate Nowy Targ)
Numery zdjęć w terenie odpowiadają numerom stanowisk na mapie (Bujakiewicz 1979)
— Numbers of records sorrespond with numbers of localities on map (Bujakiewicz 1979).

Tabela 5 = Table 5

Makromycetes w płatach roślin Caltho-Alnetum

Macromycetes in patches of Caltho-Alnetus association

Nr kolejny /Serial number/	1	2	3	4	5	
Nr powierzchni obserwacyjnej /No of plot/	15	16	65	48	49	
Wielkość powierzchni /Area of plot/ m²	[illegible]	[illegible]	100	100	100	
Wysokość n.p.m. w m /Altitude in m/	855	910	821	810	870	
Ekspozycja /Exposition/	NW	N	SW	S	S	Constancy
Nachylenie /Inclination/	[illegible]	[illegible]	10	[illegible]	5	
Typ gleby /Soil type/	Cb	[illegible]	[illegible]	[illegible]	[illegible]	
pH /Soil reaction/	[illegible]	7.0	[illegible]	[illegible]	[illegible]	
Stosunki wodne /Water conditions/	p	p	p	p	p	Stricte:
Stopień zmian /Degree of changes/	0	0	0	0	0	
Liczba obserwacji /Number of observations/	11	14	1	5	3	
Liczba gatunków /Number of species/	35	46	4	45	8	
Ziemia /ground/:						
Cortinarius pulchripes	3a					1
Hygrocybe bohemica	1					1
Pseudoomphalina compressipes	1		•			1
Coprinus atramentarius	1					1
Scutellinia setosa	1					1
Tubaria furfuracea	1					1
Lactarius obscuratus	1	1a				2
Cortinarius bibulus	1	1a				2
Hygrocybe subconspersa	1	1a				2
Cortinarius helvelloides	2	1a			1a	3
Cortinarius alnetorum	2	1a	1a	1a		3
Hygrocybe [illegible]	2	1a	1a	1a	1a	4
Hygrocybe [illegible]	2	1a	[illegible]	[illegible]	1a	4
Papillus [illegible]	1	1				2
Inocybe cincinnata	1	1				2
Tubaria pellucida	1	1				2
Lactaria lacunata	1	1a				2
Russula puzila	1	1	1			3
Mycena pura	1	1	1			3
Clitocybe fragrans	1	1	1			3
Lactarius deliciosus	1	1	1			3
Pholiotina blattaria	1	1	1			3
Conocybe tenera	1	1	1a	1a		4
Szczątki roślinne /plant remains/:						
Crucibulum coronata	1a					1
Mycena capillaris	1	1				2
Pistillaria epiphylla	1	1				2
Mycena [illegible]	1	1				2
Mycenella margaritispora	1	1				2
Peziza [illegible]	1	1				2
Mycena epipterygia	1	1				2
Mycena [illegible]	1	1	1			3
Peziza [illegible]	1	1	1			3
Peziza [illegible]	1	1	1			3
Calyptella [illegible]	1	1	1			3
Hyaloscypha [illegible]	1	1	1			3
Hemimycena [illegible]	1	1	1			3
Mycena [illegible]	1	1	1			3
Pistillaria [illegible]	1	1	1			3
Typhula sclerotioides	1	1	1			3
Xeromycena [illegible]	1	1	1	1a		4
Mycena [illegible]	1	1	2a			4
Hymenoscyphus caudatus	1	1	1			3
Pistillaria pusilla	1	1	1			3
Typhula [illegible]	1	1	1			3
Mycena galopoda	1	1	1			3
Hymenoscyphus rhodoleucus	1	1	1	1a		4
Opadłe gałęzi itp./fallen twigs etc./						
Mycena amygdalina	2a					1
Mycena rubromarginata	2	1				2
Lachnellula subtilissima	1	1				2
Orbrophila violacea	1	1				2
Clavariadelphus fistulosus	1	1				2
Galerina triscopa	1	1				2
Marasmius alliaceus v. alliaceus	1	1				2
Polyporus alveolarius	1	1				2
Polyporus varius v. nummularius	1	1				2
Stereum hirsutum	1	1				2
Mycena speirea	4a	1a			1a	3
Mycena vitilis	3a	1a				2
Tubaria furfuracea	3a	1a				2

Calycella citrina	2^a	1^a			
Dasyscyphus bicolor v. rubi	1^a	1^a			
Scutellinia carneo-sanguinea	1^a	2^a			
Hymenoscyphus calyculus	1^a	1^a			
Mycena vitrea	1^a			1^{a+}	
Tubaria trofida		1^a			
Hypnodontia quercina				1^a	
Peniophora crimsonii				1^{a+}	
Mycena amicta				1^{a+}	
Pniaki, Młody /stumps, logs/:					
Lycoperdon pyriforme	/4^a/				
Haematoloma capnoides	/4^a/				
Pseudohydnum gelatinosum	/3^a/				
Trametes versicolor	3^a				
Xerocephalina campanella	/3^a/				
Mycena maculata	/3^a/				
Xylocphaera hypoxylon	3^a				
Trametes hirsuta	2^a				
Mycena acicula	2^a				
Armillariella mellea	2^a	1^a			
Scutellinia scutellata	1^a	1^a			
Mycena galericulata		2^a			
Mycena alcalina		2^a			
Panellus stipticus		1^a			
Omphalina epichysium		1^a			
Mycena haematopoda		1^a			
Pholiota alnicola		1^a			
Calocera viscosa		1^a			
Coryne sarcoides		1^a			
Mycena lutecalcalina		1^a			
Pluteus atromarginatus		1^a			
Phaeomarasmius erinaceus		1^a		1^a	
Mchy /mosses/:					
Gerronema setipes	2^r	1^r			
Szczątki grzybów /rotten fungi/:					
Collybia cookei	1^a				

Objaśnienia /Explanations/:

gb - gleba górska bagienna /montane muddy peat soil/

p - gleba podtopiona /muddy soil/

Numer powierzchni obserwacyjnej odpowiada numerowi zdjęcia fitosocjologicznego /Number of observation plot corresponds with the number of phytosociological record/

Tabela 4 - Table 4

Sorbo aucupariae-Aceretum carpaticum Cel. et Wojt./1961 n.n./1978

Nr kolejny /Serial number/	1	2	
Nr zdjęcia w terenie /Number of record/	13	14	
Data /Date/	28 6 69	28 6 69	
Miejsce zdjęcia /Locality/	BBN	BBN	
Ekspozycja /Exposition/	NW	NW	
Nachylenie /Inclination/	40	40	
Wysokość n.p.m. w m /Altitude in m/	1040	1100	
Zwarcie warstwy drzew w % a_1	90		
" " " a_2 /Density of trees in %/	20	70	
Zwarcie warstwy krzewów w % b /Density of shrubs in %/	20	10	
Pokrycie warstwy zielnej w % c_1	50	90	
" " " c_2 /Cover of herb layer in %/	80	60	
Pokrycie warstwy mszystej w % d /Cover of moss layer in %/	zn	zn	
Średnia wysokość drzew w m /Mean height of trees in m/	18	-	
Średnia średnica drzew w cm /Mean diameter of trees in cm/	43	-	
Klasa wieku /Age class/	IV	V	

Stałość - Constancy

Powierzchnia zdjęcia w m^2 /Area of record in sq.m./	200	200	
Liczba gatunków w 1 zdjęciu /Number of species in one record/	35	39	
Ch. Acerion /D. Sorbo-Aceretum*/:			
Acer pseudoplatanus a_1	4.4	4.4	2
" " c_1	+	+	1
Polystichum lonchitis c_1	2.2	+	1
" " c_2	+	1.2	1
Aruncus silvester c_1	2.2	1.1	2
*Acteea spicata c_1	2.2	1.1	2
†Polystichum Braunii c_1	+	+	2
†Pulmonaria obscura c_1	1.2	+	1
Ch. Fagion:			
Dentaria bulbifera c_2	1.1	+	2
Dentaria glanduloso	+	+	2
Ch. Fagetalia:			
Impatiens noli-tangere c_2	3.3	1.1	2
Dryopteris filix-mas	2.2	2.2	2
Chrysosplenium alternifolium	2.2	2.2	2
Asperula odorata	2.2	1.2	2
Stellaria nemorum	2.3	+	2
Circaea alpina	1.1	1.1	2
Epilobium montanum	+	1.1	1
Ranunculus lanuginosus c_1	+	1.1	1
Paris quadrifolia	r	+	1
Calcobdolon luteum	+	+	1
Ch. Betulo-Adenostyletea:			
Ribes petraeum var.carpaticum b	1.1	1.2	2
" " c_1	2.2	+	1
" " c_2	+	+	1
Lonicera nigra b	2.2	+	2
Adenostyles alliariae c_1	2.2	4.4	2
Petasites albus c_1	1.2	2.3	2
Rosa pendulina c_1	1.2	+	2
Veratrum lobelianum c_1	1.1	+	1
Ranunculus platanifolius c_2	r	+	1
Thalictrum aquilegifolium c_1	+	2.2	1
Doronicum austriacum c_1	+	2.1	1
Mulgedium alpinum c_1	+	1.1	1
Primula elatior c_1	+	1.1	1
Senecio nemorensis et Fuchsii c_1	+	2.2	1
" " c_2	+	1.1	1
Towarzyszące /Accompanying/:			
Picea excelsa a_1	2.2	+	1
" " c_1	+	+	1
Sorbus aucuparia a_1	1.2	+	1
" " c_1	+	+	1
Cerinthe fontana c_1	2.2	+	1
" " c_2	+	1.1	1
Oxalis acetosella c_1	1.1	2.2	2
Athyrium filix-femina c_1	1.2	1.2	2
Rubus idaeus c_1	1.1	1.1	2
Cardamine flexuosa c_1	1.1	1.2	2
Thelypteris dryopteris c_1	r	+	2
Thelypteris polypodioides c_2	r	+	2
Picea abies c_1	2.1	+	1

Sporadycznie /Sporadic/:

Barbilophozia lycopodioides d 14, Homogyne alpina 13 c_2, Luzula silvatica 14 c_1, Lycopodium selago 14 c_2, Pellia epiphylla d 14/1.2/, P. neesiana d 13, Sambucus racemosa 13 c_1, Valeriana simplicifolia 14 c_2, V. tripteris 14 c_2

Objaśnienia/Explanations/:

BPN - Beskid Śląski Park Narodowy
/Silesian Beskid National Park/

Numery zdjęć w terenie odpowiadają numerom stanowisk na mapie /Bujakiewicz1979/
/Numbers of records correspond with numbers of localities on map /Bujakiewicz 1979/.

Tabela 5 - Table 5

Macromycetes w płatach zespołu Sorbo-Aceretum

Macromycetes in patches of Sorbo-Aceretum association

Nr kolejny /Serial number/	1	2	
Nr powierzchni obserwacyjnej /No of plot/	13	14	
Wielkość powierzchni /Area of plot/ m^2	200	200	
Wysokość n.p.m. w m /Altitude in m/	1040	1100	
Ekspozycja /Exposition/	NW	NW	Constancy
Nachylenie /Inclination/	40	40	
Typ gleby /Soil type/	.	bg	
pH /Soil reaction/	6,8	6,0	-
Stosunki wodne /Water conditions/	.	um	
Stopień zmian /Degree of changes/	0	0	Stałość
Liczba obserwacji /Number of observations/	11	11	
Liczba gatunków /Number of species/	56	64	
Ziemia /ground/:			
Conocybe arrhigua	2		1
Pholiotina blattaria	1		1
Rhodophyllus strigosicinctus	1		1
Hygrophorus olivaceoalbus	1		1
Tubaria conspersa	3	1	2
Mycena pura	1	1	2
Hygrophorus pustulatus	3	1	2
Rhodophyllus junctinus	4	1	2
Stropharia aeruginosa		1	1
Conocybe rickeniana		1	1
Xerocomus subtomentosus		1	1
Conocybe pilosella		1	1
Conocybe siliginea		1	1
Cortinarius bolaris		1	1
Cortinarius flexipes		1	1
Inocybe godeyi		1	1
Laccaria laccata		1	1
Porphyrellus pseudoscaber		1	1
Rhodophyllus staurosporus		1	1
Russula ochroleuca		1	1
Scutellinia trechispora		1	1
Szczątki roślinne /plant remains/:			
Mycena pterigena	4		1
Rutstroemia luteoviroscens	3		1
Mycena capillaris	3		1
Micromphale perforans	2		1
Pistillaria todei	2		1
Mycena opipterygia	2		1
Marasmius recubans	2		1
Typhula erythropus	1	1	2
Hymenoscyphus scutula	1	1	2
Psilocybe crobula	1	1	2
Mycena chlorinella	1	1	2
Phialea cyathoidea	1	1	2
Mycena galopoda	1	1	2
Mycena sanguinolenta	1	1	2
Hymenoscyphus caudatus	1	1	2
Lachnellula succica		1	1
Hemimycena gracilis		1	1
Mycena phyllogena		1	1
Mycena rorida		1	1
Mycena stylobates		1	1
Opadłe gałązki itp./fallen twigs etc./:			
Diatrype disciformis	3		1
Hymenoscyphus serotinus	2		1
Tuberculoria vulgaris	2		1
Xylosphaera longipes	2		1
Conocybe brunnea	1		1
Mycena amicta	1		1
Mycena rubromarginata	1		1
Psathyrella obtusata	1		1
Tubaria furfuracea	1		1
Tubaria pallidispora	1		1
Mycena amygdalina	2	1	2
Psathyrella fusca	2	1	2
Scutellinia carneo-sanguinea	2	1	2
Dacryzyces stillatus	2	1	2
Marasmius alliaceus v. alliaceus	2	1	2
Dasyscyphus bicolor v. rubi	2	1	2
Mycena crocata	2	1	2

Hymenoscyphus calyculus	4a	4a	2
Mycena vitrea	4a	4a	2
Lachnellula subtilissima		1r	1
Galerina sideroides		1r	1
Collybia confluens		1r	1
Crepidotus variabilis		1r	1
Pniaki, kłody /stumps, logs/:			
Amylostereum chailletii	3a		1
Xeromphalina campanella	3a		1
Mycena alcalina	1r		1
Gymnopilus picreus	1r		1
Mycena luteoalcalina	1r		1
Panellus serotinus	1r		1
Xylosphaera hypoxylon	1r	1r	2
Armillariella mellea	2a	1r	2
Galerina unicolor	2a	1r	2
Coryne cylichnium	1r	1r	2
Mycena erubescens	1r	1r	2
Scutellinia scutellata	2a	1r	2
Calocera cornea		1r	1
Mycena maculata		1r	1
Pholiota aurivella		1r	1
Crepidotus cesatii		1r	1
Mycena viscosa		1r	1
Tyromyces caesius		1r	1
Coprinus micaceus		1r	1
Fomitopsis pinicola		1r	1
Gerronema chrysophyllum		1r	1
Hericium coralloides		1r	1
Mycena acicula		1r	1
Mycena galericulata		1r	1
Haematoloma capnoides		1r	1
Mchy /mosses/:			
Galerina hypnorum	2r		1
Gerronema setipes	1r	1r	2
Galerina embolus		1r	1
Grzybki grzybów /rotten fungi/:			
Collybia cookei	1a		1
Poczwarki owadów /pupae of insects/:			
Isaria farinosa	1r		1

Objaśnienia /Explanations/:

bg - gleba brunatna górska /montane brown earth/
um - umiarkowanie wilgotna /moderate moist/

Numer powierzchni obserwacyjnej odpowiada numerowi zdjęcia fitosocjologicznego /Number of observation plot corresponds with the number of phytosociological record/.

Tabela 6 = Table 6

Dentario glandulosae-Fagetum Klika'1927 em. Lot. 1954

Nr kolejny/Serial number/	1	2	3	4	5	6	7	8	9	10	11	12	13
Nr zdjęcia w terenie /Number of record/	1	50	2	3	55	60	4	64	5	51	54	6	7
Data /Date/	26 6 69	4 9 76	28 6 69	27 6 69	7 9 76	8 9 76	1 7 69	9 9 76	27 6 69	4 9 76	7 9 76	8 9 76	26 6 69
Miejsce zdjęcia /Locality/	BPN	CZ	BPN	BPN	CZ	CZ	SB	CZ	BPN	CZ	CZ	BPN	BPN
Ekspozycja /Exposition/	NE	SSW	NW	NE-SSE		S	NW	W	NW	SSW	SS	NW	W
Nachylenie /Inclination/	35	20	20	35	20	10	20	5	3	30	20	15	10
Wysokość n.p.m. w m /Altitude in m/	930	1040	975	970	1000	925	820	930	1000	1010	1030	1030	1010
Zwarcie warstwy drzew w % a_1	60		60	70	10	70		60	60		10	50	60
/Density of trees in %/ a_2	10	90	50	20	60	00	95	50	10	90	50	20	10
Zwarcie warstwy krzewów w % b /Density of shrubs in %/	30	10	.	10	.	.	.	zn	.	10	.	10	.
Pokrycie warstwy zielnej w % c /Cover of herb layer in %/	70	80	100	100	100	90	70	70	70	80	70	80	80
Pokrycie warstwy mszystej w % d /Cover of moss layer in %/	10	zn	zn	.	.	.	zn	zn	zn	.	.	.	zn
Średnia wysokość drzew w m /Mean height of trees in m/	25	20	22	.	20	18	26	30	.	20	20	22	.
Średnia średnica drzew w cm /Mean diameter of trees in cm/	63	45	60	.	28	20	31	50	.	28	33	33	.
Klasa wieku /Age class/	VI	V	VII	VI	III	II	V	V	V	III	III	V	VI
pH /Soil reaction/	6,0	.	5,5	6,0	.	.	6,3	.	4,5	.	.	4,8	5,0
Powierzchnia zdjęcia w m^2 /Area of record in sq.m./	200	150	200	200	150	200	200	100	200	100	100	200	200
Liczba gatunków w 1 zdjęciu /Number of species in one record/	21	21	19	22	19	31	30	30	20	22	20	37	34

Podzespół i /subassociation and/ facja /facies/	A.u.	typicum						festucetosum silvaticae						
		S.n	I.n	L.p.	A.u.			O.u.				F.u.		
Ch.zespołu i związku /of the association and of the alliance/ Fagion														
+ Fagus silvatica a_1	4.4	4.4	3.3	2.2	.	.	5.5	4.4	3.3	4.4	.	1.1	2.2	V
" " a_2	.		3.3	1.2	4.4	4.4		1.1	.		3.3	1.1	1.2	IV
" " b^2	2.2	1.1	.	1.2	.	.	.	.	.	.	.	.	.	II
" " c	2.1	r	2.1	+	+	+	2.1	+	+	.	1.	1.	+	V
Acer pseudoplatanus a_1	.	.	.	1.2	.	.	.	.	.	.	.	.	.	I
" " a_2	.	.	.	.	.	.	.	.	.	.	.	1.1	.	I
" " b^2	.	.	r	+	.	.	+	.	+	.	+	+	r	III
+ Dentaria glandulosa	2.3	.	.	+	.	.	.	1.1	1.	.	.	.	.	III
+ Dentaria bulbifera	+	.	1.1	1.1	2.1	1.2	1.	.	.	.	.	.	.	III
Prenanthes purpurea	.	+	.	.	.	r	1.	.	+	+	.	1.	1.	III
Festuca silvatica	.	+.2	r	.	.	.	.	.	.	.	.	3.3	4.4	II
Polystichum lobatum	1.2	.	.	+.2	.	.	.	.	.	.	.	.	.	I
Ch. Fagetalia i Querco-Fagetea														
Galeobdolon luteum	.	+	.	r	1.1	+	1.1	+	2.3	+	+	1.1	+	V
Veronica montana	2.2	1.1	+	+	2.2	+	.	+.2	.	1.1	.	1.2	1.2	IV
Dryopteris filix-mas	.	+.2	2.2	1.2	.	.	2.2	.	.	1.2	+.2	1.2	+	IV
Impatiens noli-tangere	1.1	.	3.3	4.4	2.3	+	.	.	1.1	1.2	.	1.2	.	IV
Paris quadrifolia	.	.	r	r	.	.	+	+	.	+	.	r	r	III
Viola silvestris	.	.	r	.	.	r	+	+	1.2	.	.	+	.	III
Stellaria nemorum	2.2	4.4	.	2.2	.	.	.	.	.	.	+	.	+	II
Asperula odorata	+	.	.	.	3.4	4.4	3.3	.	.	.	.	.	1.1	II
Symphytum tuberosum	.	.	.	+.2	.	1.1	2.2	2.1	.	.	.	.	.	II
Sanicula europaea	.	.	.	.	+	1.1	2.2	2.1	.	.	.	.	.	II
Mycelis muralis	.	.	.	.	1.1	.	r	.	+	.	.	+	.	II
Mercurialis perennis	.	.	2.3	3.3	.	.	1.1	.	.	.	.	.	.	II
Euphorbia amygdaloides	.	.	.	.	.	+	1.1	.	.	.	.	r	.	II
Chrysosplenium alternifolium	+	.	1.1	1.1	.	.	.	.	.	.	.	.	.	II
Ranunculus lanuginosus	.	.	.	.	.	r	1.1	+	.	.	.	.	.	II
Rubus hirtus	.	1.1	.	.	.	.	.	+	.	.	1.1	.	.	II
Carex silvatica	.	.	.	.	.	.	2.2	3.2	.	.	.	.	.	I
Epilobium montanum	r	.	.	.	+	.	r	.	.	.	.	.	.	II

stanowe - constancy

Thalictrum aquilegifolium	[illegible]	.	.	+	.	+	r	.	.	.	.	.	+	II
Allium ursinum														I
Sporadyczne /Sporadic/:														
Alnus incana b/64/; Cardamine trifolia 60; Circaea alpina b, C. intermedia /60/; Lonicera xylosteum d/64/; Lilium effusum 50,51,b; Phyteuma spicatum /60/,/64/,b; Primula elatior /60/; Pulmonaria obscura /64//1.2/.														
Ch. Vaccinio-Piceetea														
Picea excelsa a_1	.	.	.	.	3.3	.	.	.	.	1.1	1.2	3.3		II
" " a_2	.	1.1	.	.	.	2.2	2.3	.	1.1	.	+	.		II
" " b	.	.	.	.	.	.	.	+	.	+	.	1.1	..	I
" " c	.	.	.	r	+	+	.	.	.	.	.	+		II
Dryopteris austriaca	+	2.3	1.2	+.2	+	.	+.2	.	1.2	.	2.2	.	1.2	IV
Vaccinium myrtillus	.	+	.	.	.	.	.	+.2	1.2	2.3	1.2	+	1.2	III
Sorbus aucuparia c	.	.	.	.	r	.	.	+	r	r	+	+	r	III
Homogyne alpina	.	.	.	.	.	+	.	.	.	+	+	+	2.2	II
Sporadyczne /Sporadic/:														
Blechnum spicant 51/1.2/; Polytrichum attenuatum d 3,7.														
Towarzyszące/Accompanying/:														
Abies alba a_1	.	.	.	2.2	1.1	3.3	.	3.3	3.3	1.1	.	3.3	.	III
" " a_2	1.1	.	2.2	1.2	.	.	.	.	1.1	.	1.1	+	.	II
" " c	+	r	+	.	r	+	.	.	1.1	.	+	+	.	IV
Oxalis acetosella	1.2	1.1	+	2.2	4.4	3.3	2.3	1.2	4.4	2.3	3.3	3.3	1.2	V
Athyrium filix-femina	2.2	3.3	1.2	1.2	+.2	1.2	1.2	r	1.2	1.2	+	1.2	1.1	V
Senecio Fuchsii et numerosus	r	.	r	r	+	r	+	2.1	+	+	+	1.2	+	V
Rubus idaeus	+	.	.	1.2	.	+	.	.	+	r	+	1.2	1.1	IV
Polygonatum verticillatum	.	.	+	.	.	+	1.1	.	.	+	+	+	r	III
Sambucus racemosa	.	.	r	.	+	r	.	.	r	.	+	r	.	III
Geranium robertianum	.	.	1.1	1.1	1.1	.	.	.	.	.	.	1.1	.	II
Phegopteris dryopteris	1.1	r	.	.	.	+.2	.	.	.	.	.	r	1.1	II
Phegopteris polypodioides	.	+	.	.	.	+	.	.	.	+	.	1.1	1.1	II
Luzula silvatica	.	+	.	.	.	.	.	.	.	.	.	+	1.2	II
Lycinachis nummularia	.	+	.	.	.	1.1	.	+	.	+	.	.	.	II
Rumex arifolius	.	1.1	.	.	.	.	.	.	.	r	.	.	r	II

Sporadyczne /Sporadic/:

Adenostyles alliariae 7; Aduna ruptara 4; Actrantia maior 34; Athyrium alpestre 50; Brachythecium rutabulum 1; B.velutinum 4,b; Chamaenerion angustifolium 54, 55; Ch.hirsutum /64/; Crepis paludosa /64/,b; Deschampsia caespitosa /64/ / [illegible]/; Equisetum pratense /64/; E.silvaticum /60/,/64/; Filipendula ulmaria /64/; Gentiana [illegible]lepiana c 7/1.1/; Geranium silvaticum 1/2.3/; Hieracium murorum 4/1.2/,7; Homogyne nigra b/c [illegible]/2.2/, 7; Luzula luzuloides /64/; Majanthemum bifolium 4,7/1.1/; Mulgedium alpinum c,7; Pollia nocsiana d 1; Pleurozium dentic[illegible]atum c 7; Rosa [illegible]ndulina c 7; Salix caprea b /64/; Soldanella carpatica 6/1.1/, 7; Streptopus amplexifolius 5; Valeriana tripteris 6

Objaśnienia/Explanations/:

BPN - Babiogórski Park Narodowy /Babia Gora National Park/
CZ - Czechosłowacja /Czechoslovakia/
GD - Nadleśnictwo Gucha Beskidzka /Forest Inspectorate Gucha Beskidzka/
A.u. - Allium ursinum
G.n. - Stellaria nemorum
I.n. - Impatiens noli-tangere
M.p. - Mercurialis perennis
A.o. - Asperula odorata
O.a. - Oxalis acetosella
F.s. - Festuca silvatica

Numery zdjęć w terenie odpowiadają numerom stanowisk na mapie /Bujakiewicz 1979/
/Numbers of records correspond with numbers of localities on map /Bujakiewicz 1979/

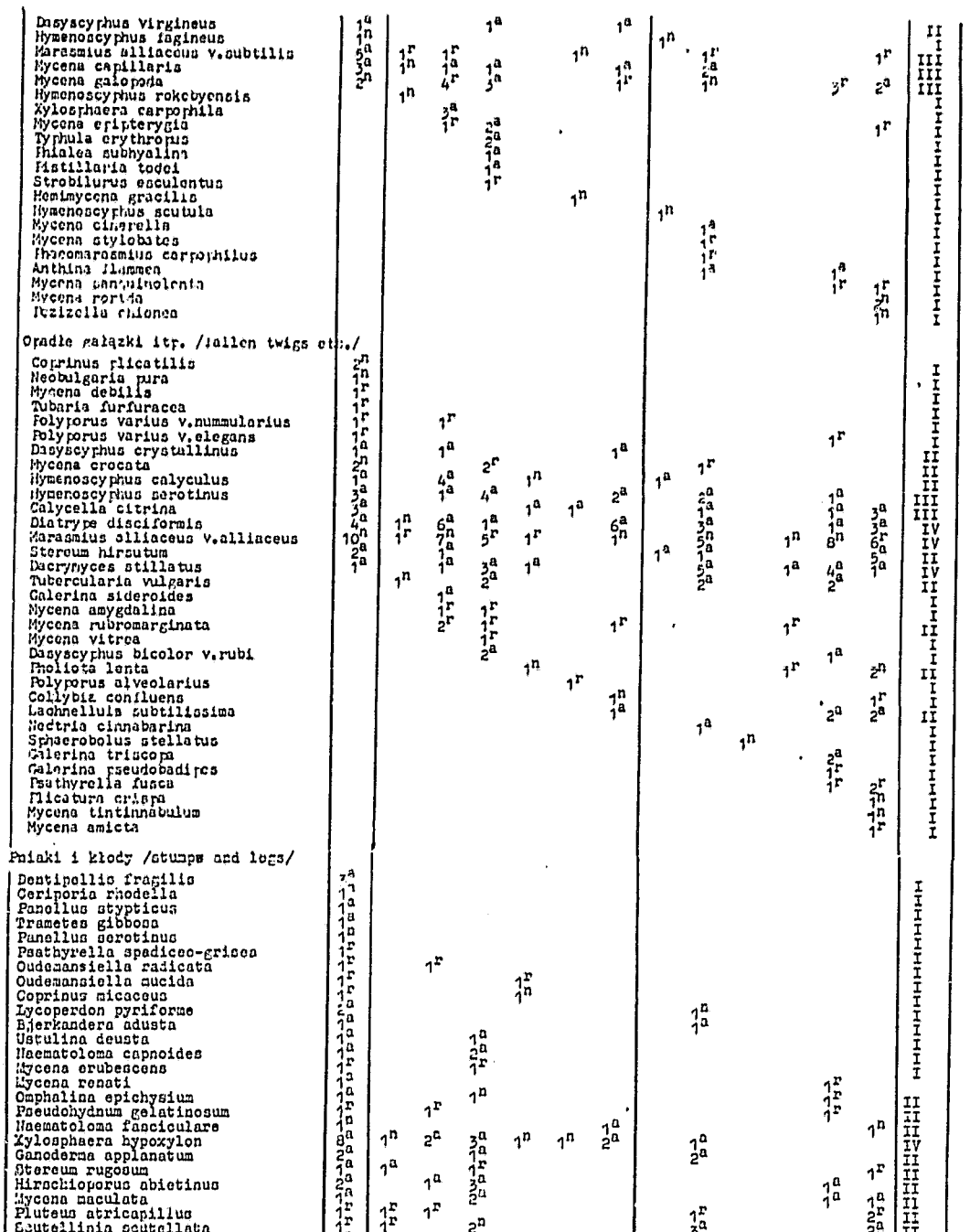
Tabela 7 Table 7

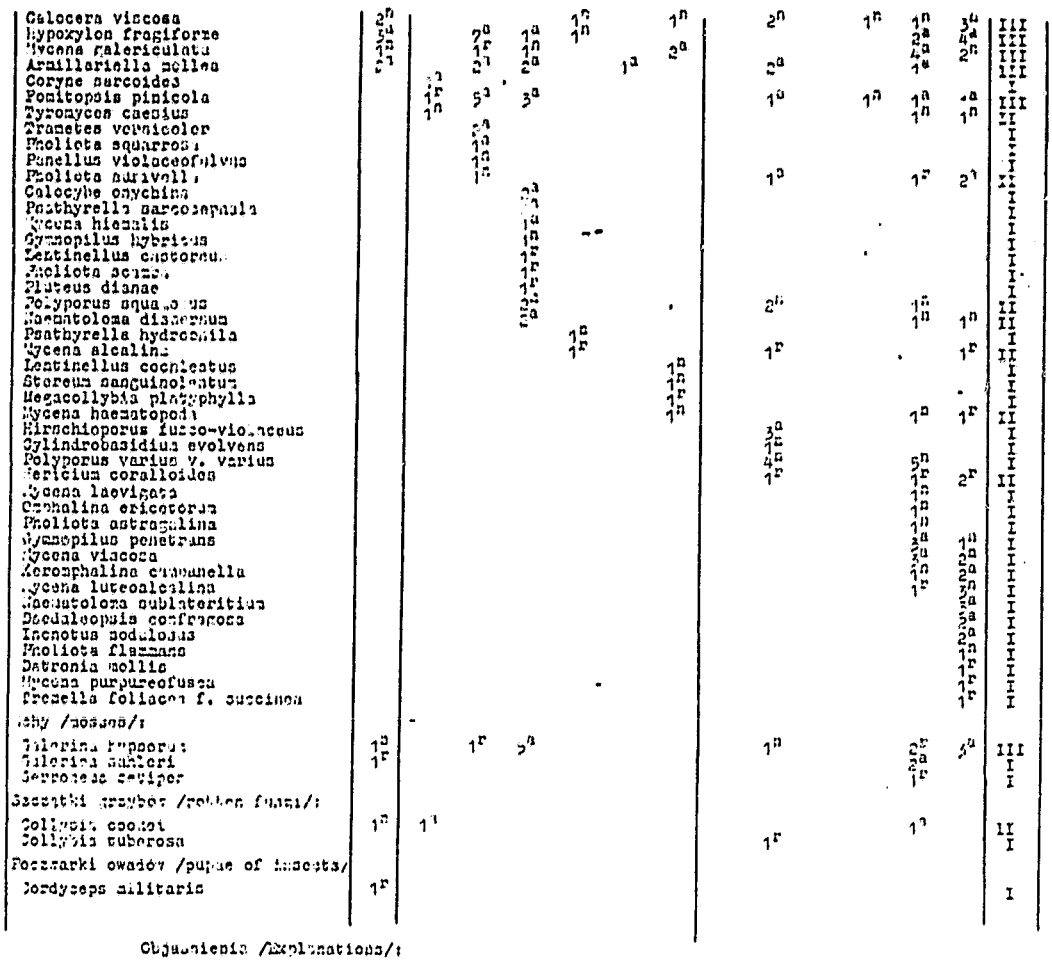
Macromycetes w płatach zespołu Dentario glandulosae-Fagetum

Macromycetes in patches of Dentario glandulosae-Fagetum association

Nr kolejny /Serial number/	1	2	3	4	5	6	7	8	9	10	11	12	13	Stałość / Constancy
Nr powierzchni obserwacyjnej /Number of plot/	1	50	2	3	55	60	4	64	5	51	54	6	7	
Wielkość powierzchni w m^2 /Area of plot in sq.m./	200	150	200	200	150	200	200	100	200	100	100	200	200	
Wysokość n.p.m. /Altitude in m.a.s.l./	960	1040	975	970	1060	925	820	930	1000	1010	1030	1030	1010	
Ekspozycja /Exposition/	NE	SSW	NW	NE	SSE	S	NW	W	NW	SSW	SE	NW	W	
Nachylenie /Inclination/	35	20	20	35	20	10	20	5	5	30	20	15	10	
Typ gleby /Soil type/	b.g.	.	b.g.	b.g.	.	.	b.g	.	b.k.	.	.	b.k.	b.k.	
pH /Soil reaction/	60	.	5,5	6,0	.	.	5,5	.	4,5	.	.	4,8	5,0	
Stosunki wodne/Water conditions/	b.w.	.	u.w.	u.w.	.	.	u.w.	.	s.w.	.	.	s.w.	s.w.	
Stopień zmian /Degree of changes/	0	1	0	0	0	0	1	0	0	1	1	0	0	
Liczba obserwacji /Number of observations/	12	1	11	13	1	1	11	1	11	1	1	13	11	
Liczba gatunków /Number of species/	73	16	40	54	16	10	34	6	46	3	6	59	62	

Podzespół i facja /Subassociation and facies/	A.u.	typicum					festucetosum silvaticae			
		G.n.	I.n.	M.p.	A. o.		O. a.		F. s.	
Ziemia /ground/:										
Rhodophyllus nidorosus	2^n									I
Inocybe calamistrata	1^r									I
Lactarius fuliginosus	1^r									I
Cortinarius flexipes	1^r			1^r						I
Clitocybe gibba	1^r					1^r				I
Lactarius blennius	/1^r/					1^r				I
Mycena pura	1^r			1^r		2^n				II
Laccaria amethystina	1^r								1^r	I
Xerocomus subtomentosus	/1^r/						2^r	1^r	2^r	II
Laccaria laccata	2^n			2^n		3^n	1^n		3^n	1^r	III
Lactarius subdulcis	/2^a/			3^n	1^n	3^n	1^n		3^n	4^n	III
Clitocybe ditopa		1^r									I
Rhodophyllus griseorubellus		1^r							2^r		I
Rhodophyllus radiatus			1^r								I
Hygrophorus pustulatus			3^r							1^r	I
Stropharia aeruginosa			2^r		1^r					1^r	II
Clavulina cinerea			2^r						3^r		I
Cytoderma carcharias			1^r				1^r		3^r	4^n	II
Russula ochroleuca			2^r			1^r	1^r		5^n	4^n	II
Rhodophyllus juncinus				3^r							I
Mycena zephirus				3^r							I
Craterellus cornucopioides				/1^r/							I
Amanita fulva				1^r						2^r	I
Collybia butyracea				1^r		1^n				1^r	I
Russula cyanoxantha				1^r	1^n	5^n					II
Psathyrella fibrillosa					1^n						I
Inocybe mixtilis					1^r						I
Amanita vaginata						1^r					I
Russula alutacea						1^r			1^r		I
Hygrophorus eburneus						1^r					I
Lycoperdon echinatum						1^r					I
Inocybe brunneo-atra						1^r	1^r				I
Russula foetens						1^r					I
Russula pseudodelica						1^r					I
Rhodophyllus rhodopolius							1^n				I
Agaricus abruptibulbus								3^n			I
Coprinus silvaticus								3^n			I
Clitocybe langei								1^r		1^n	I
Rhodophyllus cetratus								1^r			I
Rhodophyllus clandestinus										1^r	I
Hygrophorus olivaceoalbus									1^r	1^r	I
Rhodophyllus placidus									1^r		I
Xerocomus chrysenteron									1^r		I
Cytoderma amiantinum										1^n	I
Clavulina cristata										1^r	I
Szczątki roślinne /plant remains/											
Mycena capillaripes	1^r										I
Hymenoscyphus caudatus	1^a			1^n							I
Marasmius bulliardii	1^a			1^r	1^n						II
Marasmius recubans	3^r										I
Mycena chlorinella	1^r		1^r			2^a					II





Objaśnienia /Explanations/:

bt - gleba brunatna torfska /boggy brown earth/
ok - gleba brunatna kwaśna /brown acidic earth/
bw - bardzo wilgotna /very wet/
uw - umiarkowanie wilgotna /moderate moist/
sw - słabo wilgotna /slightly moist/
A.u. - Dentario glandulosae-Fagetum allietosum ursini
S.n. - Stellaria nemorum
I.n. - Impatiens noli-tangere
M.p. - Mercurialis perennis
A.o. - Asperula odorata
O.a. - Oxalis acetosella
F.s. - Festuca silvatica

Numer powierzchni obserwacyjnej odpowiada numerowi zdjęcia fitosocjologicznego /Number of observation plot corresponds with the number of phytosociological record/

Tabela 8 - Table 8

Gatunki macromycetes lokalnie wyróżniające niższe jednostki zespołu Dentario glandulosae-Fagetum

Macromycetes locally differential for lower units of Dentario glandulosae-Fagetum association

Podzespół /Subassociation/	DgF A.u.	DgF typ.	DgF F.s.
Liczba stałych powierzchni /Number of permanent plots/	1	6	6
Liczba obserwacji /Number of observations/	13	[illegible]	33
Dentipellis fragilis	3^{a}		
Coprinus plicatilis	2^{n}		
Rhodophyllus nidorosus	2^{n}		
Inocybe calamistrata	1^{r}		
Marasmius recubans	3^{a}	2^{a}	
* Oudemansiella mucida	1^{r}	1^{r}	
Mycena erubescens	1^{r}	1^{n}	
+ Marasmius bulliardii	1^{a}	2^{r-n}	
Marasmius alliaceus v. subtilis	5^{a}	5^{r-n}	2^{r}
* Mycena capillaris	3^{a}	4^{a-a}	2^{a}
* Mycena crocata	2^{n}	2^{r}	1^{r}
* Omphalina epichysium	1^{a}	1^{n}	1^{r}
Hymenoscyphus serotinus	3^{a}	7^{a}	3^{a}
* Marasmius alliaceus v. alliaceus	10^{n}	15^{r-a}	20^{r-n}
+ Mycena galericulata	1^{n}	4^{r-a}	6^{a-a}
+ Lactarius subdulcis	$/2^{a}/$	2^{n}	3^{r-n}
+ Russula cyanoxantha		7^{r-n}	
Xylosphaera carpophila		5^{a}	
Rhodophyllus juncinus		3^{r}	
Psathyrella sarcocephala		2^{a}	
+ Hygrophorus eburneus		2^{n}	
+ Mycena amygdalina		2^{r}	
+ Craterellus cornucopioides		1^{r}	
+ Russula alutacea		2^{r}	1^{r}
Pholiota lenta		1^{n}	3^{r-n}
Cystoderma carcharias		1^{r}	4^{r-n}
+ Russula ochroleuca		1^{r}	9^{r-a}
Mycena viscosa			5^{r-n}
Gymnopilus penetrans			4^{r-a}
Mycena luteoalcalina			4^{r-n}
* Hericium coralloides			4^{r}
Xeromphalina campanella			3^{n-a}
Agaricus abruptibulbus			3^{n}
* Inonotus nodulosus			3^{a}
Mycena rorida			2^{n}
Cystoderma amianthinum			2^{r-n}
Hygrophorus olivaceoalbus			2^{r}
Mycena sanguinolenta			2^{r}

Objaśnienia /Explanations/:

A.u. - Dentario glandulosae-Fagetum allietosum ursini
typ. - Dentario glandulosae-Fagetum typicum
F.s. - Dentario glandulosae-Fagetum festucetosum silvaticae
* - Ch. Fagion /Lisiewska 1974/
\+ - Ch. Fagetalia /Wojewoda 1963, Lisiewska 1974/

Tabela 9 - Table 9

Galio-Abietetum Wraber /1955/ 1959 - odmiana karpacka /carpathian variety/

Nr kolejny/Serial number/	1	2	3	4	5	6	7	8	9	10	11	12	13	14	
Nr zdjęcia w terenie /Number of record/	9	0	25	53	52	23	30	31	39	32	33	38	37	36	
Data /Date/	1 7 69	1 7 69	6 8 73	7 9 76	6 9 76	17 6 74	20 6 74	20 6 74	21 6 74	20 6 74	20 6 73	21 6 74	21 6 74	21 6 74	
Ekspozycja/Exposition/	NW	N	SW	S	SW	SE	S	SWW	SEE	SWW	SSE	SW	SW	SEE	
Nachylenie/Inclination/	5	5	5	10	15	5	5	10	15	10	5	15	25	5	
Miejsce zdjęcia/Locality/	CB	GH	NT	Cz	Cz	NT	NT	LH	NT	LH	NT	NT	NT	NT	
Wysokość n.p.m. w m /Altitude in m/	745	730	910	910	1050	888	890	830	890	830	815	870	860	830	
Zwarcie warstwy drzew w % a_1	60	90	60	20	20	80	90	70	90	60	80	90	90	80	
" " " a_2 /Density of trees in %/		10		70	60		10			40				30	
Zwarcie warstwy krzewów b w % /Density of shrubs b in %/	10	.	zn	.	.	5	5	20	.	40	5	zn	5	5	
Pokrycie warstwy zielnej c w % /Cover of herb layer c in %/	60	80	90	70	90	80	90	100	70	40	100	60	50	70	
Pokrycie warstwy mszystej d w % /Cover of moss layer d in %/	5	5	20	5	zn	70	40	40	20	80	60	10	30	40	
Średnia wysokość drzeew w m /Mean height of trees in m/	25	25	26	30	30	30	25	30	25	30	25	25	25	30	
Średnia średnica drzew w cm /Mean diameter of trees in cm/	47	.	30	50	42	39	42	51	48	51	34	56	39	39	
Klasa wieku /Age class/	V	V	V	V	V	V	V	V	V	VI	VI	V	V	V	
Powierzchnia zdjęcia w m^2 /Area of record in sq.m./	200	200	200	400	100	400	400	400	400	400	400	400	400	400	
Liczba gatunków w 1 zdjęciu /Number of species in one record/	33	32	28	29	18	35	49	48	35	47	32	31	34	30	
Podzespół /Subassociation/	f a g e t o s u m						h o m o g y n e t o s u m								
Ch. i D* zespołu /Ch. and D* of the association/:															
*Abies alba a_1	1.2			2.3	1.1		1.1			4.4	.			2.2	II
" "		.	1.1			3.3		4.4	.			4.4	1.1		II
" " a_2	.			.	.		.			2.2	.			1.1	I
" " b^2	+.2	.	2.1	.	.	.	+	1.1	.	2.2	+	+	.	.	III
Abies alba c	1.1	+	1.1	1.1	.	2.1	1.1	2.1	.	2.1	1.1	1.1	1.1	1.1	V
Galium rotundifolium c	1.1	2.3	2.2	+.2	.	1.2	2.3	.	3.3	2.2	.	2.3	2.2	.	IV
Ch. Fagetalia* i /and/ Querco-Fagetea															
* Fagus silvatica a_1	.	3.3	.	.	.	.	.	.	.	.	.	.	.	.	I
" " a_2	3.3	2.2	.	1.1	4.4	.	.	.	.	.	.	.	.	.	II
" " b^2	1.2	.	+	.	.	+	.	.	.	.	.	.	.	.	I
" " c	1.1	1.1	.	1.1	+	.	.	.	.	.	.	.	.	.	II
* Dentaria glandulosa	r	1.1	r	1.1	r	2.2	2.1	1.1	+	1.1	2.1	1.3	1.2	1.1	V
Mycelis muralis	r	1.2	+	1.1	.	.	+	1.1	.	1.1	1.1	.	1.1	.	IV
Carex silvatica	1.2	2.2	+	+.2	.	.	.	2.2	.	+.2	+.2	1.2	.	.	IV
Galeobdolon luteum	+	.	.	+	1.1	.	1.1	1.1	+	1.1	1.2	.	+	.	IV
Viola silvestris	1.1	1.1	1.1	.	.	.	.	+	1.1	+	.	1.1	+	.	IV
Sanicula europaea	+	.	1.2	r	.	+	2.1	3.3	.	1.2	.	r	.	.	III
Rubus hirtus	.	r	+	1.2	.	.	+	r	+	.	+	r	+	r	IV
Anemone nemorosa	.	.	.	.	.	.	r	+	r	+	.	r	r	+	III
Poa nemoralis	.	.	.	.	.	+	+.2	+.2	1.2	+.2	+.2	+.2	+.2	.	III
Dryopteris filix-mas	.	r	.	+.2	1.2	1.2	r	.	.	.	.	.	.	r	II
Equisetum silvaticum	.	.	.	.	.	.	.	+	.	1.1	r	.	.	.	II
Lysimachia nemorum	+.2	.	.	.	.	.	+	+	+	+	.	.	.	.	II
* Asperula odorata	+	.	.	2.2	1.1	1.1	2.3	.	.	.	.	.	.	.	II
Prenanthes purpurea	3.2	1.2	.	+	.	1.1	.	.	.	.	.	.	.	.	II
Moehringia trinervia	.	.	.	.	.	.	.	+	1.3	.	.	1.3	+.2	.	II
Sambucus racemosa c	.	.	.	+	+	.	+	.	.	.	.	+	+	.	II
* Euphorbia amygdaloides	+	r	.	.	.	+	.	.	.	.	.	.	.	.	I
Dentaria bulbifera	.	r	.	.	.	.	r	.	.	.	.	.	.	.	I
Veronica montana	r	.	.	.	+	.	.	.	.	.	.	.	.	.	I
Impatiens noli-tangere	.	1.2	.	.	1.1	.	.	.	.	.	.	.	.	.	I
Atrichum undulatum d	1.2	+	.	.	.	.	+	.	r	.	.	.	.	.	II

Stałość i Constancy

Sporadyczne/Sporadic/:

Acer pseudoplatanus c 8, b 25, Actaea spicata 30, Astrantia maior 31, Carex digitata 31/1.2/,38, Cerasus avium c 39,33, Epilobium montanum 8,39,38, Eurhynchium zetterstedti 25, 31/1.2/, Fissidens taxifolius d 25, Luzula nemorosa 31, 33, Mnium undulatum 32, Paris quadrifolia 8,30, Ranunculus lanuginosus 30,39, Rosa canina 31, Stellaria nemorum 33,32/4.4/, Symphytum tuberosum 30,37

Ch. Betulo-Adenostyletea

Senecio fuchsii et nemorensis	1.2	+	1.1	1.1	+	.	2.1	.	1.1	+	+	+	+	r	V
Phyteuma spicatum	r	.	+	.	.	2.1	+	.	1.1	+	1.1	+	1.2	r	IV
Polygonatum verticillatum	1.1	.	1.1	.	+	1.2	2.1	1.1	.	+	1.1	.	+	2.2	IV
Calamagrostis arundinacea	.	.	.	.	.	+.2	+.2	.	.	+.2	.	.	+.2	.	II

Sporadyczne /Sporadic/:

Adenostyles alliariae 25, Lonicera nigra f/c 30, Milium effusum 32, 39, Mulgedium alpinum 9, Petasites albus 33, Primula elatior 31, 32, Rosa pendulina 31, Senecio cacalphinus 30, Solidago virga-aurea 39.

Ch. Vaccinio-Piceetalia i /and/
Vaccinio-Piceetalia

Picea excelsa a1	2.3	3.3				5.5								+.4	II
" "			5.5	3.3		4.4		1.1	5.5		4.4	5.5	5.5		III
" " a2	.	1.1			.		.			1.1				2.2	II
" " b2	.	.	.	.	.	.	.	1.1	.	1.1	.	.	.	.	I
" " c	+	.	+	.	.	1.1	.	.	1.1	1.1	2.1	1.1	+	1.1	IV
Sorbus aucuparia b	.	.	1.1	.	.	1.1	.	+	.	+	+	.	.	+	II
" " c	.	.	+	+	.	1.1	+	+	1.1	1.1	1.1	+	+	.	IV
Vaccinium myrtillus	1.2	+	1.2	2.3	.	4.4	2.3	1.2	1.1	2.3	3.3	1.2	1.2	3.3	V
Luzula flavescens	+	r	+.2	+.2	.	2.2	+.2	2.2	1.2	1.2	1.2	2.2	1.2	+.2	V
Dryopteris austriaca	r	+	.	+	1.2	.	.	+.2	.	+	+.2	.	.	1.2	IV
Homogyne alpina	.	.	.	1.1	.	3.2	1.2	1.1	+.2	1.2	1.1	.	+	2.3	IV
Polytrichum attenuatum d	1.2	.	.	+.2	+	1.2	+.2	3.3	1.1	1.1	+.2	2.3	2.3	1.3	V
Dicranum scoparium	+.2	.	2.3	+.2	.	3.3	1.2	3.3	.	3.3	1.2	.	.	1.2	IV
Plagiothecium curvifolium	.	+.2	+.2	.	.	2.2	1.2	.	.	.	.	.	1.2	+.2	II

Sporadyczne/Sporadic/:

Entodon schreberi 23/2.3/,39/1.2/, Pinus silvestris minor 23, P.silvestris 23/2.2/, 37, P.uniflora 37, Plagiochila asplenioides d 32, Rhytidiadelphus loreus d 9,32, Sphagnum girgensohnii d 32/1.2/

Towarzyszące/Accompanying/:

Oxalis acetosella	2.3	3.3	3.4	3.3	3.3	3.3	4.4	2.2	3.3	4.4	3.4	3.3	2.2	2.1	V
Hieracium murorum	2.2	1.1	2.2	.	.	.	2.1	1.1	2.1	1.1	2.1	1.1	2.1	1.1	V
Athyrium filix-femina	.	+.2	+.2	1.2	.	1.2	1.2	+.2	2.2	+.2	+.2	+.2	+.2	1.2	V
Rubus idaeus	+	r	.	1.1	2.3	1.1	1.1	r	2.3	.	1.1	1.1	1.1	1.1	V
Majanthemum bifolium	r	1.2	.	+	.	2.2	1.1	1.1	.	2.1	2.1	.	+	2.1	IV
Fragaria vesca	.	r	.	.	.	+.2	+	1.1	+	+	.	+	+	.	III
Valeriana tripteris	.	.	.	.	.	1.1	.	2.2	.	2.1	2.1	.	.	r	II
Deschampsia caespitosa	.	.	.	.	.	.	+.2	+.2	.	+.2	.	.	.	.	II
Gentiana asclepiadea	.	.	.	.	.	1.1	+	.	.	.	+	.	.	+.2	II
Ranunculus repens	.	.	.	.	.	.	.	1.1	r	+.2	+	.	.	.	II
Phegopteris dryopteris	.	.	.	+	.	.	.	+.2	.	+.2	.	.	.	+	II
Veronica officinalis	.	.	.	.	.	+	.	.	.	.	+	1.1	+	.	II
Mnium affine d	+.2	.	.	.	.	4.4	3.3	2.3	1.2	4.4	4.4	1.2	1.2	2.3	IV
Brachythecium starkei	+.2	+.2	.	.	.	.	+.2	1.2	.	+.2	.	.	+.2	.	III
Hylocomium splendens	.	.	.	.	.	1.2	+.2	+.2	.	+.2	.	.	.	.	II

Sporadyczne/Sporadic/: Ajuga reptans 8,30, Cardamine amara 32, C.impatiens 39,38, Carex caryophyllea 25, Chaerophyllum temulum 32, Chamaenerion angustifolium 25, Cirsium palustre 31, Deschampsia flexuosa 9, Dryopteris spinulosa 30, Equisetum pratense 32, Galeopsis pubescens 39, G.tetrahit 30, Galium vernum 31/1.2/, Geranium robertianum 8/1.1/, Hypericum maculatum 23, Juniperus communis c 31, Lophocolea heterophylla d 25, Melandryum rubrum 36, Mnium spinosum d 31/1.2/, 38/1.2/, Myosotis palustris 31/1.1/, 39, Phegopteris polypodioides 30,36, Poa annua 31, Populus tremula c 36, Potentilla tormentilla 32, Ranunculus acer 31/1.1/, 32, Rhytidiadelphus triquetrus 31/1.1/, 32, Rumex arifolius 32,38, Selinum carvifolia 38, Soldanella carpatica 33/1.1/, 36, Thuidium tamariscinum 30, Urtica dioica 38, Veronica chamaedrys 32.

Objaśnienia/Explanations/:

SB - Nadl. Sucha Beskidzka /Forest Inspectorate Sucha Beskidzka/
Cz - Czechosłowacja /Czechoslovakia/
NT - Nadl. Nowy Targ /Forest Inspektorate Nowy Targ/
LM - Grom. Lipnica Mała /Forest District Lipnica Mała/

Numery zdjęć w terenie odpowiadają numerom stanowisk na mapie /Bujakiewicz 1979/
Numbers of records correspond with numbers of localities on map /Bujakiewicz 1979/

Tabela 10 - Table 10

Macromycetes w płatach zespołu Galio-Abietetum
Macromycetes in patches of Galio-Abietetum association

Nr kolejny /Serial number/	1	2	3	4	5	6	7	8	9	10	11	12	13	14	Stałość - Constancy
Nr powierzchni obserwacyjnej /No of plot/	9	8	35	53	52	23	30	31	39	32	33	38	37	36	
Wielkość powierzchni /Area of plot/ m^2	200	200	200	400	100	400	400	400	400	400	400	400	400	400	
Wysokość n.p.m. w m /Altitude in m/	743	730	910	910	1030	888	880	832	890	830	815	870	860	830	
Ekspozycja /Exposition/	NW	N	SW	S	S/	S	S	SWW	SSE	SWW	SSE	SW	SW	SSE	
Nachylenie /Inclination/	5	5	5	10	15	5	5	10	15	10	5	15	25	5	
Typ gleby /Soil type/	.	.	.	.	.	.	.	.	.	.	.	bk	.	.	
pH /Soil reaction/	5.0	4.0	4.5	.	.	4.3	4.2	4.7	4.6	5.3	4.5	4.5	4.5	4.5	
Stosunki wodne /Water conditions/	.	.	.	sw	.	.	.	.	.	.	.	sw	.	.	
Stopień zmian /Degree of changes/	2	3	3	0	1	1	1	2	2	2	2	1	1	1	
Liczba obserwacji /Number of observations/	12	11	13	1	1	13	14	14	12	13	15	13	14	14	
Liczba gatunków /Number of species/	63	56	45	8	16	37	6	72	51	56	72	55	61	93	
Podzespół /Subassociation/	f a g e t o s u m						h o m o g y n e t o s u m								
Ziemia /Ground/:															
Rhodophyllus rhodopolius	1	1	1	1	1	1	1	1	1	1	1	1	1	1	I
Russula lutea	1	1	1	1	1	1	1	1	1	1	1	1	1	1	I
Collybia dryophila	1	1	1	1	1	1	1	1	1	1	1	1	1	1	I
Inocybe pallidipes	1	1	1	1	1	1	1	1	1	1	1	1	1	1	I
Lactarius blennius	1	1	1	1	1	1	1	1	1	1	1	1	1	1	I
Lactarius fuliginosus	1	1	1	1	1	1	1	1	1	1	1	1	1	1	I
Lactarius pterosporus	1	1	1	1	1	1	1	1	1	1	1	1	1	1	I
Phaeomarasmius ferrugineus	1	1	1	1	1	1	1	1	1	1	1	1	1	1	I
Stropharia aeruginosa	1	1	1	1	1	1	1	1	1	1	1	1	1	1	I
Hygrophorus eburneus	1	1	1	1	1	1	1	1	1	1	1	1	1	1	I
Cortinarius flexipes	1	1	1	1	1	1	1	1	1	1	1	1	1	1	I
Russula cyanoxantha	1	1	1	1	1	1	1	1	1	1	1	1	1	1	I
Xerocomus subtomentosus	1	1	1	1	1	1	1	1	1	1	1	1	1	1	I
Lycoperdon perlatum	1	1	1	1	1	1	1	1	1	1	1	1	1	1	I
Amanita rubescens	1	1	1	1	1	1	1	1	1	1	1	1	1	1	I
Lactarius subdulcis	1	1	1	1	1	1	1	1	1	1	1	1	1	1	I
Lactarius piperatus	1	1	1	1	1	1	1	1	1	1	1	1	1	1	I
Lycoperdon foetidum	1	1	1	1	1	1	1	1	1	1	1	1	1	1	I
Collybia butyracea	1	1	1	1	1	1	1	1	1	1	1	1	1	1	I
Russula delica	1	1	1	1	1	1	1	1	1	1	1	1	1	1	I
Russula emetica	1	1	1	1	1	1	1	1	1	1	1	1	1	1	I
Russula ochroleuca	1	1	1	1	1	1	1	1	1	1	1	1	1	1	I
Cystoderma carcharias	1	1	1	1	1	1	1	1	1	1	1	1	1	1	I
Russula olutacea	1	1	1	1	1	1	1	1	1	1	1	1	1	1	I
Mycena pura	1	1	1	1	1	1	1	1	1	1	1	1	1	1	I
Lactarius aurantiacus	1	1	1	1	1	1	1	1	1	1	1	1	1	1	I
Laccaria laccata	1	1	1	1	1	1	1	1	1	1	1	1	1	1	I
Laccaria amethystina	1	1	1	1	1	1	1	1	1	1	1	1	1	1	I
Hyrropborus pustulatus	1	1	1	1	1	1	1	1	1	1	1	1	1	1	I
Agaricus abruptibulbus	1	1	1	1	1	1	1	1	1	1	1	1	1	1	I
Clitocybe odora v. alba	1	1	1	1	1	1	1	1	1	1	1	1	1	1	I
Inocybe hirtella	1	1	1	1	1	1	1	1	1	1	1	1	1	1	I
Hygrophorus olivaceoalbus	1	1	1	1	1	1	1	1	1	1	1	1	1	1	I
Cystoderma fallax	1	1	1	1	1	1	1	1	1	1	1	1	1	1	I
Amanita vaginata	1	1	1	1	1	1	1	1	1	1	1	1	1	1	I
Clavulina cinerea	1	1	1	1	1	1	1	1	1	1	1	1	1	1	I
Amanita fulva	1	1	1	1	1	1	1	1	1	1	1	1	1	1	I
Inocybe cincinnata	1	1	1	1	1	1	1	1	1	1	1	1	1	1	I
Inocybe godeyi	1	1	1	1	1	1	1	1	1	1	1	1	1	1	I
Rhodophyllus hirtipes	1	1	1	1	1	1	1	1	1	1	1	1	1	1	I
Thelephora palmata	1	1	1	1	1	1	1	1	1	1	1	1	1	1	I
Amanita inaurata	1	1	1	1	1	1	1	1	1	1	1	1	1	1	I
Collybia asema	1	1	1	1	1	1	1	1	1	1	1	1	1	1	I
Russula mustelina	1	1	1	1	1	1	1	1	1	1	1	1	1	1	I
Russula integra	1	1	1	1	1	1	1	1	1	1	1	1	1	1	I
Clitocybe gibba	1	1	1	1	1	1	1	1	1	1	1	1	1	1	I
Lycoperdon umbrinum	1	1	1	1	1	1	1	1	1	1	1	1	1	1	I
Mycena zephirus	1	1	1	1	1	1	1	1	1	1	1	1	1	1	I
Xerocomus chrysenteron	1	1	1	1	1	1	1	1	1	1	1	1	1	1	I
Albatrellus ovinus	1	1	1	1	1	1	1	1	1	1	1	1	1	1	I
Otidea leporina	1	1	1	1	1	1	1	1	1	1	1	1	1	1	I
Cortinarius collinitus	1	1	1	1	1	1	1	1	1	1	1	1	1	1	I
Cortinarius hemitrichus	1	1	1	1	1	1	1	1	1	1	1	1	1	1	I
Hebeloma mesophaeum	1	1	1	1	1	1	1	1	1	1	1	1	1	1	I
Cortinarius sanguineus	1	1	1	1	1	1	1	1	1	1	1	1	1	1	I
Lactarius picinus	1	1	1	1	1	1	1	1	1	1	1	1	1	1	I
Lactarius deliciosus	1	1	1	1	1	1	1	1	1	1	1	1	1	1	I
Inocybe friesii	1	1	1	1	1	1	1	1	1	1	1	1	1	1	I
Hydnum repandum	1	1	1	1	1	1	1	1	1	1	1	1	1	1	I
Pseudoomphalina compressipes	1	1	1	1	1	1	1	1	1	1	1	1	1	1	I
Cantharellus lutescens	1	1	1	1	1	1	1	1	1	1	1	1	1	1	I

Mycena cinerella							1^r				1^n			1^c	II
Mycena flavoalba							2^n				2^r	1^r		1^r	II
Phialea cyathoidea								1^a							I
Micromphale perforans								2^n			1^r				II
Mycena strobilicola								1^r,	1^n		1^r	1^r			II
Galerina pseudocamerina								1^r	1^r	1^r	1^r		1^r		II
Mitrula abietis											2^a				I
Hymenoscyphus scutula											1^r				I
Strobilurus tenacellus												1^r			I
Pezizella chionea														1^a	I
Ciboria rufofusca														1^r	I
Opadłe gałązki itp. /fallen twigs etc./:															
Dasyscyphus crystallinus	1^a														I
Stereum hursutum	1^a														I
Scutellinia carneo-sanguinea	1^r														I
Hymenoscyphus serotinus	2^a	1^a													I
Diatrype disciformis	2^a	2^a		--	1^a										II
Pholiota lenta	1^r				1^r										I
Marasmius alliaceus v. alliaceus	2^r	1^r		1^r	1^r										II
Calycella citrina		2^a			1^a										I
Galerina sideroides	1^r	1^n			1^n		1^r								II
Galerina triscopa	1^a	1^n					3^n		1^r			$1^n 1$	1^r		III
Mycena rubromarginata	1^r	2^n	1^r			1^r	5^a	1^r	1^n	1^n	5^n	1^n	1^n	3^n	V
Dacrymyces stillatus	2^a		1^a		1^a		2^a	2^a	2^a	6^a	4^a	4^a	3^a	4^a	IV
Mycena amicta		1^r					4^a		1^r	1^r	2^r			1^n	III
Lachnellula subtilissima			2^a				2^a	2^a	2^a	4^a	2^a	4^a	1^a	2^a	IV
Neobulgaria pura					1^n										I
Panellus mitis							1^n								I
Dasyscyphus bicolor v. rubi							2^a		1^a		1^a				II
Basidioradulum radula								1^n							I
Gymnopilus bellulus								1^r							I
Aleurodiscus amorphus								2^a				1^a		2^a	II
Lachnellula willkommii									5^a					2^a	I
Polyporus varius v. elegans										1^r					I
Ombrophila violacea											2^n				I
Sphaerobolus stellatus											1^a				I
Mycena setites											1^r				I
Galerina badipes														1^r	I
Pholiota spumosa														1^r	I
Tubaria furfuracea														1^r	I
Pniaki, kłody /stumps,logs/:															
Mycena haematopoda	1^r														I
Xylosphaera hypoxylon	2^a	1^a													I
Haematoloma sublateritium	1^r	1^a													I
Hypoxylon fragiforme	1^a	1^a		1^a											II
Tricholomopsis rutilans	1^r							1^r				1^r			II
Gloeophyllum odoratum	2^a							1^n		1^n	4^n				II
Lycoperdon pyriforme	1^r							1^n				2^r	1^r		II
Galerina unicolor	1^r						1^r		1^a			1^n	1^r	1^a	III
Gymnopilus penetrans		1^a													I
Mycena maculata		1^n													I
Oudemansiella radicata		1^r													I
Coryne cylichnium		1^a									1^n				I
Trametes versicolor		1^u												1^n	I
Haematoloma fasciculare		1^a								1^n				1^r	II
Scutellinia scutellata		1^n	2^n											2^n	II
Armillariella mellea		1^a	1^a						1^r	2^a	1^a		1^n		III
Mycena viscosa		1^a	1^r			1^n	3^n	3^n	2^n	3^n	2^a	1^r	2^a		IV
Mycena luteoalcalina			1^r						1^u	1^n				1^r	II
Columnocystis abietina			1^u										3^n		I
Mycena alcalina			2^u		1^r		1^n				2^r		2^r	2^r	III
Heterobasidion annosum			5^n			1^r	6^u	1^r			4^n	5^n	4^n	1^n	III
Haematoloma capnoides			3^a		1^n		5^n			3^a		3^a	5^n	4^a	III
Calocera viscosa			3^n		1^u		4^n		5^u		1^r			4^n	III
Fomitopsis pinicola				1^a			1^r				10^n			3^n	II
Haematoloma dispersum					1^n		1^u							1^n	II
Pseudohydnum gelatinosum					1^r		1^r			1^r			1^r	3^n	II
Phellinus viticola						1^n									I
Xeromphalina campanella						1^a	2^a	1^r		1^a	1^a		1^n	7^a	III
Omphalina epichysium							1^a								I
Pluteus atricapillus							1^r			1^r					I
Mycena galericulata							2^r						1^r		I
Pluteus atromarginatus							1^r							1^r	I
Stereum sanguinolentum							3^n		1^n		5^n	2^n	3^n	2^n	III
Tremella encephala									1^r						I
Gymnopilus microsporus										1^r					I
Hymenochaete cruenta										1^r					I
Phellinus hartigii										1^r					I
Kuehneromyces vernalis											1^a				I
Notopanus porrigens											1^n		1^n		I
Megacollybia platyphylla											1^r		2^r		I
Coriolellus serialis f. serialis											1^n		3^n		I
Panellus violaceofulvus													1^n		I
Lentinellus cochleatus													3^n	1^a	I
Amylostereum chailletii													5^u	1^r	I
Haematoloma radicosum														2^r	I
Mycena erubescens														1^a	I

Kuehneromyces mutabilis												1^{n}	I
Gymnopilus picreus												1^{r}	I
Tyromyces stipticus												1^{r}	I
Mchy /mosses/:													
Galerina sahleri	1^{r}	1^{r}											I
Galerina hypnorum	2^{r}		1^{r}	1^{r}		1^{r}			2^{r}			4^{n}	III
Gerronema fibula					1^{r}	1^{r}							I
Mycena longiseta									1^{r}				I
Wypaleniska /fireplaces/:													
Geopyxis carbonaria		1^{r}	7^{a}			1^{r}	5^{a}	2^{n}	5^{a}				III
Trichophaea gregaria		1^{a}				4^{n}		1^{r}					II
Lyophyllum anthracophilum			3^{a}		1^{r}		4^{n}		3^{a}				II
Peziza violacea			1^{r}			2^{n}			4^{n}				II
Pholiota carbonaria			3^{n}				1^{r}		1^{n}			1^{r}	II
Melanoleuca subbrevipes									1^{n}				I
Nawóz /dung/:													
Panaeolus sphinctrinus			1^{r}										I
Psilocybe coprophila					1^{n}		1^{n}						I
Stropharia stercoraria						1^{r}			1^{r}				I
Szczątki grzybów /rotten fungi/:													
Nyctalis parasitica	1^{r}				1^{r}								I
Collybia cookei					1^{r}								I
Owady /insects/:													
Isaria farinosa	1^{r}												I
Isaria sphecophila					1^{r}		2^{r}			1^{n}	2^{r}	1^{r}	II

Objaśnienia /Explanations/:

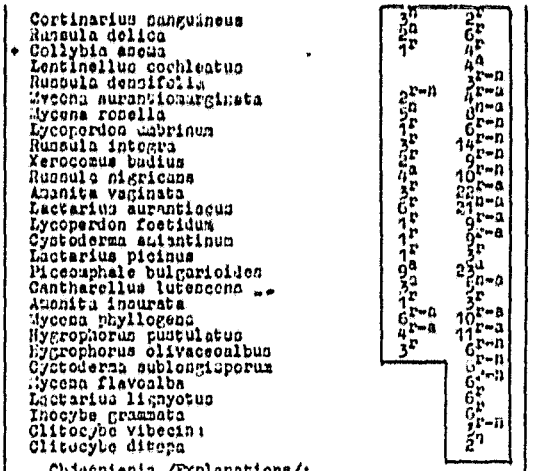
bk - gleba brunatna kwaśna /brown acidic earth/
sw - gleba słabo wilgotna /slightly moist/

Tabela 11 - Table 11

Gatunki macromycetes lokalnie wyróżniające niższe jednostki zespołu Galio-Abietetum

Macromycetes locally differential for lower units of Galio-Abietetum association

Podzespół /Subassociation/	GA fag.	GA hom.
Liczba stałych powierzchni /Number of permanent plots/	6	8
Liczba obserwacji /Number of observations/	51	1o9
Diatrype disciformis	5^{a}	
* Marasmius alliaceus v.alliaceus	5^{r}	
Calycella citrina	3^{a}	
Hymenoscyphus serotinus	3^{a}	
Hypoxylon fragiforme	3^{a}	
Xylosphaera hypoxylon	3^{a}	
Rhodophyllus rhodopolius	3^{a}	
Dasyscyphus virgineus	2^{a}	
+ Hygrophorus eburneus	2^{n}	
Cortinarius flexipes	2^{r-n}	
Pholiota lenta	2^{r}	
Hymenoscyphus fagineus	1^{n}	
* Mycena fagetorum	1^{r}	
+ Lactarius blennius	1^{r}	
Lactarius fuliginosus	1^{r}	
+ Russula cyanoxantha	7^{r-n}	3^{r}
+ Lactarius subdulcis	2^{r}	2^{r}
Clitocybe gibba	2^{r}	6^{r}
Laccaria amethystina	2^{n}	9^{r-n}
Collybia butyracea	1^{n}	6^{r-n}
Laccaria laccata	7^{r-a}	19^{r-a}
+ Russula alutacea	6^{r-n}	10^{r-n}
+ Mycena pura	7^{n}	19^{r-a}
Thelophora palmata	4^{r-n}	3^{r-n}
Cystoderma fallax	3^{n}	4^{n}
Oudonia circinans	1^{n}	3^{r-a}
Inocybe friesii	1^{n}	4^{r-n}
Russula mustelina	1^{r}	5^{r-n}
Inocybe inconcinna		5^{r-n}
Galerina pseudocamerina		5^{r}
Mycena strobilicola		4^{r-n}
Clitocybe radicellata		4^{r}



Objaśnienia /Explanations/:
fag. - Galio-Abietetum fagetosum
hom. - Galio-Abietetum homogynetosum
* - Ch. Fagion /Liziewska 1974/
\+ - Ch. Fagetalia /Wespiak 1968, Liziewska 1974/

Tabela 12. Table 12

Abieti-Piceetum montanum Szaf.,Pawl.,Kulcz., 1923

Nr kolejny/Serial number/	1	2	3	4	5	6	7	8	9	10	11	12	13	
Nr zdjęcia w terenie /Number of record/	10	12	11	56	61	22	34	27	26	28	24	35	29	
Data /Date/	27 6 69	27 6 69	27 6 69	27 9 76	27 9 76	17 6 74	21 8 74	21 8 74	21 8 74	21 8 74	6 8 74	22 8 74	20 6 74	
Miejsce zdjęcia/Locality/	BPN	BPN	BPN	Cz	Cz	NT	NT	NT	NT	NT	NT	NT	NT	
Ekspozycja/Exposition/	N	N	NW	SSW	SW	S	SE	SE	S	S	SE	SE	S	
Nachylenie/Inclination/	5	15	35	10	15	5	5	5	5	5	15	5	5	
Wysokość n.p.m. w m /Altitude in m/	1070	000	960	1085	910	880	890	931	918	931	840	875	900	
Zwarcie warstwy drzew w % /Density of trees in %/	a_1	60	70	70	30	70	90	60	50	60	60	70	[illegible]	20
	a_2	30	30	10	60	10								
Zwarcie warstwy krzewów b w % /Density of shrubs b in %/	10	60	10	.	.	10	20	30	30	.	30	60	50	
Pokrycie warstwy zielnej c w % /Cover of herb layer in %/	60	90	70	80	90	70	70	80	80	70	70	70	90	
Pokrycie warstwy mszystej d w % /Cover of moss layer in %/	10	70	30	10	80	90	90	100	80	90	70	100	100	
Średnia wysokość drzew w m /Mean height of trees in m/	25	.	.	25	25	20	20	18	18	18	30	18	25	
Średnia średnica drzew w cm /Mean diameter of trees in cm/	50	.	.	40	40	39	40	35	44	35	28	40	68	
Klasa wieku /Age klass/	V	VI	V	IV	III	V	V	V	V	V	V	V	VI	
Powierzchnia zdjęcia w m^2 /Area of record in sq.m./	200	200	200	400	100	200	400	400	400	400	200	100	200	
Liczba gatunków w 1 zdjęciu/Number of species in one record/	17	18	25	16	18	30	37	30	26	31	27	27	28	
Ch. Vaccinio - Piceion:														
Picea excelsa a_1	.	.	3.3	2.2	4.4	3.3	3.3	3.3	4.4	3.3	5.4	1.1	.	II
" " a_2	.	.	.	.	.									
" " b^2	.	1.2	.	.	.	.	+	.	.	.	+	1.1	2.3	II
" " c	1.2	1.2	.	.	2.2	+	+	1.1	1.1	+	2.3	1.1	2.1	V
Homogyne alpina	.	2.2	2.1	1.2	1.1	2.1	1.1	2.2	2.2	2.2	2.3	2.1	r	V
Lycopodium annotinum	.	3.3	+	.	.	.	r	.	2.3	.	+.2	+	+.2	III

Stałość - Constancy

Plagiothecium curvifolium d	.	.	+.2	+.2	.	2.2	2.2	+.2	1.2	+.2	+.2	.	.		IV
Plagiothecium undulatum	.	.	2.2	.	+	.	.	1.2	.	1.2	1.2	.	.		II

Sporadyczne/Sporadic/: Bazzania trilobata 61, 35, Blechnum spicant 61/1.2/, Monotropa hypopitys v. hirsuta 35, Rhytidiadelphus loreus 10,27

Ch. Vaccinio-Piceetalia															
Vaccinio-Piceetea															
Sorbus aucuparia b	.	.	+	+	.	1.1	+	.	+	.	+	.	.		III
" " c	1.1	.	+	.	+	.	+	.	+	.	.	+	+		III
Vaccinium myrtillus	4.4	1.2	3.4	4.4	4.4	4.4	4.4	4.4	4.3	2.3	4.3	4.3	4.4	2.3	V
Dryopteris austriaca	1.2	1.2	2.2	2.3	+	.	.	.	.	.	1.2	.	.		III
Pirola secunda	.	.	.	.	.	1.1	.	.	.	.	.	1.1	+		II
Lycopodium selago	.	.	r	.	.	.	.	.	.	.	+	+.2	+		II
Dicranum scoparium d	.	+.2	+.2	1.2	2.3	.	3.3	3.3	3.3	3.3	3.3	2.3	3.3		V
Mnium undulatum	.	.	.	.	+	.	2.2	3.3	3.3	2.3	2.3	4.3	3.3		IV
Polytrichum attenuatum	1.2	2.2	+.2	1.2	4.4	+.2	1.2	2.2	2.3	1.2	2.3	2.3	3.3		V
Ptilium crista-castrensis	.	.	.	.	.	.	.	.	.	1.2	.	1.2	.		I

Sporadyczne/Sporadic/: Brachythecium starkei 27,34, Leucobryum glaucum 27, 28, Pirola minor 22,29, Plagiochila asplenioides 22, Vaccinium vitis-idaea 28/1.2/,35

Ch.Fagetalia i Querco-Fagetea:															
Fagus silvatica a_1	5.5	3.3	2.2	.	.	.	.	.	.	.	.	.	.		II
" " a_2	.	.	1.2	4.4	1.1	.	.	.	.	.	.	.	.		II
" " b^2	1.2	4.4	1.1	.	.	1.1	+	1.1	1.1	.	.	.	.		III
" " c	2.1	2.1	1.1	+	1.1	.	.	.	.	.	.	.	.		II
Acer pseudoplatanus a_1	.	.	+	.	.	.	.	.	.	.	.	.	.		
Prenanthes purpurea	+	+	r	+	+	+	+	+	.	+	1.1	.	.		V
Equisetum silvaticum	.	.	.	.	.	.	.	r	+	+	.	.	r		II
Carex pilosa	.	.	.	.	.	.	.	+	+	.	.	.	.		I
Epilobium montanum	.	.	.	.	.	.	+	r	r	r	.	.	.		II

Sporadyczne/Sporadic/: Anemone nemorosa 22, Aruncus silvestris 22, Atrichum undulatum 10, Cardamine trifolia 34, Chrysosplenium alternifolium 34, Dentaria glandulosa 22/1.1/, Dryopteris filix-mas 11, Eurhynchium zetterstedtii 22, 27, Galium rotundifolium 34,26, Impatiens noli-tangere 12, Mycelis muralis 34, Phyteuma spicatum, Rubus hirtus 22/1.1/, Sambucus racemosa c 26,34, Sanicula europaea 22

Towarzyszące/Accompanying/:

Abies alba a_1	2.2	2.2	.	1.1	.	4.4	.	1.1	.	1.1	2.2	4.4	2.2		II III
" " a_2	1.2	1.2	.	1.1	.										II
" " b^2	.	2.2	.	.	.	2.2	2.2	3.3	2.2	.	2.3	4.4	3.3		IV
" " c	.	1.2	1.1	+	.	1.1	2.1	1.1	2.3	2.1	1.1	2.2	1.1		V
Oxalis acetosella	2.2	2.2	1.1	.	1.1	2.1	2.2	+.2	1.1	1.2	2.3	1.1	.		V
Majanthemum bifolium	r	r	r	1.1	1.1	2.1	1.1	+	+	+	2.3	+	.		V
Rubus idaeus	2.2	r	2.1	1.1	+	+	+	+	.	+	+	+	+		V
Calamagrostis arundinacea	+.2	.	.	.	.	+.2	+.2	.	.	.	+.2	.	+.2		III
Athyrium filix-femina	.	+	1.1	.	.	+.2	.	.	.	.	+	.	+		II
Luzula silvatica	1.2	+.1	r	+	.	.	.	.	.	.	+	.	.		II
Luzula nemorosa	.	.	.	.	+	+	.	.	.	+	+	.	.		II
Senecio fuchsii	r	.	r	.	.	+	1.1	+	.	.	.	.	.		II
Carex pilulifera	.	.	.	.	.	.	1.2	.	+.2	.	.	+.2	.		II
Carex caryophyllea	.	.	.	.	.	.	.	.	.	+.2	.	+.2	+.2		II
Mnium affine d	.	.	.	.	+.2	.	2.2	2.3	2.3	2.3	+.3	1.2	.		III
Hylocomium splendens	.	.	.	.	.	+.2	1.2	2.2	2.2	1.2	.	3.3	.		III
Marchantia polymorpha	.	.	.	.	.	.	.	2.2	+.2	+.2	.	.	.		II

Sporadyczne/Sporadic/:

Betula verrucosa b 29, Cetraria islandica 29/1.2/, 35, Chamaenerion angustifolium 26,28, 29, 34, Cirsium palustre 29,34, Cladonia cenotea 29, Cladonia furcata v.pinnata 35, Deschampsia caespitosa 29,34,35, D.flexuosa 29,34, Dryopteris spinulosa 24, Epilobium collinum 34, Fragaria vesca 28,35, Funaria hygrometrica 27/1.2/, Gentiana asclepiadea 12, Hypnum cupressiforme v. ericetorum 35, Lepidozia reptans 24, Lonicera nigra b 11, Myosotis palustris 28, 34, Orthodicranum montanum 24, Orchis latifolia 28, Potasites albus 26,27,28, 35, Phegopteris dryopteris 11/1.1/, Ph.polypodioides 11,12,29, Polygonatum verticillatum 10,56, Polytrichum juniperinum 29/1.2/, Populus tremula c 29, Primula elatior 22, Ranunculus repens 26,34, Rhytidiadelphus triquetrus 22,27, Rumex acetosella 34, Salix caprea c 26, c 27, c 28, S.silesiaca c 34/1.1/, b 29, c 29, Sphagnum quinquefarium 28, Tetraphis pellucida 24, Tussilago farfara 34, Valeriana tripteris 22, Veronica officinalis 28

Objaśnienia/Explanations/:

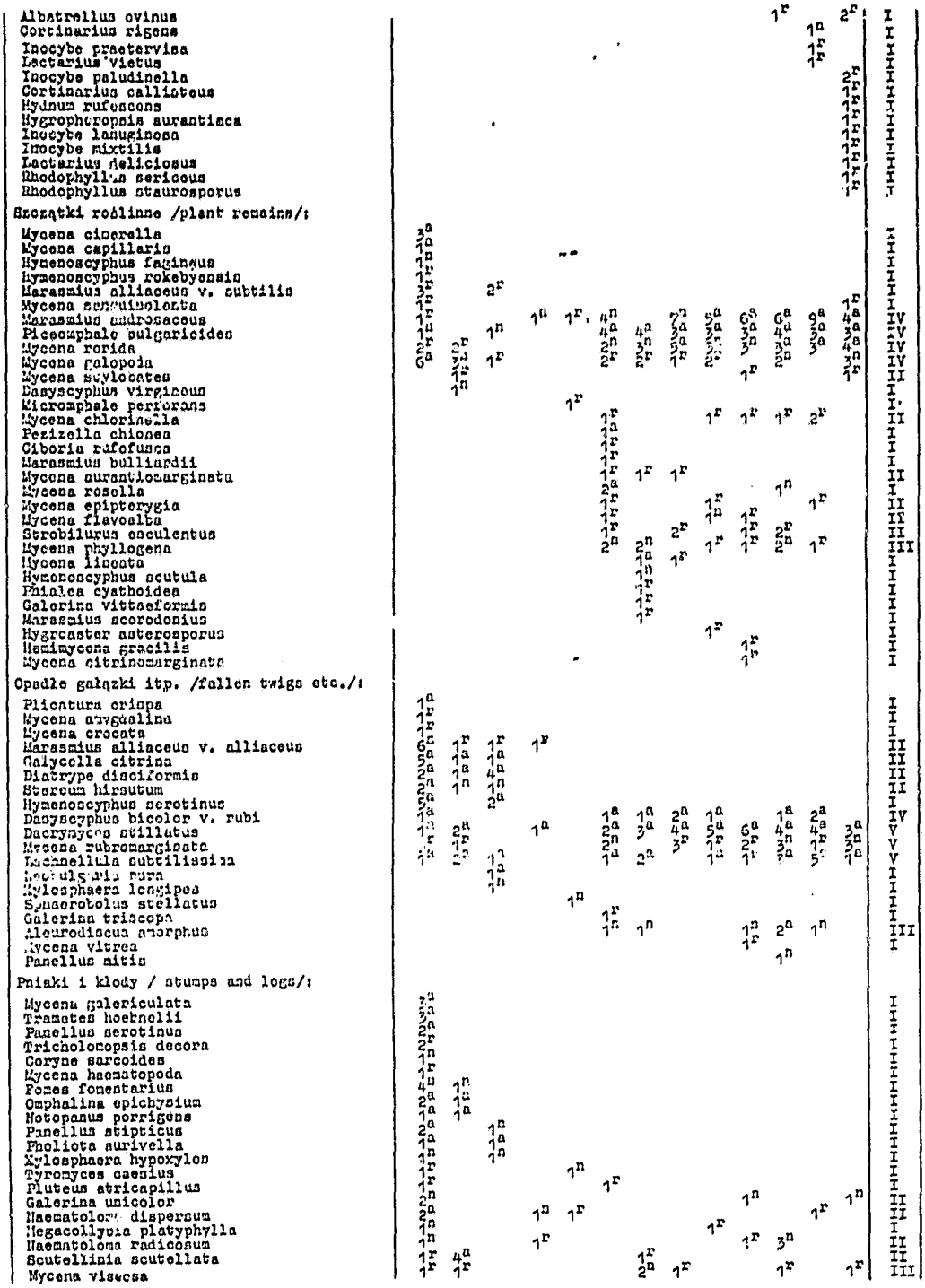
BPN - Babiogórski Park Narodowy /Babia Góra National Park/
CZ - Czechosłowacja /Czechoslovakia/
NT - Nadl. Nowy Targ /Forest Inspectorate Nowy Targ/

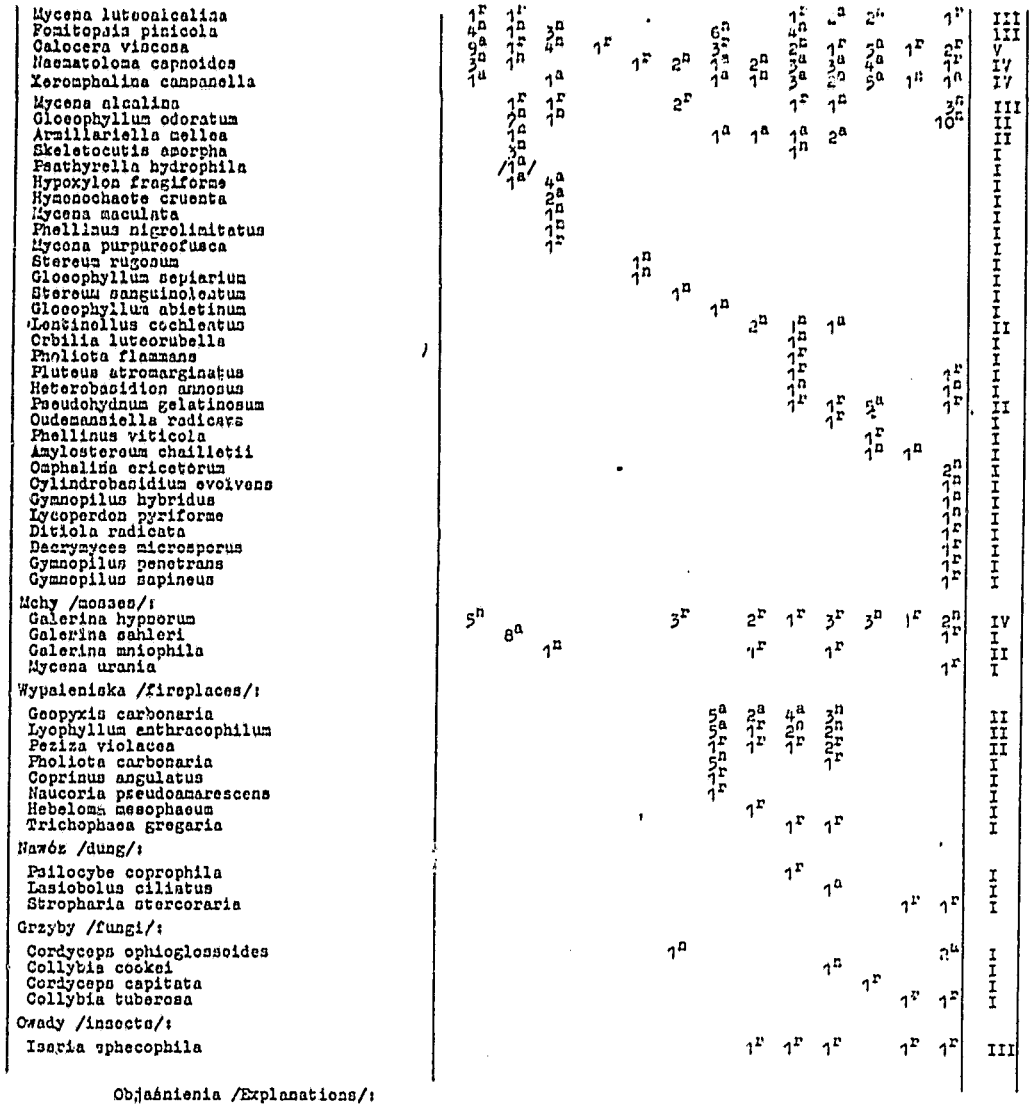
Numery zajęć w terenie odpowiadają numerom stanowisk na mapie /Bujakiewicz 1979/
/Numbers of records correspond with numbers of localities on map /Bujakiewicz 1979/

Tabela 13 - Table 13

Macromycetes w płatach zespołu Abieti-Piceetum montanum
Macromycetes in patches of Abieti-Piceetum montanum association

Nr kolejny /Serial number/	1	2	3	4	5	6	7	8	9	10	11	12	13	Stałość - Constancy
Nr powierzchni obserwacyjnej /No of plot/	10	12	11	56	61	22	34	27	26	28	24	35	29	
Wielkość powierzchni /Area of plot/ m^2	200	200	200	400	100	200	400	400	400	400	200	100	200	
Wysokość n.p.m. w m /Altitude in m/	1070	880	960	1085	910	860	890	931	928	931	898	875	850	
Ekspozycja /Exposition/	N	N	NW	SSW	SW	S	SE	SE	S	S	SE	SE	S	
Nachylenie /Inclination/	5	15	30	30	15	5	5	5	5	5	15	5	5	
pH /Soil reaction/	4.5	4.5	4.5	.	.	4.2	4.7	4.2	4.5	4.5	4.5	4.5	4.2	
Stopień zmian /Degree of changes/	0	0	0	2	0	1	3	2	2	2	0	2	1	
Liczba obserwacji /Number of observations/	13	10	11	1	1	13	13	13	14	13	14	13	13	
Liczba gatunków /Number of species/	62	34	31	6	14	44	41	56	57	51	56	34	70	
Ziemia /ground/:														
Clitocybe langei														
Cortinarius flexipes														
Hygrophorus pustulatus														
Xerocomus subtomentosus														
Laccaria amethystina														
Russula alutacea														
Cystoderma amianthinum														
Cystoderma carcharias														
Amanita vaginata														
Cystoderma subolongisporum														
Cantharellus lutescens														
Lactarius subdulcis														
Laccaria laccata														
Russula ochroleuca														
Collybia dryophila														
Boletus edulis														
Mycena pura														
Clavulina cristata														
Inocybe umbrina														
Hygrophorus olivaceoalbus														
Russula emetica														
Lactarius rufus														
Russula cyanoxantha														
Russula delica														
Xerocomus badius														
Amanita porphyria														
Cortinarius sanguineus														
Elaphomyces granulatus														
Lactarius lignyotus														
Lycoperdon foetidum														
Rhodophyllus cetratus														
Russula integra														
Lactarius aurantiacus														
Lycoperdon umbrinum														
Cortinarius collinitus														
Amanita pantherina v.abietinum														
Galerina subbadipes														
Lyophyllum tesquorum														
Russula foetens														
Morchella elata														
Collybia asema														
Inocybe oblectabilis														
Hydnum repandum														
Lactarius camphoratus														
Russula densifolia														
Tholephora terrestris														
Collybia butyracea														
Hebeloma subsaponaceum														
Xerocomus chrysenteron														
Lactarius helvus														
Russula obscura														
Mycena zephirus														
Cortinarius paleaceus														
Rhizina undulata														
Lactarius piperatus														
Rozites caperata														
Cortinarius arenatus														
Russula nigricans														
Lactarius picinus														
Cantharellus cibarius														
Cortinarius camphoratus														
Phellodon tomentosus														
Tricholoma saponaceum														
Clavulina cinerea														
Amanita rubescens														





Objaśnienia /Explanations/:

Numer powierzchni obserwacyjnej odpowiada numerowi zdjęcia fitosocjologicznego /Number of observation plot corresponds with the number of phytosociological record/

Tabela 14 - Table 14

Bazzanio-Piceetum Br. Bl. et Siss. 1939

Numer kolejny /Serial number/	1	2	
Numer zdjęcia w terenie /Number of record/	47	63	
Data /Date/	21 6 74	9 9 76	
Miejsce zdjęcia /Locality/	LM	Cz	
Ekspozycja /Exposition/	SSE	SW	
Nachylenie /Inclination/	5	5	
Wysokość npm w m /Altitude in m/	780	780	
Zwarcie warstwy drzew w % a_1	60	40	
" " " a_2		30	
/Density of trees in %/			
Zwarcie warstwy krzewów w % b /Density of shrubs in %	40	40	
Zwarcie warstwy zielnej w % c /Cover of herb layer in %	90	80	
Pokrycie warstwy mszystej w % d /Cover of moss layer in %/	100	100	
Średnia wysokość drzew w m /Mean height of trees in m/	25	18	
Średnia średnica drzew w cm /Mean diameter of trees in cm/	48	20	
Klasa wieku /Age class/	VI	IV	
Powierzchnia zdjęcia w m^2 /Area of record in sq.m./	400	200	
Liczba gatunków w 1 zdjęciu /Number of species in one record/	21	15	
Ch.zespołu tw./of the associ. and all./Vaccinio-Piceion			
Picea excelsa a_1	4.4	2.3	2
" " a_2		2.3	
" " b^c	3.3	2.2	2
" " c	1.1	+	2
Homogyne alpina	2.2	1.1	2
Luzula flavescens	+.2	.	1
*Bazzania trilobata d	2.3	1.2	2
Plagiothecium undulatum	3.3	+.2	2
Plagiothecium curvifolium	+.2	+.2	2
Ch.Vaccinio-Piceetalia			
Sphagnum girgensohnii	3.3	5.5	2
Ptilium crista-castrensis	+.2	.	1
Ch. Vaccinio-Piceetea			
Vaccinium myrtillus	4.4	4.4	2
Vaccinium vitis-idaea	1.1	+	2
Dryopteris austriaca	+.2	.	1
Dicranum undulatum d	2.2	+.2	2
Gatunki towarzyszące /Accompanying/			
Abies alba b/c	1.1	.	1
Equisetum silvaticum c	+.2	1.2	2
Oxalis acetosella	1.2	.	1
Carex brizoides	+.2	.	1
Soldanella carpatica	r	.	1
Carex fusca	.	+.2	1
Polytrichum commune d	3.3	2.3	2
Hylocomium splendens	1.2	+.2	2
Mnium affine	2.2	.	1
Pleurozium schreberi	1.2	1.2	2
Calypogeia sp.	.	+.2	1

Stałość - constancy

Objaśnienia /Explanations/:

LM - Gromada Lipnica Mała /Forest District Lipnica Mała/
Cz - Czechosłowacja /Czechoslovakia/

Numery zdjęć w terenie odpowiadają numerom stanowisk na mapie /Bujakiewicz 1979/ - Numbers of records correspond with numbers of localities on map /Bujakiewicz 1979/.

Tabela 15 - Table 15

Sphagnetum magellanici /Malc. 1929/ Schwick. 1933

Nr kolejny /Serial number/	1	2	3	Stałość - Constancy
Nr zdjęcia w terenie /Number of record/	45	46	62	
Data /Date/	19 6 74	21 6 74	9 9 74	
Miejsce zdjęcia /Locality/	LM	LM	Cz	
Ekspozycja /Exposition/	SSE	SSE	SW	
Nachylenie /Inclination/	zn	5	5	
Wysokość n.p.m. w m /Altitude in m/	790	790	765	
Zwarcie warstwy drzew w % a /Density of trees in %/	10	30	5	
Zwarcie warstwy krzewów w % b /Density of shrubs in %/	10	10	5	
Pokrycie warstwy zielnej w % c /Cover of herb layer in %/	80	70	60	
Pokrycie warstwy mszystej w % d /Cover of moss layer in %/	100	100	100	
Średnia wysokość drzew w m /Mean height of trees in m/	8	12	6	
Średnia średnica drzew w cm /Mean diameter of trees in cm/	8	28	3	
Klasa wieku /Age class/	III	IV	III	
Powierzchnia zdjęcia w m^2 /Area of record in sq. m./	400	400	200	
Liczba gatunków w 1 zdjęciu /Number of species in one record/	27	17	17	
Ch. Sphagnetum magellanici				
Carex pauciflora	2.3	+.2	.	2
Ch. Oxycocco-Sphagnetea				
Oxycoccus quadripetalus	3.3	2.3	4.3	3
Eriophorum vaginatum	2.2	2.2	.	2
Drosera rotundifolia	2.1	+	.	2
Sphagnum magellanicum	3.3	2.3	+.2	3
Sphagnum recurvum	2.2	+.2	4.4	3
Sphagnum robustum	2.2	2.3	.	2
Aulacomium palustre	+.2	.	.	1
Calliergon stramineum	+.2	.	.	1
Sphagnum acutifolium	.	3.3	.	1
Ch. Scheuchzerio-Caricetea fuscae				
Carex fusca	3.3	2.2	3.3	3
Eriophorum angustifolium	+.2	r	+.2	3
Carex rostrata	.	.	1.2	1
Ch. Vaccinio-Piceetea				
Picea excelsa a	1.1	2.2	+	3
" " b	1.1	1.1	+	3
" " c	.	1.1	.	1
Vaccinium myrtillus	1.1	4.4	.	2
Vaccinium vitis-idaea	1.2	2.2	+	3
Homogyne alpina	2.2	.	+	2
Melampyrum pratense	1.3	+	.	2
Bazzania trilobata d	.	+.2	.	1
Towarzyszące /Accompanying/				
Abies alba b	+	+	.	2
" " c	.	+	.	1
Juniperus communis b	.	.	+	1
" " c	.	.	+	1
Sorbus aucuparia b	+	.	.	1
Frangula alnus b	.	.	+	1
Salix cinerea b	.	.	+	1
Juncus squarrosus	+.2	1.2	+.2	3
Potentilla thormentilla	1.1	.	2.1	2
Nardus stricta	2.2	.	1.1	2

Juncus effusus	+.2	.	1.2	2
Calluna vulgaris	.	1.2	.	1
Equisetum silvaticum	+	.	.	1
Salix silesiaca	+	.	.	1
Betula pubescens c	.	r	.	1
Polytrichum commune d	2.3	4.3	2.3	3
Sphagnum palustre	2.3	.	.	1

Objaśnienia /Explanations/:

LM - Grupada Lipnica Mała /Forest District Lipnica Mała
Cz - Czechosłowacja /Czechoslovakia/

Numery zdjęć w terenie odpowiadają numerom stanowisk na mapie /Pająkiewicz 1979/ - Numbers of records correspond with numbers of localities on map /Pająkiewicz 1979/.

Tabela 16 - Table 16

Macromycetes w płatach zespołu Bazzanio-Piceetum i Sphagnetum magellanici
Macromycetes in patches of Bazzanio-Piceetum and Sphagnetum magellanici associations

Nr kolejny /Serial number/	1	2	3	Stałość - Constancy	4	5	Stałość - Constancy
Nr powierzchni obserwacyjnej /No of plot/	45	46	62		47	63	
Wielkość powierzchni /Area of plot/ m^2	400	400	200		400	200	
Wysokość n.p.m. w m /Altitude in m/	790	788	765		790	780	
Ekspozycja /Exposition/	SEE	SEE	SW		SEE	SW	
Nachylenie /Inclination/	5	5	5		3	5	
Typ gleby /Soil type/	T	T	T		T	T	
pH /Soil reaction/	3.8	3.8	.		4.0	.	
Stosunki wodne /Water conditions/	p	p	p		p	p	
Stopień zmian /Degree of changes/	0	0	0		1	0	
Liczba obserwacji /Number of observations/	10	10	1		10	1	
Liczba gatunków /Number of species/	16	23	4		49	12	
Nazwa zespołu /Name of association/	Sph				BP		
Mchy /mosses/:							
Lactarius rufus		1r		1			
Lycopodium palustre		2a		1			
Ophalina sphagnicola		1r		1			
Haematoloma elaeongatipes	2n	1r	1n	3			
Haematoloma udum				1			
Cortinarius callisteus				1			
Inocybe oblectabilis		1r		1			
Rozites caperata		1r		1			
Russula obscura		1r		1			
Inocybe napipes			1r	1			
Galerina paludosa	5a	1r		2			
Galerina tibiicystis	3a	2r		2			
Cortinarius brunneus	1r	1r		2			
Cystoderma sublongisporum	2n	1r		2			
Cortinarius paleaceus	2n	1r		2			
Lactarius helvus	2n	1r		2			
Cortinarius fulvescens	2n	1r		2			
Cortinarius uliginosus	2n	4a		2			
Cantharellus tubaeformis	3n	1r		2			
Cortinarius collinitus	1n	1r		2			
Inocybe lanuginosa		1r		1			
Hebeloma helodes		2r		1			
Russula emetica		3n		1			
Laccaria proxima		1r		1			
Hygrophorus olivaceoalbus			1r	1			
Lactarius theiogalus				1			
Galerina mycenoides				1			
Russula ochroleuca				1			
Russula decolorans				1			
Amanita fulva				1			
Hygrophorus tephroleucus				1			
Xerocomus chrysenteron				1			
Amanita vaginata				1			
Galerina laniophila				1			
Lactarius lignyotus				1			
Rhodophyllus cetratus				1			
Rhodophyllus cuspidifer				1			
Russula paludosa				1			

Szczątki roślinne /plant remains/:						
Mycena galopoda	1^{P}	1^{P}	2	8^{A}		11
Monilinia oxycocci	1^{B}	1^{P}	2			
Mycena rorida					1^{B}	
Marasmius androsaceus					1^{B}	
Mitrula vitellina						
Mycena roseella					1^{B}	1
Opadłe gałązki itp. /fallen twigs/:						
Dacrymyces stillatus						1
Lachnellula subtilissima						1
Galerina sideroides						1
Mycena rubromarginata						1
Pniaki, kłody /stumps, logs/:						
Mycena algeriana		1^{B}	1			
Arolioma scamba						1
Xeromphalina campanella						1
Hotopanus parri [illegible]						1
Hymenochaete crunet.						1
Tyromyces sambuci						1
Gloeophyllum saepiarium						1
Mycena maculata						1
Haematoloma capnoides						1
Haematoloma dispersum						1
Stereum sanguinolentum						1
Collybia acervata						1
Pholiota astragalina						1
Haematoloma fasciculare					1^{P}	2
Nawóz /dung/:						
Coprinus patouillardii		1^{P}	1			
Szczątki grzybów /rotten fungi/:						
Collybia cookei					1^{P}	1

Objaśnienia /Explanations/:

Sph - Sphagnetum magellanici
BP - Bazzanio-Piceetum
T - torf wysoki /higher/
p - torf połeżony /wet peat/

An Abbreviated Characterization of the Lower Subalpine Forest

The great wealth of microflora has also been shown as a result of the above characterization, which is quite differentiated with respect to the structure and construction of the lower subalpine forest on Mt. Babia Gora. The forests richest in fungi are the zonal ones (Galio-Abietetum, Abietei-Piceetum montanum, Dentario glandulosae-Fagetum), which are characterized, however, by the occurrence of many species also common for this forest (illustration 3), while each of the azonal associations are distinguished by a signficant percentage of exclusive species occurring in them (illustration 4).

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With the exception of references cited in the first part of elaboration (Bujakiewicz 1979).

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