

CONTRIBUTION TO THE ECOLOGICAL PHYTOGEOGRAPHY OF FUEGIA (SOUTHERN SOUTH AMERICA)

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Abstract: The relationships between the present distribution of native Fuegian vascular plants and their ecological behaviour have been studied on the basis of information and multivariate analysis. 216 species (54 % of the total flora) were collected during two surveys within a transect across the main vegetation zones of Isla Grande de Tierra del Fuego; the ecological and phytogeographic informations are derived from field and literature data. The results show that: 1) the species list obtained by the survey along the transect have the same informational content of the total flora of Isla Grande; 2) seven out of twelve species groups obtained by numerical classification of phytogeographic data are well correlated to the main habitat-types of Fuegia, i.e. steppe, forest and bog communities; 3) the Andean Cordilleras played the main role in plant migration to Fuegia after the ice retreat.

Introduction

Fuegia, the Archipelago lying south of the Estrecho de Magallanes, in the southernmost part of South America, is of high phytogeographic interest. According to Dalziel & Elliott (1971), South America was the last continent which separated from Antarctica between the early Tertiary and 20-25 millions years ago, when the Antarctic Peninsula was covered by forests of *Nothofagus* and *Araucaria* (Cranwell, 1959; Darlington, 1964); this is of great importance for reconstructing the migration of southern Hemisphere plants across the continents (Croizat, 1952). Biotas of the main Austral land masses have many similarities, with patterns of disjunct distributions most noticeable at the generic rather than at species level (Galloway, 1991); in recent years these affinities have been analyzed by both vicariance and cladistic biogeography (Humphries & Parenti, 1986, Brundin, 1988; Seberg, 1988) and by panbiogeographic methodologies (Craw 1985, 1988).

During the Glacial Period Fuegia was almost completely covered by ice until 16.000 years ago (Auer, 1956, 1958); after the ice retreat, plant species started to colonize the new areas from refugia located in adjacent floristic

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regions, such as Patagonia, the Marginal and Central Cordilleras, and the Pacific coasts (Hueck, 1966; Cabrera, 1971; Moore, 1983a). On the other hand, Fuegia might have been also an irradiation center for subantarctic species surviving in ice-free refugia: some Fuegian plants occur also in the Subantarctic islands, New Zealand, Tasmania and Australia (Moore, 1972, 1983).

Climatically, Fuegia is characterized by an abrupt gradient, from a cold temperate, perhumid climate in the West to a dry, continental climate in its eastern part (Walter, 1968; Burgos, 1985). These differences are reflected by a clear vegetational gradient across four main vegetation zones. From West to East they are: magellanic moorland zone, evergreen forest zone, deciduous forest zone, steppe zone.

Floristically, the Fuegian region is rather well known. Important papers have been published by Hooker (1847), Spegazzini (1883, 1896), Dusén (1900), Skottsberg (1906). These informations has been summarized in the excellent flora of Moore (1983a), which is provided with local distribution maps for all species. Several parts of the region are still insufficiently explored, mainly in the most remote areas of Isla Grande, far from the main highways (Moore, 1983a). A phytogeographic characterization of the region is given by Cabrera (1971) and Pisano (1977). Moore (1983a) provides distribution maps, limited to Tierra del Fuego, for all autochthonous species; complete distribution maps are available only for a few species. The maps of Moore (1983a), however, are complemented with indications on the latitudinal range of each species in South America.

As far as vegetation is concerned, the available information is still scanty. The main papers deal with the steppe communities (Collantes et al., 1985, 1989) or with the magellanic moorland vegetation (Crow, 1975; Moore, 1979). A fundamental source of information is the work of Boelcke et al. (1985), who studied the vegetation along a transect located north of Tierra del Fuego, at about 51-52° S. The main source of information regarding the ecological requirements of the single species remains the flora of Moore (1983), and is limited to a list of the main habitat types where the species is likely to occur.

The University of Trieste organized two expeditions to Fuegia in the years 1987 and 1989, in order to carry out a floristic survey along a transect crossing Isla Grande from SW to NE. Aim of this research was to acquire direct data for a quantitative study on the Ecological Phytogeography of Isla Grande de Tierra del Fuego.

Nimis (1984a,b,c; 1989) and Lausi and Nimis (1985a,b; 1991), on the basis of quantitative studies, provided several examples of the close relations between ecology and distribution of plant species. According to these authors, the research of these relations, which constitute complex phytogeographic facts requiring a causal explanation, is one of the main aims of Ecological Phytogeography. The results of Ecological Phytogeography are of direct relevance also for Quaternary palaeoecologists, since they provide the only

factual evidence on the relations between ecology and distribution of the species.

The studies of Lausi & Nimis (1985a, 1991) and Nimis (1989), concerning the Yukon Territory (Canada), are based on vegetational data, i.e. on data which have a high ecological information content; those of Nimis (1984a,b,c), concerning Sicily (Italy), are based on the total flora of the island, and the ecological data came from a Data Bank (Nimis et al. 1983) summarizing the existing knowledge on the ecology of Italian species; in both cases the available floristic, ecological and phytogeographic informations were very exhaustive.

The main aim of this paper is to study the relationships between the present distribution of native Fuegian vascular plants and their ecological behaviour. In our study we have followed an approach which is slightly different from those adopted by the above mentioned authors: we tried to test whether it was possible to carry out a study on the Ecological Phytogeography of a geobotanically rather poorly known region, based on a floristic survey. Thus, our data concern only a part of the total flora of Isla Grande de Tierra del Fuego, the ecological informations are derived from field data and from the literature, and the phytogeographic informations are much less detailed than those used by the above mentioned authors.

Two Appendices are reported at the end of this paper. They contain the lists of higher plants (Appendix I) and a list of parasitic fungi of higher plants (Appendix II) collected during field work, with the indication of the localities. They are presented here also as a small contribution to the floristics of Isla Grande of Tierra del Fuego.

Survey area

The floristic surveys have been carried out in two different periods: a) first survey, from December 1 to 12, 1987, field team: M. Codogno, D. Lausi, P.L. Nimis and M. Tretiach (Trieste), N. Scutari (Buenos Aires); b) second survey, from January, 2 to 17, 1989, field team: T. Ahti and S. Stenroos (Helsinki), J. Poelt (Graz), N. Scutari (Buenos Aires).

Part of field work was devoted to the collection of lichens and mosses.

The sampling stations are 31, scattered within a relatively broad transect crossing Isla Grande de Tierra del Fuego from SW to NE, from Lapataia (Ushuaia) to Bahia S. Sebastian, near Rio Grande (Fig. 1). The transect encompasses several altitudinal belts, the elevation ranging from sea level to ca. 1200 m. It crosses the main vegetation zones of Isla Grande: the evergreen forest, the deciduous forest and the steppe vegetation; the Alpine vegetation of the higher mountains is also included.

The evergreen forest is well developed in the areas near the Chilean coasts and Peninsula Mitre, which have very high precipitations (from 3000 to 600-800 mm/year) and weak thermic excursions during the whole year. The

evergreen forest is confined to a small portion of the transect near Ushuaia: the predominant species are *Nothofagus betuloides*, *Drimys winteri*, *Embothrium coccineum*, *Maytenus magellanica*, *Berberis ilicifolia*, *Gavilea lutea*, while other species characterizing this vegetation type in Chile, such as *Philesia magellanica* and *Desfontainia spinosa*, are absent.

The frequency of frost periods increases both towards SE and with altitude, and is correlated with the progressive floristic impoverishment of the evergreen forest (Walter, 1976). *Nothofagus betuloides* may form pure stands also at higher altitudes in well-sheltered stations. Large extensions of bogs are intermixed with the evergreen forests in the western and southern parts of the island (Roivanen, 1954), and have been collectively called "magellanic moorland" (Godley, 1960) or "tundra magallanica" (Pisano, 1977).

The deciduous forest forms a large belt between the evergreen forest and the Patagonian steppe. It occurs from sea level to almost 500 m, in areas with 300-800 mm precipitation/year and with a rather temperate climate. It forms the timberline vegetation on the mountains. A transition between the evergreen and the deciduous forest is given by mixed woods, called Bosque Magallanico Mixto (Pisano, 1974), that are widespread near the coasts. At lower latitudes this community forms the transitional belt between the mid-elevation forest of *Nothofagus dombeyi* and the monospecific forest of *N. pumilio* growing at timberline (Veblen et al., 1979). In Fuegia the deciduous forest finds its southernmost border on the northern coasts of Beagle Channel, being almost absent in Navarino Island. This vegetation is characterized by *Nothofagus pumilio* and, to a lesser extent, by *Nothofagus antarctica* in the tree layer, *Berberis buxifolia*, *Ribes magellanicum*, *Escallonia serrata* and *Maytenus disticha* in the shrub layer, *Acaena ovalifolia*, *Rubus geoides*, *Blechnum penna-marina*, *Senecio acanthifolius* in the herb layer. In these woods the shrub layer is greatly reduced with respect to those at lower latitudes (Veblen et al., 1979). A more xerophytic deciduous forest constitutes the narrow ecotone towards the scrub - steppe communities, with open woods dominated by *Nothofagus antarctica*, extending also to areas with no more than 300-250 mm precipitation/year. In these conditions, a good soil water reserve is always present. The ecotonal boundary line receded by 50-100 km in the last 2000 years, as a consequence of increasing aridity (Auer, 1933, 1939) and, more recently, of the human impact on vegetation (Eriksen, 1972).

The Patagonian steppe is formed by grass and scrub communities, which are particularly well developed in the northeastern part of Isla Grande. The plains of this region are dominated by grass communities with *Festuca gracillima*, *Festuca magellanica*, *Agropyrum fuegianum*, *Calceolaria uniflora*, *Leucheria hahnii*, *Leucheria purpurea*, *Nassauvia darwinii*, *Nassauvia abbreviata*. The scrub communities of this area are dominated by *Chiliotrichum diffusum*, *Empetrum rubrum* and *Lepidophyllum cupressiforme*. The Fuego-Patagonian steppe is characterized by a dry climate, with evapotranspiration exceeding precipitation values; this causes an increase of the seasonal difference in mean temperature values and daily excursions.

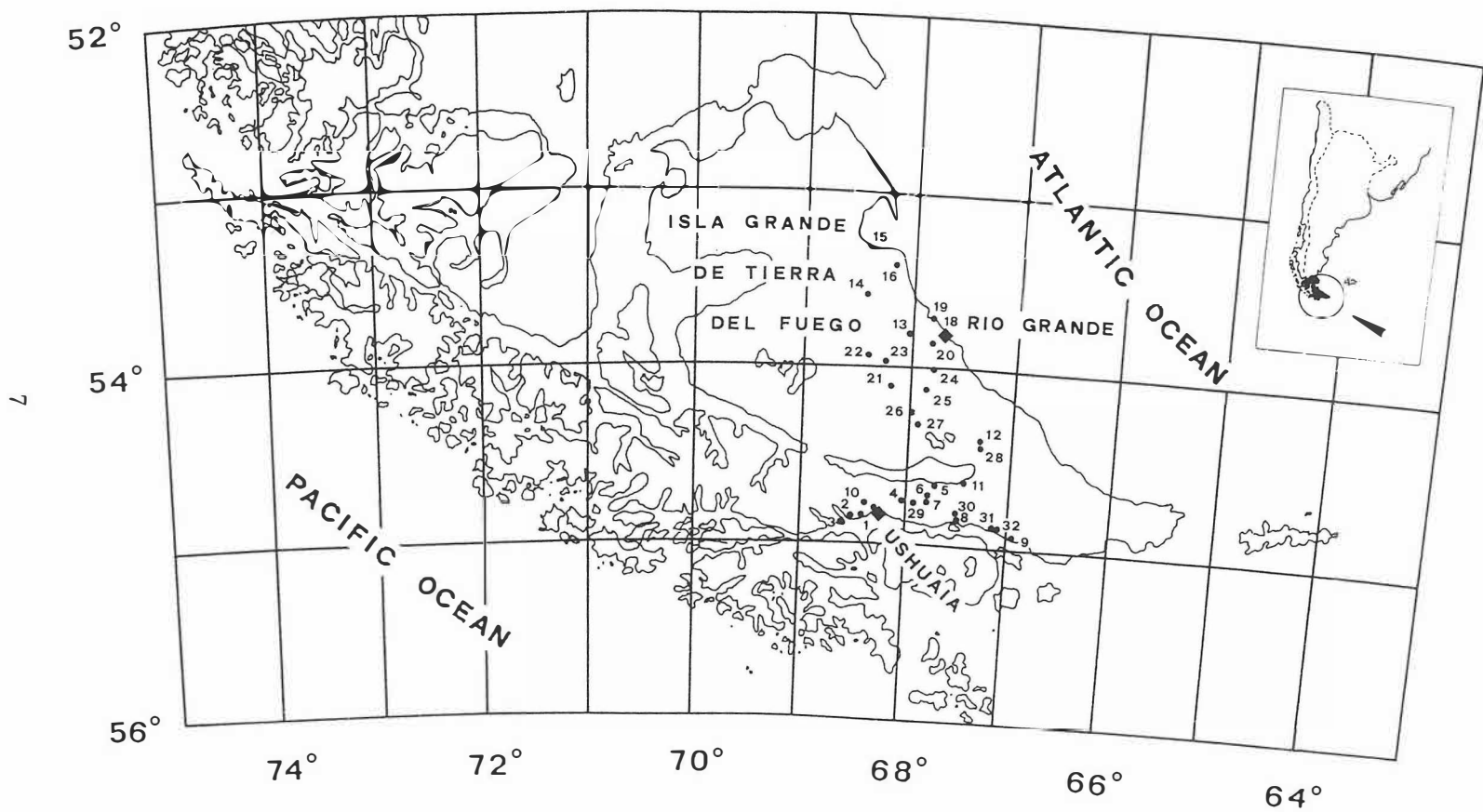


Fig. 1 - Survey area. The sampling stations are numbered as in the Appendices.

Data

This study is based on four kinds of data: climatic, floristic, phytogeographic, and ecological data.

Climatic data

In order to characterize the macroclimatic conditions at the extremities of our transect, Saturation Deficit (SD) and Dryness Index (DI) were computed for the period 1971-1980; the basic data were obtained from the University of Buenos Aires.

The Monthly Saturation Deficit (SD_m) was calculated as $SD = e_s(1 - RH_m/100)$, where e_s is the saturation water vapour pressure in mm/Hg at mean monthly temperature, and RH_m is the mean monthly Relative Humidity.

The Dryness Index (DI) was calculated on the basis of the following equation (Stenz, 1947; Tuhkanen, 1980):

$$DI = (733.4 n (1 + 0.2W) SD^{0.7}) / (B - b) P$$

where n is the length of the period expressed in number of days; W is the wind speed in km/h; SD is the Saturation Deficit (see before); B is the atmospheric pressure in mm Hg; b is the water vapour pressure expressed in mm Hg; P is the precipitation fallen in the examined period.

Floristic data

During two surveys, 512 samples, for a total of 242 species, were collected in the 31 sampling stations. The stations have been selected in such a way as to sample the broadest possible ecological-vegetational variation within the transect. It should be noted that no complete floristic collection has been carried out in each station. For identification, we mainly used the flora of Moore (1983), and the available volumes of Flora Patagonica (Cabrera, 1969, 1978, 1984). The species list is reported in Appendix I; nomenclature follows Moore (1983). Only the native species were considered in the phytogeographic analysis; they are 216, *i.e.* 54 % of the whole native flora of Isla Grande de Tierra del Fuego (data from Moore, 1983).

The samples of the collected plants are preserved in the Herbaria of the University of Trieste (TSB, first survey) and of the University of Graz (GZU, second survey).

Phytogeographic data

The phytogeographic data, derived from Moore (1983), are reported in Tab. 1.

For each species the presence in the following Operational Geographic Units (OGUs: see Crovello, 1981) is given:

- main subantarctic islands (Falklands, Iles Croazet, Iles de Kerguelen, Macquarie Island, South Georgia);
- extra American continents (Australia, Eurasia, North America, New Zealand);
- latitudinal belts of Argentina and Chile and Tierra del Fuego (see Fig. 2). The latitudinal belts of Argentina (A) and Chile (C) are delimited as follows (Fig. 2):

A1: from Estrecho de Magallanes (about 53° S) to 50° S;

A2: from 49° to 45° S;

A3: from 44° to 40° S;

A4: from 39° to 35° S;

A5: less than 35° S;

C1: from Estrecho de Magallanes (about 53° S) to 50° S;

C2: from 49° to 45° S;

C3: from 44° to 40° S;

C4: from 39° to 35° S;

C5: less than 35° S;

The latitudinal extension of these OGUs is based on the fact that many species have their northern latitudinal limit at about 50°, 40° or 35° S in Chile and 50° or 40° S in Argentina.

The political boundary between Argentina and Chile corresponds well with the main phytoclimatic subdivision of southernmost South America, (see Hueck, 1966 and Walter, 1983), separating the regions with oceanic climate (Chile) from those with a more continental climate (Argentina). An exception is the Chilean area north of the Estrecho de Magallanes, which borders the Atlantic Ocean; this area is characterized by a dry climate, and for this reason it has been assigned to the corresponding latitudinal belt of Argentina

Ecological data

The habitats in which the species of Tab. 1 may be found are reported in Tab. 2. The sources are original field data (see Appendix), original phytosociological relevés of woody habitats (not reported), and literature data (Moore, 1983). These data have been further compared with phytosociological and ecological informations reported by Roig, Anchorena et al. (1985) and Roig, Dollenz et al. (1985).

The habitat-types are defined as follows (abbreviations as in Fig. 8):

FS - *Festuca gracillima* steppe. Climax vegetation in which low tussock grasses are predominant; often exploited as pastures.

EH - *Empetrum rubrum* heaths. (Murtillares, after "Murtilla", the local name of *Empetrum*). Extensive heathlands intermingled with the climax steppe on well

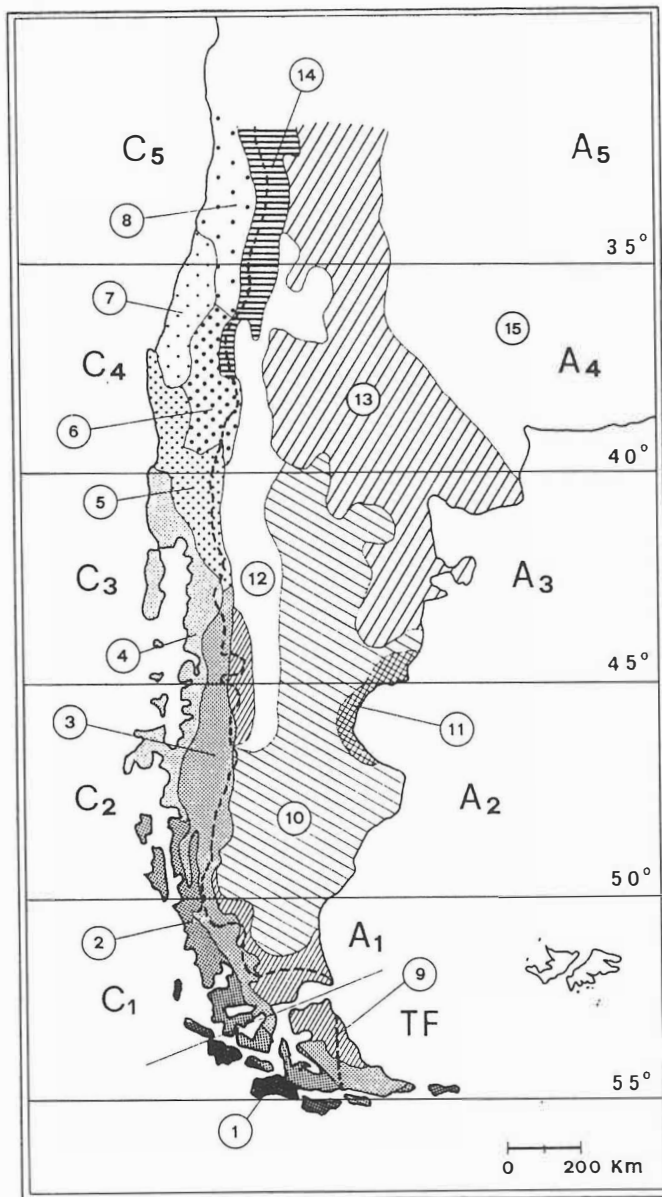


Fig. 2 - Subdivision of the South American continent into Operational Geographic Units (OGUs; for explanations see text). The main vegetation zones are indicated as follows: 1) Magellanic Moorland; 2) Patagonian and Magellanic evergreen forest; 3) Patagonian and Magellanic deciduous forest; 4) Valdivian rain forest; 5) *Nothofagus obliqua*-*N. procera* forest; 6) *Araucaria* forest; 7) Subtropical sclerophyllous vegetation; 8) coastal desert; 9) Fuego-Patagonian steppe; 10) Central District semi-desert; 11) Grass steppe and shrub communities of San Jorge Gulf District; 12) Occidental District shrub steppe ; 13) Open shrub vegetation (*Larrea* spp.) of the Monte Province; 14) Alto-Andean vegetation; 15) Pampa.
 From Hueck (1966); Moore (1983a), Walter (1983); Paruelo et al. (1991), modified.

drained soils, characterized by low vegetation cover, paucity of species and a severe soil erosion (Collantes et al., 1989).

MG - *Mesic grasslands*. Widespread in the Patagonian steppe zone, in sites with higher soil moisture due to weak soil drainage, or in depressions.

CS - *Chiliodrionum scrubs*. Scrub communities intermediate between FS and DF, in which species of both climax vegetations are frequent.

DF - *Deciduous forests*. Forest communities, well developed from sea level to ca. 500 m, mainly in areas with a temperate climate; heavily modified by man during the last century in order to extend the pastures.

EF - *Evergreen forests*. Forest communities of SW Fuegia, including the mixed evergreen-deciduous forests (Bosque Magallánico mixto), the *Nothofagus betuloides* pure forests, on peaty and humid soil, and the *Nothofagus betuloides-Drimys winteri* forests, on better drained soil (brown forest soil).

FM - *Forest margins*. Clearings and margins of DF, with two main communities, the *Chiliodrionum-Berberis buxifolia* scrub, present in the transition zone between the steppe and the deciduous forest (Moore, 1983), and the *Pernettya mucronata* scrub, bound to more humid conditions.

B - *Bogs*. This habitat-type includes cushions-, graminoid-, *Sphagnum*- and *Marsippospermum* - bogs, differing in geomorphology, precipitation and altitude. The *Marsippospermum* bogs often intergrade with mesophytic grasslands.

AH - *Alpine habitats*. Above timberline, lying at about 500-600 m. They include heathlands and feldmark. The latter, called Desierto Andino (Pisano, 1974), is widespread in exposed areas, with scarce cover of higher plants, but abundant lichens and mosses. The delimitation of the two communities is often arbitrary (Moore, 1983).

RH - *Riparian habitats*. Along streams, permanent creeks and near lake shores, on deep, acid soils with high water availability, where tall herb communities are common. Species of these habitats are often present also in littoral vegetation, mainly on gravelly shores, where the salinity is lowered by freshwater drainage (Roig, Dollenz et al., 1985).

HG - *Humid grasslands*. Herb communities of the forest zone, developed in clearings or along the forest margins.

R - *Rocks*. Azonal habitat-type, with chasmophytic and/or chomophytic elements, characterized by strong irradiation, soil erosion and excessive drainage.

SG - *Saline grasslands*. Developed in depressions of the Patagonian steppe, where evaporation strongly exceeds precipitation, causing an heavy accumulation of salts at the soil surface.

S - *Sea shores*. This habitat-type includes both sandy and rocky shores. Many species present on sandy shores (psammophytic species) are frequent also in inland areas, where old coastal terraces are present. True halophytic species grow mainly on rather silty soils; on pebble or shell deposits, just above the highwater mark, riparian species may be present.

Methods

The matrix of species and OGU's and the matrix of species and habitat-types have been processed by programs of multivariate analysis in order to detect possible correlations between the phytogeography and the ecology of the species.

A preliminary step concerns the evaluation of the phytogeographic information content of our floristic data with respect to the information of the whole flora of Isla Grande. The Information Analysis was performed according to the Shannon's Entropy functions (Shannon & Weaver, 1949), on the matrix of Tab. 1 (species and OGU's), compared with a second matrix of species and OGU's (not reported) in which all the species of Isla Grande were considered. The Informational Divergence (D) between the data sets of Tab. 1 (P) and the data of the whole flora of Isla Grande (Q) was computed with the following equation (Feoli et al. 1984; Orloci & Kenkel, 1985):

$$D(P,Q) = \sum_i p_i \ln (p_i/q_i) \quad 1)$$

where p_i = observed frequency, q_i = expected frequency, i = number of OGU's.

Phytogeographic data (Tab.1) were analyzed with Minimum Variance cluster analysis on a similarity matrix based on Euclidean Distance (Wildi & Orloci, 1983), in order to detect groups of species with similar distribution patterns (phytogeographic elements).

The frequencies of the species groups in the OGU's (Tab. 1) and in the habitat types (Tab. 2) have been reported in two contingency tables. These were adjusted to block size (Orloci and Kenkel, 1985) and were submitted to Analysis of Concentration (AOC, Feoli & Orloci, 1979) to quantify:

- a) the floristic similarity between OGU's;
- b) the correlations between groups of species with a similar distribution pattern (chorological elements) and habitat types.

Results

The climate of the survey area

Climate plays the main role in the geographic distribution of the vegetation zones. The climatic diagrams of Ushuaia and Rio Grande, localities at the extremities of the transect, are reported in Fig. 3a and 3b, respectively. Ushuaia is located on the north side of the Beagle Channel, in the deciduous forest zone, while Rio Grande, on the Atlantic coast, is surrounded by a typical Patagonian Steppe. The difference between the mean monthly temperature of the coldest and warmest months is 8.7 °C in Ushuaia, 11 °C in Rio Grande.

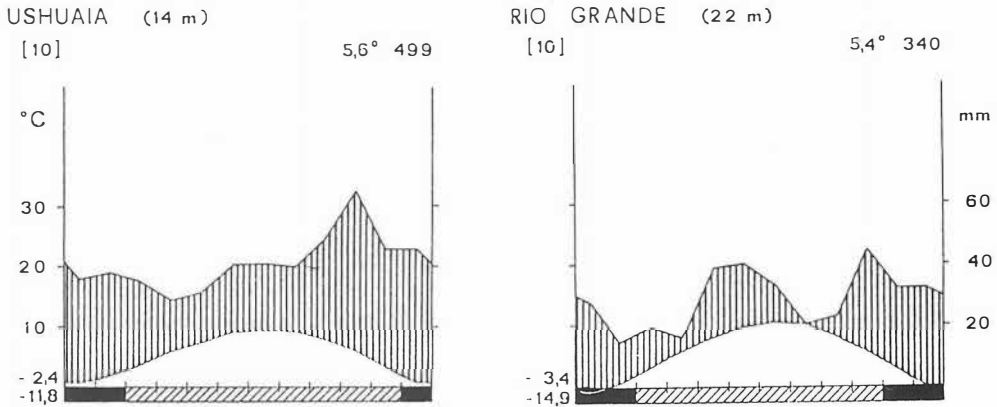


Fig. 3 - Climate diagrams: a) Rio Grande; b) Ushuaia. According to Walter & Lieth (1960), decade 1971-1980.

Furthermore, the differences between monthly means of maximum and minimum temperature during the growing season are wider in Rio Grande (10.2 °C in January) than in Ushuaia (8 °C in the same month).

The monthly SD values in Ushuaia and Rio Grande, computed for the period 1971-1980, are shown in Fig. 4: throughout the year the SD values are more stable in Ushuaia than in Rio Grande; the highest SD values during the growing season are reached in Rio Grande.

However, it is rather difficult to explain the strong vegetational gradient along the transect, from evergreen forest to steppe, only on the basis of a decrease in precipitations of ca. 160 mm/year. As other authors suggested (Stenz, 1947; Szymkiewicz, 1925; Walter, 1968) other important and often neglected climatic factors are the frequency and speed of wind, and the air humidity. These factors may cause a strong increase in Potential Evapotranspiration (PET). Intense, dry west winds often blow on the plains in the northeastern part of Isla Grande, so that the PET value is expected to be almost eight times higher than the temperature values (Walter, 1968); no data were available to compare directly Ushuaia and Rio Grande.

Fig. 5 reports the monthly Dryness Index (DI_m) of the two localities. This index takes into account also the frequency and speed of wind. In Rio Grande the DI_m is higher throughout the year, with two maxima in October and February (40 and 34, respectively), while in Ushuaia it is lower and more

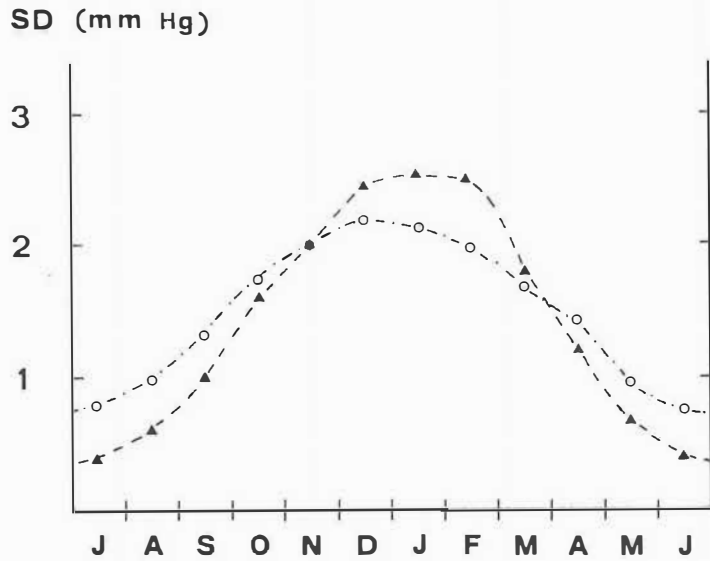


Fig. 4 - Mean monthly Saturation Deficit (SD_m) of Rio Grande (triangles) and Ushuaia (open circles); decade 1971-1980 (expl. in text).

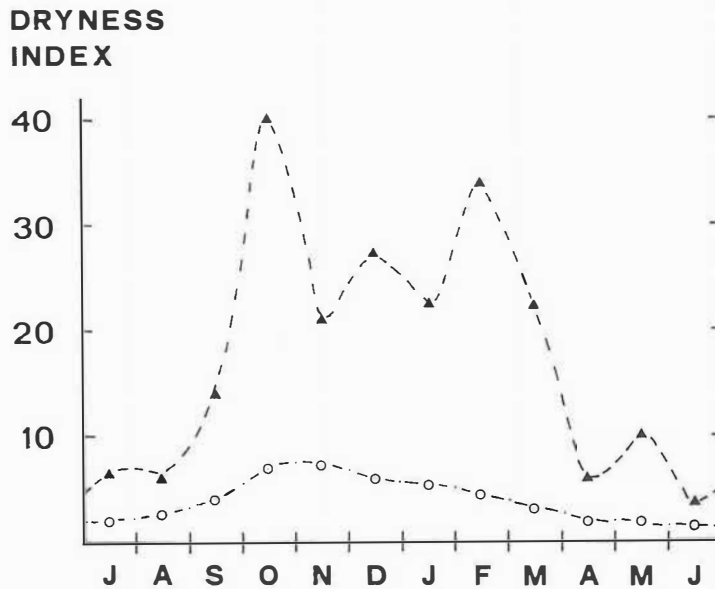


Fig. 5 - Mean monthly Dryness Indices (DI_m) of Rio Grande (triangles) and Ushuaia (open circles) according to Stenz (1947); decade 1971-1980 (expl. in text).

stable, ranging from 2 to 7. According to Stenz (1947) a value of 6 may be considered the limit between the temperate and the true-steppe climate, and Rio Grande has a DI_m higher than 6 throughout the growing season.

Moreover, the annual Moisture Index (MI = Precipitation/ PET), based on the Thornthwaite & Mather (1957) PET, are 1.13 for Ushuaia and 0.84 for Rio Grande (Box, 1986). The value of MI = 1.0 represents the hypothetical boundary between humid and dry bioclimates. In Isla Grande the isoline of MI = 1.0 coincides with the ecotone between the deciduous forests and the Fuego-Patagonian steppe (Box, 1986).

The gradient from woody to scrubby and to herbaceous communities corresponds to the progressive reduction of their Leaf Area Index (LAI, i.e. the ratio of total leaf area to the total ground area covered): the transpiring surface is reduced, in order to endure the higher values of DI along the gradient, mainly due to the desiccating action of wind and to the scarcity of soil water reserve.

Information analysis of the chorological data

In order to test the representativity of our data set (216 species, Tab. 1) with respect to the whole native flora of Isla Grande, the frequency distributions of our 216 species in the OGU's have been compared with those of the 402 species constituting the total native Flora of Isla Grande on the basis of Information Theory.

The Shannon's Entropy Function gives the following values:

$H(Q) = 3.573$ bits (information of the whole flora);

$H(P) = 3.628$ bits (information of our data set);

$H(P,Q) = 3.494$ bits (mutual information).

Furthermore, according to equation 1):

$D(P,Q) = 0.006$ bits (informational divergence between the two variables).

The high mutual information and the very low informational divergence indicate that our data set may be considered as highly significant for a chorological analysis.

The contributions of the single OGU's to the total divergence are smaller than 0.01. Only A1 and A2 (Argentinian parts of the Fuego-Patagonian region) have higher values (-0.017 and -0.020 respectively). This might be due to the fact that we did not survey some peculiar habitats or isolated stations which host species restricted to the Fuego-Patagonian region, or very rare in Isla Grande, such as e.g. *Botrychium dusenii* (coastal sands and shell deposits), *Poa atropidiformis*, *Puccinellia skottsbergii*, *Frankenia chubutensis* (saline grassland), *Benthamella nordenskjoeldii*, *Androsace pusilla*, *Onuris papillosa* (only one or two stations in Isla Grande).

Chorological analysis

The 216 species have been classified on the basis of their presence in the OGUs (Tab.1) to obtain groups of species with similar distribution (phytogeographic elements). The results are reported in the dendrogram of Fig. 6. In Tab. 1 the species are ordered according to this classification.

Twelve groups are formed at a dissimilarity value of 13 (Euclidean Distance). The main features characterizing these groups are:

- a) presence in OGUs outside the South American continent (species groups 1, 2 and 6);
- b) absence in the Argentinian OGUs (species group 11);
- c) absence in the Chilean OGUs (species groups 9 and 10);
- d) presence in both Chilean and Argentinian OGUs (3, 4, 5, 7, 8 and 12).

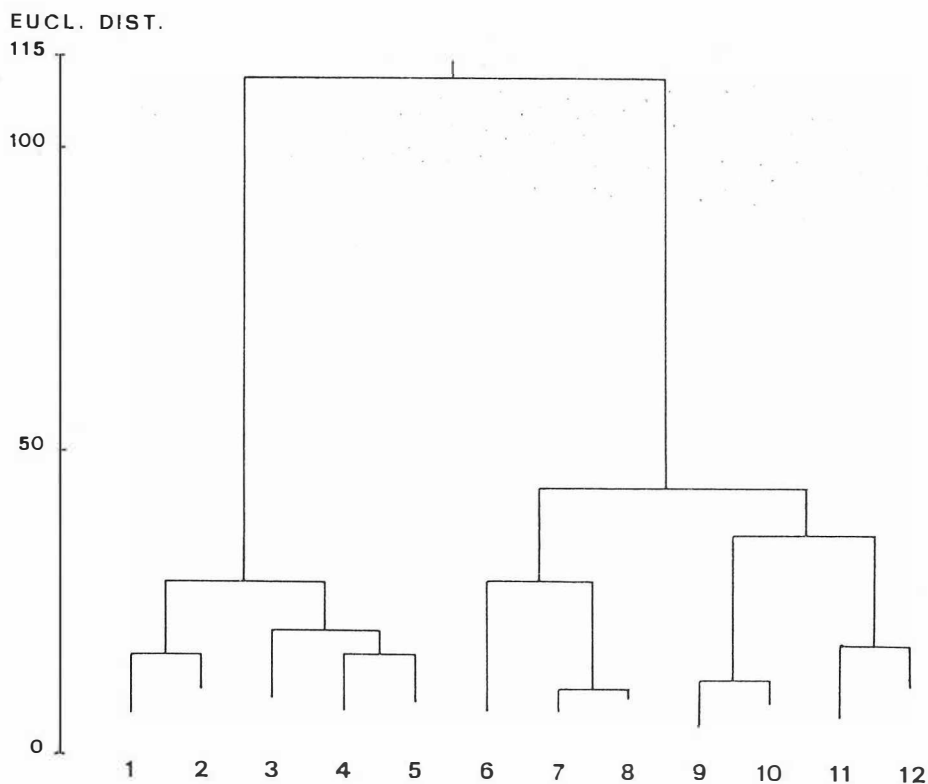


Fig. 6 - Classification of the species based on the data in Tab. 1. The fusion levels of species groups are indicated in the dendrogram.

Species groups 1 and 2 include species with broad ranges extending to North America and Eurasia. Group 1 consists of 5 species whose Chilean distribution is limited to C1; only *Carex microglochin* and *Plantago maritima* are present also in C2. The Argentinian distribution of this group extends to A5 (50 % of the species). Group 2 includes 14 species with a broader range in Chile extending to C5 (with the exception of *Apium australe* and *Trisetum spicatum*). Only two species (14 %) are present in A5. 36 % of the species are present also in New Zealand and Australia.

Species group 6 is formed by 10 species with subantarctic distribution: South Georgia, Iles de Kerguelen, Macquarie Island and Iles Croizet; only two species (*Crassula moschata* and *Grammitis magellanica*) occur also in New Zealand. These species have different latitudinal limits in South America.

Species group 11 consists of 7 species whose ranges are limited to the Chilean region. All of them are present in C3; two species, *Carex vallis-pulchrae* and *Oxalis magellanica* extend further North to C4. *Oxalis magellanica* and *Carpha alpina* are also present in New Zealand and Australia.

Species groups 9 and 10 include species whose ranges are almost completely limited to the Argentinian OGUs. They differ mainly in the broader ranges of the 23 species of group 10, which are present in A3, and 44 % of them also in A4. Only six species (*Acaena antarctica*, *Marsippospermum reichei*, *Senecio kingii*, *Senecio miser*, *Satureja darwinii* and *Silene magellanica*) are present in C1. The ranges of the 11 species of group 9 are more restricted, extending only to A2.

Numerous groups of species are present both in the Chilean and in the Argentinian OGUs. Their ranges are progressively restricted to southern latitudes in this order: groups 3, 4, 5, 7, 8, 12. They are discussed briefly in the following.

Species group 3 (29 species) has the widest latitudinal extension, with 75% of the species extending north to A5 and C5.

Species groups 4 (14 species) *and 5* (27 species) have their northern limit in A4 and C4. It is noteworthy that almost all the species of group 5 are absent from the Falklands (Islas Malvinas).

Species group 7, with 17 species, is limited to A3 and C3; only *Codonorchis lessonii*, *Senecio candidans* and *Empetrum rubrum* are present also in C4.

Species group 8 is formed by 25 species rather irregularly distributed in the OGUs (see Tab. 1); one species (*Hippuris vulgaris*) is even present in North America and Eurasia.

Species group 12 (34 species) is formed by species restricted to C1 and A1. 17 species have a broader range including the Falklands (Islas Malvinas) and/or A2.

Ordination of the chorological data

The 20 OGU's reported in Tab. 1 have been submitted to Canonical Analysis (AOC) on the basis of a contingency table (species groups by OGU's) obtained with the previous classification, in order to analyze their floristic similarity. The results are reported in Fig. 7.

The first two axes account for 50 % of the total variance. The first axis (30 % of the total variance) allows to distinguish, with negative scores, the subantarctic extra-American OGU's (Iles Croizet, Macquarie Island, Iles de Kerguelen, South Georgia, Falklands), New Zealand and Australia. The second axis (20 % of the total variance) identifies a South-North latitudinal gradient from subantarctic (negative scores) to boreal (positive scores) OGU's.

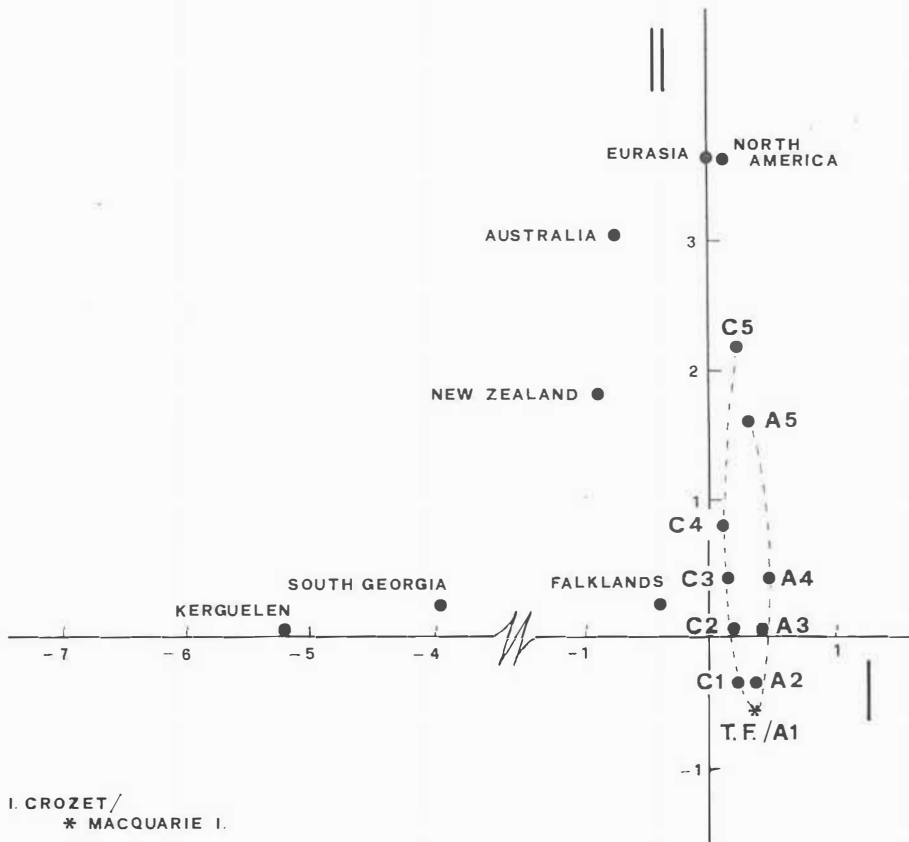


Fig. 7 - Distribution of the Operational Geographic Units (OGU's) according to the first two canonical variates of AOC, based on the adjusted contingency table of OGU's and species groups (Tab. 1). T.F.: Isla Grande de Tierra del Fuego; A1 - A5 and C1 - C5: latitudinal belts of Argentina and Chile, as in Fig. 2 (expl. in text).

The subantarctic OGU's are comprised between 50° and 55° lat. S and seem to be more related to the Chilean OGU's than to the Argentinian ones. The position, on the first axis, of each subantarctic OGU is related to the number of species present in the OGU: those with higher scores have the lowest number of species. The different position of the Chilean and Argentinian OGU's along the second axis indicates the higher floristic affinity of the Argentinian OGU's with Isla Grande, A1 coinciding with Isla Grande de Tierra del Fuego.

Canonical analysis of chorological elements and habitat types.

In order to detect the relations between chorological elements and habitat types, the adjusted contingency table (species groups by habitat types) based on the binary data of Tab. 2 has been submitted to AOC (Fig. 8). The contribution to the total X^2 accounted for by the first two canonical variates is 41 and 27 %, respectively.

The first axis identifies a gradient of hygrophytism from the negative scores (drier habitat types: *Festuca gracillima* steppe, *Chiliodendron* scrub) to the positive scores (perhumid habitat types: bog, humid grassland, and riparian habitats). The second axis seems to be related to the vegetation structure, ordering the habitat types from woods, through scrubs and heaths, to herbaceous vegetation.

The species groups 9, 10, 5, 7, 11, 6, 1 and the habitat types FS, MG, CS, EH, R, DF, EF, B, HG, RH have the highest positive or negative scores on the first two canonical variates. They are disposed along a horse-shoe (thin curve in Fig. 8) and are those for which the correlation between the two sets of variables is highest.

The frequency values of the species groups in each habitat type, the latter disposed according to their sequence along the horseshoe, will be used for their ecological characterization (Fig. 9a). Species groups and habitat types within the dotted line in Fig. 8 are not differentiated by the analysis, and will not be considered in the following discussion.

Discussion

The correlations between the chorology and the ecology of the species groups along the gradient of Fig. 8 are discussed in connection with Fig. 9 a) and b).

Species groups 9 and 10 - These groups are highly correlated with the steppe vegetation of Fuegia (AOC of Fig. 8). The range of group 9 is restricted to the Argentinian OGU's of the Patagonian steppe zone, from Tierra del Fuego to A2 (Fig. 9b). This group has the highest correlation with the *Festuca gracillima* steppe at the driest extreme of the moisture gradient revealed by AOC (Fig. 8).

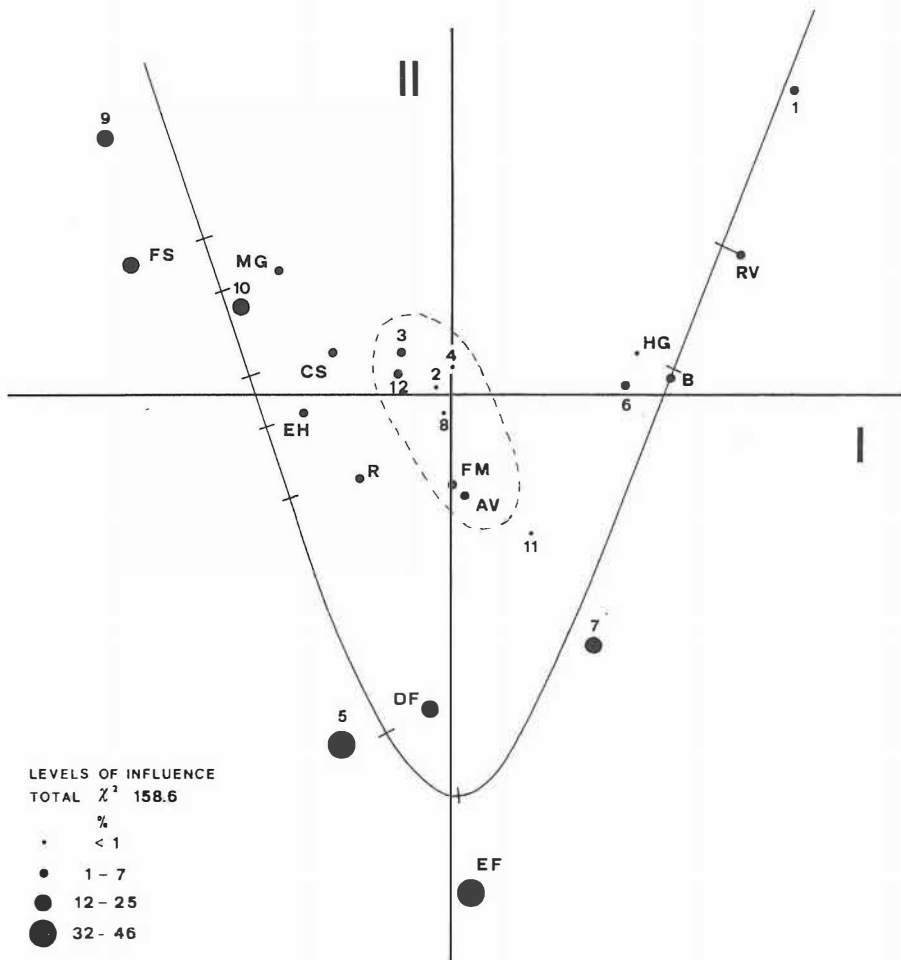
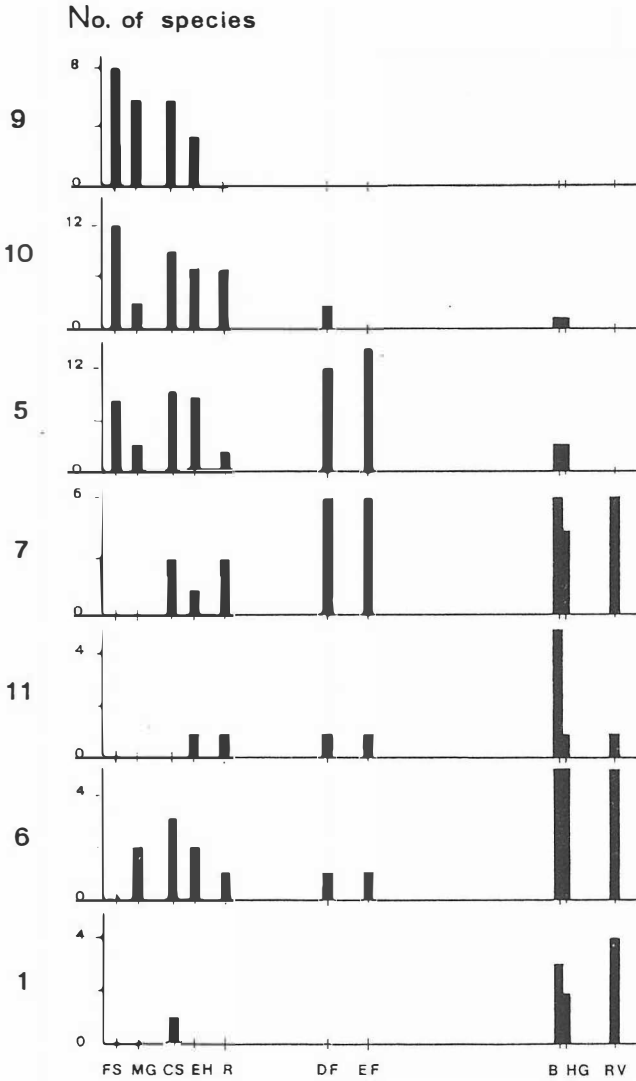


Fig. 8 - AOC between the species groups and the habitat-types, based on the contingency table obtained from the binary data of Tab. 2. Abbreviations and numbers as in Tab. 1 and 2. The thin line represents an axis utilized for the construction of Fig. 9a. The dashed line includes the points not considered in Fig. 9.

a)



b)

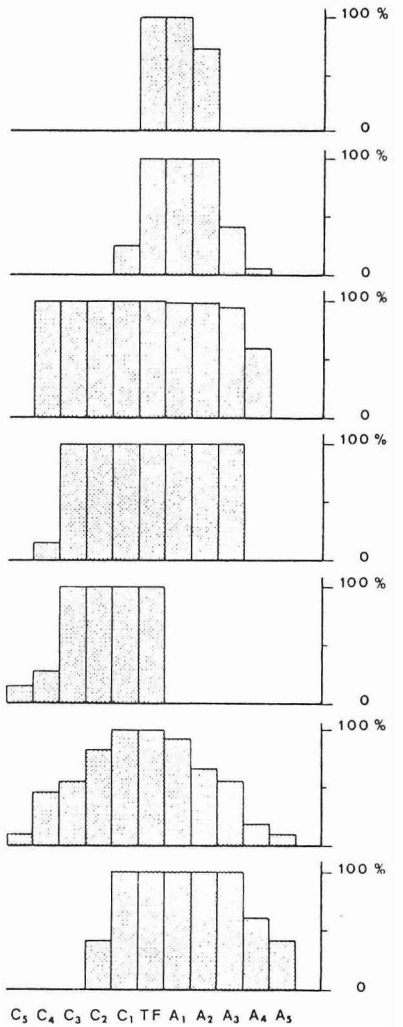


Fig. 9 - Absolute frequency values of the species groups in the habitat types with highest scores in the AOC of Fig. 8, disposed along the new axis of Fig. 8. Group numbers and abbreviations as in Tab. 1 and 2, respectively (Fig. a). Frequency values of the species groups in the South American OGU's; abbreviations as in Fig. 7 (Fig. b).

73 % of the species may be found in this habitat type; some of them are also present in other habitat types of the Patagonian region (see Fig. 9a): mesic grassland and *Chiliodendron* scrub (53 % of the species), and *Empetrum* heath (27 %). The same species are considered as characteristics of syntaxa including the steppe communities (*Festucetea gracillimae*: *Phaiophleps biflora*, *Leucheria purpurea*; *Berberidio-Empetretalia*: *Leucheria hahnii*, *Adesmia salicornioides*, *Chenopodium antarcticum*; *Nardophyllo-Festucetalia*: *Huanaca acaulis*; Roig, Anchorena et al., 1985). *Pratia longiflora* grows in mesic grassland communities in small depression of the steppe, where higher soil moisture is present.

The altitudinal range of the species goes from 0 to 200-300 m, with the exception of *Draba funiculosa* and *Leucheria hahnii*, two cryophytic species that may be found to ca. 1100 m. Other species of cryophytic communities are *Senecio lasqueui* and *Adesmia pumila*. Most of these species behave as mountain elements further North: 55 % of the species in southernmost Patagonia are restricted to the Eastern (Marginal) Cordilleras (Moore, 1983b).

The range of group 10 is slightly more extended than that of the previous group (Fig. 9b). The frequency values along the gradient are similar (Fig. 9a), with the highest value in the *Festuca gracillima* steppe. True steppe species are *Adesmia lotoides*, *Azorella caespitosa* and *Satureja darwinii*. Also in this group, the distribution of ca. 52 % of the species in the Southernmost Patagonia is restricted to the Eastern (Marginal) Cordilleras (Moore, 1983b). However, three species are true orophytes also in Isla Grande (*Senecio kingii*, *Nassauvia pygmaea*, *Marsippospermum reichei*), having their lowest altitudinal limit at ca. 400 m. According to Moore (1983), *Gamochaeta nivalis* grows on open soil and rock-crevices, but it is very common also in the *Festuca gracillima* steppe, since it characterizes the humid variants of this community at higher altitudes (Paruelo et al., 1991). A small group of species included in this group (*Calceolaria biflora*, *Oxalis enneaphylla*, *Silene magellanica* and *Hieracium antarcticum*) is often present also in rather xeric woods dominated by *Nothofagus antarctica*

Species groups 5 and 7 - Highly correlated with the forest vegetation of Fuegia (Fig. 8), the groups 5 and 7 have rather similar distribution patterns: the species of group 5 extend from Tierra del Fuego to 35° S, while those of group 7 extend to 40° S. Almost all the species of these groups are present on both sides of the Andean Cordilleras, with a scattered distribution (Paruelo et al., 1991); at lower latitudes their altitudinal limits are remarkably enlarged (Hueck, 1966; Walter, 1968, Eskuche, 1973).

Along the gradient (Fig.9a) group 5 has high frequency values in steppe habitats (*Festuca gracillima* steppe and *Chiliodendron* scrub) and lower values in perhumid habitat-types. This group, however, has a frequency maximum in the Evergreen Forest, characterized by the presence of *Drimys winteri*, *Gavilea lutea*, *Maytenus disticha*, *Maytenus magellanica*, *Berberis ilicifolia*, *Embothrium coccineum*, *Rubus geoides*, *Nothofagus pumilio*, *Adenocaulon chilense*, *Misodendrum* spp. It is noteworthy that no species of this group is present in the Falklands (Islas

Malvinas). Many species of this group, at lower latitudes, are rather frequent also in the Valdivian rain forest (Veblen et al., 1980).

Group 7 does not include any true steppe species, but it retains species of the ecotonal habitats between steppe and forest (*Chiliotricum* scrub and *Empetrum* heath). Some species of this group are also present at the humid extreme of the gradient (*Dysopsis glechomoides*, *Senecio smithii*, *Ourisia ruelloides*, *Geum parviflorum*, *Bolax gummifera* and *Cotula scariosa*).

Species group 11 - This group is very well characterized both from the phytogeographic and ecological points of view: its distribution is restricted to the Chilean OGU, from Fuegia to 40° S and its species are most frequent in the Magellanic moorland habitats (B). The bog communities of the Magellanic moorland (Godley, 1960) are widespread along the Pacific coast of the Chilean Archipelago (Roig, Dollenz et al., 1985), often intermixed with fragments of evergreen woods. The main ecological features of this vegetation type seems to be: a) very high rainfall (2000-5000 mm/year), b) relatively low temperatures, c) poor drainage and d) skeletal lithosols or peat (Moore, 1983b). Such habitats are quite rare along our transect, and are confined to its southwestern part. This is due to the low precipitations of the region.

Species group 6 - This group is characterized by species with scattered distribution in the circum-Antarctic islands (Bliss, 1978). In Tierra del Fuego they mainly occur in humid habitats: bogs, humid grassland and riparian vegetation. The Pteridophytes of this group (*Blechnum penna-marina*, *Grammitis magellanica*, *Lycopodium magellanicum*) may be present also in humid, mixed woods and shrub communities. *Festuca contracta* and *Azorella selago* are frequent in feldmark communities of the alpine belt of Isla Grande. *Juncus scheuchzerioides* is the species that most extends northwards (to 28° Lat S): it occurs mainly in areas with non-forested communities (Moore, 1983).

Species group 1 - This group with prevailing Argentinian distribution, from Fuegia to 30° Lat. S, is characterized by species present in both Austral and Boreal (North America and Eurasia) areas. It is highly correlated with the riparian vegetation (see Fig. 8): all the species may be found in this habitat type, at the perhumid extreme of the gradient (Fig. 9a). They are rather frequent also in bogs or humid grasslands (see also Schwaar, 1981).

Austral populations of some of these species have been separated at different infraspecific levels (*Plantago maritima* subsp. *juncoides*; *Carex magellanica* subsp. *magellanica*; *Carex curta* var. *robustior*). Since they show different degrees of morphological or biochemical differentiation, but have the same chromosomic number (Moore, 1967; Moore & Chater, 1971), the variation could result from different times of migration, or from different evolutionary rates (Moore, 1972), or from both.

Conclusions

The flora of Isla Grande de Tierra del Fuego has 273 genera (*Azolla*, *Beta*, *Convolvulus*, *Fumaria* and *Helianthus* included); 22 % of them are introduced. About 56 % of the autochthonous genera (i.e. 118 out of 212) are represented by one species in Fuegia. The number of Fuegian endemic species is low, corresponding to ca. 3 % of the total flora (Moore, 1983a). These features suggest that the Fuegian flora is young, and has migrated in recent times from the adjacent territories, probably along the Andean Cordilleras. The climate of the Southern Andes has a sharp variation from North to South (see map in Walter, 1983). The Andes act as a North-South bridge of colder climates connecting different floristic districts. Plant species could migrate latitudinally and altitudinally following the climatic changes during the glacial period. A similar situation is commented by Lausi & Nimis (1991) for northwestern North America. In this region, during the xeric interglacials, an ice-free corridor along the North American Cordilleras connected Beringia with southern ice-free regions across the ice-sheets; this corridor permitted the northwards immigration of prairie species from the southern refugia.

The Andean migration hypothesis seems to be particularly founded for the Fuegian steppe species, since: *i*) ca. 50 % of them have ranges restricted to the Eastern Marginal Cordilleras of Southern Patagonia (Moore, 1983b); *ii*) there are many geographic vicariant species connecting the Fuegian steppe communities to those of more northern latitudes. These communities occur between 46° and 50°30' Lat. South as isolated stands; further North they form a narrow grassland belt between 71° and 71° 30' Long. W, corresponding to the Subandean District (Paruelo et al., 1991; see also Fig. 2). These areas seem to be the irradiation centre of the Fuegian steppe flora, since Fuegia was completely covered by ice, while the Central District lies just near the line of maximal ice advance (Caldenius, 1932). Different authors stressed the importance for plant speciation of range expansions and subsequent isolation due to rapid and drastic climatic changes (Hultén, 1937). This mechanism would explain the high number of geographic vicariant taxa along the Marginal Cordilleras (Simpson, 1973).

The Andes certainly played an important role also in plant migration between the two hemispheres, since South America shares more than five times as many species with the Boreal hemisphere than it does, for instance, New Zealand (Moore, 1972). In any case, the taxa involved in the migration seem to have a northern origin (Stebbins, 1971; Gajewski, 1957; William & Murray, 1972) and exceptions are very rare (for instance, *Colobanthus quitensis*, see Moore, 1970). Sheard (1977), on the basis of the chemical analyses of several populations of *Thamnolia subuliformis*, showed that this lichen penetrated into South America through the Northern and Central Cordilleras. A similar pattern is shown by many other plants and cryptogams, such as *Carex macloviana* (Hultén & Fries, 1986) and *Cetraria islandica* (Kärnefelt, 1971). A disjunction

between the southernmost part of South America and Central America is present in the distribution ranges of several species (Kärnefelt, 1971).

On the contrary, the bipolar ranges of several plants (mainly *Carex*, but also *Plantago*, see Moore, 1972), which are absent from the Cordilleras, could be explained on the basis of long-distance dispersion by birds or air currents. This hypothesis was supported for the first time by Hooker (1879), who stressed the affinities between the floras of Fuegia and those of the Subantarctic islands. It is noteworthy that many bipolar species grow in aquatic habitats, such as graminoid bogs or riparial vegetation, which are often visited by birds. The long-distance dispersion hypothesis is confirmed indirectly by the higher number of bipolar cryptogams (Hertel, 1984, 1987) with respect to phanerogams. Cryptogams reproduce by very light propagules (in the lichens, spores, isidia, soredia or thallus fragments) which are more easily transported over long distances than seeds (Bailey & James, 1979; Nimis, 1991). Du Rietz (1940) proposed the persistence hypothesis to explain the broad disjunctions in the ranges of several Southern Hemisphere taxa. This hypothesis, based on plate tectonics and particularly on the fragmentation of the Gondwana supercontinent, appears improbable for taxa at species or genus level, while it may explain disjunctions at family level (ca. 80-85 % of families in New Zealand and in South America south of ca. 40° S occur in the Northern Hemisphere, Moore, 1972). The persistence hypothesis has been supported by different authors in phytogeographic studies on lichen species (Sheard, 1977; Galloway, 1988), but it is acceptable only if we agree with the hypothesis that these organisms have a lower evolutive rate than phanerogams.

The Fuegian nemoral species seem to have migrated along the Cordilleras too. A continuous forest belt was present across Argentina in the first part of the Tertiary, and contracted gradually until the Pliocene (Groeber, 1936; Gerth, 1941), persisting up to the present times on the eastern slopes of the Andes. According to Simpson (1973) the Andean *Nothofagus* forests have been a conservative habitat since the early Tertiary. These hypotheses are supported by different paleobotanical evidences (Gerth, 1941; Cerceau-Larrival, 1968). Presently, the forests of Fuegia are rather species-poor compared with the Andean forests at lower latitudes. No Fuegian endemic is present in these forest communities, suggesting that the *Nothofagus* forests have offered few opportunities for speciation in postglacial times. Some Fuegian forest taxa with high chromosome number seem to be derived from other taxa of open habitats, such as screes and grasslands (Moore, 1972). Probably the large ecotonal areas between woods and steppe have played an important role in this phenomenon.

Concluding remarks

The results of this study show that seven out of twelve species groups defined on a phytogeographical basis are well correlated to the main habitat-

types of Fuegia. This allows to relate phytogeography, ecology and history of these species.

This study further indicates that data limited to a part of the flora may allow to obtain generally valid results when these are related to a vegetational gradient. The informational content of the whole flora seems to be highly redundant, since ca. 50 % of the total autochthonous Flora of Fuegia has almost the same representativity of the total flora.

A survey carried out in such a way as to sample the broadest possible ecological variation of an area allows to obtain a higher degree of ecological and phytogeographic information, avoiding the problem of the scarce representativity of floras in small areas (Malyshev, 1991).

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Tab. 1 - Presence-absence data of the autoctonus species collected along the transect of Fig. 1 in the following Operational Geographic Units (OGU's): 1- Isla Grande de Tierra del Fuego; 2- Chile, from 52° to 50° S; 3- Argentina, from 52° to 50° S; 4- Falkland Islands (Islas Malvinas); 5- Argentina, from 49° to 45° S; 6- Chile, from 49° to 45° S; 7- Argentina, from 44° to 40° S; 8- Chile, from 44° to 40° S; 9- Chile, from 39° to 35° S.; 10- Argentina, from 39° to 35° S.; 11- Chile, from 34° to 30 S; 12- Argentina, from 34° to 30 S; 13- South Georgia; 14- Iles de Kerguelen; 15- Macquarie Island; 16- Iles Crozet; 17- New Zealand; 18- Australia; 19- Eurasia; 20- North America. The species groups are ordered according to the classification of Fig. 6.

		1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1	1	2					
		1	2	3	4	5	6	7	8	9	0	1	2	3	4	5	6	7	8	9	0				
1	<i>Carex magellanica</i>	1	1	1	1	1		1												1	1				
	<i>Calamagrostis stricta</i>	1	1	1	1		1	1													1	1			
	<i>Carex curta</i>	1	1	1	1	1					1										1	1	1		
	<i>Carex microglochin</i>	1	1	1	1	1	1	1	1			1		1								1	1		
	<i>Plantago maritima</i>	1	1	1	1	1	1	1				1		1								1	1		
2	<i>Carex gayana</i>	1	1	1		1	1	1	1	1	1	1										1			
	<i>Microsteris gracilis</i>	1	1	1		1	1	1	1	1	1	1	1									1			
	<i>Triglochin concinna</i>	1	1	1		1	1	1	1	1	1											1			
	<i>Anemone multifida</i>	1	1	1		1	1	1	1	1	1											1			
	<i>Phleum alpinum</i>	1	1	1		1	1	1	1	1	1		1									1	1		
	<i>Gentiana prostrata</i>	1	1	1		1	1	1	1	1	1	1										1	1		
	<i>Armeria maritima</i>	1	1	1	1	1	1	1	1	1	1	1										1	1		
	<i>Cerastium arvense</i>	1	1	1	1	1	1	1	1	1	1	1										1	1		
	<i>Carex macloviana</i>	1	1	1	1	1	1	1	1	1	1												1	1	
	<i>Hierochloa redolens</i>	1	1	1	1	1	1	1	1	1	1												1	1	
	<i>Apium australe</i>	1	1	1	1	1	1	1	1	1	1												1	1	
	<i>Scirpus cernuus</i>	1	1	1	1	1	1	1	1	1	1	1	1										1	1	1
	<i>Trisetum spicatum</i>	1	1	1	1	1	1	1	1	1	1	1											1	1	1
<i>Cystopteris fragilis</i>	1	1	1	1	1	1	1	1	1	1	1	1		1	1							1	1	1	
3	<i>Oreopolus glacialis</i>	1	1	1		1	1	1	1	1	1	1													
	<i>Discaria chacaye</i>	1	1	1		1	1	1	1	1	1	1													
	<i>Vicia magellanica</i>	1	1	1		1	1	1	1	1	1	1													
	<i>Urtica magellanica</i>	1	1	1		1	1	1	1	1	1	1													
	<i>Osmorhiza depauperata</i>	1	1	1		1	1	1	1	1	1	1													
	<i>Osmorhiza chilensis</i>	1	1	1		1	1	1	1	1	1	1													
	<i>Carex atropicta</i>	1	1	1		1	1	1	1	1	1	1													
	<i>Luzula chilensis</i>	1	1	1		1	1	1	1	1	1	1	1												
	<i>Perezia pilifera</i>	1	1	1		1	1	1	1	1	1	1	1												
	<i>Plantago uniglumis</i>	1	1	1		1	1	1	1	1	1	1	1												
	<i>Polygala salasiana</i>	1	1	1		1	1	1	1	1	1	1	1												
	<i>Epilobium australe</i>	1	1	1		1	1	1	1	1	1	1	1												
	<i>Ranunculus peduncularis</i>	1	1	1		1	1	1	1	1	1	1	1												
	<i>Berberis empetrifolia</i>	1	1	1		1	1	1	1	1	1	1	1												
	<i>Geranium sessiliflorum</i>	1	1	1		1	1	1	1	1	1	1	1									1	1		
	<i>Plagiobothrys calandrinoides</i>	1	1	1		1	1	1	1	1	1	1	1												
	<i>Vicia bijuga</i>	1	1	1		1	1	1	1	1	1	1	1												
	<i>Pernetia mucronata</i>	1	1	1		1	1	1	1	1	1	1	1												
	<i>Eleocharis albibracteata</i>	1	1	1	1	1	1	1	1	1	1	1	1												
	<i>Saxifraga magellanica</i>	1	1	1	1	1	1	1	1	1	1	1	1												
	<i>Anagallis alternifolia</i>	1	1	1	1	1	1	1	1	1	1	1	1												
	<i>Caltha sagittata</i>	1	1	1	1	1	1	1	1	1	1	1	1												
	<i>Alopecurus magellanicus</i>	1	1	1	1	1	1	1	1	1	1	1	1												
<i>Colobanthus quitensis</i>	1	1	1	1	1	1	1	1	1	1	1	1													
<i>Acaena magellanica</i>	1	1	1	1	1	1	1	1	1	1	1	1													
<i>Carex fuscata</i>	1	1	1	1	1	1	1	1	1	1	1	1													
<i>Perezia recurvata</i>	1	1	1	1	1	1	1	1	1	1	1	1													
<i>Cardamine glacialis</i>	1	1	1	1	1	1	1	1	1	1	1	1													
<i>Colobanthus subulatus</i>	1	1	1	1	1	1	1	1	1	1	1	1	1												
4	<i>Rostkovia magellanica</i>	1	1	1	1	1	1	1	1		1		1								1				
	<i>Taraxacum gilliesii</i>	1	1	1	1	1	1	1	1	1		1										1			
	<i>Aster vahlii</i>	1	1	1	1	1	1	1	1	1		1													
	<i>Viola tridentata</i>	1	1	1	1	1	1	1	1	1		1													
	<i>Acaena ovalifolia</i>	1	1	1	1	1	1	1	1	1	1	1	1												
	<i>Viola maculata</i>	1	1	1	1	1	1	1	1	1	1	1	1												
	<i>Oreobolus obtusangulus</i>	1	1	1	1	1	1	1	1	1	1	1	1												
	<i>Gaultheria antarctica</i>	1	1	1	1	1	1	1	1	1	1	1	1												
	<i>Asplenium dareoides</i>	1	1	1	1	1	1	1	1	1	1	1	1												
	<i>Baccharis magellanica</i>	1	1	1	1	1	1	1	1	1	1	1	1												
	<i>Lagenifera nudicaulis</i>	1	1	1	1	1	1	1	1	1	1	1	1												
<i>Gentianella magellanica</i>	1	1	1	1	1	1	1	1	1	1	1	1													
<i>Gunnera magellanica</i>	1	1	1	1	1	1	1	1	1	1	1	1													
<i>Caltha appendiculata</i>	1	1	1	1	1	1	1	1	1	1	1	1													

	Azorella lycopodioides	1	1	1	1	1	1	1	1	1	1	1
	Rubus geoides	1	1	1	1	1	1	1	1	1	1	1
	Nothofagus pumilio	1	1	1	1	1	1	1	1	1	1	1
	Nothofagus antarctica	1	1	1	1	1	1	1	1	1	1	1
	Ranunculus minutiflorus	1	1	1	1	1	1	1	1	1	1	1
	Berberis buxifolia	1	1	1	1	1	1	1	1	1	1	1
	Drimys winterii	1	1	1	1	1	1	1	1	1	1	1
	Gavilea lutea	1	1	1	1	1	1	1	1	1	1	1
	Hypochoeris incana	1	1	1	1	1	1	1	1	1	1	1
	Nassauvia darwinii	1	1	1	1	1	1	1	1	1	1	1
	Senecio trifurcatus	1	1	1	1	1	1	1	1	1	1	1
	Maytenus disticha	1	1	1	1	1	1	1	1	1	1	1
5	Misodendrum quadriflorum	1	1	1	1	1	1	1	1	1	1	1
	Misodendrum brachystachium	1	1	1	1	1	1	1	1	1	1	1
	Misodendrum linearifolium	1	1	1	1	1	1	1	1	1	1	1
	Misodendrum punctulatum	1	1	1	1	1	1	1	1	1	1	1
	Embothryum coccineum	1	1	1	1	1	1	1	1	1	1	1
	Tristagma nivale	1	1	1	1	1	1	1	1	1	1	1
	Senecio acanthifolius	1	1	1	1	1	1	1	1	1	1	1
	Adenocaulon chilense	1	1	1	1	1	1	1	1	1	1	1
	Valeriana carnosa	1	1	1	1	1	1	1	1	1	1	1
	Maytenus magellanica	1	1	1	1	1	1	1	1	1	1	1
	Astragalus palenae	1	1	1	1	1	1	1	1	1	1	1
	Berberis ilicifolia	1	1	1	1	1	1	1	1	1	1	1
	Galium fuegianum	1	1	1	1	1	1	1	1	1	1	1
	Calceolaria uniflora	1	1	1	1	1	1	1	1	1	1	1
	Azorella trifurcata	1	1	1	1	1	1	1	1	1	1	1
	Festuca contracta	1	1	1	1	1	1	1	1	1	1	1
	Azorella selago	1	1	1	1	1	1	1	1	1	1	1
	Deschampsia antarctica	1	1	1	1	1	1	1	1	1	1	1
6	Galium antarcticum	1	1	1	1	1	1	1	1	1	1	1
	Ranunculus biternatus	1	1	1	1	1	1	1	1	1	1	1
	Crassula moschata	1	1	1	1	1	1	1	1	1	1	1
	Grammitis magellanica	1	1	1	1	1	1	1	1	1	1	1
	Juncus scheuchzerioides	1	1	1	1	1	1	1	1	1	1	1
	Blechnum penna-marina	1	1	1	1	1	1	1	1	1	1	1
	Lycopodium magellanicum	1	1	1	1	1	1	1	1	1	1	1
	Tetroncium magellanicum	1	1	1	1	1	1	1	1	1	1	1
	Senecio smithii	1	1	1	1	1	1	1	1	1	1	1
	Galium aparine	1	1	1	1	1	1	1	1	1	1	1
	Ourisia ruelloides	1	1	1	1	1	1	1	1	1	1	1
	Dysopsis glechomoides	1	1	1	1	1	1	1	1	1	1	1
	Escallonia serrata	1	1	1	1	1	1	1	1	1	1	1
	Ribes magellanicum	1	1	1	1	1	1	1	1	1	1	1
7	Polystichum andinum	1	1	1	1	1	1	1	1	1	1	1
	Geum parviflorum	1	1	1	1	1	1	1	1	1	1	1
	Codonorchis lessonii	1	1	1	1	1	1	1	1	1	1	1
	Senecio candidans	1	1	1	1	1	1	1	1	1	1	1
	Empetrum rubrum	1	1	1	1	1	1	1	1	1	1	1
	Cotula scariosa	1	1	1	1	1	1	1	1	1	1	1
	Limosella australis	1	1	1	1	1	1	1	1	1	1	1
	Bolax gummifera	1	1	1	1	1	1	1	1	1	1	1
	Nanodea muscosa	1	1	1	1	1	1	1	1	1	1	1
	Littorella australis	1	1	1	1	1	1	1	1	1	1	1
	Schoenus andinum	1	1	1	1	1	1	1	1	1	1	1
	Festuca magellanica	1	1	1	1	1	1	1	1	1	1	1
	Senecio patagonicus	1	1	1	1	1	1	1	1	1	1	1
	Carex banksii	1	1	1	1	1	1	1	1	1	1	1
	Phacelia secunda	1	1	1	1	1	1	1	1	1	1	1
	Sisymbrium magellanicum	1	1	1	1	1	1	1	1	1	1	1
	Hypochoeris incana	1	1	1	1	1	1	1	1	1	1	1
	Macrachaenium gracile	1	1	1	1	1	1	1	1	1	1	1
	Gamochaeta spiciformis	1	1	1	1	1	1	1	1	1	1	1
	Baccharis patagonica	1	1	1	1	1	1	1	1	1	1	1
	Erigeron myosotis	1	1	1	1	1	1	1	1	1	1	1
8	Lathyrus magellanicum	1	1	1	1	1	1	1	1	1	1	1
	Marsippospermum grandiflorum	1	1	1	1	1	1	1	1	1	1	1
	Poa alopecurus	1	1	1	1	1	1	1	1	1	1	1
	Chilotrichum diffusum	1	1	1	1	1	1	1	1	1	1	1
	Euphrasia antarctica	1	1	1	1	1	1	1	1	1	1	1
	Plantago barbata	1	1	1	1	1	1	1	1	1	1	1
	Drapetes muscosus	1	1	1	1	1	1	1	1	1	1	1
	Stellaria debilis	1	1	1	1	1	1	1	1	1	1	1
	Hippuris vulgaris	1	1	1	1	1	1	1	1	1	1	1
	Schizeilema ranunculus	1	1	1	1	1	1	1	1	1	1	1
	Nothofagus betuloides	1	1	1	1	1	1	1	1	1	1	1
	Perezia magellanica	1	1	1	1	1	1	1	1	1	1	1
	Antennaria chilensis	1	1	1	1	1	1	1	1	1	1	1

	Geranium magellanicum	1	1	1	1		
	Draba funiculosa	1	1	1			
	Phaiophleps biflora	1	1	1			
	Hierochloa pusilla	1	1	1			
9	Leucheria purpurea	1	1	1			
	Leucheria hahnii	1	1	1			
	Pratia longiflora	1	1	1			
	Huanaca acaulis	1	1	1			
	Adesmia salicornioides	1	1	1			
	Adesmia pumila	1	1	1			
	Senecio laseguei	1	1				
	Chenopodium antarcticum	1	1				
	Calceolaria biflora	1	1	1	1	1	1
	Arjona patagonica	1	1	1	1	1	1
	Carex sorianoi	1	1	1	1	1	
	Gamochaeta nivalis	1	1	1	1	1	
	Alstroemeria patagonica	1	1	1	1	1	
	Sisyrinchium patagonicum	1	1	1	1	1	
	Senecio arnottii	1	1	1	1	1	
	Boopis australis	1	1	1	1	1	
	Hieracium antarcticum	1	1	1	1	1	
	Oxalis enneaphyllos	1	1	1	1	1	
10	Azorella caespitosa	1	1	1	1		
	Carex acaulis	1	1	1	1	1	
	Acaena antarctica	1	1	1	1	1	
	Marsippospermum reichei	1	1	1	1	1	
	Senecio kingii	1	1	1	1	1	
	Senecio miser	1	1	1	1	1	
	Satureja darwinii	1	1	1	1	1	
	Silene magellanica	1	1	1	1	1	
	Deschampsia atropurpurea	1	1	1	1		1 1
	Nassauvia abbreviata	1	1	1	1		
	Nassauvia pygmaea	1	1	1	1		
	Erigeron patagonicus	1	1	1	1		
	Adesmia lotoides	1	1	1	1		
	Carex vallis-pulchrae	1	1	1	1	1	1
	Oxalis magellanica	1	1	1	1	1	1 1
11	Carpha alpina	1	1	1	1		1 1
	Pinguicula antarctica	1	1	1	1		
	Tribeles australis	1	1	1	1		
	Cardamine geraniifolia	1	1	1	1		
	Astelia pumila	1	1	1	1	1	
	Luzuriaga marginata	1	1	1	1	1	
	Pratia repens	1	1	1	1	1	
	Scutellaria nummiflora	1	1	1	1	1	
	Azorella filamentosa	1	1	1	1	1	
	Primula magellanica	1	1	1	1	1	
	Pernettya pumila	1	1	1	1	1	
	Thlaspi magellanicum	1	1	1	1		
	Acaena pinnatifida	1	1	1	1		
	Senecio tricuspidatus	1	1	1	1		
	Calamagrostis suka	1	1	1	1		
	Luzula alopecurus	1	1	1	1		
	Deschampsia parvula	1	1	1	1		
	Agropyron pubiflorum	1	1	1	1		
12	Draba magellanica	1	1	1	1		
	Abrotanella emarginata	1	1	1	1		
	Geum magellanicum	1	1	1	1		1
	Lepidium pseudodidymum	1	1	1	1		1
	Viola commersonii	1	1	1	1		1
	Saxifragella bicuspidata	1	1	1	1		
	Carex macrosolen	1	1	1	1		
	Agropyron fuegianum	1	1	1	1		
	Puccinellia biflora	1	1	1	1		
	Festuca gracillima	1	1	1	1		
	Nassauvia magellanica	1	1	1	1		
	Senecio leucomallus	1	1	1	1		
	Senecio magellanicus	1	1	1	1		
	Ourisia breviflora	1	1	1	1		
	Ranunculus sericocephalus	1	1	1	1		
	Senecio darwinii	1	1	1	1		
	Viola magellanica	1	1	1	1		
	Hamadryas magellanica	1	1	1	1		
	Caltha dioneifolia	1	1	1	1		
	Ourisia fuegiana	1	1	1	1		

Tab. 2 - Presence-absence data of the autoctonus species collected along the transect of Fig. 1 in the following habitat-types: 1- Evergreen Forest; 2- Deciduous Forest; 3- Forest margins; 4- Humid grassland; 5- *Chilotrichum* scrub; 6- *Festuca gracillima* steppe; 7- *Empetrum rubrum* heath; 8- Mesic grassland; 9- Saline grassland; 10- Shores; 11- Riparial habitats; 12- Rock crevices; 13- Alpine habitats; 14- Bogs. The species groups are ordered according to the classification of Fig. 6.

		1	2	3	4	5	6	7	8	9	10	11	12	13	14
1	<i>Carex magellanica</i>									1		1			
	<i>Calamagrostis stricta</i>				1			1	1		1				1
	<i>Carex curta</i>									1		1			
	<i>Carex microglochin</i>									1		1			
	<i>Plantago maritima</i>													1	1
2	<i>Carex gayana</i>				1							1			
	<i>Microsteris gracilis</i>	1	1	1	1										1
	<i>Triglochin concinna</i>												1	1	1
	<i>Anemone multifida</i>	1	1	1	1	1		1							
	<i>Phleum alpinum</i>				1	1				1					
	<i>Gentiana prostrata</i>				1				1	1		1			
	<i>Armeria maritima</i>	1	1	1	1				1	1			1		1
	<i>Cerastium arvense</i>	1	1	1	1				1	1	1	1			1
	<i>Carex macloviana</i>				1					1			1		
	<i>Hierochloa redolens</i>					1	1		1	1	1				
	<i>Apium australe</i>											1			1
	<i>Scirpus cernuus</i>									1	1				
	<i>Trisetum spicatum</i>		1		1	1				1					1
	<i>Cystopteris fragilis</i>					1	1	1	1	1			1		
3	<i>Oreopolus glacialis</i>														1
	<i>Discaria chacaye</i>		1												1
	<i>Vicia magellanica</i>	1	1						1						1
	<i>Osmorhiza depauperata</i>					1			1						
	<i>Osmorhiza chilensis</i>					1									
	<i>Luzula chilensis</i>	1	1	1					1						
	<i>Perezia pilifera</i>	1									1				1
	<i>Plantago uniglumis</i>													1	
	<i>Polygala salasiana</i>	1													1
	<i>Epilobium australe</i>								1			1	1		
	<i>Ranunculus peduncularis</i>		1	1	1	1			1		1	1	1		
	<i>Berberis empetrifolia</i>														1
	<i>Geranium sessiliflorum</i>	1	1												
	<i>Urtica magellanica</i>				1				1						
	<i>Plagiobothrys calandrinoides</i>	1													1
	<i>Vicia bijuga</i>	1	1	1	1										1
	<i>Pernetia mucronata</i>				1	1	1	1	1						
	<i>Eleocharis albibracteata</i>												1		
	<i>Saxifraga magellanica</i>										1			1	
	<i>Anagallis alternifolia</i>			1	1				1			1			
<i>Caltha sagittata</i>			1	1					1	1	1				
<i>Alopecurus magellanicus</i>										1	1	1			
<i>Colobanthus quitensis</i>										1	1	1		1	
<i>Acaena magellanica</i>			1	1	1				1	1	1	1		1	
<i>Carex fuscula</i>									1		1	1			
<i>Perezia recurvata</i>	1	1									1				
<i>Cardamine glacialis</i>		1							1	1	1	1			
<i>Colobanthus subulatus</i>	1	1	1							1			1	1	
4	<i>Rostkovia magellanica</i>				1				1		1	1			
	<i>Taraxacum gilliesii</i>	1	1	1							1				1
	<i>Aster vahlii</i>			1					1	1	1				1
	<i>Viola tridentata</i>									1	1			1	
	<i>Acaena ovalifolia</i>					1			1						
	<i>Viola maculata</i>	1	1	1	1										
	<i>Oreobolus obtusangulus</i>										1	1	1		
	<i>Gaultheria antarctica</i>										1	1			
	<i>Asplenium dareoides</i>						1	1	1			1		1	
	<i>Baccharis magellanica</i>			1	1	1				1					
	<i>Lagenifera nudicaulis</i>											1			
	<i>Gentianella magellanica</i>			1	1					1			1		
<i>Gunnera magellanica</i>	1	1	1	1					1						
<i>Caltha appendiculata</i>										1					

	Azorella lycopodioides	1	1		1	1				1
	Rubus geoides	1	1	1	1	1	1	1		
	Nothofagus pumilio				1	1	1			
	Nothofagus antarctica				1	1				
	Ranunculus minutiflorus	1	1	1	1	1				1
	Berberis buxifolia	1	1	1	1				1	1
	Drimys winterii				1					
	Gavilea lutea				1					
	Hypochoeris incana	1	1		1					1
	Nassauvia darwinii	1	1							
	Senecio trifurcatus					1	1			1
	Maytenus disticha				1	1	1			
5	Misodendrum quadriflorum				1					
	Misodendrum brachystachium				1	1				
	Misodendrum linearifolium				1	1				
	Misodendrum punctulatum				1	1				
	Embothryum coccineum					1	1			
	Tristagma nivale	1								
	Senecio acanthifolius				1	1	1	1		1
	Adenocaulon chilense				1	1				
	Valeriana carmosa	1	1		1					
	Maytenus magellanica					1				
	Astragalus palenae	1	1							
	Berberis ilicifolia				1	1				
	Galium fuegianum				1			1		
	Calceolaria uniflora	1			1					
	Azorella trifurcata	1	1		1					1 1
	Festuca contracta						1	1	1	
	Azorella selago						1	1		
	Deschampsia antarctica							1		1
	Galium antarcticum				1		1		1	1
6	Ranunculus biernatus						1	1		1
	Crassula moschata									1
	Grammitis magellanica									1
	Juncus scheuchzerioides						1	1	1	
	Blechnum penna-marina	1	1	1	1	1	1	1	1	1
	Lycopodium magellanicum	1	1	1		1	1	1	1	
	Tetroncium magellanicum									1
	Senecio smithii							1	1	1
	Galium aparine	1	1		1		1		1	
	Ourisia ruelloides							1		1
	Dysopsis glechomoides				1	1	1	1	1	
	Escallonia serrata				1	1				
	Ribes magellanicum	1	1	1	1					
	Polystichum andinum							1		1
7	Geum parviflorum				1	1	1	1		
	Codonorchis lessonii				1	1	1		1	
	Senecio candidans									1
	Empetrum rubrum	1		1	1	1	1	1	1	
	Cotula scariosa							1	1	1
	Limosella australis							1		
	Bolax gummiifera						1	1		1
	Nanodea muscosa						1	1		
	Littorella australis								1	
	Schoenus andinum						1	1		
	Festuca magellanica	1		1		1	1	1		1
	Senecio patagonicus	1		1		1				1
	Carex banksii					1	1			
	Phacelia secunda							1		1
	Sisymbrium magellanicum								1	
	Hypochoeris incana	1	1		1					1
	Macraechaenium gracile				1	1				1
	Gamochaeta spiciformis				1	1		1	1	
	Baccharis patagonica				1				1	1
	Erigeron myosotis	1	1	1	1					1
8	Lathyrus magellanicum	1	1							1
	Marsippospermum grandiflorum						1	1	1	
	Poa alopecurus	1		1		1	1			1
	Chilotrichum diffusum	1		1	1	1	1			
	Euphrasia antarctica			1			1	1	1	1
	Plantago barbata						1	1	1	
	Drapetes muscosus	1				1	1	1		
	Stellaria debilis								1	1
	Hippuris vulgaris								1	
	Schizellema ranunculus	1	1	1	1	1	1	1	1	
	Nothofagus betuloides				1	1				
	Perezia magellanica				1		1	1	1	
	Antennaria chilensis	1		1						

	Geranium magellanicum	1	1	1	1				
	Draba funiculosa	1		1	1				
	Phaiophleps biflora	1		1	1				1
	Hierochloe pusilla	1							
	Leucheria purpurea	1							
9	Leucheria hahnii	1	1	1		1	1		
	Pratia longiflora			1					
	Huanaca acaulis	1		1	1				1
	Adesmia salicornioides	1	1	1	1				
	Adesmia pumila	1		1					1
	Senecio laseguei		1	1					
	Chenopodium antarcticum								1 1
	Calceolaria biflora				1	1		1	
	Arjona patagonica	1	1		1				
	Carex sorianoi								1 1
	Gamochaeta nivalis								1
	Alstroemeria patagonica	1							
	Sisyrinchium patagonicum	1	1	1	1		1		1
	Senecio arnottii	1		1	1	1	1	1	1
	Boopis australis								1
	Hieracium antarcticum						1	1	
	Oxalis enneaphylla	1	1		1				1
10	Azorella caespitosa	1	1					1	
	Carex acaulis			1					1
	Acaena antarctica				1		1	1	
	Marsippospermum reichei							1	
	Senecio kingii							1	
	Senecio miser	1	1		1				1
	Satureja darwinii	1		1					
	Silene magellanica	1	1	1	1				
	Deschampsia atropurpurea						1		
	Nassauvia abbreviata	1							
	Nassauvia pygmaea						1	1	
	Erigeron patagonicus	1					1	1	1
	Adesmia lotoides	1	1						
	Carex vallis-pulchrae							1	
11	Oxalis magellanica	1	1	1	1		1		
	Carpha alpina						1	1	1
	Pinguicula antarctica							1	
	Tribeles australis							1	
	Cardamine geraniifolia				1	1			1
	Astelia pumila						1	1	
	Luzuriaga marginata				1	1	1	1	1
	Carex atropicta		1	1		1		1	1
	Pratia repens		1	1	1	1			
	Scutellaria nummuliflora								1
	Azorella filamentosa	1		1	1		1		1
	Primula magellanica	1	1	1		1	1	1	
	Pernetia pumila	1		1	1	1	1	1	
	Thlaspi magellanicum	1	1	1		1	1	1	1
	Acaena pinnatifida	1	1	1	1				1
	Senecio tricuspidatus	1		1	1	1	1	1	1
	Calamagrostis suka						1	1	
	Luzula alopecurus	1		1			1	1	1
	Deschampsia parvula							1	
	Agropyrum pubiflorum							1	1 1
12	Draba magellanica	1	1	1	1				1
	Abrotanella emarginata						1	1	
	Geum magellanicum			1		1		1	
	Lepidium pseudodidymum			1					1
	Viola commersonii						1	1	
	Saxifragella bicuspidata							1	
	Carex macrosolen			1					1
	Agropyrum fuegianum	1							1
	Puccinellia biflora								1
	Festuca gracillima	1		1	1				1
	Nassauvia magellanica							1	
	Senecio leucomallus							1	
	Senecio magellanicus	1	1	1	1			1	
	Ourisia breviflora							1	
	Ranunculus sericocephalus						1	1	
	Senecio darwinii								1
	Viola magellanica			1	1	1			1
	Hamadryas magellanica		1	1				1	1
	Caltha dioneifolia							1	
	Ourisia fuegiana								1

APPENDIX I

List of vascular plants collected by D. Lausi & M. Tretiach (abbreviation: LT; specimens in TSB) and J. Poelt (abbreviation: P; specimens in GZU).

Abrotanella emarginata (Cass. ex Gaudich.) Gass.

- Dept. Ushuaia, Sierra Martial, above timberline, 650 m, 7.12.1987, leg. LT (4). - Dept. Ushuaia, mountains SE of Sierra Alvear, N of Hosteria Tierra Major, bog on SW facing slopes, 14.1.1989, leg. P (4).

Acaena antarctica Hooker f.

The taxonomy of the genus *Acaena* is not completely solved. In Fuegia there are probably more taxa than those reported by Moore (1983). The populations often show a pattern of local differentiations which is probably due to hybridization and self-pollination mechanisms.

- Dept. Ushuaia, steep slope North of Paso Garibaldi, in front of Laguna Escondida, humid grassland in the openings of *Nothofagus* wood, 400-500 m, 10.1.1989, leg. P (6).

Acaena lucida (Lam.) Vahl

- Dept. Rio Grande, on the coast N of Rio Grande, overgrazed grassland, 2.1.1989, leg. P (18). - Dept. Rio Grande, slopes of Cabo S. Domingo, ca. 12 km N of Rio Grande, on sandy soil, 1-30 m, 4.1.1989, leg. P (19).

Acaena magellanica (Lam.) Vahl

This seems to be the only indigenous species which is able to compete with European weeds in ruderal vegetation; no other Fuegian plant was found in such places.

- Dept. Ushuaia, Parque Nacional, Archipiélago Cormoranes, along the roadside, 10 m, 1.12.1987, leg. LT (2). - Dept. Ushuaia, coastal road from Ea. Harberton to Ea. Moat, near Cerro Moat, on the cliffs, 5.12.1987, leg. LT (9). - Dept. Rio Grande, Ea. Behety, matorral de coiron, 10.12.1987, leg. LT; revidit D.M. Moore, 6.12.1988 (13). - Dept. Rio Grande, N of Rio Grande, along the roadside in Fuegian steppe, 5-10 m, leg. P (18). - Dept. Rio Grande, ca. 7 km SW of Rio Grande, near the bridge on Rio Grande, conglomeratic calcareous rocks, E- and N-facing slopes, 10-20 m, 4.1.1989, leg. P (20). - Dept. Rio Grande, ca. 7 km south-east of Ea. Rio Apen, humid grassland, 100-150 m, leg. P (26).

Acaena ovalifolia Ruiz et Pavón

This self-compatible species with white anthers before anthesis is a characteristic species of wood margins and openings.

- Dept. Ushuaia, Parque Nacional, Archipiélago Cormoranes, on rocks along the road, 10 m, 1.12.1987, leg. LT (2). - Dept. Rio Grande, ca. 2 km E of Ea. Aurelia, old, grazed *Nothofagus antarctica* wood, 5.1.1989, leg. P (22).

Acaena pinnatifida Ruiz et Pavón

- Dept. Ushuaia, road to Hosteria Kaiken, near Lago Kami, along the roadside, 9.12.1987, leg. LT (11). - Dept. Rio Grande, on the coast north of Rio Grande, overgrazed grassland, 2.1.1989, leg. P (18).

Acaena platyacantha Speg.

Our specimens differ clearly from those of *A. pinnatifida* in having small, globose inflorescences and leaflets with only 2-3 segments, so we prefer to maintain the species rank for this taxon. Further investigations are needed in order to elucidate the taxonomy of the group.

- Dept. Rio Grande, Ea. Behety, hill eroded slopes, 10.12.1987, leg. LT (13).

Acaena sericea Jacquin f.

- Dept. Rio Grande, Bahia S. Sebastian, near the Comisaria, on the seashore, 3 m, 11.12.1987, leg. LT (15).

Adenocaulon chilense Less.

A typical wood species, frequent in the evergreen forests near the coast.

- Dept. Ushuaia, Parque Nacional, near Rio Pipo falls, *Nothofagus pumilio* wood, 2.12.1987, leg. LT (3). - Dept. Ushuaia, Parque Nacional, Cordon del Toro, *Nothofagus pumilio* wood, 6.12.1987, leg. LT (3). - Dept. Ushuaia, Parque Nacional, near and above Rio Pipo falls, mostly *Nothofagus* wood, 11.1.1989, leg. P (2).

Adesmia lotoides Hooker f.

- Dept. Rio Grande, Ea. Behety, pastizales, 10.12.1987, leg. LT (13). - Dept. Rio Grande, north of Rio Grande, along the roadside in Fuegian steppe, 5-10 m, leg. P (18).

Adesmia pumila Hooker f.

- Dept. Rio Grande, Ea. S. Julio, el Castillo, on incoherent soil among rocks (sandstone), 10.12.1987, leg. LT (14). - Dept. Rio Grande, ca. 7 km SW of Rio Grande, near the bridge on Rio Grande, conglomeratic calcareous rocks, E- and N-facing slopes, 10-20 m, 4.1.1989, leg. P (20).

Adesmia salicornioides Speg.

- Dept. Rio Grande, Ea. S. Julio, el Castillo, top of the peak, sandstone, 10.12.1987, leg. LT (14).

Agropyron fuegianum (Speg.) F. Kurtz

- Dept. Rio Grande, north of Rio Grande, along the roadside in Fuegian steppe, 5-10 m, leg. P (18).

Agropyron pubiflorum (Steudel) Parodi

- Dept. Ushuaia, coastal road from Ushuaia to Ea. Moat, near Cerro Moat, on the cliffs, 3 m, 5.12.1987, leg. LT (9). - Dept. Rio Grande, Ea. Behety, matorral de coiron, 10.12.1987, leg. LT (13). - Dept. Rio Grande, Bahia S. Sebastian, near the Comisaria, on the

seashore, 3 m, 11.12.1987, leg. LT (14). - Dept. Ushuaia, S of Ushuaia, near the town, grassland and anthropogenous vegetation, ca. 10 m, 15.1.1989, leg. P (33).

Aira praecox L.

- Dept. Ushuaia, Parque National, Bahia Lapataia, in graminoid bog, on peaty soil, 6 m, 1.12.1987, leg. LT (2).

Alopecurus aequalis Sobol

-Dept. Rio Grande, west of Ea. El Rodeo, 7.1.1989, leg. P.

Alopecurus magellanicus Lam.

- Dept. Ushuaia, Parque National, Bahia Lapataia, in graminoid bog, 1 m, 1.12.1987, leg. LT (2). - Dept. Rio Grande, ca. 7 km SW of Rio Grande, near the bridge on Rio Grande, conglomeratic calcareous rocks, NE-facing slopes, 20 m, 4.1.1989, leg. P (20).

Alstroemeria patagonica Phil.

The genus *Alstroemeria* comprises almost 40 species distributed along the Andes; in Fuegia only *A. patagonica* is present. It is characterized by a deep, richly tuberized root system; the plant is not higher than 3-4 cm.

- Dept. Rio Grande, Ea. Behety, eroded slopes of the hills, 10.12.1987, leg. LT (13).

Anagallis alternifolia Cav.

- Dept. Ushuaia, steep slope North of Paso Garibaldi, in front of Laguna Escondida, humid grassland in the openings of *Nothofagus* wood, 400-500 m, 10.1.1989, leg. P (6).

Anemone multifida Poir.

Very common in open habitats in the steppe zone or on grassy slopes of the roadsides in the forest zone.

- Dept. Ushuaia, Parque National, Archipelago Cormoranes, in the meadows, 2.12.1987, leg. LT (2). - Dept. Ushuaia, Parque National, Archipelago Cormoranes, on rocky slopes, 2.12.1987, leg. LT (2). - Dept. Rio Grande, Ea. Behety, matorral de coiron, 10.12.1987, leg. LT (13). - Dept. Rio Grande, coast N of Rio Grande, overgrazed grassland, 2.1.1989, leg. P (18).

Antennaria chilensis var. *magellanica* (Sch. Bip.) Reiche

- Dept. Rio Grande, road to Rio Grande, near Lago Hantu, along the roadside, in a xeric environment, 9.12.1987, leg. LT (12). - Dept. Rio Grande, Ea. Behety, matorral de coiron, 10.12.1987, leg. LT (13). - Dept. Rio Grande, north of Rio Grande, along the roadside in Fuegian steppe, 5-10 m, leg. P (18).

Anthoxanthum odoratum L.

- Dept. Ushuaia, coastal road to Ea. Harberton, Bahia Alnte. Brown, in the grasslands, 5 m, 5.12.1987, leg. LT (8).

Apium australe Thouars

Usually found on gravelly shores, just above highwater mark, where salinity is lowered by freshwater of creeks or small rivers.

- Dept. Ushuaia, coastal road from Ea. Harberton to Ea. Moat, near Cerro Moat, on the seashore, 1 m, 5.12.1987, leg. LT (9). - Dept. Ushuaia, Ea. Moat, ca. 4 km west of Pampa de los Indios, on the rocky coast, 0-30 m, 12.1.1989, leg. P (31).

Arjona patagonica Dcne

- Dept. Rio Grande, Ea. Behety, matorral de coiron, 10.12.1987, leg. LT (13). - Dept. Rio Grande, on the coast N of Rio Grande, overgrazed grassland, 2.1.1989, leg. P (18). - Dept. Rio Grande, N of Rio Grande, along the roadside in Fuegian steppe, 5-10 m, leg. P (18).

Armeria maritima (Miller) Willd.

A widespread species, from sea-level to the mountains, highly polymorphic, indifferent to soil conditions. For a detailed study on this species, and its morphological variations, see Moore & Yates (1974).

- Dept. Ushuaia, coastal road from Ea. Harberton to Ea. Moat, near Cerro Moat, 5.12.1987, leg. LT (9). - Dept. Rio Grande, Ea. Behety, matorral de coiron, 10.12.1987, leg. LT (13). - Dept. Rio Grande, on the coast north of Rio Grande, overgrazed grassland, 2.1.1989, leg. P (18). - Dept. Ushuaia, mountain SE Sierra Alvear, N of Hosteria Tierra Major, on rocky slopes, 14.1.1989, leg. P (4).

Asplenium dareoides Desv.

- Dept. Ushuaia, W of Brown sawmill, *Nothofagus pumilio* wood, beneath high rocks, ca. 50 m, 12.1.1989, leg. P (30).

Astelia pumila (Forster f.) Gaudich.

As many montane plants at the time of collecting was not yet flowering.

- Dept. Ushuaia, mountains SE of Sierra Alvear, north of Hosteria Tierra Major, humid grassland, ca. 700 m, 14.1.1989, leg. P (4).

Aster vahlii (Gaudich.) Hooker et Arn.

- Dept. Rio Grande, ca. 7 km SW of Rio Grande, near the bridge on Rio Grande, conglomeratic calcareous rocks, E- and N- facing slopes, 10-20 m, 4.1.1989, leg. P (20). - Dept. Rio Grande, ca. 7 km SE of Ea. Rio Apen, humid depression, with *Bolax* and *Polytrichum* cushions, 100-150 m, leg. P (26). - Dept. Ushuaia, S of Paso Garibaldi, ca. 7 km north of Rancho Hambre, ca. 500 m, wet bog in the openings of *Nothofagus* wood, 9.1.1989, leg. P (7). - Dept. Ushuaia, Ea. Moat, ca. 4 km W of Pampa de los Indios, *Nothofagus betuloides* wood, rocky coast, 0-30 m, 12.1.1989, leg. P (31).

Astragalus palenae (Phil.) Reiche

This species is limited to the northeastern part of Isla Grande, and may be locally dominant in disturbed areas.

- Dept. Rio Grande, Ea. Behety, eroded slopes of the hills, 10.12.1987, leg. LT (13). - Dept. Rio Grande, Ea. S. Julio, el Castillo, incoherent soil among rocks (sandstone),

10.12.1987, leg. LT (14). - Dept. Rio Grande, slopes of Cabo S. Domingo, ca. 12 km N of Rio Grande, sandy soil, 1-30 m, 4.1.1989, leg. P (19).

Azorella caespitosa Cav.

- Dept. Rio Grande, Ea. Behety, matorral de coiron, 10.12.1987, leg. LT (13). - Dept. Rio Grande, coast N of Rio Grande, overgrazed grassland, 2.1.1989, leg. P (18). - Dept. Rio Grande, N of Rio Grande, along the roadside in the steppe, 10 m, leg. P (18).

Azorella filamentosa Lam.

- Dept. Ushuaia, coastal road from Ea. Harberton to Ea. Moat, near Cerro Moat, 5.12.1987, leg. LT (9). - Dept. Rio Grande, Ea. Behety, matorral de coiron, 10.12.1987, leg. LT (13). - Dept. Rio Grande, on the hills ca. 6 km SW of Ea. Cauchicol, *Chilotrichum* scrub, 5.1.1989, leg. P (21). - Dept. Ushuaia, Ea. Moat, ca. 4 km W of Pampa de los Indios, *Nothofagus betuloides* wood, rocky coast, 0-30 m, 12.1.1989, leg. P (31).

Azorella lycopodioides Gaudich.

- Dept. Ushuaia, Sierra Martial, above timberline, 650 m, 7.12.1987, leg. LT (10). - Dept. Ushuaia, Hosteria Tierra Major, in the bogs, 3.12.1987, leg. LT (4). - Dept. Rio Grande, N of Rio Grande, along the roadside in Fuegian steppe, 5-10 m, leg. P (18). - Dept. Rio Grande, ca. 3 km E of Ea. Despedida (WSW Rio Grande), windy ridges, 6.1.1989, leg. P (23). - Dept. Ushuaia, mountain SE of Sierra Alvear, N of Hosteria Tierra Major, bog on SW facing slopes, 14.1.1989, leg. P (4). - Dept. Ushuaia, Sierra Alvear, near Acrosilla, above timberline, 700-1000 m, 17.1.1989, leg. P (10).

Azorella selago Hooker f.

- Dept. Ushuaia, on the peaks near Paso Garibaldi, hanging moor, ca. 500 m, 4.12.1987, leg. LT (6). - Dept. Ushuaia, mountains SE of Sierra Alvear, N of Hosteria Tierra Major, bog on SW facing slopes, 14.1.1989, leg. P (4). - Dept. Ushuaia, Sierra Alvear, near Acrosilla, above the timberline, in a bog, 700-1000 m, 17.1.1989, leg. P (10).

Azorella trifurcata (Gaertner) Hooker f.

- Dept. Ushuaia, coastal road from Ea. Harberton to Ea. Moat, near Cerro Moat, 5.12.1987, leg. LT (9). - Dept. Rio Grande, Ea. Behety, matorral de coiron, 10.12.1987, leg. LT (13). - Dept. Rio Grande, N of Rio Grande, along the roadside in Fuegian steppe, 5-10 m, leg. P (18).

Baccharis magellanica (Lam.) Pers.

A widespread species in the Fuegian region.

- Dept. Ushuaia, Parque Nacional, Archipiélago Cormoranes, scrub community, 10 m, 1.12.1987, leg. LT (2). - Dept. Rio Grande, Ea. Behety, matorral de coiron, 10.12.1987, leg. LT (13). - Dept. Rio Grande, on the hills ca. 6 km SW of Ea. Cauchicol, *Chilotrichum* scrub, 5.1.1989, leg. P (21).

Baccharis patagonica Hook. et Arnold ssp. *patagonica*

- Dept. Rio Grande, near Hosteria Kaiken, at Lago Fagnano, 9.1.1989, leg. P (11).

***Bellis perennis* L.**

This species seems to be intensely spreading, especially in the areas near the coast.

- Dept. Ushuaia, Parque Nacional, Bahía Lapataia, in the meadows near the sea, 3 m, 1.12.1987, leg. LT (2).

***Berberis buxifolia* Lam.**

- Dept. Ushuaia, lower course of Rio Pipo, margins of *Nothofagus pumilio* woods, ca. 10 m, 30.11.1987, leg. LT (1). - Dept. Rio Grande, along the roadside N of Rio Grande, 5-10 m, leg. P (18). - Dept. Rio Grande, ca. 7 km SE of Ea. Rio Apen, in an old *Nothofagus antarctica* wood, 100-150 m, leg. P (26). - Dept. Rio Grande, steep slope N of Paso Garibaldi, in front of Laguna Escondida, humid grassland in the openings of mixed *Nothofagus* wood with big siliceous boulders, 400-500 m, 10.1.1989, leg. P (6). - Dept. Ushuaia, ca. 4 km E of Pampa de los Indios, in *Nothofagus betuloides* wood, on slopes, 20-50 m, 12.1.1989, leg. P (32).

***Berberis empetrifolia* Lam.**

This species grows on sandy soil, on dunes near the coast or on old terraces in the inland.

- Dept. Ushuaia, coastal road from Ushuaia to Ea. Harberton, Bahía Alnte. Brown, sand dune near Canal Beagle, 10 m, 5.12.1987, leg. LT (8). - Dept. Rio Grande, N of Rio Grande, along the roadside in Fuegian steppe, 5-10 m, leg. P (18). - Dept. Rio Grande, along the roadside N of Rio Grande, 5-10 m, leg. P (18).

***Berberis ilicifolia* L. f.**

- Dept. Ushuaia, from Paso Garibaldi to Rancho Hambre, in a clearance of *Nothofagus betuloides* wood, ca. 200 m, 4.12.1987, leg. LT (7). - Dept. Ushuaia, Parque Nacional, Bahía Ensenada, coastal evergreen forest, 10 m, 2.12.1987, leg. LT (2). - Dept. Ushuaia, W of Brown sawmill, in a *Nothofagus pumilio* wood, beneath high rocks, ca. 50 m, 12.1.1989, leg. P (30).

***Blechnum penna-marina* (Poiret) Kuhn**

This species, very common in the *Nothofagus* forests in the mountain region and along the W coast, is rare and sparse in the wood communities in the Eastern region of Fuegia.

- Dept. Ushuaia, Parque Nacional, near Rio Pipo falls, on the floor of mixed woods, 2.12.1987, leg. LT (3). - Dept. Ushuaia, Parque Nacional, above Lago Rocha, towards Cordon del Toro, in *Nothofagus pumilio* woods, 6.12.1987, leg. LT (3). - Dept. Rio Grande, ca. 7 km SE of Ea. Rio Apen, in humid depressions, in *Bolax*- and *Polytrichum*-cushions, 100-150 m, leg. P (26).

***Bolax gummifera* (Lam.) Sprengel**

- Dept. Ushuaia, Hosteria Tierra Major, in a bog, 3.12.1987, leg. LT (4). - Dept. Ushuaia, Sierra Martial, at timberline, *Nothofagus antarctica* scrub, 580 m, 7.12.1987, leg. LT (10). - Dept. Rio Grande, N of Rio Grande, along the roadside in Fuegian steppe, 5-10

m, leg. P (18). - Dept. Ushuaia, Sierra Alvear, near Acrosilla, above timberline, cushion-vegetation, 700-1000 m, leg. P (10).

Boopis australis Dcne

Collected only once, but locally common.

- Dept. Rio Grande, Bahía S. Sebastian, near the Comisaria, along the seashore, on sand and pebbles, 11.12.1987, leg. LT (15).

Calamagrostis stricta (Timm) Koeler

- Dept. Ushuaia, coastal road from Ea. Harberton to Ea. Moat, near Cerro Moat, on the seashore, 5 m, 5.12.1987, leg. LT (9).

Calamagrostis suka Speg.

- Dept. Rio Grande, ca. 7 km rSE of Ea. Rio Apen, humid depression, with *Bolax* and *Polytrichum* cushions, 100-150 m, leg. P (26).

Calceolaria biflora Lam.

This species was seen several times in the deciduous forests of *Nothofagus antarctica*.

- Dept. Rio Grande, on the hills ca. 6 km SW of Estancia Cauchicol, *Chilotrichum* scrub, 5.1.1989, leg. P (21).

Calceolaria uniflora Lam.

- Dept. Rio Grande, Ea. Behety, pastizales, 10.12.1987, leg. LT (13). - Dept. Rio Grande, N of Rio Grande, along the roadside in Fuegian steppe, 5-10 m, leg. P (18).

Caltha appendiculata Pers.

- Dept. Ushuaia, Sierra Alvear, Hosteria Tierra Major, hangmoore, 330 m, 3.12.1987, leg. LT (4). - Dept. Ushuaia, ca. 12 km W of Rancho Hambre, in a *Sphagnum-Empetrum* bog, ca. 200 m, 10.1.1989, leg. P (29). - Dept. Ushuaia, mountain SE of Sierra Alvear, N of Hosteria Tierra Major, bog on SW facing slopes, 14.1.1989, leg. P (4).

Caltha dioneifolia Hooker f.

It often grows together with the previous species; we did not find their hybrid (*C. x goodalliana* T. Dudley).

- Dept. Ushuaia, Sierra Alvear, from Hosteria Tierra Major, hangmoore, 330 m, 3.12.1987, leg. LT (4). - Dept. Ushuaia, Sierra Alvear, near Acrosilla, above timberline, in a bog, 700-1000 m, 17.1.1989, leg. P (10).

Caltha sagittata Cav.

This species characterizes many Fuegian communities of wet places.

- Dept. Ushuaia, bogs of Hosteria Tierra Major, 3.12.1987, leg. LT (4). - Dept. Rio Grande, in humid depressions between the hills, ca. 6 km SW of Ea. Cauchicol, 5.1.1989, leg. P (21). - Dept. Rio Grande, ca. 7 km SE of Ea. Rio Apen, in humid depressions, with *Bolax* and *Polytrichum* cushions, 100-150 m, leg. P (26). - Dept. Ushuaia, Sierra Alvear, near Acrosilla, above timberline, in the bogs, 700-1000 m, 17.1.1989, leg. P (10).

Cardamine geranifolia (Poiret) DC.

This species is linked to the evergreen forest vegetation, but we saw it also along creeks in open areas.

- Dept. Ushuaia, coastal road from Ea. Harberton to Ea. Moat, near Cerro Moat, along a creek, 5.12.1987, leg. LT (9).

Cardamine glacialis (Forster f.) DC.

A very variable species.

- Dept. Ushuaia, Parque Nacional, near Rio Pipo falls, mixed *Nothofagus* wood, 2.12.1987, leg. LT (3). - Dept. Rio Grande, steep slope N of Paso Garibaldi, in front of Laguna Escondida, on siliceous boulders, 400-500 m, 10.1.1989, leg. P(6). - Dept. Ushuaia, south of Ushuaia, near the town, grassland and anthropogenous vegetation, ca. 10 m, 15.1.1989, leg. P (33).

Carex acaulis D'Urv.

- Dept. Rio Grande, Ea. El Rodeo, 7.1.1989, leg. P

Carex andina var. *subabscondita* Kuekenenthal

This species, present in the steppe of S.ta Cruz and Chubut (Correa, 1969), is rather frequent in the coironales of Isla Grande but it is not reported in the Flora of Moore (1983). Our specimens were identified by Prof. Collantes (INTA, Buenos Aires).

- Dept. Rio Grande, Ea. Behety, pastizales, 10.12.1987, leg. LT (13).

Carex atropicta Steudel

- Dept. Rio Grande, ca. 7 km SE of Ea. Rio Apen, humid depression, with *Bolax* and *Polytrichum* cushions, 100-150 m, leg. P (26). - Dept. Ushuaia, S of Ushuaia, near the town, grassland and anthropogenous vegetation, ca. 10 m, 15.1.1989, leg. P (33).

Carex banksii Boott

- Dept. Ushuaia, from Paso Garibaldi towards Laguna Escondida, along the road, in a little creek, ca. 300 m, 4.12.1987, leg. LT (6). - Dept. Ushuaia, coastal road from Ea. Harberton to Ea. Moat, near Cerro Moat, along a creek, 5.12.1987, leg. LT (9). - Dept. Ushuaia, steep slope N of Paso Garibaldi, in front of Laguna Escondida, humid grassland beneath siliceous boulders, 400-500 m, 10.1.1989, leg. P (6). - Dept. Ushuaia, Ea. Moat, ca. 4 km W of Pampa de los Indios, *Nothofagus betuloides* wood, rocky coast, 0-30 m, 12.1.1989, leg. P (31).

Carex curta Gooden.

- Dept. Ushuaia, Sierra Alvear, from Hosteria Tierra Major, hangbog, beneath the cliffs, ca. 330 m, 3.12.1987, leg. LT (4). - Dept. Rio Grande, ca. 7 km SE of Ea. Rio Apen, humid depression, with *Bolax* and *Polytrichum* cushions, 100-150 m, leg. P (26).

Carex fuscula D'Urv.

- Dept. Ushuaia, mountain SE Sierra Alvear, N of Hosteria Tierra Major, humid grassland, 14.1.1989, leg. P (4).

Carex gayana Desv.

- Dept. Rio Grande, in humid depressions of the hills, ca. 6 km SW of Ea. Cauchicol, 5.1.1989, leg. P (21). - Dept. Rio Grande, ca. 7 km SE of Ea. Rio Apen, humid depression, with *Bolax* and *Polytrichum* cushions, 100-150 m, leg. P (26). - Dept. Ushuaia, about 12 km W of Rancho Hambre, in a *Sphagnum-Empetrum* bog, ca. 200 m, 10.1.1989, leg. P (29).

Carex macloviana D'Urv.

- Dept. Rio Grande, Ea. Behety, matorral de coiron, 10.12.1987, leg. LT (13). - Dept. Ushuaia, mountain SE of Sierra Alvear, N of Hosteria Tierra Major, humid grassland, 14.1.1989, leg. P (4).

Carex macrosolen Steudel

- Dept. Ushuaia, Parque National, Bahia Lapataia, wet grassland, 5 m, 1.12.1987, leg. LT (2).

Carex magellanica subsp. *magellanica* Lam.

- Dept. Ushuaia, Parque National, Bahia Lapataia, wet meadow, 5 m, 1.12.1987, leg. LT (2). - Dept. Rio Grande, 1 km SE of Lago Hantu, *Nothofagus* wood, 8.1.1989, leg. P (12). - Dept. Rio Grande, wet bog near Lago Verde, 9.1.1989, leg. P.

Carex microglochin Wahlenb.

- Dept. Ushuaia, ca. 12 km W of Rancho Hambre, in a *Sphagnum-Empetrum* bog, ca. 200 m, 10.1.1989, leg. P (29).

Carex sorianoi Barros

- Dept. Rio Grande, slopes of Cabo S. Domingo, ca. 12 km N of Rio Grande, sandy soil, 1-30 m, 4.1.1989, leg. P (19).

Carex vallis-pulchra Phil.

- Dept. Ushuaia, Parque National, Bahia Lapataia, in a wet meadow, 1.12.1987, leg. LT (2). - Dept. Ushuaia, Parque National, Sierra Alvear, Hosteria Tierra Major, in wet meadows beneath the rocks, ca. 330m, 3.12.1987, leg. LT (4). - Dept. Rio Grande, in humid depressions of the hills, ca. 6 km SW of Ea. Cauchicol, 5.1.1989, leg. P (21).

Carpha alpina var. *schoenoides* (Banks & Sol. ex Hooker f.) Kuek.

- Dept. Ushuaia, mountains SE of Sierra Alvear, N of Hosteria Tierra Major, bog on SW facing slopes, 14.1.1989, leg. P (4).

Cerastium arvense L.

This plant seems to be very widely distributed from sea level to the alpine region.

- Dept. Ushuaia, Parque National, along Rio Pipo, near the falls, on gravel along the banks, 2.12.1987, leg. LT (3). - Dept. Ushuaia, coastal road from Ea. Harberton to Ea. Moat, near Cerro Moat, grassland, 5.12.1987, leg. LT (9). - Dept. Rio Grande, N of Rio

Grande, along the roadside, 5-10 m, leg. P (18). - Dept. Rio Grande, ca. 7 km SW of Rio Grande, near the bridge on Rio Grande, conglomeratic calcareous rocks, E- and N-facing slopes, 10-20 m, 4.1.1989, leg. P (20). - Dept. Ushuaia, mountains SE of Sierra Alvear, N of *Hosteria Tierra Major*, rocky slopes, 14.1.1989, leg. P (4).

Chenopodium antarcticum (Hooker f.) Bentham & Hooker f.

- Dept. Rio Grande, WSW of Rio Grande, Rio Meleanan, 6.1.1989, leg. P.

Chiliotrichum diffusum (Forster f.) O. Kuntze

The ecological amplitude of this species is rather broad; it grows in different habitats such as bogs, stream-sides, forest margins and steppe communities.

- Dept. Ushuaia, lower course of Rio Pipo, 20 m, 30.12.1987, leg. LT (1). - Dept. Ushuaia, Parque Nacional, Archipelago Cormoranes, scrub community, 10 m, 1.12.1987, leg. LT (2). - Dept. Ushuaia, coastal road from Ea. Harberton to Ea. Moat, near Cerro Moat, along the seashore, 5.12.1987, leg. LT (9). - Dept. Rio Grande, N of Rio Grande, along the roadside in Fuegian steppe, 5-10 m, leg. P (18). - Dept. Ushuaia, south of Ushuaia, near the town, grassland and anthropogenous vegetation, ca. 10 m, 15.1.1989, leg. P (33).

Codonorchis lessonii (D'Urv.) Lindley

A characteristic species of subantarctic woods, sometimes present also in open communities, such as cushion bogs or dwarf shrub heath, on wet soil.

- Dept. Ushuaia, Parque Nacional, near the Rio Pipo falls, 2.12.1987, leg. LT (3). - Dept. Ushuaia, Parque Nacional, Bahia Ensenada, coastal evergreen forest, 10 m, 6.12.1987, leg. LT (2). - Dept. Ushuaia, ca. 12 km W of Rancho Hambre, *Sphagnum-Empetrum* bog, ca. 200 m, 10.1.1989, leg. P (29). - Dept. Ushuaia, steep slope N of Paso Garibaldi, in front of Laguna Escondida, *Nothofagus* wood with big siliceous boulders, 400-500 m, 10.1.1989, leg. P (6).

Colobanthus quitensis (Kunth) Bartl.

The only phanerogamic species, with *Deschampsia antarctica*, present in the Antarctic continent. It has the largest range among all the *Colobanthus* species and is self-compatible and usually self-pollinated.

- Dept. Rio Grande, ca. 7 km SW of Rio Grande, near the bridge on Rio Grande, conglomeratic calcareous rocks, E- and N- facing slopes, 10-20 m, 4.1.1989, leg. P (20). - Dept. Rio Grande, on the hills ca. 6 km SW of Ea. Cauchicol, *Chiliotrichum* scrub, 5.1.1989, leg. P (21).

Colobanthus subulatus (D'Urv.) Hooker f.

- Dept. Rio Grande, Ea. Behety, in the pastizales, 10.12.1987, leg. LT (10). - Dept. Rio Grande, on the coast N of Rio Grande, overgrazed grassland, 2.1.1989, leg. P (18). - Dept. Rio Grande, N of Rio Grande, along the roadside across the Fuegian steppe, 5-10 m, leg. P (18).

Convolvulus arvensis L.

This species was seen as a weed in the town of Ushuaia, but not collected; it is not recorded in the Flora of Moore (1983a).

Coronopus didymus (L.) Sm.

- Dept. Rio Grande, along the roadside N of Rio Grande, 5-10 m, leg. P (18).

Cotula scariosa (Cass.) Franchet

- Dept. Ushuaia, near Laguna Escondida, Bronzovich sawmill, in the grassland, 4.12.1987, leg. LT (5). - Dept. Rio Grande, 1 km SE of Lago Hantu, *Nothofagus* wood, 8.1.1989, leg. P (28).

Crassula moschata Forster f.

Locally abundant, mainly on rocks near the shores.

- Dept. Ushuaia, coastal road from Ea. Harberton to Ea. Moat, near Cerro Moat, coastal cliffs, 5.12.1987, leg. LT (9). - Dept. Ushuaia, Ea. Moat, ca. 4 km W of Pampa de los Indios, *Nothofagus betuloides* wood, rocky coast, 0-30 m, 12.1.1989, leg. P (31).

Cystopteris fragilis (L.) Bernh.

- Dept. Ushuaia, lower course of Rio Pipo, *Nothofagus pumilio* forest, on rocks, ca. 20 m, 30.11.1987, leg. LT (1). - Dept. Ushuaia, Parque Nacional, near the Hosteria, *Nothofagus pumilio* forest, on rocks, 2.12.1987, leg. LT (3). - Dept. Rio Grande, road towards Rio Grande, near Lago Hantu, grazed *Nothofagus antarctica* woods, 9.12.1987, leg. LT (12). - Dept. Rio Grande, steep slope N of Paso Garibaldi, in front of Laguna Escondida, humid grassland in the openings of *Nothofagus* wood with big siliceous boulders, 400-500 m, 10.1.1989, leg. P(6).

Deschampsia antarctica Desv.

- Dept. Ushuaia, W of Brown sawmill, *Nothofagus pumilio* wood, beneath high rocks, ca. 50 m, 12.1.1989, leg. P (30). - Dept. Rio Grande, slopes of Cabo S. Domingo, ca. 12 km N of Rio Grande, sandy soil, 1-30 m, 4.1.1989, leg. P (19).

Deschampsia atropurpurea (Wahlenb.) Scheele

- Dept. Ushuaia, below Paso Garibaldi, ca. 7 km N of Rancho Hambre, ca. 500 m, wet bog in the openings of *Nothofagus* wood, 9.1.1989, leg. P (7).

Deschampsia parvula (Hooker f.) Desv.

- Dept. Ushuaia, Hosteria Tierra Major, *Nothofagus pumilio* wood, on a crashed tree, 3.12.1987, leg. LT (4).

Descurainia sophia (L.) Webb. ex Prantl

Ruderal plant, introduced from Europe, abundant in disturbed areas of the steppe zone. - Dept. Rio Grande, ca. 7 km SW of Rio Grande, near the bridge on Rio Grande, on the roadside, 10-20 m, 4.1.1989, leg. P (20).

Discaria chacaye (G.Don) Tort. ex D.M.Moore

- Dept. Rio Grande, Ea. S. Julio, el Castillo, on incoherent soil between the rocks (sandstone), 10.12.1987, leg. LT (14).

Draba funiculosa Hooker f.

This species seems to be quite rare; only single plants were found.

- Dept. Rio Grande, ca. 3 km east of Ea. Despedida (WSW Rio Grande), windy ridges, 6.1.1989, leg. P (8). - Dept. Ushuaia, mountain SE of Sierra Alvear, N of Hosteria Tierra Major, humid grassland, 14.1.1989, leg. P (4).

Draba magellanica Lam.

A very variable plant, growing in different habitats.

- Dept. Ushuaia, Parque National, Archipiélago Cormoranes, on the slopes along the road, 10 m, 1.12.1987, leg. LT (2). - Dept. Ushuaia, Paso Garibaldi, in fissures of the rocks, 430 m, 4.12.1987, leg. LT (6). - Dept. Ushuaia, Parque National, Bahía Ensenada, evergreen forest, 6.12.1987, leg. LT (2). - Dept. Rio Grande, N of Rio Grande, along the roadside in the Fuegian steppe, 5-10 m, leg. P (18). - Dept. Rio Grande, slopes of Cabo S. Domingo, ca. 12 km N of Rio Grande, sandy soil, 1-30 m, 4.1.1989, leg. P (19). - Dept. Rio Grande, ca. 3 km east of Ea. Despedida (WSW Rio Grande), windy ridges, 6.1.1989, leg. P (23). - Dept. Rio Grande, steep slope N of Paso Garibaldi, in front of Laguna Escondida, humid grassland in the openings of *Nothofagus* wood with big siliceous boulders, 400-500 m, 10.1.1989, leg. P(6). - Dept. Ushuaia, W of Brown sawmill, *Nothofagus pumilio* wood, beneath high rocks, ca. 50 m, 12.1.1989, leg. P (30). - Dept. Ushuaia, mountain SE Sierra Alvear, N of Hosteria Tierra Major, rocky slopes, 14.1.1989, leg. P (4).

Drapetes muscosus Banks ex Lam.

- Dept. Ushuaia, Sierra Alvear, Hosteria Tierra Major, hangmoore, 3.12.1987, leg. LT (4). - Dept. Ushuaia, below Paso Garibaldi, ca. 7 km N of Rancho Hambre, ca. 500 m, wet bog in the openings of *Nothofagus* wood, 9.1.1989, leg. P (7). - Dept. Ushuaia, mountains SE of Sierra Alvear, N of Hosteria Tierra Major, bog on SW facing slopes, 14.1.1989, leg. P (4).

Drimys winteri Forster et Forster f.

- Dept. Ushuaia, Parque National, Bahía Ensenada, in coastal evergreen forest, 6.12.1987, leg. LT (2). - Dept. Ushuaia, E of Pampa de los Indios, in coastal evergreen forest, 50 m, 12.1.1989, leg. P (32).

Dysopsis glechomoides (A.Richard) Muell. Arg.

This species seems to prefer closed, humid stands; it was often the only plant growing in the understory of old, senescent *Nothofagus pumilio* woods, on peaty soil.

- Dept. Ushuaia, Parque National, near Rio Pipo falls, closed *Nothofagus pumilio* forest, 2.12.1987, leg. LT (3). - Dept. Ushuaia, S of Paso Garibaldi, ca. 7 km N of Rancho Hambre, ca. 500 m, wet bog in the openings of mixed *Nothofagus* wood, 9.1.1989, leg. P (7). - Dept. Ushuaia, Parque National de la Tierra del Fuego, road to Cerro Pampa Alta, open *Nothofagus pumilio* wood and *Chilietrichum* scrub, 150-300 m, 13.1.1989, leg. P (2).

Eleocharis albibracteata (D'Urv.) C.B.Clark

- Dept. Rio Grande, in humid depressions of the hills, ca. 6 km SW of Ea. Cauchicol, 5.1.1989, leg. P (21).

Embothrium coccineum Forster et Forster f.

A forest-margin tree, locally abundant along the coast region.

- Dept. Ushuaia, Parque Nacional, Archipiélago Cormoranes, open slopes along the road, 10 m, 1.12.1987, leg. LT (2). - Dept. Ushuaia, E of Pampa de los Indios, coastal evergreen forest, 50 m, 12.1.1989, leg. P (32).

Empetrum rubrum Vahl ex Willd.

An extremely common plant from the steppe region to Beagle Channel.

- Dept. Ushuaia, lower course of Rio Pipo, 20 m, 30.12.1987, leg. LT (1). - Dept. Ushuaia, Parque Nacional, between Archipiélago Cormoranes and Lapataia, *Sphagnum* bog, 10 m, 1.12.1987, leg. LT (2). - Dept. Rio Grande, Ea. Behety, matorral de coiron, 10.12.1987, leg. LT (13). - Dept. Rio Grande, N of Rio Grande, along the roadside, 5-10 m, leg. P (18).

Epilobium australe Poeppig et Hausskn.

Often seen in disturbed habitats of the forest zone.

- Dept. Ushuaia, road from Paso Garibaldi towards Lauguna Escondida, on the slopes along the road, 300 m, 4.12.1987, leg. LT (5). - Dept. Ushuaia, steep slope N of Paso Garibaldi, in front of Laguna Escondida, humid grassland in the openings of *Nothofagus* wood, 400-500 m, 10.1.1989, leg. P (6).

Erigeron myosotis Pers.

Fuegian *Erigerons* are rather difficult to identify; the plants are very variable, especially as far as their size is concerned.

- Dept. Rio Grande, on the coast N of Rio Grande, overgrazed grassland, 2.1.1989, leg. P (18).

Erigeron patagonicus Phil.

- Dept. Rio Grande, ca. 3 km E of Ea. Despedida (WSW Rio Grande), windy ridges, 6.1.1989, leg. P (23). - Dept. Ushuaia, Ea. Moat, ca. 4 km W of Pampa de los Indios, *Nothofagus betuloides* wood, rocky coast, 0-30 m, 12.1.1989, leg. P (31). - Dept. Ushuaia, mountain SE Sierra Alvear, N of Hosteria Tierra Major, rocky slopes, 14.1.1989, leg. P (4). - Dept. Ushuaia, S of Ushuaia, near the town, grassland and anthropogenous vegetation, ca. 10 m, 15.1.1989, leg. P (33).

Escallonia serrata Sm.

- Dept. Ushuaia, Parque Nacional, Rio Pipo falls, along the river banks, 2.12.1987, leg. LT (3). - Dept. Ushuaia, coastal road from Ea. Harberton to Ea. Moat, near Cerro Moat, evergreen forest, on the cliffs, 5 m, 5.12.1987, leg. LT (9). - Dept. Ushuaia, E of Pampa de los Indios, coastal evergreen forest, 50 m, 12.1.1989, leg. P (32).

Euphrasia antarctica Bentham

The plants which we have collected were always very small, and were growing in very small colonies.

- Dept. Rio Grande, ca. 7 km SE of Ea. Rio Apen, humid depression, with *Bolax* and *Polytrichum* cushions, 100-150 m, leg. P (26). - Dept. Ushuaia, mountain SE Sierra Alvear, N of Hosteria Tierra Major, hang-bog on SW facing slopes, 14.1.1989, leg. P (4).

Festuca contracta Kirk

- Dept. Ushuaia, Sierra Alvear, above timberline, in a cushion of *Bolax*, 630 m, 7.12.1987, leg. LT (4).

Festuca gracillima Hooker f.

- Dept. Rio Grande, Ea. Behety, matorral de coiron, 10.12.1987, leg. LT (13).

Festuca magellanica Lamarck

- Dept. Ushuaia, coastal road from Ea. Harberton to Ea. Moat, near Cerro Moat, on cliffs near the sea, 5.12.1987, leg. LT (9).

Festuca pyrogea var. *pyrogea* Spegazzini

- Dept. Rio Grande, road from Ushuaia to Rio Grande, near Lago Hantu, grazed *Nothofagus antarctica* wood, 9.12.1987, leg. LT (12). - Dept. Rio Grande, Ea. Behety, matorral de coiron, 10.12.1987, leg. LT (13).

Galium antarcticum Hooker f.

- Dept. Rio Grande, road towards Rio Grande, near Lago Hantu, grazed *Nothofagus antarctica* wood, 9.12.1987, leg. LT (12). - Dept. Rio Grande, Ea. Behety, *Chiliotrichum* scrub, 10.12.1987, leg. LT (13). - Dept. Rio Grande, slopes of Cabo S. Domingo, ca. 12 km N of Rio Grande, on sandy soil, 1-30 m, 4.1.1989, leg. P (19).

Galium aparine L.

- Dept. Ushuaia, coastal road from Ea. Harberton to Ea. Moat, near Cerro Moat, scrub along the seashore, 3 m, 5.12.1987, leg. LT (9).

Galium fuegianum Hooker f.

- Dept. Ushuaia, Parque Nacional, Cordon del Toro slopes, above Lago Roca, burned *Nothofagus pumilio* wood, 6.12.1987, leg. LT (3). - Dept. Ushuaia, W of Brown sawmill, *Nothofagus pumilio* wood, beneath high rocks, ca. 50 m, 12.1.1989, leg. P (30).

Gamochaeta nivalis Cabrera

The determination of Fuegian *Gamochaeta* seems to be rather difficult. *Gamochaeta nivalis* is in fact very similar to reduced forms of *G. spiciformis*, and in some cases the two species cannot be distinguished.

- Dept. Rio Grande, ca. 3 km E of Ea. Despedida (WSW Rio Grande), windy ridges, 6.1.1989, leg. P (23). - Dept. Rio Grande, ca. 7 km SE of Ea. Rio Apen, humid depression, with *Bolax* and *Polytrichum* cushions, 100-150 m, leg. P (26).

Gamochaeta spiciformis (Sch. Bip.) Cabrera

- Dept. Ushuaia, Parque National, near Rio Pipo falls, *Nothofagus pumilio* wood, 2.12.1987, leg. LT (3). - Dept. Ushuaia, Paso Garibaldi, incoherent soil of the roadside, 430 m, 4.12.1987, leg. LT (6).

Gaultheria antarctica Hooker f.

We have probably often overlooked this species because of its similarity with *Pernettya pumila*.

- Dept. Ushuaia, below Paso Garibaldi, ca. 7 km N of Rancho Hambre, ca. 500 m, wet bog in the openings of *Nothofagus* wood, 9.1.1989, leg. P (7).

Gavilea littoralis (Phil.) Correa

This species seems to flower later than *G. lutea*, but they live in the same habitats, mainly evergreen woods at low elevation, near the coast.

- Dept. Ushuaia, ca. 4 km E of Pampa de los Indios, *Nothofagus betuloides* wood, on slopes, 20-50 m, 12.1.1989, leg. P (32). - Dept. Ushuaia, Parque National, rocky coast of Bahia Lapataia, 0-5 m, 13.1.1989, leg. P (2).

Gavilea lutea (Pers.) Correa

- Dept. Ushuaia, Parque National, Cordon del Toro slopes, above Lago Rocha, burned *Nothofagus pumilio* wood, 6.12.1987, leg. LT (3). - Dept. Ushuaia, Parque National, Bahia Ensenada, coastal evergreen forest, 7.12.1987, leg. LT (2).

Gentiana prostrata Haenke

- Dept. Rio Grande, in humid depressions of the hills, ca. 6 km SW of Ea. Cauchicol, 5.1.1989, leg. P (21).

Gentianella magellanica (Gaudich.) Fabris ex D.M. Moore

A widespread species in the region; most populations have the characteristic violaceous flowers, one population has only white flowers.

- Dept. Rio Grande, N of Rio Grande, along the roadside in Fuegian steppe, 5-10 m, leg. P (18). - Dept. Ushuaia, mountains SE of Sierra Alvear, N of Hosteria Tierra Major, humid grassland, 14.1.1989, leg. P (4).

Geranium magellanicum Hooker f.

- Dept. Rio Grande, ca. 7 km SW of Rio Grande, near the bridge on Rio Grande, conglomeratic calcareous rocks, E- and N-facing slopes, 10-20 m, 4.1.1989, leg. P (20).

Geranium sessiliflorum Cav.

- Dept. Rio Grande, Ea. Behety, eroded slopes of the hills, 10.12.1987, leg. LT (13). - Dept. Rio Grande, on the hills ca. 6 km SW of Estancia Cauchicol, *Chiliotrichum* scrub, 5.1.1989, leg. P (21).

Geum magellanicum Comm. ex Pers.

- Dept. Ushuaia, coastal road from Ea. Harberton to Ea. Moat, near Cerro Moat, on the seashore, 2 m, 5.12.1987, leg. LT (9). - Dept. Rio Grande, ca. 3 km E of Ea. Despedida (WSW Rio Grande), *Nothofagus antarctica* wood, 6.1.1989, leg. P (23).

Geum parviflorum Comm. ex Sm.

This small plant often grows on mosses in closed *Nothofagus* woods, or along the creeks.

- Dept. Ushuaia, Sierra Alvear, Hosteria Tierra Major, along a creek, in the mosses, *Nothofagus pumilio* forest, 3.12.1987, leg. LT (4). - Dept. Ushuaia, below Paso Garibaldi, ca. 7 km N of Rancho Hambre, ca. 500 m, wet bog in the openings of *Nothofagus* wood, 9.1.1989, leg. P (7).

Grammitis magellanica Desv.

Typical plant of siliceous rocks, sometimes also epiphytic, very variable in size.

- Dept. Ushuaia, lower course of Rio Pipo, in rock crevices, 20 m, 30.12.1987, leg. LT (1). - Dept. Ushuaia, Sierra Alvear, from Hosteria Tierra Major, humid cliffs near the fall, 3.12.1987, leg. LT (4). - Dept. Ushuaia, Paso Garibaldi, rocks of the peak, in niches, 480 m, 4.12.1987, leg. LT (6). - Dept. Rio Grande, steep slope N of Paso Garibaldi, in front of Laguna Escondida, humid grassland in the openings of *Nothofagus* wood with big siliceous boulders, 400-500 m, 10.1.1989, leg. P (6). - Dept. Ushuaia, Sierra Alvear, near Acrosilla, above timberline, in rock crevices, 700-1000 m, 17.1.1989, leg. P (10).

Gunnera magellanica Lam.

A common species, growing on peaty, humid soil.

- Dept. Ushuaia, below Paso Garibaldi, ca. 7 km N of Rancho Hambre, ca. 500 m, in the bogs in the openings of *Nothofagus* wood, 9.1.1989, leg. P (7). - Dept. Ushuaia, Parque Nacional de la Tierra del Fuego, rocky coast of Bahía Lapataia, 0-5 m, 13.1.1989, leg. P (2).

Hamadryas magellanica Lam.

Most collections consist of strongly hairy plants; the population near Acrosilla contains nearly hairless plants.

- Dept. Ushuaia, Paso Garibaldi, in rock-crevices near the peak, 550 m, 4.12.1987, leg. LT (6). - Dept. Ushuaia, Sierra Alvear, near the chair-lift station, in a *Nothofagus betuloides* wood, on damp soil, 330 m, 7.12.1987, leg. LT (10). - Dept. Rio Grande, steep slope N of Paso Garibaldi, in front of Laguna Escondida, humid grassland in the openings of mixed *Nothofagus* wood with big siliceous boulders, 400-500 m, 10.1.1989, leg. P(6). - Dept. Ushuaia, mountain SE Sierra Alvear, N of Hosteria Tierra Major, grassland on SW facing slopes, 14.1.1989, leg. P (4). - Dept. Ushuaia, Sierra Alvear, near Acrosilla, above timberline, in alpine heaths and grasslands, 700-1000 m, 17.1.1989, leg. P (10).

Hieracium antarcticum D'Urv.

- Dept. Ushuaia, Parque Nacional, road to Cerro Pampa Alta, open *Nothofagus pumilio* wood and *Chiliotrichum* scrub, 150-300 m, 13.1.1989, leg. P (2).

Hieracium murorum L.

- Dept. Ushuaia, coastal road from Ea. Harberton to Ea. Moat, near Cerro Moat, roadside, 5.12.1987, leg. LT (9).

Hieracium pilosella L.

- Dept. Rio Grande, Ea. Sara, near Bahia S. Sebastian, overgrazed grassland, 11.12.1987, leg. LT (16).

Hierochloe pusilla Haeckel

- Dept. Rio Grande, ca. 7 km SE of Ea. Rio Apen, humid depression, with *Bolax* and *Polytrichum* cushions, 100-150 m, leg. P (26).

Hierochloe redolens (Vahl) Roemer et Schultes

- Dept. Ushuaia, Sierra Alvear, near the lift station, *Nothofagus betuloides* wood, damp soil, 7.12.1987, leg. LT (10).

Hippuris vulgaris L.

We have also seen this species several times in temporary ponds along the main roadsides (introduced?).

- Dept. Rio Grande, road near Lago Kami, before Hosteria Kaiken, in a pond along the roadside, 9.12.1987, leg. LT (11).

Huanaca acaulis Cav.

- Dept. Rio Grande, Ea. Behety, pastizales, 10.12.1987, leg. LT (13). - Dept. Rio Grande, slopes of Cabo S. Domingo, ca. 12 km N of Rio Grande, sandy soil, 1-30 m, 4.1.1989, leg. P (19).

Hypochoeris arenaria Gaudich.

- Dept. Rio Grande, ca. 3 km E of Ea. Despedida (WSW Rio Grande), windy ridges, 6.1.1989, leg. P (23).

Hypochoeris incana (Hooker et Arn.) Macloskie

- Dept. Rio Grande, Ea. Behety, pastizales, 10.12.1987, leg. LT (13). - Dept. Rio Grande, on the coast N of Rio Grande, overgrazed grassland, 2.1.1989, leg. P (18). - Dept. Rio Grande, N of Rio Grande, along the roadside in Fuegian steppe, 5-10 m, leg. P (18).

Juncus scheuchzerioides L.

A very variable plant.

- Dept. Rio Grande, N of Rio Grande, along the roadside in Fuegian steppe, 5-10 m, leg. P (18). - Dept. Rio Grande, wet bog near Lago Verde, 9.1.1989, leg. P.

Lagenifera hariotii (Franchet) T. Dudley

Dept. Ushuaia, Rio Pipo, in mixed forest, 11.1.1989, leg. P 0.

Lagenifera nudicaulis (Comm. ex Lam.) T. Dudley

- Dept. Ushuaia, below Paso Garibaldi, ca. 7 km N of Rancho Hambre, ca. 500 m, wet bog in the openings of *Nothofagus* wood, 9.1.1989, leg. P (7). - Dept. Ushuaia, Parque Nacional de la Tierra del Fuego, near Rio Pipo falls, mostly *Nothofagus betuloides* wood, 11.1.1989, leg. P (2).

Lathyrus magellanicus Lam.

- Dept. Rio Grande, Ea. Behety, along the road, disturbed areas, 10.12.1987, leg. LT (13). - Dept. Rio Grande, ca. 7 km SW of Rio Grande, near the bridge on Rio Grande, conglomeratic calcareous rocks, E- and N-facing slopes, 10-20 m, 4.1.1989, leg. P (20).

Lepidium pseudodidymum Thellung

- Dept. Rio Grande, Ea. Behety, along the roadside, 10.12.1987, leg. LT (13). - Dept. Rio Grande, Ea. S. Julio, el Castillo, on incoherent soil beneath the rocks, 10.12.1987, leg. LT (14).

Leucanthemum vulgare Lam.

- Dept. Rio Grande, Bahia S. Sebastian, near the Comisaria, on the seashore, beneath the cliffs, 11.12.1987, leg. LT (15).

Leucheria hahnii Franchet

- Dept. Rio Grande, Ea. Behety, matorral de coiron, 10.12.1987, leg. LT (13). - Dept. Rio Grande, ca. 3 km E of Ea. Despedida (WSW Rio Grande), windy ridges, 6.1.1989, leg. P (23). - Dept. Ushuaia, steep slope N of Paso Garibaldi, in front of Laguna Escondida, on the rocks of siliceous boulders, 400-500 m, 10.1.1989, leg. P (6).

Leucheria purpurea (Vahl) Hooker et Arn.

- Dept. Rio Grande, Ea. Behety, matorral de coiron, 10.12.1987, leg. LT (13). - Dept. Ushuaia, mountains SE of Sierra Alvear, N of Hosteria Tierra Major, rocky slopes, 14.1.1989, leg. P (4).

Limosella australis R. Br.

A typical Fuegian pioneer plant on mud along the rivers, in places which are flooded during rainy periods. - Dept. Rio Grande, ca. 7 km SW of Rio Grande, near the bridge on Rio Grande, conglomeratic calcareous rocks, E- and N-facing slopes, 10-20 m, 4.1.1989, leg. P (20).

Linum catharticum L.

A species which seems to be spreading in disturbed ground near settlements, often present also in humid grasslands near the coast.

- Dept. Ushuaia, Parque Nacional, Bahia Lapataia, in the meadows near the seashore, 2 m, 1.12.1987, leg. LT (2).

Littorella australis Griseb. ex Bentham et Hooker f.

- Dept. Ushuaia, Parque Nacional, Bahia Lapataia, on the seashore, 0 m, 2.12.1987, leg. LT (2).

Luzula alopecurus Desv.

- Dept. Ushuaia, lower course of Rio Pipo, in a wood opening, 20 m, 30.11.1987, leg. LT (1). - Dept. Ushuaia, Paso Garibaldi, along the roadside, 430 m, 4.12.1987, leg. LT (6). - Dept. Rio Grande, road towards Rio Grande, near Lago Hantu, grazed *Nothofagus antarctica* wood, 9.12.1987, leg. LT (12). - Dept. Rio Grande, Ea. Behety, matorral de coiron, 10.12.1987, leg. LT (13). - Dept. Ushuaia, mountains SE of Sierra Alvear, N of Hosteria Tierra Major, rocky slopes, 14.1.1989, leg. P (4).

Luzula antarctica Hooker f.

Moore (1983a) considers *L. antarctica* as synonymous of *L. alopecurus*, but we agree with Correa (1969), in maintaining the species status for *L. antarctica* since this taxon appears to be well characterized; *L. alopecurus* has smaller flowers than *L. antarctica*, and its internal tepals are clearly entire, while those of *L. antarctica* are strongly fimbriate-laciniate.

- Dept. Ushuaia, Paso Garibaldi, rock fissures near the peaks, ca. 500 m, 4.12.1987, leg. LT (6).

Luzula campestris (L.) DC.

- Dept. Ushuaia, coastal road from Ea. Harberton to Ea. Moat, near Cerro Moat, along a creek, ca. 15 m, 5.12.1987, leg. LT (9).

Luzula chilensis Ness et Meyen

- Dept. Rio Grande, N of Rio Grande, along the roadside in Fuegian steppe, 5-10 m, leg. P (18). - Dept. Rio Grande, on the hills ca. 6 km SW of Ea. Cauchicol, *Chiliodendron* scrub, 5.1.1989, leg. P (21). - Dept. Rio Grande, ca. 7 km SE of Ea. Rio Apen, humid grassland, 100-150 m, leg. P (26).

Luzuriaga marginata (Banks et Sol. ex Gaertner) Bentham et Hooker f.

An interesting, prostrate species, closely related to *L. radicans*, an erect chamaephyte which grows in the Cordilleran region. *L. marginata* is rather frequent in the herb layer of the evergreen woods.

- Dept. Ushuaia, Parque Nacional, Bahia Ensenada, coastal evergreen forest, 6.12.1987, leg. LT (2). - Dept. Ushuaia, Parque Nacional de la Tierra del Fuego, near Rio Pipo falls, mostly *Nothofagus betuloides* wood, 11.1.1989, leg. P (2). - Dept. Ushuaia, ca. 4 km E of Pampa de los Indios, *Nothofagus betuloides* wood, on slopes, 20-50 m, 12.1.1989, leg. P (32).

Lycopodium magellanicum (P. Beauv.) Swartz

A widespread species, mainly on very poor soils.

- Dept. Rio Grande, ca. 3 km E of Ea. Despedida (WSW Rio Grande), windy ridges, 6.1.1989, leg. P (23). - Dept. Ushuaia, S of Paso Garibaldi, ca. 7 km N of Rancho Hambre, ca. 500 m, wet bog in the openings of *Nothofagus* wood, 9.1.1989, leg. P (7). - Dept. Ushuaia, mountain SE of Sierra Alvear, N of Hosteria Tierra Major, bog on SW facing slopes, 14.1.1989, leg. P (4).

Macrachaenium gracile Hooker f.

- Dept. Ushuaia, Parque National, near Rio Pipo falls, *Nothofagus pumilio* woods, 2.12.1987, leg. LT (3). - Dept. Ushuaia, S of Paso Garibaldi, ca. 7 km N of Rancho Hambre, ca. 500 m, wet bog in the openings of *Nothofagus* wood, 9.1.1989, leg. P (7).

Marsippospermum grandiflorum (L.f.) Hooker f.

- Dept. Ushuaia, Parque National, Bahia Lapataia, along a creek, 5 m, 1.12.1987, leg. LT (2). - Dept. Rio Grande, wet bog near Lago Verde, 9.1.1989, leg. P. - Dept. Ushuaia, Parque National de la Tierra del Fuego, road to Cerro Pampa Alta, open *Nothofagus pumilio* wood and *Chilotrimum* scrub, 150-300 m, 13.1.1989, leg. P (2).

Marsippospermum reichei Buchenau

According to Moore (1983, p. 319) this species was not yet known from Isla Grande until now. The specimen was collected on a very wet slope.

- Dept. Ushuaia, mountain SE Sierra Alvear, N of Hosteria Tierra Major, humid, rocky slope, 14.1.1989, leg. P (4).

Maytenus disticha (Hooker f.) Urban

This is a suberect chamaephyte which grows in the understory of evergreen and mixed woods, often forming big colonies intermingled with *Pernettya mucronata* and *P. pumila*.

- Dept. Ushuaia, Parque National, between Bahia Lapataia and Archipelago Cormoranes, *Nothofagus pumilio* wood, 10 m, 1.12.1987, leg. LT (2). - Dept. Ushuaia, Parque National, near Bahia Lapataia, mixed wood near the coast, 2.12.1987, leg. LT (2)

Maytenus magellanica (Lam.) Hooker f.

Tree or shrub limited to sheltered areas near the west coast of Fuegia, in evergreen woods, with *Drymis winteri* and *Embothrium coccineum*.

- Dept. Ushuaia, coastal road from Ea. Haberton to Ea. Moat, near Cerro Moat, coastal evergreen forest, 10 m, 5.12.1987, leg. LT (9). Dept. Ushuaia, Parque National, Bahia Ensenada, coastal evergreen forest, 13 m, 6.12.1987, leg. LT (2). - Dept. Ushuaia, E of Pampa de los Indios, coastal evergreen forest, 50 m, 12.1.1989, leg. P (32).

Microsteris gracilis (Douglas ex Hooker) Greene

This species is almost always found growing in very sparse populations of small, isolated plants.

- Dept. Rio Grande, Ea. S. Julio, el Castillo, on incoherent soil beneath the cliffs (sandstone), 10.12.1987, leg. LT (14). - Dept. Rio Grande, N of Rio Grande, along the roadside in Fuegian steppe, 5-10 m, leg. P (18). - Dept. Rio Grande, ca. 7 km SW of Rio Grande, near the bridge on Rio Grande, conglomeratic calcareous rocks, E- and N- facing slopes, 10-20 m, 4.1.1989, leg. P (20). - Dept. Rio Grande, ca. 7 km SE of Ea. Rio Apen, humid grassland, 100-150 m, leg. P (26).

Misodendrum brachystachyum DC.

- Dept. Ushuaia, road towards Ea. Harberton, beneath Cerro Rojo, on *Nothofagus betuloides*, 5.12.1987, leg. LT (9). - Dept. Ushuaia, Parque National, near and above Rio Pipo falls, on *Nothofagus betuloides*, 11.1.1989, leg. P (2).

Misodendrum linearifolium DC.

- Dept. Ushuaia, Parque National, Archipelago Cormoranes, on *Nothofagus antarctica*, 10 m, 1.12.1987, leg. LT (2).

Misodendrum punctulatum Banks ex DC.

This is the commonest *Misodendrum* species in the whole *Nothofagus* area.

- Dept. Ushuaia, lower course of Rio Pipo, on *Nothofagus pumilio*, 29.11.1987, leg. LT (1). - Dept. Rio Grande, ca. 2 km E of Ea. Aurelia, old, grazed *Nothofagus antarctica* wood, 5.1.1989, leg. P (22).

Misodendrum quadriflorum DC.

- Dept. Ushuaia, lower course of Rio Pipo, on *Nothofagus pumilio*, ca. 20 m, 30.11.1987, leg. LT (1).

Nanodea muscosa Banks ex C.F. Gaertner

- Dept. Ushuaia, Hosteria Tierra Major, in a bog, 3.12.1987, leg. LT (4). - Dept. Ushuaia, south of Paso Garibaldi, ca. 7 km N of Rancho Hambre, ca. 500 m, wet bog in the openings of *Nothofagus* wood, 9.1.1989, leg. P (7).

Nassauvia abbreviata (Hooker et Arn.) Dusén

- Dept. Rio Grande, Ea. Behety, matorral de coiron, 10.12.1987, leg. LT (13). - Dept. Rio Grande, on the hills ca. 6 km SW of Ea. Cauchicol, *Chiliotrichum* scrub, 5.1.1989, leg. P (21).

Nassauvia darwinii (Hooker et Arn.) O.Hoffm. et Dusén

- Dept. Rio Grande, Ea. Behety, matorral de coiron, 10.12.1987, leg. LT (13). - Dept. Rio Grande, N of Rio Grande, along the roadside in Fuegian steppe, 5-10 m, leg. P (18). - Dept. Rio Grande, slopes of Cabo S. Domingo, ca. 12 km N of Rio Grande, sandy soil, 1-30 m, 4.1.1989, leg. P (19).

Nassauvia magellanica J.F. Gmelin

Only few specimens were seen above Paso Garibaldi, but this species is very common in the Sierra Martial, N of Ushuaia. In this species the bracts are smooth or strongly dentate, but the character is not constant among the populations.

- Dept. Ushuaia, Parque National, Rio Pipo banks, near the falls, 2.12.1987, leg. LT (3). - Dept. Ushuaia, Sierra Alvear, near the seat lift station, on gravel near the glacier, 7.12.1987, leg. LT (10). - Dept. Ushuaia, steep slope N of Paso Garibaldi, in front of Laguna Escondida, on siliceous boulders, 400-500 m, 10.1.1989, leg. P (6). - Dept. Ushuaia, mountains SE of Sierra Alvear, N of Hosteria Tierra Major, rocky slopes, 14.1.1989, leg. P (4). - Dept. Ushuaia, Sierra Alvear, near Acrosilla, above timberline, rocky slopes, 700-1000 m, 17.1.1989, leg. P (10).

Nassauvia pygmaea (Cass.) Hooker f.

This is a typical alpine plant, which characterizes the feldmark communities.

- Dept. Ushuaia, mountains SE of Sierra Alvear, N of Hosteria Tierra Major, rocky slopes, 14.1.1989, leg. P (4).

Nothofagus antarctica (Forster f.) Oersted

This tree forms the ecotone communities between woods and steppe, and the timberline on the mountains of the west coast.

- Dept. Ushuaia, lower course of Rio Pipo, ca. 20 m, 30.11.1987, leg. LT (1). - Dept. Ushuaia, Sierra Alvear, Hosteria Tierra Major, in the margins of the bogs, 3.12.1987, leg. LT (4). - Dept. Ushuaia, Sierra Martial, in the timberline, 650 m, 7.12.1987, leg. LT (10). - Dept. Rio Grande, ca. 2 km E of Ea. Aurelia, old, grazed *Nothofagus antarctica* wood, 5.1.1989, leg. P (22).

Nothofagus betuloides (Mirbel) Oersted

This evergreen species grows in areas near the coast; at higher elevation it forms pure stands only on poor, peaty soils.

- Dept. Ushuaia, lower course of Rio Pipo, ca. 20 m, 30.11.1987, leg. LT (1). - Dept. Ushuaia, W of Brown sawmill, *Nothofagus pumilio* wood, beneath high rocks, ca. 50 m, 12.1.1989, leg. P (30).

Nothofagus pumilio (Poeppig et Endl.) Krasser

- Dept. Ushuaia, lower course of Rio Pipo, ca. 20 m, 30.11.1987, leg. LT (1). - Dept. Ushuaia, Sierra Alvear, near Acrosilla, at timberline, 700 m, 17.1.1989, leg. P (10).

Oreobolus obtusangulus Gaudich.

- Dept. Ushuaia, mountains SE of Sierra Alvear, N of Hosteria Tierra Major, bog on SW facing slopes, 14.1.1989, leg. P (4).

Oreopolus glacialis (Poeppig et Endl.) Ricardi

An heterostylous species, growing on rocks or sandy areas in the East Andean Cordilleras.

- Dept. Rio Grande, Ea. S. Julio, el Castillo, in fissures of the sandstone, 10.12.1987, leg. LT (14).

Osmorhiza chilensis Hooker et Arn.

- Dept. Ushuaia, Parque National, Rio Pipo falls, ca. 40 m, 2.12.1987, leg. LT (3).

Osmorhiza depauperata Phil.

- Dept. Rio Grande, ca. 3 km E of Ea. Despedida (WSW Rio Grande), *Nothofagus antarctica* wood, 6.1.1989, leg. P (23).

Ourisia breviflora Bentham

This species mostly grows in small colonies on mosses, in humid habitats.

- Dept. Ushuaia, Sierra Alvear, from Hosteria Tierra Major, along a creek, among mosses, *Nothofagus pumilio* forest, 320 m, 3.12.1987, leg. LT (4). - Dept. Ushuaia, mountain SE Sierra Alvear, N of Hosteria Tierra Major, *Nothofagus* wood, 14.1.1989, leg. P (4). - Dept. Ushuaia, steep slope N of Paso Garibaldi, in front of Laguna Escondida, humid siliceous boulders in *Nothofagus* wood, 400-500 m, 10.1.1989, leg. P (6).

Ourisia ruelloides (L.f.) O. Kuntze

An entomophilous species, growing on wet rocks or montane creeks.

- Dept. Ushuaia, steep slope N of Paso Garibaldi, in front of Laguna Escondida, humid grassland in the openings of *Nothofagus* wood, 400-500 m, 10.1.1989, leg. P (6).

Oxalis enneaphylla Cav.

In the deciduous forest communities the plants are sparse, rarely flowering, while in the steppe communities this species forms conspicuous patches.

- Dept. Rio Grande, road towards Rio Grande, near Lago Hanth, grazed *Nothofagus antarctica* wood, 9.12.1987, leg. LT (12). - Dept. Rio Grande, Ea. Behety, matorral de coiron, 10.12.1987, leg. LT (13). - Dept. Rio Grande, ca. 7 km SW of Rio Grande, near the bridge on Rio Grande, conglomeratic calcareous rocks, E- and N- facing slopes, 10-20 m, 4.1.1989, leg. P (20).

Oxalis magellanica Forster f.

- Dept. Rio Grande, Ea. Behety, eroded slopes of the hills, 10.12.1987, leg. LT (13). - Dept. Ushuaia, south of Paso Garibaldi, ca. 7 km N of Rancho Hambre, ca. 500 m, wet bog in the openings of *Nothofagus* wood, 9.1.1989, leg. P (7). - Dept. Ushuaia, Parque National, road to Cerro Pampa Alta, open *Nothofagus pumilio* wood and *Chilotrichum* scrub, 150-300 m, 13.1.1989, leg. P (2).

Perezia magellanica (L.f.) Lag.

- Dept. Ushuaia, Sierra Alvear, Hosteria Tierra Major, *Nothofagus betuloides* forest, 3.12.1987, leg. LT (4). - Dept. Ushuaia, mountain SE of Sierra Alvear, N of Hosteria Tierra Major, 500-700 m, *Nothofagus* wood, 14.1.1989, leg. P (4).

Perezia pilifera (G.Don) Hooker et Arn.

- Dept. Rio Grande, Ea. Behety, matorral de coiron, 10.12.1987, leg. LT (13). - Dept. Rio Grande, N of Rio Grande, along the roadside in Fuegian steppe, 5-10 m, leg. P (18). - Dept. Rio Grande, on the hills ca. 6 km SW of Ea. Cauchicol, *Chilotrichum* scrub, 5.1.1989, leg. P (21). - Dept. Ushuaia, Sierra Alvear, near Acrosilla, above timberline, rocky slopes (feldmark), 700-1000 m, 17.1.1989, leg. P (10).

Perezia recurvata (Vahl) Less.

- Dept. Ushuaia, Parque National, Bahía Ensenada, on the coastal cliffs, 5 m, 2.12.1987, leg. LT (2). - Dept. Ushuaia, coastal road from Ea. Harberton to Ea. Moat, near Cerro Moat, coastal cliffs, 5.12.1987, leg. LT (9). - Dept. Rio Grande, Ea. Behety, matorral de coiron, 10.12.1987, leg. LT (13). - Dept. Rio Grande, on the coast N of Rio Grande, overgrazed grassland, 2.1.1989, leg. P (18).

Pernettya mucronata (L.f.) Gaudich. ex G.Don

- Dept. Ushuaia, Parque Nacional, Bahía Lapataia, 4 m, 1.12.1987, leg. LT (2). - Dept. Ushuaia, coastal road from Ea. Harberton to Ea. Moat, near Cerro Moat, 5-15 m, 5.12.1987, leg. LT (9). - Dept. Rio Grande, steep slope N of Paso Garibaldi, in front of Laguna Escondida, humid grassland in the openings of *Nothofagus* wood with big siliceous boulders, 400-500 m, 10.1.1989, leg. P(6). - Dept. Ushuaia, S of Ushuaia, near the town, grassland and anthropogenous vegetation, ca. 10 m, 15.1.1989, leg. P (33).

Pernettya pumila (L.f.) Hooker

- Dept. Ushuaia, along Rio Pipo banks, 40 m, 30.11.1987, leg. LT (3). - Dept. Rio Grande, on the hills ca. 6 km SW of Estancia Cauchicol, *Chiliodendron* scrub, 5.1.1989, leg. P (21). - Dept. Rio Grande, ca. 3 km E of Ea. Despedida (WSW Rio Grande), *Nothofagus antarctica* wood, 6.1.1989, leg. P (23). - Dept. Ushuaia, Sierra Alvear, near Acrosilla, above timberline, heath-community, 700-1000 m, 17.1.1989, leg. P (10).

Phacelia secunda F.Gmelin

This species grows often as an epiphyte on open sandy soil in the steppe region.
- Dept. Rio Grande, Ea. S. Julio, el Castillo, incoherent soil beneath the rocks, 10.12.1987, leg. LT (14). - Dept. Rio Grande, on the coast N of Rio Grande, overgrazed grassland, 2.1.1989, leg. P (18).

Phaiophleps biflora (Thumb.) R.C. Foster ssp. *biflora*

- Dept. Ushuaia, Parque Nacional, Archipiélago Cormoranes, slopes along the roadside, 10 m, 1.12.1987, leg. LT (2). - Dept. Rio Grande, Ea. Behety, matorral de coiron, 10.12.1987, leg. LT (13). - Dept. Rio Grande, slopes of Cabo S. Domingo, ca. 12 km N of Rio Grande, sandy soil, 1-30 m, 4.1.1989, leg. P (19). - Dept. Rio Grande, on the hills ca. 6 km SW of Estancia Cauchicol, *Chiliodendron* scrub, 5.1.1989, leg. P (21).

Phleum commutatum Gaudin

- Dept. Rio Grande, Ea. Behety, matorral de coiron, 10.12.1987, leg. LT (13).

Pinguicula antarctica Vahl

Found only once, forming a sparse colony.
- Dept. Ushuaia, mountain SE of Sierra Alvear, N of Hosteria Tierra Major, bog on SW facing slopes, 14.1.1989, leg. P (4).

Plagiobothrys calandrinoides (Phil.) I.M. Johnson

- Dept. Rio Grande, Ea. Behety, matorral de coiron, along the roadside, 10.12.1987, leg. LT (13). - Dept. Rio Grande, ca. 7 km SW of Rio Grande, near the bridge on Rio Grande, on mud along the river, isolated plants, 10-20 m, 4.1.1989, leg. P (20).

Plantago barbata Forster f.

- Dept. Ushuaia, Hosteria Tierra Major, bog and cushion heath, 3.12.1987, leg. LT (4). - Dept. Ushuaia, ca. 12 km W of Rancho Hambre, in *Sphagnum-Empetrum* bog, ca. 200 m, 10.1.1989, leg. P (29).

Plantago maritima L.

- Dept. Ushuaia, Ushuaia harbour, in rock fissures, near the seashore, 3 m, 29.11.1987, leg. LT (33). - Dept. Rio Grande, on the coast N of Rio Grande, overgrazed grassland, 2.1.1989, leg. P (18).

Plantago uniglumis Wallr. ex Walpers

- Dept. Rio Grande, Ea. S. Julio, el Castillo, on incoherent soil beneath the cliffs (sandstone), 10.12.1987, leg. LT (14).

Poa alopecurus ssp. *fuegiana* (Hooker f.) D.M.Moore & Doggett

- Dept. Ushuaia, steep slope N of Paso Garibaldi, in front of Laguna Escondida, *Nothofagus* wood with big siliceous boulders, 400-500 m, 10.1.1989, leg. P (6).

Poa nemoralis L.

- Dept. Rio Grande, road towards Rio Grande, near Lago Hantu, grazed *Nothofagus antarctica* wood, 9.12.1987, leg. LT (12).

Poa rigidifolia Steudel

- Dept. Rio Grande, road from Ushuaia to Rio Grande, near Lago Hantu, grazed *Nothofagus antarctica* wood, 9.12.1987, leg. LT (12). - Dept. Rio Grande, Ea. Behety, matorral de coiron, 10.12.1987, leg. LT (13).

Polygala salasiana C. Gay

- Dept. Rio Grande, ca. 7 km SW of Rio Grande, near the bridge on Rio Grande, conglomeratic calcareous rocks, E- and N- facing slopes, 10-20 m, 4.1.1989, leg. P (20).

Polygonum aviculare L.

- Dept. Rio Grande, on the coast N of Rio Grande, overgrazed grassland, 2.1.1989, leg. P (18).

Polystichum andinum Phil.

- Dept. Ushuaia, Paso Garibaldi, in fissures of rocks near the peak, 4.12.1987, leg. LT (6). - Dept. Ushuaia, Sierra Martial, above timberline, in *Bolax* cushions, 650 m, 7.12.1987, leg. LT (10). - Dept. Rio Grande, steep slope N of Paso Garibaldi, in front of Laguna Escondida, in the rock fissures, 400-500 m, 10.1.1989, leg. P (6).

Pratia longiflora Hooker f.

- Dept. Rio Grande, ca. 7 km SW of Rio Grande, near the bridge on Rio Grande, conglomeratic calcareous rocks, E- and N- facing slopes, 10-20 m, 4.1.1989, leg. P (20).

Pratia repens Gaudich.

This species, which grows in humid depression in the steppe communities, was seen also near Ushuaia.

- Dept. Rio Grande, ca. 3 km E of Ea. Despedida (WSW Rio Grande), windy ridges, 6.1.1989, leg. P (23). - Dept. Ushuaia, steep slope N of Paso Garibaldi, in front of

Laguna Escondida, humid grassland beneath siliceous boulders, 400-500 m, 10.1.1989, leg. P (6). Dept. Ushuaia, SW of Ushuaia, 11.1.1989, leg. P (2).

Primula magellanica Lehm.

Most populations consist only of white flowering plants; a single population with lilaceous flowers (like those of *P. farinosa*).

- Dept. Ushuaia, Parque National, Bahia Lapataia, humid grassland, 2 m, 1.12.1987, leg. LT (2). - Dept. Ushuaia, Hosteria Tierra Major, in the bogs, 3.12.1987, leg. LT (4). - Dept. Rio Grande, N of Rio Grande, along the roadside in Fuegian steppe, 5-10 m, leg. P (18). - Dept. Ushuaia, ca. 12 km W of Rancho Hambre, in *Sphagnum-Empetrum* bog, ca. 200 m, 10.1.1989, leg. P (29). - Dept. Rio Grande, steep slope N of Paso Garibaldi, in front of Laguna Escondida, humid grassland in the openings of *Nothofagus* wood with big siliceous boulders, 400-500 m, 10.1.1989, leg. P (6).

Puccinellia biflora (Steudel) Parodi

This species builds up a very typical association of its own along the rivers on somewhat salty soil.

- Dept. Rio Grande, ca. 7 km SW of Rio Grande, near the bridge on Rio Grande, conglomeratic calcareous rocks, E- and N-facing slopes, 10-20 m, 4.1.1989, leg. P (20).

Ranunculus biternatus Sm.

In Fuegia the genus *Ranunculus* is still little known, and some identification are dubious.

- Dept. Rio Grande, ca. 7 km SE of Ea. Rio Apen, in humid depressions, with *Bolax* and *Polytrichum* cushions, 100-150 m, leg. P (26).

Ranunculus minutiflorus Bert. ex Phil.

- Dept. Ushuaia, between Paso Garibaldi and the Bronzovich sawmill, humid margins of the forest, 4.12.1987, leg. LT; revidit D.M. Moore, 6.12.1988 (5). - Dept. Ushuaia, W of Brown sawmill, in *Nothofagus pumilio* wood, beneath high rocks, ca. 50 m, 12.1.1989, leg. P (30). - Dept. Ushuaia, ca. 4 km E of Pampa de los Indios, on slopes along an eutrophic bog, 20-50 m, 12.1.1989, leg. P (32).

Ranunculus peduncularis Sm.

This species is very variable in shape and size.

- Dept. Ushuaia, Parque National, Bahia Lapataia, near the coast, wet meadow, ca. 3 m, 1.12.1987, leg. LT (2). - Dept. Ushuaia, Parque National, road to Lapataia, just before Archipelago Cormoranes, 2.12.1987, leg. LT; revidit D.M. Moore, 6.12.1988 (2). - Dept. Rio Grande, N of Rio Grande, along the roadside across the Fuegian steppe, 5-10 m, leg. P (18). - Dept. Rio Grande, steep slope N of Paso Garibaldi, in front of Laguna Escondida, humid grassland in the openings of *Nothofagus*-wood with big siliceous boulders, 400-500 m, 10.1.1989, leg. P (6).

Ranunculus sericocephalus Hooker f.

- Dept. Rio Grande, road from Ushuaia to Rio Grande, near Lago Hantu, grazed *Nothofagus antarctica* wood, 9.12.1987, leg. LT (12).

Ribes magellanicum Poiret

- Dept. Ushuaia, Parque National, near Rio Pipo falls, in a forest edge, 20 m, 30.11.1987, leg. LT (3). - Dept. Ushuaia, Parque National, Archipelago Cormoranes, 10 m, 1.12.1988, leg. LT (2). - Dept. Ushuaia, below Paso Garibaldi, ca. 7 km N of Rancho Hambre, ca. 500 m, wet bog in the openings of *Nothofagus* wood, 9.1.1989, leg. P (7).

Rostkovia magellanica (Lam.) Hooker f.

Widespread in wet vegetation in the South-West of Fuegia, mainly along lake and river banks.

- Dept. Ushuaia, Parque National, Archipelago Cormoranes, along the lake margins, 5 m, 1.12.1987, leg. LT (2). - Dept. Rio Grande, 1 km SE of Lago Hantu, *Nothofagus* wood, 8.1.1989, leg. P (12). - Dept. Ushuaia, ca. 12 km W of Rancho Hambre, *Sphagnum-Empetrum* bog, ca. 200 m, 10.1.1989, leg. P (29).

Rubus geoides (L.f.) Hooker

- Dept. Ushuaia, lower course of Rio Pipo, ca. 20 m, 30.11.1987, leg. LT (1). - Dept. Ushuaia, Parque National, near Rio Pipo falls, in *Nothofagus pumilio* woods, 2.12.1987, leg. LT (3). - Dept. Ushuaia, south of Paso Garibaldi, ca. 7 km N of Rancho Hambre, ca. 500 m, wet bog in the openings of *Nothofagus* wood, 9.1.1989, leg. P (7).

Rumex longifolius DC.

This species, not previously reported from Fuegia (Moore, 1983a), seems to be widely distributed. Many colonies were identified by T. Ahti (Helsinki), who is well acquainted with this plant; the collected specimen was seen by the monographer of the genus, Prof. Reichinger (Vienna), who stated that the fruits were somewhat too young for a certain identification, but that the plant is most probably *R. longifolius*. Eventually the species was introduced not long ago and is spreading like it does in some European regions (Reichinger, 1990).

- Dept. Rio Grande, ca. 7 km SW of Rio Grande, near the bridge on Rio Grande, conglomeratic calcareous rocks, E- and N- facing slopes, 10-20 m, 4.1.1989, leg. P (20).

Sagina procumbens L.

- Dept. Ushuaia, Parque National, Bahia Lapataia, near the coast, in the meadows, ca. 3 m, 1.12.1987, leg. LT (2).

Satureja darwinii (Bentham) Briquet

- Dept. Rio Grande, Ea. Behety, matorral de coiron, 10.12.1987, leg. LT (13).

Saxifraga magellanica Poiret

A very variable species, growing from sea level to ca. 1000 m, widespread in the mountains.

- Dept. Ushuaia, Parque national, lower course of Rio Pipo, ca. 40 m, 30.11.1987, leg. LT (1). - Dept. Ushuaia, Paso Garibaldi, near the peak, ca. 700 m, 4.12.1987, leg. LT; revidit D.M. Moore, 6.12.1988 (6). - Dept. Ushuaia, Paso Garibaldi, incoherent soil of the road slopes, 370 m, 4.12.1987, leg. LT (6). - Dept. Ushuaia, Parque National, Bahia Ensenada, rocks near the seashore, 2 m, 6.12.1987, leg. LT (2). - Dept. Ushuaia, steep slope

N of Paso Garibaldi, in front of Laguna Escondida, humid grassland in the openings of *Nothofagus* wood, 400-500 m, 10.1.1989, leg. P (6). - Dept. Ushuaia, mountain SE of Sierra Alvear, N of Hosteria Tierra Major, bog on SW facing slopes, 14.1.1989, leg. P (4).

Saxifragella bicuspidata (Hooker f.) Engler

Found only in the alpine region (ca. 1100 m), not flowering.

- Dept. Ushuaia, mountains SE of Sierra Alvear, N of Hosteria Tierra Major, SW facing, rocky slopes, 14.1.1989, leg. P (4).

Schoenus andinus (Phil.) Pfeiffer

- Dept. Ushuaia, Sierra Alvear, Hosteria Tierra Major, in a hangmoore beneath the cliffs, 3.12.1987, leg. LT (4). - Dept. Ushuaia, ca. 12 km W of Rancho Hambre, *Sphagnum-Empetrum* bog, ca. 200 m, 10.1.1989, leg. P (29). - Dept. Ushuaia, steep slope N of Paso Garibaldi, in front of Laguna Escondida, humid grassland beneath siliceous boulders, 400-500 m, 10.1.1989, leg. P (6).

Scirpus cernuus Vahl

- Dept. Ushuaia, ca. 4 km E of Pampa de los Indios, eutrophic bog, on slopes, 20-50 m, 12.1.1989, leg. P (32).

Scutellaria nummulariifolia Hooker f.

On sandy soil or gravel, in low, disturbed vegetation.

- Dept. Rio Grande, Ea. Behety, eroded hill slopes, 10.12.1987, leg. LT (13). - Dept. Rio Grande, N of Rio Grande, along the roadside in Fuegian steppe, 5-10 m, leg. P (18).

Senecio acanthifolius Hombron et Jacquinot

Very common in deciduous and mixed woods of *Nothofagus*, rare in moist grasslands; the upper leaves are rarely semi-amplexicaul.

- Dept. Ushuaia, Sierra Alvear, from Hosteria Tierra Major, mixed woods, 320 m, 3.12.1987, leg. LT (4). - Dept. Ushuaia, Parque Nacional, near Rio Pipo falls, *Nothofagus pumilio* wood, 2.12.1987, leg. LT (3). - Dept. Ushuaia, steep slope N of Paso Garibaldi, in front of Laguna Escondida, *Nothofagus* wood with big siliceous boulders, 400-500 m, 10.1.1989, leg. P (6).

Senecio cfr. *armotti* Hooker f.

- Dept. Ushuaia, south of Ushuaia, near the town, grassland and anthropogenous vegetation, ca. 10 m, 15.1.1989, leg. P (33).

Senecio candidans DC.

This species grows always near the coasts, often on the seashore.

- Dept. Rio Grande, Bahia S. Sebastian, near the Comisaria, on the coast, fine gravel, ca. 2 m, 11.12.1987, leg. LT (15). - Dept. Rio Grande, slopes of Cabo S. Domingo, ca. 12 km N of Rio Grande, sandy soil, 1-30 m, 4.1.1989, leg. P (19).

Senecio darwinii Hooker et Arn.

- Dept. Ushuaia, Paso Garibaldi, along the roadside, ca. 400 m, 4.12.1987, leg. LT (6). - Dept. Rio Grande, slopes of Cabo S. Domingo, ca. 12 km N of Rio Grande, sandy soil, 1-30 m, 4.1.1989, leg. P (19).

Senecio kingii Hooker f.

- Dept. Rio Grande, Ea. S. Julio, el Castillo, on the top of the hill, growing in the rock fissures, 10.12.1987, leg. LT (14).

Senecio laseguei Hombron et Jaquinot

- Dept. Rio Grande, ca. 3 km E of Ea. Despedida (WSW Rio Grande), windy ridges, 6.1.1989, leg. P (23).

Senecio leucomallus A. Gray

- Dept. Ushuaia, on the peaks around Paso Garibaldi, ca. 500 m, 4.12.1987, leg. LT (6). - Dept. Ushuaia, steep slope N of Paso Garibaldi, in front of Laguna Escondida, on siliceous boulders, 400-500 m, 10.1.1989, leg. P (6). - Dept. Ushuaia, mountains SE of Sierra Alvear, N of Hosteria Tierra Major, rocky slopes, 14.1.1989, leg. P (4).

Senecio magellanicus Hooker et Arn.

- Dept. Rio Grande, road from Ushuaia to Rio Grande, near Lago Hantu, along the roadside, 9.12.1987, leg. LT (12). - Dept. Rio Grande, N of Rio Grande, along the roadside in Fuegian steppe, 5-10 m, leg. P (18). - Dept. Ushuaia, Sierra Alvear, near Acrosilla, above timberline, rocky grassland, 700-1000 m, 17.1.1989, leg. P (10).

Senecio miser Hooker f.

This shrubby species, with *S. patagonicus* and *S. tricuspoidatus*, forms a highly polymorphic group in which many populations appear to grade towards each other. Further studies are necessary in order to evaluate their taxonomical status. We have identified as *S. miser* the specimens with glandular-pubescent, more or less viscid leaves, growing in open, disturbed habitats.

- Dept. Ushuaia, Paso Garibaldi, ca. 400 m, near the road, 4.12.1987, leg. LT (6). - Dept. Ushuaia, Parque National, Cordon del Toro, above Lago Rocha, burned *Nothofagus pumilio* wood, 6.12.1987, leg. LT (2). - Dept. Ushuaia, Parque National, at and above Rio Pipo falls, mostly *Nothofagus betuloides* wood, 11.1.1989, leg. P (2).

Senecio patagonicus Hooker et Arn.

- Dept. Rio Grande, Ea. S. Julio, el Castillo, in the fissures of the rocks, 10.12.1987, leg. LT (14). - Dept. Rio Grande, on the coast N of Rio Grande, overgrazed grassland, 2.1.1989, leg. P (18).

Senecio smithii DC.

This species is widely distributed in forest clearings, but can grow also as an apophyte in disturbed areas.

- Dept. Ushuaia, Paso Garibaldi, moist areas along the road, 430 m, 4.12.1987, leg. LT (6). - Dept. Ushuaia, coastal road from Ea. Harberton to Ea. Moat, near Cerro

Moat, near the seashore, ca. 2 m, 5.12.1987, leg. LT (9). - Dept. Ushuaia, below Paso Garibaldi, ca. 7 km N of Rancho Hambre, ca. 500 m, wet bog in the openings of *Nothofagus* wood, 9.1.1989, leg. P (7).

Senecio tricuspидatus Hooker et Arn.

- Dept. Ushuaia, coastal road from Ea. Harberton to Ea. Moat, near Cerro Moat, 5.12.1987, leg. LT; revidit D.M.Moore, 6.12.1988 (9). - Dept. Rio Grande, on the coast N of Rio Grande, overgrazed grassland, 2.1.1989, leg. P (18).

Senecio trifurcatus (Forster f.) Less.

- Dept. Ushuaia, ca. 4 km E of Pampa de los Indios, eutrophic bog, on slopes, 20-50 m, 12.1.1989, leg. P (32).

Silene magellanica (Desr.) Bocquet

- Dept. Rio Grande, Ea. Behety, matorral de coiron, 10.12.1987, leg. LT (13). - Dept. Rio Grande, on the coast N of Rio Grande, overgrazed grassland, 2.1.1989, leg. P (18).

Sisymbrium magellanicum (Pers.) Hooker f.

- Dept. Rio Grande, Ea. S. Julio, el Castillo, incoherent soil beneath the rocks, 10.12.1987, leg. LT (14).

Sisyrinchium patagonicum Phil.

- Dept. Ushuaia, Parque National, rocky coast of Bahia Lapataia, 0-5 m, 13.1.1989, leg. P (2).

Stellaria debilis D'Urv.

- Dept. Rio Grande, ca. 7 km SE of Ea. Rio Apen, humid depression, with *Bolax* and *Polytrichum* cushions, 100-150 m, leg. P (26).

Taraxacum officinale Weber

A widespread species, with very different leaf forms. Most probably different apomictic species were introduced from Europe.

Taraxacum gilliesii Hooker et Arn.

- Dept. Rio Grande, road from Ushuaia, to Rio Grande, near Lago Hantu, grazed *Nothofagus antarctica* wood, 9.12.1987, leg. LT (12). - Dept. Rio Grande, Ea. Behety, matorral de coiron, 10.12.1987, leg. LT (13). - Dept. Ushuaia, Sierra Alvear, near Acrosilla, above timberline, rocky grassland, 700-1000 m, 17.1.1989, leg. P (10).

Tetroncium magellanicum Willd.

- Dept. Ushuaia, Parque National, road towards Lapataia, *Sphagnum* bog, 2.12.1987, leg. LT (2). - Dept. Rio Grande, wet bog near Lago Verde, 9.1.1989, leg. P (15). - Dept. Ushuaia, ca. 4 km E of Pampa de los Indios, eutrophic bog, on slopes, 20-50 m, 12.1.1989, leg. P (32).

Thlaspi magellanicum Comm. ex Poir.

This species is widespread in the region; often only isolated plants or very small colonies are found.

- Dept. Rio Grande, road from Ushuaia to Rio Grande, near Lago Hantu, grazed *Nothofagus antarctica* wood, 9.12.1987, leg. LT (12). - Dept. Rio Grande, Ea. Behety, matorral de coiron, 10.12.1987, leg. LT (13). - Dept. Rio Grande, 1 km SE of Lago Hantu, *Nothofagus pumilio* wood, 8.1.1989, leg. P (28). - Dept. Ushuaia, below Paso Garibaldi, ca. 7 km N of Rancho Hambre, ca. 500 m, wet bog in the openings of *Nothofagus* wood, 9.1.1989, leg. P (7). - Dept. Rio Grande, steep slope N of Paso Garibaldi, in front of Laguna Escondida, humid grassland in the openings of *Nothofagus* wood with big siliceous boulders, 400-500 m, 10.1.1989, leg. P (6).

Tribeles australis Phil.

Only sterile material was collected.

- Dept. Ushuaia, in the bog of *Hosteria Tierra Major*, ca. 500-700 m, 14.1.1989, leg. P (4).

Triglochin concinna Davy

- Dept. Rio Grande, in humid depressions of the hills, ca. 6 km SW of Ea. Cauchicol, 5.1.1989, leg. P (21).

Trisetum spicatum (L.) K. Richter

- Dept. Rio Grande, ca. 7 km SW of Rio Grande, near the bridge on Rio Grande, conglomeratic calcareous rocks, E- and N- facing slopes, 10-20 m, 4.1.1989, leg. P (20).

Tristagma nivale Poeppig

- Dept. Rio Grande, ca. 7 km SW of Rio Grande, near the bridge on Rio Grande, conglomeratic calcareous rocks, east- and north-facing slopes, 10-20 m, 4.1.1989, leg. P (20).

Urtica magellanica Poir.

Dept. Ushuaia, Ea. Haberton, at sea level, leg. Poelt (31).

Valeriana carnosa Sm.

- Dept. Rio Grande, Ea. S. Julio, el Castillo, in rock crevices (sandstone), 10.12.1987, leg. LT (14). - Dept. Rio Grande, N of Rio Grande, along the roadside in Fuegian steppe, 5-10 m, leg. P (18). - Dept. Rio Grande, ca. 7 km SW of Rio Grande, near the bridge on Rio Grande, conglomeratic calcareous rocks, E- and N-facing slopes, 10-20 m, 4.1.1989, leg. P (20).

Veronica sp.

Dept. Rio Grande, in the steppe, 3.1.1989, leg. Poelt (18).

Veronica serpyllifolia L.

A very widespread weed from Europe, even seen in the alpine region in Sierra Alvear.

- Dept. Ushuaia, near the Bronzovich sawmill, Laguna Escondida, anthropic glade in *Nothofagus betuloides* forest, 4.12.1987, leg. LT (5). - Dept. Rio Grande, N of Rio Grande, along the roadside in Fuegian steppe, 5-10 m, leg. P (18).

Vicia bijuga Giller ex Hooker et Arn.

- Dept. Rio Grande, on the coast N of Rio Grande, overgrazed grassland, 2.1.1989, leg. P (18).

Vicia magellanica Hooker f.

- Dept. Ushuaia, Parque National, Bahía Lapataia, near the coast, 3 m, 1.12.1987, leg. LT (2). - Dept. Ushuaia, S of Ushuaia, near the town, grassland and anthropogenous vegetation, ca. 10 m, 15.1.1989, leg. P (33).

Viola cfr. *commersonii* DC.

- Dept. Ushuaia, below Paso Garibaldi, ca. 7 km N of Rancho Hambre, ca. 500 m, wet bog in the opening of *Nothofagus* wood, 9.1.1989, leg. P (7).

Viola maculata Cav.

- Dept. Rio Grande, Ea. Behety, matorral de coiron, 10.12.1987, leg. LT (13). - Dept. Rio Grande, slopes of Cabo S. Domingo, ca. 12 km N of Rio Grande, sandy soil, 1-30 m, 4.1.1989, leg. P (19).

Viola magellanica Forster f.

- Dept. Ushuaia, Parque National, near Rio Pipo falls, in mixed *Nothofagus* wood, 2.12.1987, leg. LT (3). - Dept. Rio Grande, steep slope N of Paso Garibaldi, in front of Laguna Escondida, humid grassland in the openings of *Nothofagus* wood with big siliceous boulders, 400-500 m, 10.1.1989, leg. P(6).

Viola tridentata Menz. ex DC.

-Dept. Ushuaia, Paso Garibaldi, wet hang-bog, forming low cushions, ca. 500 m, 4.12.1987, leg. LT; det. D.M. Moore, 6.12.1988 (6). - Dept. Ushuaia, south of Paso Garibaldi, ca. 7 km N of Rancho Hambre, ca. 500 m, wet bog in the openings of *Nothofagus* wood, 9.1.1989, leg. P (7). - Dept. Ushuaia, mountain SE Sierra Alvear, N of Hosteria Tierra Major, bog on SW facing slopes, 14.1.1989, leg. P (4).

Xerodraba sp.

The specimen has only vegetative parts and its attribution to *Xerodraba*, a genus with six species distributed in South Patagonia, is just an educated guess. The plants forms lax cushions on the top of an isolated, eroded sandstone outcrop (Cerro Castillo, Ea. S. Julio), a dry meseta in the north-eastern part of Isla Grande. The vegetative characters and the habitus-type are similar to those of the *Xerodraba picnophylloides*-group, but the attribution remains uncertain, also after having examined the species types, preserved in Berlin. Our specimen has obtuse, cucullate, laxly embriate leaves, more than 6 mm long and 2 mm large, with epidermic papillae at the apex, and stomata in deep grooves. These characters might suggest its attribution to *Xerodraba monantha*, a

species collected only once, 80 years ago, somewhere in the region of S.ta Cruz (Schulz, 1927; Cabrera, 1984); the type material of this species, however, has smaller leaves.

In the same area, on Cerro Hongo, grows *Benthamella nordenskjoldii*, an other pulvinate chamaephyte forming lax cushions, which, however, has linear, acute leaves (Arroyo, 1980; in Moore's Flora, the drawing of *B. nordenskjoldii* is that of *B. longifolia*). We have not seen any specimens of this species.

Dept. Rio Grande, Ea. S. Julio, el Castillo, on the top, in the rock fissures, conglomeratic rocks, 10.12.1987, leg. LT (14).

APPENDIX II

Parasitic fungi of higher plants collected by J. Poelt (specimens in GZU).

Taphrinales

Taphrina entomospora Baxt

- Dept. Rio Grande, 2 km East of Ea. Aurelia, on *Nothofagus pumilio*, 5.1.1989. -
- Dept. Ushuaia, W of Brown Sawmill, ca. 50 m, on *Nothofagus pumilio*, 12.1.1989.

Peronosporales

Peronospora ranunculi Gäumann (s. ampl.)

- Dept. Ushuaia, W of Brown Sawmill, ca. 50 m, on *Ranunculus maclovianus*, 12.1.1989.

Exobasidiales

Exobasidium sp.

- Dept. Rio Grande, 3 km E of Ea. Despedida, on *Pernettya pumila*, 6.1.1989. -
- Dept. Ushuaia, steep slope N of Paso Garibaldi, 400-500 m, on *Pernettya pumila*, 10.1.1989.

Uredinales

Aecidium aridum Dietel

- Dept. Rio Grande, 6 km SW of Ea. Cauchicol, on *Berberis buxifolia*, 5.1.1989. -
- Dept. Rio Grande, 7 km SW of Ea. Rio Apen, 100-150 m, on *Berberis buxifolia*, 7.1.1989.

Aecidium magellanicum Berk.

- Dept. Rio Grande, Cabo Santo Domingo, on *Berberis buxifolia*, 4.1.1989. - Dept.
- Ushuaia, Ea. Moat, 4 km W of Pampa de los Indios, on *Berberis buxifolia*, 12.1.1989.

Aecidium negerianum Dietel

- Dept. Ushuaia, N of Paso Garibaldi, in front of Laguna Escondida, 400-500 m, on *Ranunculus peduncularis*, 10.1.1989.

Kuehneola andicola (Dietel & Neger) Dietel

- Dept. Ushuaia, south of Paso Garibaldi, 7 km N of Rancho Hambre, 500 m, on *Rubus geoides*, 9.1.1989.

Puccinia callaquiensis Neger

- Dept. Rio Grande, Cabo Santo Domingo, on *Geranium magellanicum*, 4.1.1989.

Puccinia cfr. *epilobii* DC.

- Dept. Ushuaia, N of Paso Garibaldi, in front of Laguna escondida, 400-500 m, wet slope, on *Epilobium australe* (systemic), 10.1.1989.

Puccinia philippi Dietel & Neger

- Dept. Rio Grande, 3 km E of Ea. Despedida, on *Osmorrhiza depauperata*, 6.1.1989.

Puccinia plumbaria Deck

- Dept. Rio Grande, 6 km SW of Ea. Cauchicol, on *Microsteris gracilis*, 5.1.1989.

Puccinia ribesii-caricis Kleb.

The acidia most probably belong to a *Puccinia* species with alternate generation on *Carex* and is here therefore identified as *P. ribesii-caricis* s. ampl.

- Dept. Ushuaia, south of Paso Garibaldi, 7 km N of Rancho Hambre, on *Ribes magellanicum*, very sparse, 9.1.1989.

Uromyces mulini Schroeter

- Dept. Rio Grande, Cerro Chenen, rocky slope exposed to NW, 200-230 m, on *Azorella*, 8.1.1989.

Uromyces nordenskjoldii Dietel

- Dept. Rio Grande, near the bridge on Rio Grande, 7 km SW of the town of Rio Grande, on *Vicia bijuga*, 4.1.1989. - Another collection in GZU: Dept. Ushuaia, M.te Susane, 120-130 m, on *Vicia magellanica*, "muy numerosamente", 14.12.1969, leg. H. Roivainen (dupl. ex H).

Uromyces pratiae Speg.

Dept. Rio Grande, 3 km E of Ea. Despedida, on *Pratia repens* (systemic), 6.1.1989.

- Dept. Ushuaia, south of Paso Garibaldi, 7 km N of Rancho Hambre, on *Pratia repens* (systemic), 9.1.1989.

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