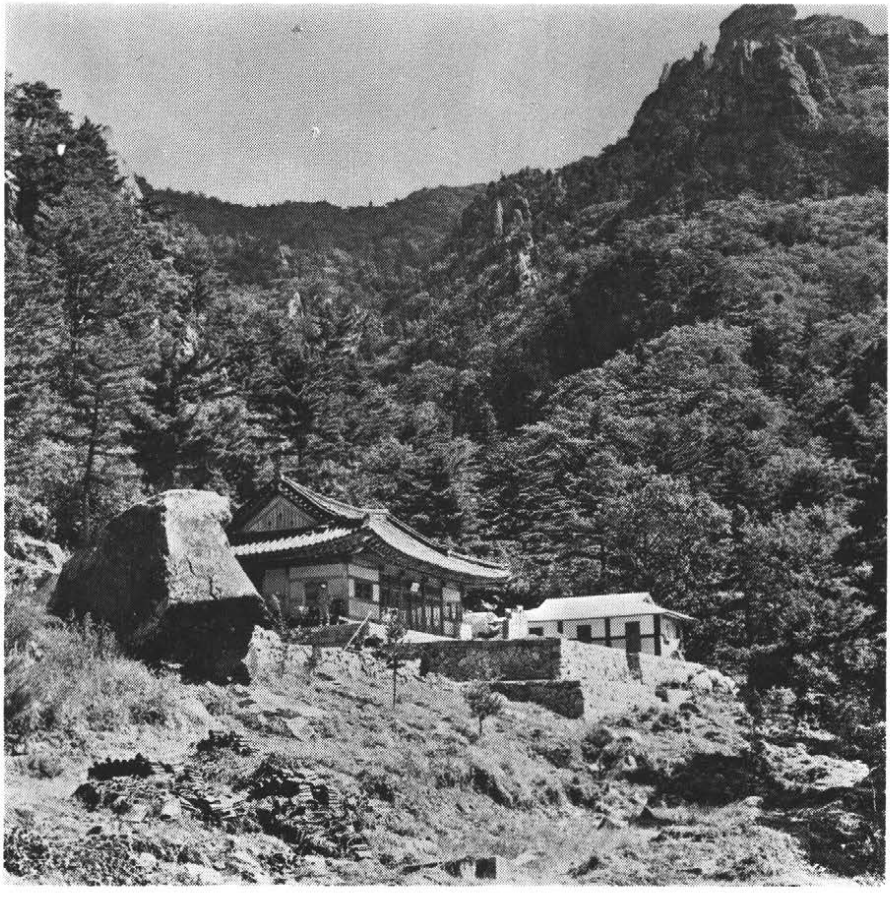
THE NORDIC ARBORETUM EXPEDITION TO SOUTH KOREA 1976



Max. Hagman Lars Feilberg Tomas Lagerström Jan E. Sanda

HELSINKI 1978

"... I am painfully conscious of the demerits of this work, but believing that, on the whole, it reflects fairly faithfully the regions of which it treats, I venture to present it to the public; and to ask for it the same kindly and lenient critisism with which my records of travel in the East and elsewhere have hitherto been received, and that it may be accepted as an honest attempt to make a contribution to the sum of knowledge of Korea and its people and describe things as I saw them..."

Isabella L. Bishop,
Korea and Her Neighbours, 1897.

This report has been prepared at the
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Contents

Front-cover: The temple Ose-am in Mt.Seorak.Station B. The temple is surrounded by a forest of mixed hardwoods,Pinus koraiensis and Abies holophylla.
Photo M.H. 4.9.1976 (Neg.nr 15/76:10).

FOREWORD AND ACKNOWLEDGEMENTS

In June 1972 the Nordic Arboretum Committee was constituted as a result of discussions between delegates from Arboreta and Botanic Gardens in the Nordic countries.

The discussions took place at the recently established Norwegian Arboretum near Bergen - "Arborete på Milde".The committee was assigned to solve the problems common to the Nordic Arboreta and exeeding the ability of the single arboretum. Since it was found that in the Nordic collections many earlier plantations had been made with material of unknown origin or from very limited sources the highest priority was given to collection of plant material for the Nordic arboreta from not represented or only slightly represented areas.

The distribution of "collecting areas" to the different member countries was as follows:

Denmark: The Southern part of South America.
Finland: Northeastern continental Asia.
Norway: New Zaeland, Tasmania and South East Australia.
Sweden: Japan.

The main purpose of the collecting expeditions was to supply the Nordic arboreta and other research institutes with plant material of well defined origin, especially seed. It was also thought, that for particularly interesting species series of collections should be attempted in order to provide material for provenance experiment, an activity rarely earlier carried out with dendrological or ornamental plants.

The expedition to the Republic of Korea was arranged by the Finnish Forest Research Institute, Max. Hagman, professor

of forest genetics in close cooperation with Lars Feilberg, lecturer at the Hørsholm Arboretum, Denmark, Jan E. Sanda, research assistant at the Agricultural University of Norway and Thomas Lagerström, lecturer at the Agricultural College of Sweden.

The expedition was made possible by grants from the Nordic Cultural Foundation (Nordisk Kulturfond) and the Danish National Bank (Nationalbankens Jubilaeumsfond af 1968). We wish to thank these foundations for their valuable support.

The Norwegian shipping company The Wilhelmsen Lines, Oslo kindly supported the expedition by offering transport of the collected material in special cold stores. Shipowner Tom Wilhelmsen expressed from the very beginning a great interest in the expedition and supported its members personally in many ways.

At the time the first formal contacts were made with the Republic of Korea, most valuable help was given by His Excellency Ambassador K. D. Yoon, Embassy of the Republic of Korea, Helsinki.

The excellent technical planning in Korea was done by the Office of Forestry, Seoul and our most sincere thanks go to Director General Sohn, Soo-Ik who not only personally took great care of the wellbeing of the members of the expedition but also mobilized his staff at the Head Office as well as in the different Forest Regions for the many practical problems that had to be solved.

The Office of Forestry also arranged for the permissions to collect in National Forests, National Parks and other protected areas where the most interesting vegetation was to be found, and provided the expedition with transport facilities in the form of two field-going big jeeps with drivers and also in the form of numerous porters in all the many

places where the expedition only could proceed on foot. Only those who have walked the Korean mountains can really appreciate what this means for the success of a botanical expedition.

Of the officers of the Head Office we can only mention here Director Kim, Syung-Yup and Mr. Lee, Kyong-Sang the latter being invaluable in the arrangements of lodging, tickets, mail, local transport, customs etc. etc. thus smoothing our way in to us unfamiliar conditions.

The expedition was very fortunate in being able to set up its headquarters at the Forest Research Institute in Seoul where Director Lee, Sung-Yong kindly provided us with office- and laboratory space and did not mind at all our spreading of herbarium papers to dry all ower the front yard lawn of his institute.

Despite his many duties Deputy Director Sim, Hung-Soo took time to follow the expedition on the first and third course thus helping us continuosly in many activities and providing us en route with information on Korean forestry and forest research problems and achievements.

Seeds, silviculture and landscape architecture are at the FRI the responsibility of the Division of Reforestation and it was therefore clear that our presence put great strain on their activities. Nevertheless, the Division Chief Shim Sang-Yung and his staff met our various needs in a most satisfactory way.

Particularly we have to mention Taxonomist Cho, Moo-Yun, Head Curator of the institutes Hong Nung Arboretum who followed us day and night on all our courses thus providing us with a "Walking Flora" to be consulted on taxonomic or plant geographical matters whenever needed. His help in checking our collections with his herbarium afterwards can

neither be overestimated.

Mr. Cho was during our work assisted in an excellent way by his aide-de-camp, Field assistant Han, Sang-Bae whose great practical experience in seed- and plant collection and handling of the material in the field as well as in the laboratory was of very great help, not to mention his delicious cooking on rainy mountain sides as well as in sunny temple yards.

In matters concerning genetics, provenance research and tree breeding the expedition was fortunate in being able to rely on the Institute of Forest Genetics in Suweon as well as on its branch station in Cheju-do. Director Choi, Jung-Suk and his numerous research officers helped us in many ways and we are very grateful to all of them. Our thanks also to Mr. Hwang, Jae-Woo who followed us on the field trip and Mr. Chung, Min-Sup, who, being a grantee at the Finnish Forest Research Institute, helped us in the preparatory work when the expedition was planned.

Splendid scientific support was also obtained from the faculty members of the College of Agriculture, Seoul National University, Suweon. Professor Hyun, Sin-Kyu had helped the expedition already in the preparatory stages by providing references to literature and commenting on the suggested tour programme and in addition he was kindly quiding us when visiting experiments with introduced exotic trees adding to our knowledge from his great experience in forest tree breeding during many years.

Professor Yim, Kyong-Bin who followed us on the third course, broadened our background to the collection work by supplying basic information in his special field, Korean silviculture. He also gave us many valuable data on Korean forestry in general.

Without the excellent help of Dr. Lee, Tchang-Bok, Professor of Dendrology, many a plant would have remained unidentified.

His life long experience of the Korean flora, gathered during innumerable field collecting tours all over Korea, formed an unmeasureable source of information from which the expedition gained every day he followed us on the second course. However, it must be admitted that for some of us it caused great difficulty to follow him up and down the gorges and tracks of Mt. Jiri-san, where he proved his reputation as a famous marathon runner. His many publications on Korean plants and their use, so generously given to us, will even in the future form a basic library in our work.

Among the many other persons who helped us in Korea, we would here only like to thank Mr. Carl Ferris Miller for his great hospitality and for valuable discussions on Korean dendrology, a field in which he represents great expertise. We would also like to express our gratitude to Mr. W.D. Jones, General Manager of the Everett Steamship Corp. S/A, who helped us with the shipping business when our collections were sent home.

And finally we would like to thank our ground staff at our institutions at home, who has taken care of the plant material and obviously will be very much engaged in it in years still to come.

PREPARATORY WORK IN FINLAND, DENMARK AND KOREA

Korea has, since long ago, been of interest to dendrologists. It has a very rich flora despite the fact that its climate is more severe than in neighbouring Japan.

Since many plants from Japan have been grown successfully in Scandinavian gardens, it could be thought, that plants from Korea would be more hardy and thus suitable for cultivation in the more continental parts of the Nordic countries.

Already E.H. Wilson (1928)pointed out that Korean plants are best suited for gardens where climatic extremes prevail because they enjoy a fixed climate in their homeland.

In the earlier parts of this century Korean plants were imported into Scandinavia, and were in general growing surprisingly well, withstanding e.g. later such severe winters as 1939 - 1944.

The material obtained was, however, limited in sources and in many cases the records about origin were missing or incomplete. For a further development it was therefore considered necessary to try to carry out a collecting expedition having especially in mind the variation within species and trying to obtain as many samples as possible from a wide range of localities.

It was also clear that on such an expedition new species which had not been tested before might be collected.

Since Korea reaches from the Manchurian border in the North to the island of Cheju-do in the south a mere transect through Korea would have to cover a very long distance. This was not possible with the resources available and within the time that could be used for an expedition. Also other reasons made plans for an all-covering collection difficult.

Thus the original intentions of having collections through the whole of Korea had to be abandoned and the experiences from Northern Korea were limited to a short visit by one of us (M. H.) in 1974 to Pyongyan, Wonsan and Southern Kumgang-san.

In 1975 it was decided to concentrate the efforts to Southern Korea where the possibilities looked good. This decision was supported by the fact that a Finnish scientist had collected seeds in the Mur-river region of the USSR in 1974 and that there were promises for a Finnish expedition (which later also took place) to the same area in 1976.

Thus at least a part of the northernmost distribution of many species occuring also in Korea could be covered and the planned expedition could concentrate on the south.

The preparation started in 1975 when the first contacts were made with Korean scientists, and plans developed by correspondence. The arrival at Helsinki in 1976 of a forestry stipendiate Mr. Chung Min-Sup, B. For. Sci., facilitated greatly the detailed planning and study of Korean literature.

In the meantime the Arboretum at Hørsholm, Denmark, had been going throuh the dendrological and horticultural literature and selected lists of species of particular interest. These tentative collecting-lists were later checked by prominent experts in Denmark, Finland, Norway and Sweden.

The Hørsholm Arboretum staff was also preparing the equipment of the expedition, relying on recent experiences from the expedition to S. America. When ready, the expedition box was sent to Korea in the summer of 1976 by ship.

During these preparations, the Korean authorities, both in Korea and abroad were most helpful and it was on their suggestion it was decided that the expedition should base

its work on transport and quidance provided by the Office of Forestry of Korea. It may now be noted that without this generous help the expedition would have been impossible.

Since many of the plants of interest were growing in protected areas, the necessary permission had to be arranged beforehand and also at this work the Korean authorities were most helpful.

To speed up the handling of the material at home, permission were obtained for the rapid import of living plants under the supervision of the plant quarantine authorities in the countries concerned.

Looking back, it would have been useful, if more time could have been allowed for the study of descriptions of Korean vegetation and plants. This was, however, seriously hampered by the fact that most of the pertinent literature is in Korean or Japanese.

ITINERARY AND TIME TABLE

(Note on transliteration: Two systems of writing Korean words in the western alphabet are currently seen in Korea. The McCune-Reischauer system is used in most publications. However, books and maps found in Korea may often employ the Ministry of Education system which has many spellings differing from the M-R system. We have not been able to transliterate all the various names into one of the systems, and it is regretted that confusion may result from this inconsistency in usage.)

Aug. 27 Departure from Copenhagen by Japan Airlines.

Aug. 28 Arrival at Tokyo and stay overnight.

Aug. 29 Arrival at Kimpo airport, Seoul.
Preparatory arrangements and sightseeing in Seoul.

Aug. 30 Visit to Office of Forestry and discussion about field tours.

Aug. 31 Visit to Suweon Agricultural College and the Institute of Forest Genetics in Suweon.

Visit to experimental plantations of the I.F.G. and to the Kyunggi Provincial Forest Research Station in Osen.

Sept. 1 Visit to Forest Research Institute, Seoul.
Setting up headquarters and study tour through the Arboretum and collections of the F.R.I.

Sept. 2 Tour to the Arboretum and experimental plots of the Kwang-Nung Branch Station of the F.R.I.

Sept. 3 Leaving Seoul by car for collecting course 1.
Arriving in the afternoon at temple Baek-dam in the area of Mt. Seolang.

Sept. 4 Collecting tour on foot from Baek-dam to temple Pong-Jung-am (Stations A-F).

Sept. 5 Collecting tour on foot from Pong-Jung-am to the top of Mt. Seolang and back (Stations G-K)

Sept. 6 Collecting tour on foot across Mt. Seolang from Pong-Jung-am to temple Shinheung-sa (Stations L-N).

Sept. 7 Collecting at top of Gweon-geum-seong which was reached by cable-car, and collecting in valley near temple Shinheung-sa (Stations O-P).

Shinheung-sa to Kangnung by car via Nansan-sa (Station Q) along the coast.

Sept. 8 Collecting tour from Kangnung to Kyebang-san -Daegwanryung-temple Woljung (Stations R-T).

Sept. 9 Collecting tour on foot across Mt. Odae (Station U-V).

Sept.10 Collecting tour Woljung-Taegi-san - Byeongmu-san to Changchon-ri (Stations X-Y).

Sept.11 Collecting tour Changchon-ri -Mt. Gyebang-san- Wonju (Stations Z-W).

Sept.12 Collecting tour Wonju - Yong-weol (Station).

Sept.13 Collecting tour Yong-weol - Taebaek-san - Wonju (Stations β-γ).

Sept.14. Retour to Seoul from Wonju.
Handling of collected material at the F.R.I.

Sept.15 Handling of material and preparing for the next tour.

Visit to Icheong and plywood factory.

Sept.16 Leaving Seoul by cars for collecting course 2. Arriving in the afternoon at temple Beob-ju-sa near the Mt.Sogri-san National Park (Station AA).

Sept.17 Collecting tour on foot at Mt. Sogri-san (Stations AB-AC).

By car to Kuchon-Dong.

Sept.18 Collecting tour on foot at Mt.Doekyu-san (Station AD).

Sept.19 Collecting tour Kuchon-Dong - Taegu and sightseeing in Taegu (Stations AE-AF).

Sept.20 Collecting tour Taegu - Mt.Palgong-san - Taegu (Station AF).

Sept.21 Collecting tour Taegu - Pulguk-sa - Chinju (Station AF).

Sept.22 Collecting tour Chinju - Mt.Jiri-san - Chinju. (Station AG).

Sept.23 Visit to Southern Branch Station of the F.R.I. at Chinju. Collecting tour Chinju - Pyok-So-Ryong - temple Hwa-Eom-sa (Station AH).

Sept.24 Travel by car from Hwa-Eom-sa to Chonju.Return to Seoul.

Sept.25 Handling of collected material at headquarters in Seoul.

Sept.26 Handling of material and preparing for the next trip.

Sept.27 From Seoul to Cheju by plane.

Collecting tour and sightseeing on the eastern coastal region of Cheju-do (Station BA).

Sept.28 Collecting tour on foot across Mt. Halla-san (Stations BB-BD).

By car to Seogypo.

Sept.29 Collecting tour on the east side of Mt.Halla-san and along the south coast (Stations BE-BG).

Visit to the Southern Tree Breeding Station of the I.F.G.

By car to Cheju.

Sept.30 From Cheju to Seoul by plane.

Visit to the Office of Forestry.

Oct. 1 Seed cleaning and packing at the headquarters in Seoul.

Oct. 2 Hagman, Lagerström and Sanda leaving Seoul by plane for Tokyo and Copenhagen via Anchorage.

Oct. 3 Arrival at Copenhagen.

Oct. 2 - Oct. 30 Feilberg stays at the Forest Research Institute in Seoul for work with the material.

Some seeds collected from the F.R.I (Station CA).

Oct. 4 Visit to Mr. C. Miller's Arboretum at Chuuli-po on the west coast (Station BH).

Oct. 17 Excursion to Chuncheon, Kuri-po in company of the Korean Dendrological Society (Station DA).

Oct. 30 Feilberg leaves Korea and returns via Japan and Thailand to Denmark.

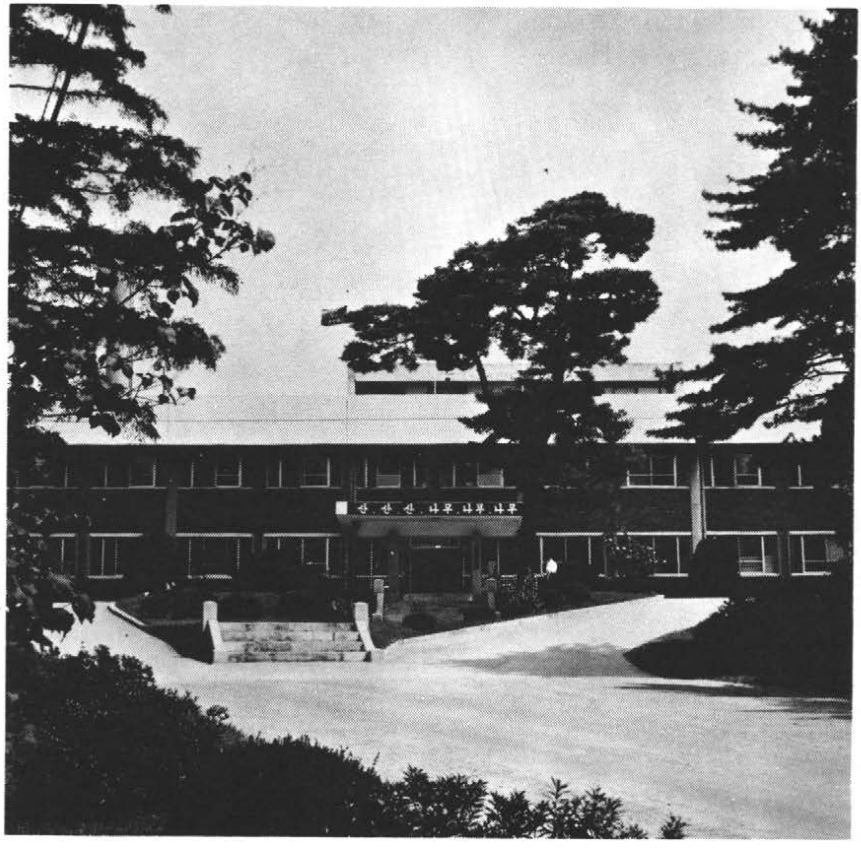

Figure 1. The Forest Research Institute, Seoul, where headquarter was kindly provided for the expedition. Photo M.H. (Neg. nr 14/76:11).

KOREAN FORESTRY AND FORESTRY RESEARCH

The forest land of the Republic of Korea accounts for 67 % of the country's total land area.

The central Korean forest service department is the Office of Forestry under the Minister of Home Affairs.

The main objects of the Office of Forestry are:

- to establish and maintain forest protection
- to enrich forest resources
- to develop and improve utilization of forest products
- to induce better management of forest lands through education, instruction and research.

The total forest land area (as per 1975) is 6 635 352 ha, of which 27,3% is national and public forest and 72,6% private forest.

Of the total forest land 89% (5 980 693 ha) are stocked and 11% (646 876 ha) are unstocked.

The stocked forest land consists of coniferous forest 54%, deciduous forest 18%. mixed forest 28% and a small area covered with bamboos.

The total stock volume is 105 352 000 m^3 which gives an average growing stock of ca. 15,5 m^3/ha. This low value is mainly due to the devastating effects of wars and shifting cultivation followed by erosion and pests and to the difficulties the reforestation work is facing in this highly mountainous country.

Reforestation work is, however, in good progress and the

target for reforestation and afforestation in the 10 year plan is 3 065 000 ha. Of these 625 000 ha has been planted by 1976.

The annual plantation work har in the latest years been c. 100 000 - 130 000 hectares per annum.

The reforestation concentrates in the beginning on erosion control, fast growing species for fuelwood, fruit and nut bearing species and in the long run species for timber production.

Forest management plans are prepared for all classes of forest ownership and the plans are approved by governement authority.

The Shifting Cultivation Resettlement Law has improved forest management by creating policy for settlements, resettlements and reforestation.

The Saemaul Undong movement has been successful also in forestry by inducing the right attitudes toward land-water- and naturemanagement and proper handling of the forests.

For the conservation of wildlife 12 national parks have been set up covering an area of 2 483 km^3 in total. More than 10 000 old and giant trees are protected as nature monuments.

Research organisations under the Office of Forestry are the Forest Research Institute (F.R.I.), the Institute of Forest Genetics (I.F.G.) and the Forest Resources Survey and Research Center.

The Forest Research Institute was established in 1922 and conducts research in the fields of forest management, protection, reforestation, forest soils, utilization and processing of forest products and inspection of forest

products. The institute also conducts on-the-job training for governement forestry officials.

The F.R.I. has a staff of 129 officers and research assistants of which 72 are research foresters.

The institute has 3 branch stations and the Kwang-nung experimental forest has an area of 2 354 ha.

In addition the institute has an arboretum at its head office in Seoul.

The main objects of the Institute of Forest Genetics in Suweon are to study the heredity in trees, develop new varieties, improve vegetation and establish seed orchards.

I.F.G. has a staff of 57 research foresters and 12 technical officers. The institute has 75 ha of nurseries and 2 408 ha of experimental forest and 3 branch stations.

The total area of the seed orchards is 750 ha.

Among the present objects of the I.F.G. are development of fast yielding species, species for fuel and erosion control, crop trees and the introduction of exotics and adaptability studies.

Research is also carried out in connection with the higher education in forestry e.g. at the Seoul National University, College of Agriculture at Suweon.

Figure 2. Members of the expedition in front of the Institute of Forest Genetics, Suweon, together with Korean tree breeders and forest researchers. Photo M.H. (Neg.nr 14/76:4).

KOREAN ARBORETA AND VEGETATION RESEARCH

As early as in 1912 a forest nursery and experimental plantations were established in the Kwangnung forest.

Since 1922 intensive forest reseach including plantations of exotics have been going on there. Kwangnung is nowadays a branch office of the F.R.I.

The plantations at Kwangnung include also plots of Pinus silvestris and Picea abies of Danish and Swedish origin. Some of these plots have developed rather well but not so well as e.g. the endemic Abies holophylla.

In addition to the plantations for forestry purposes there are also an arboretum and a section for edible plants, the later forming an important part of the products of Korean forestry.

In Seoul the F.R.I. has the Hong-Nung Arboretum in which since 1922 has been planted a great variety of Korean plants.

As per 1971 (Cho, 1972) the collection included 635 genera with 1195 species of native plants and 112 genera with 157 species of introduced plants. Many species are in addition represented by several varieties and forms.

The Hong-Nung Arboretum carries out collections all over the country and at the F.R.I.there is also a reference herbarium of 14 000 units and a collection of seed samples.

The Head Curator of this arboretum is Dr. Cho Moo-Yun.

At the College of Agriculture in Suweon, professor T.B.Lee is at the present developing the Kwanak Arboretum which also operates a seed collecting and exchange system.

The Kwanak Arboretum uses the reference herbaria of the College of Agriculture.

At all branch atations of the research instituties there are smaller arboreta and the regional forest offices usually have demonstration plots and gardens at their headquarters.

Botanical gardens were not visited by the expedition but are in possession of collections of trees and shrubs as well as of other plants.

Mr. C. Miller, of Seoul, has a private arboretum in Chuuli-po on the western coast and he is particularly interested in Ilex.

And finally on has to remember that Korean arboriculture is gaining much from the rich tradition of gardening at the temples ans imperial mausolei, many of which have plantations going back many hudreds of years.

The study of the flora Korea, initiated by Palibin (1899, 1900,1901), rests well on the foundation laid by Takenoshin Nakai who worked with Korean plants from 1909 to 1952.

The richness of the flora (3 176 species, 841 varieties and 174 formae; to quote Nakai, 1952) leaves, however, still room fore more work which is in good progress.

Studies initiated by the late Dr. Chong Tae-Hyon and followed by his pupils and collegues have increased the knowledge of the plant geography of Korea. Especially the studies of the distribution of trees and shrubs on the different mountains of Korea are of great value for the dendrologist.

It is natural,that much of the new work is written for the Koreans themselves,but one who is interested in Korean plants still hopes for a recent Korean plant geography in a western language.

CLIMATE AND ECOLOGY

The climate of Korea is determined by its latitudinal position, its terrain and of the currents in the surrounding seas.

The peninsular location of Korea on the edge of the land mass of continental Asia causes a decided variation between the cold of the winter and the heat of the summer, and the monsoonal center of North Asia located in Mongolia generates even more seasonality in the climate.

Thus, winters are colder and summers are hotter than in other regions of similar latitudes away from the continental influence.

The average January temperature in Seoul is as low as -4,9°C and minimum temperatures of -23,1°C have been recorded in the same place.

The eastern coast, being separated from the west by mountains and effected by the warm currents in the Japan Sea, is warmer measured in annual average, than the west.

The Korean winter is dry and cold, begins in December and extends into February-March. Spring starts in April and the hottest period of the year is beginning in early August and lasts for about one month.

In the midlands (Taegu) temperatures of +40°C have been reached in this season.

The rainfall during the season June-August is 50-60% of the annual total of 800-1000 mm. October-March is the dry period. Snow is nevertheless common in the winter.

Korea has been divided into eight climatic zones but there

is in addition great differentiation geographically and in fact, each mountain valley and slope has its unique climate. The zones of climatic variation that are dependent upon differences in elevation are in some places very well marked e.g. on Mt. Halla-san in Cheju-do.

The greater part of Korean soil is made up of granite and gneiss. The soil is generally sandy and contains only 12-37% of clay. In Kangwon-do limestones occur with the formation of terra rossa soils.

The soils of Korea are greately influenced by the rain falls during the summer months when the weathered soil surface is apt to be washed away, and many hills are eroded to a high degree.

The Korean vegetation has been divided into five main zones which correspond also to the forest zones such as they are recognized e.g. by Uyeki (1933).

Along the southern coast and on the offshore islands exstends the warm temperate zone with bread-leaved evergreens such as Camelia, Cinnamomum and Quercus glauca. Bamboos of considerable dimensions can be seen growing in this region.

The temperate zone, to which most of the southern Korea belongs might be divided in a southern part and a northern part.

The southern area is characterized by Pinus densiflora, Quercus aliena, Q. acitissima, Carpinus cordata, Carpinus laxiflora and Zelkova.

In the northern part, the Quercus - Abies belt, typical species are e.g. Quercus mongolica,Acer mono, Cornus contro-

versa , Tilia amurensis, Fraxinus rhychophylla, F. manchurica and Kalopanx pictus. Abies holophylla and A. nephrolepis are increasing towards the north and so is Pinus koraiensis.

The cold temperate zone, the Abies - Betula belt is mainly situated in northern Korea but appears also at higher elevations along the Taebaek Mountains range such as at Mt. Seolag-san, Mt. Doekyu-san, Mt. Jiri-san and even to a certain extent on Mt. Halla-san.

Among the conifers of this zone are Thuja koraiensis, Abies nephrolepis and Pinus pumila in the northern part, Picea jezoensis isolated in the central part and Abies koreana in the central southern part. Taxus cuspidata is spread all over S. Korea. The hardwoods consist of several maples, Betula ermanii, Betula platyphylla, Betula schmidtii, Quercus mongolica, Sorbus amurensis, S. commixta.

Characteristic for all Korean vegetation zones is the great amount of shrubs and climbers that exist in the ground layer and that, as soon as the forest is lightened up, forms an almost unpenetrable jungle. Rhododendrons are very common in this layer and so are climbers like Tripterygium regelii, Vitis, Actinidia, Clematis and many others.

Fortunately for the plant collector, the Korean vegetation zones occur latitudinally as well as altitudinally and so a great variation of plant species might be collected on just one mountain.

Within the limited space of this publication it is not possible to go into more details of the Korean plant geography and the reader is referred to the papers by the specialists.

One character of the Korean vegetation must,however,not be forgotten and that is,that at the present much of the original climax stages of the vegetation have been lost and replaced by secondary stages of a more pioneering nature.

This is due to overcutting in the past times and to the praxis of shifting cultivation,very common not long ago. The best picture of original Korean vegetation can be obtained in remote mountaineous areas,national parks and temple forests.

To what extent the reforestation work now going on will restore the complex patterns of the Korean forest vegetation remains to be seen.It will,no doubt,take a long time.

COLLECTING LOCALITIES

A. 38°09' N 128°24' E, 520-900 m.

Mt. Seolak-san. A small river valley from the temple Baekdam at 500 m towards ESE and the temple Ose-am at 900 m.

At the bottom of the valley rich hardwood forest with high trees of Quercus mongolica, Carpinus cordata, Acer mono, Fraxinus sp., Picrasma and a dense undergrowth of Lindera obtusiloba, Styrax obassia, Staphylea bumalda, Euonymus species, Acer ginnala and others.

In places with more light the shrubs and trees are spun together by climbers such as Tripterygium regelii, Vitis amurensis, Actinidia spp. and Aristolochia mandschuriensis.

Later on in more hilly terrain the hardwood forest is mixed with big trees of Pinus koraiensis, P. densiflora and Abies holophylla.

B. 38°09' N 128°24' E, 800-1000 m.

Mt. Seolak-san. A path along small streams and low hills. The depth of the soil is variable, grit, sand and granite boulders. The forest is a high forest dominated by oaks: Quercus mongolica, Q. serrata, Carpinus cordata, Acer mono, A. tegmentosum, Kalopanax pictus, Maackia amurensis, Tilia sp., Betula ermanii, B. schmidtii and mixed conifers: Abies holophylla, Pinus koraiensis and P. densiflora.

The dense ground vegetation is dominated by Acer pseudosieboldianum, one of the characteristic plants in the South-Korean flora together with Quercus mongolica and Rhododendron schlippenbachii. In addition Euonymus spp. Lindera, Styrax and Rhododendrons are common.

Figure 3. A large, old Abies holophylla in the foothhills of Mt. Seorak between coll. stations A and B. Diameter at breast height 170 cm. In front of the tree Dr. Cho Moo Yun, Head Curator, Hong Nung Arboretum, FRI, Seoul.
Photo M.H. 4.9. 1976 (Neg.nr 15/76:8)

C. 38°09' N 128°26' E, 850 m.

Mt. Seolak-san. River bottom at small stream in direction E-W. Big boulders and stones along the stream and finer soils higher up on the river banks. On the slopes a mixed forest of Quercus mongolica, Betula ermanii, B. schmidtii, Fraxinus sp., Maackia amurensis, Kalopanax pictus, Carpinus cordata. A characteristic tree in the landscape is Cornus controversa with its regular horisontal branches. In addition Juglans mandschurica, Prunus maackii, Sorbus commixta and at the bottom along the river Alnus. The mixture of conifers is dominated by Abies holophylla but also both pines are common.

In the dense shrub layer on the banks of the stream are growing: Euonymus sachalinensis, Aralia elata, Acer pseudosieboldianum, Sorbus amurensis, Syringa wolffii, Vaccinium species, Rhododendron faurei v. rufescens, R. mucronulatum, R. schlippenbachii and Magnolia sieboldii.

D. 38°09' N 128°27' E, 800-1000 m.

A rich northern slope and up the creek in good moisture conditions. Very vigorous forest of the type mentioned above at C. The shrub layer is dominated by Acer pseudosieboldianum, Magnolia sieboldii and Thuja koraiensis. Higher up around 1000 m rich growths of Viburnum sargentii, Syringa velutina and Deutzia koreana.

E. 38°09' N 128°27' E, 1170-1200 m.

Northern slope with a mixture of hardwoods and conifers of more open character than below. Quercus mongolica, Betula ermanii, Acer mono and other maple species dominate. Pinus koraiensis, P. densiflora and Abies nephrolepis. A. holophylla is totally missing at this station. In the deeper parts of the slope Thuja koraiensis is reaching good dimensions (15 m high trees).

Climbers, especially Tripterygium are spinning together the

rich shrubvegetation which consists of the same species as at C and D. Aralia elata, Echinopanax horridus and Rhodgersia ap. give the vegetation a certain character. Rhododendron faurei is frequent.

In the field layer herbs and grasses are dominated by small bamboos (Sasa sp.) as has been the case also at all earlier stations.

F. 38°09' N 128°27' E, 1250 m.

Ridge exposed NW rising to small pass at 1350 m. Granite and windaffected Quercus mongolica, Pinus densiflora, Betula ermanii and dense shrub layer of Rhododendron schlippenbachii, R. mucronulatum and Vaccinium sp.

G. 38°08' N 128°28' E, 1300 m.

Small valley exposed west, with a small temple Pong-jung-am surrounded by high sharp granite rocks. On the slopes below the temple dense hardwood forest with Quercus mongolica, Acer mono, Cornus controversa etc. A rather high proportion of Pinus koraiensis is growing as a mixture in the oak forest.

H. 38°07' N 128°29' E, 1700 m.

Tae-cheong-bong ("The huge blue") is the highest point, 1708 m. of Mt. Seolak-san which in turn is a southern extension of the famous Diamond mountains now north of the 38° line.

Grasses, low herbs and a low dense mat of vegetation cover the stony top. Abies nephrolepis, Pinus pumila, Quercus mongolica, Betula ermanii and shrubs such as Acer pseudosieboldianum, A. tschonoskii v. rubripes, Syringa wolffii, Vaccinium sp., Salix hallasanensis and several Rhododendrons: schlippenbachii and mucronulatum.

Climbers like Tripterygium, Clematis koreana and C. fusca.

Figure 4. Mt. Seorak, exposed ridge leading to the top.
Collecting station J.
Photo M.H. 5.9. 1976 (Neg.nr 16/76:2)

I. 38°07' N 128°29' E, 1620 m.

A very exposed and windy ridge between Tae-cheong-bong and the neighbour top to the west Chung-chong (1660 m).

The vegetation occurs in two layers with the "crown-layer" height 0.5 - 1 m consisting of Betula ermanii, Quercus mongolica and Pinus pumila and the lower layer of creeping Taxus cuspidata and Thuja koraiensis.

Among the shrubs Syringa woffii, Rhododendron mucronulatum, Crataegus komarovii and Salix spp. Rich flora of herbs: Angelica sp. Synurus deltoides, etc..

K. 38°07' N 128°29' E, 1600 m.

Slopes of Chung-chong exposed SSE. Vegetation as tall as man: Quercus mongolica, Betula ermanii, Alnus sp., Salix hallasanensis, Sorbus amurensis, Acer pseudosieboldianum, Euonymus sachalinensis, Syringa wolffii, Weigela sp., Berberis amurensis, Rhododendron mucronulatum and R. schlippenbachii, all spun together by Tripterygium regelii.

The rich ground layer, which very much reminds of Scandinavian mountain birch forest near the timber line, is dominated by Angelica sp., Aconitum, Synurus and others.

L. 38°08' N 128°29' E, 1660-1500 m.

Slopes of Mt. Seolak-san exposed SW and windy.
On the slope that lies just above the tree-line there is a shrubby layer of Abies nephrolepis, Thuja koraiensis, Pinus pumila, Taxus cuspidata, Betula ermanii, Quercus mongolica, Syringa spp., Lonicera sp., Acer pseudosieboldianum, Rhododendron mucronulatum and R. schlippenbachii. Tripterygium and Clematis are common.

Below 1500 m the forest is higher and new species in the dominantly deciduous forest are Magnolia sieboldii, Sorbus commixta, Rhododendron faurei. Pinus pumila and Taxus

Figure 5. Mt. Seorak. Ground vegetation between stations H and J, altit. 1660 m. Pinus pumila, Taxus cuspidata, Acer pseudosieboldianum, Thuja koraiensis, Rhododendron mucronulatum.
Photo M.H. 5.9. 1976 (Neg. nr 16/76:4).

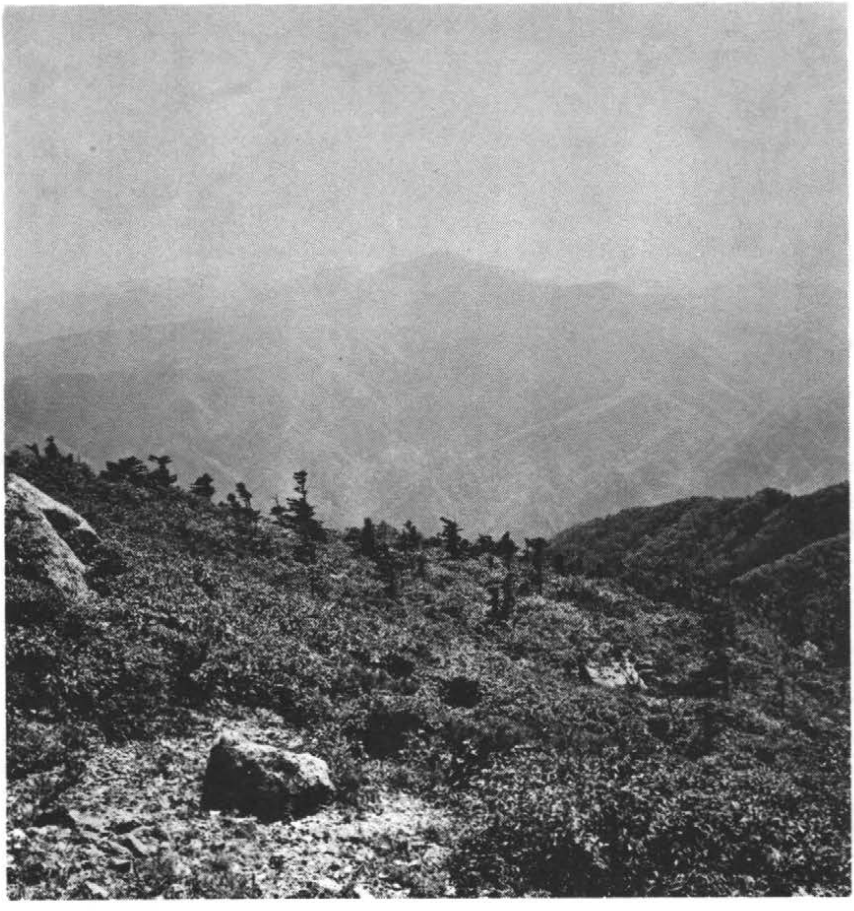

Figure 6 Mt.Seorak. Abies nephrolepis forming timber line on the SW-slope between stations J and H. Altitude 1450 m.
Photo M.H. 5.9. 1976 (Neg. nr 16/76:6).

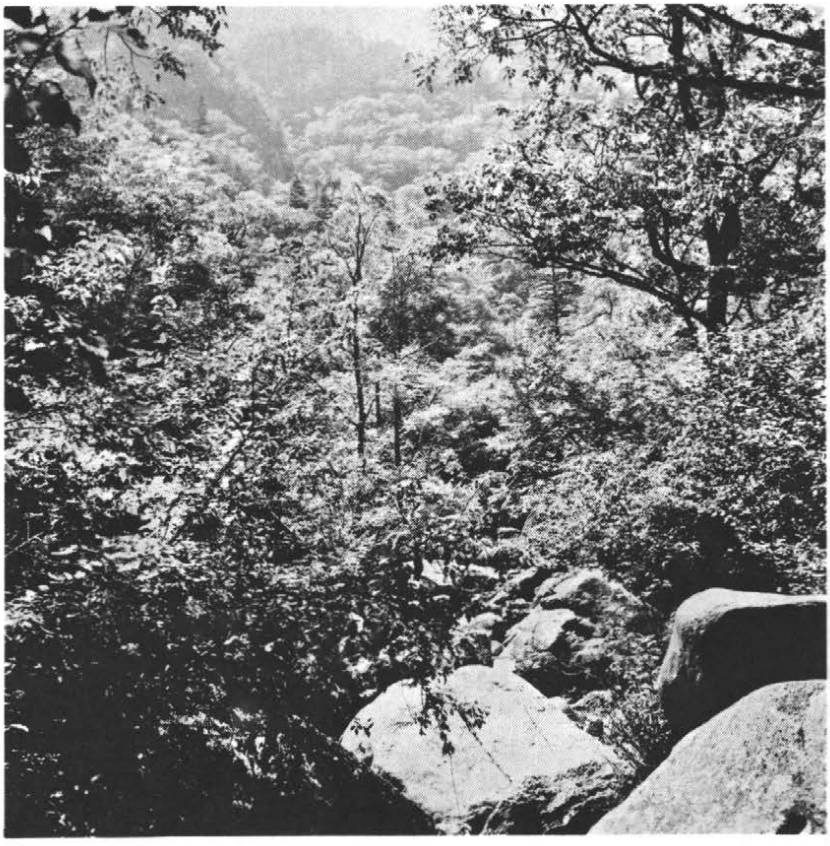

Figure 7. Mt. Seorak Typical mixed hardwood forest in a small creek at 850 m on the E-slope near Jan-po. Quercus mongolica, Betula schmidtii, Carpinus laxiflora, Carpinus cordata and Acer mandschuricum. Photo M.H. 6.9. 1976 (Neg. nr 16/76:10).

cuspidata have disappeared and been replaced by Pinus koraiensis.

Down towards 1400 m occurs in addition Tilia taquetii, Acer ukuruduense, Prunus padus v. glauca, Actinidia spp.

The rich field layer is growing among others Rhodgersia, Cimicifuga, Echinopanax horridus, Clematis fusca v. koreana and on the north sides of the shaded pieces of rock Saxifraga fortunei.

Below 1400 m Quercus mongolica is forming almost pure stands. All over the slope dense Tripterygium-mats makes the walking difficult.

M. 38°08' N 128°29' E, 1600-1150 m.

Down along the NE slopes of Mt. Seolak-san from the top So-chong.
Very steep slopes with even vegetation. The tree line goes on the ridge at around 1500 m. Abies nephrolepis was carrying cones up to 1450 m but the quality of the seed could not be controlled.

On this slope an area burned by forest fire about 5 years ago. Betula, Acer, Prunus maackii, Sambucus, Chosenia bracteosa, Rubus and high exemplares of Angelica gigas have invaded the burnt area.

In the partly open forest along the slope the climbers Actinidia arguta, A. kolomikta, A. polygama and tripterygium form, together with Sasa-bamboos almost impenetrable mats between the trees.

Abies nephrolepis, Pinus koraiensis, Prunus serrulata, Maackia amurensis, Quercus mongolica, Betula ermanii, Magnolia sieboldii, Rhododendron faurei, R. schlippenbachii, Acer pseudosieboldianum, Euonymus sachalinensis and Thuja koraiensis form the forest.

Figure 8. Mt. Seorak River valley vegetation between collection stations M and N, north of Jan-po. In the foreground a large Betula schmidtii.
Photo M.H. 6.9.1976 (Neg. nr 16/76:11).

On the lower part of the slope grows a 15-20 m high forest dominated by Quercus mongolica with mixed Pinus koraiensis, Prunus serrulata, Acer mono and big trees of Kalopanax pictus. This species was just flowering at the elevation of 1300 m.

The groundlayer as usually dominated by shrubs of Rhododendron together with Acer tschonoskii v. rubripes, A. pseudosieboldianum, Magnolia sieboldii, Aralia elata and others.

N. 38°09' N 128°29' E, 1130- 480 m.

Further slopes towards NE. At the foot of the hill M a level plateau with hardwoods: Salix spp., big trees, Alnus spp., Tilia amurensis, Acer mono, Fraxinus sp. In the shrub-layer occur Philadelphus schrenckii, Spiraeas, Acer pseudosieboldianum, Euonymus macropterus, Clematis heracleifolia, Actinidias and Tripterygium.

In the upper part of the main gorge which leads towards the coast, a new vegetation type appears with Betula schmidtii, Carpinus cordata, C. laxiflora and Styrax obassia as characteristic plants.

This vegetation type follows the deep ravines with the characteristic steep rocky sides as seen in pictures from the Diamond mountains.

In the ravine-forest high trees of Quercus mongolica, Fraxinus manchuricum, F. rynchophylla, Acer manchuricum, A. mono, Tilia amurensis are appearing and pine trees are creeping up on the almost unaccessible places.

Euonymus, Philadelphus, Deutzia, Lindera obtusiloba and Magnolia sieboldii are common.

On the steep rockwalls grows Forsythia ovata (880 m) and Parthenocissus tricuspidata (600 m). Gentiana scabra var. buergerii f. stenophylla decorates the sides of the narrow

path along the clear green water forming deep pools.

Lower down the valley the path broadens to a tourist road and the vegetation shows a marked influence of the tourist traffic.

O. 38°09' N 128°30' E, 800 m.

Gweong-geum-seong. A rocky slope exposed towards east above the end station of the cable-car.

The vegetation consists of 1-3 meter high Quercus mongolica and Pinus densiflora that grow in crevices of the rocks.

P. 38°10' N 128°30' E, 200 m.

Temple Shinheug-sa. Flat river bottom valley with stones, gravel and sand. High forest of Quercus mongolica, Q. serrata and Pinus densiflora. In the crown layer is also mixed Acer triflorum, Prunus sp. and Fraxinus manschuricum.

On the more exposed areas along the river thick shrubby vegetation with Syringa reticulata, Rhus trichocarpa, R. japonica, Xanthoxylum sp. Styrax obassia and Lespedeza. The ground is covered with Sasa. Again the climbers, Aristolochia, Manchuriensis, Celastrus orbiculatus, Tripterygium regelii and Pueraria thunberghii form a very dense thicket.

Higher up on the sides of the valley the soil is richer in finer material and there grows a good high hardwood forest with mixture of some old big fine trees of Abies holophylla.

In the crown layer dominate Quercus, Hovenia dulcis, Populus maximowiczii, Acer triflorum and in the shrub layer Symplocos chinensis, Styrax obassia, Syringa reticulata and Staphylea bumalda. The always common Sasa is also growing here.

Figure 9. Garden of the temple Nagsan-sa. In the background Cornus controversa.
Photo M.H. 7.9. 1976 (Neg. nr 17/76:2).

Q. 38°08' N 128°38' E, 100 m.

Temple Nag-san-sa, near the coast of the Japan Sea.
In the temple grounds several planted tree species such as Diospyrus, Paulownia, Prunus and many cultivars.
The surrounding forest is dominated by Pinus densiflora.

R. 37°44' N 128°44' E, 1030 m.

Daegwangryung. On the N-S water divide not very far from the coast. A high plateau country with severe winters and much snow. Temperature might drop to - 30° - -33° C and the earliest frosts occur in September. Late frosts as late as June 2. Rainfall about 1200-1300 mm.

The topography is hilly with valleys, creeks and typical frost pockets with dense soil conditions and obviously a very rough microclimate.

Large areas now cleared for cattle grazing which is causing the beginning of erosion.

Ridge exposed towards the east with no further high hills between this place and the sea coast.

Low shrubby vegetation with Taxus cuspidata, Tilia amuransis, Sorbus alnifolia, Quercus mongolica, Sorbus commixta, Cornus controversa, Acer pseudosieboldianum, Corylus sp., Rubus sp., Rhododendron schlippenbachii and dense climbers of Vitis amurensis and Tripterygium.

S. 37°45' N 128°42' E, 1000 m.

Daegwangryung. A typical frost pocket in a round valley bottom. The surrounding hills partly covered with vegetation of shrubs. The soil is swampy and the waterlogged banks of a small stream carry Salix, Alnus, Syringa reticulata and smaller shrubs.

Figure 10. Kyebang-san, Daegwanryung. Highland W of the water divided near collecting station R. Altitude 1030 m, land partly cleared for pastures.
Photo M.H. 8.9. 1976 (Neg. nr 17/76:3).

On the sogged meadow high herbs such as Aconitum spp., Cimicifuga sp. and grasses grow. They are accompanied by small shrubs e.g. Spiraea miyabei.

T. 37°43' N 128°41' E, 900 m.

Daegwangryung. A small rivervalley in the same area of the big cattle farm. High forest of Quercus mongolica with mixed Tilia amurensis, Fraxinus rynchophylla, Carpinus cordata, Malus baccata v. manschurica, Maackia amurensis, Pinus densiflora and Salix koreana.

Acer mono undergrown by A. pseudosieboldianum, Syringa reticulata, Corylus sieboldii, Lonicera sp., Viburnum sargentii, Weigela subsessilis, Aralia elata, Rhododendron mucronulatum and R. schlippenbachii.

U. 37°47' N 128°34' E, 850-1550 m.

Mt. Odae-san. Southern slopes of the mountain above the temple Sangweon. Old forests around the temple which is managing about 5000 ha forest.

800-1000 m. Old forest with Betula schmidtii and Abies holophylla and a younger generation of Quercus mongolica, Tilia sp., Acer mono, Carpinus cordata and Pinus koraiensis.

The groundvegetation is very dense and uniform and is composed of Acer pseudosieboldianum, Rhododendron mucronulatum and R. schlippenbachii.

1000-1200 m. Mainly oakforest of Q. mongolica with strong mixture of Abies holophylla and Pinus koraiensis and a few single Kalopanax pictus. In the lower canopy mainly Carpinus cordata, Acer mono, A. pseudosieboldianum, A. tegmentosum, A. barbinerve, A. tschonoskii v, rubripes, Prunus serrulata, Pyrus ussuriensis, Rhhododendron schlippenbachii and Sasa. Single individuals of the endemic Hanabusaya appear along the path.

Figure 11. Weol-jong, near temple Wolchong-san. Preparing for the day's work after a good night at the local inn.
Photo M.H. 9.9.1976 (Neg. nr 17/76:4).

1200 m. Old high forest of Quercus mongolica with single magnificent trees of Kalopanax pictus and Tilia amurensis. Lower canopy of Acer mono, A. pseudosieboldianum and in the shrub layer mainly Rhododendron schlippenbachii, R. mucronulatum and in some places Viburnum wrightii.

1350 m. Low forest of the species mentioned above and in addition Malus baccata v. manschurica, Prunus padus v. glauca, Corylus sieboldiana, Euonymus sachalinensis and Viburnum sargentii. Rich flora of climbers such as Tripterygium and Clematis.

As the forest becomes lower the ground vegetation increases in richness and the general view reminds very much of the herbvegetation in the Scandinavian birch forest at high altitudes.

White and blue Aconitum, Synurus, Circium coreana, Lychnis dahurica, Cimicifugas and other herbs are common.

V. 37°48' N 128°34' E, 1563-1200 m.

Top of Mt. Odae-san. A dense shrubby forest of Quercus mongolica, Betula ermanii, Abies nephrolepis, Pinus koraiensis, Acer pseudosieboldianum, A. tschonoskii, Malus baccata v. mandschurica, Sorbus commixta, Syringa wolfii, Weigela subsessilis, Viburnum sargentii, Berberis amurensis, Spiraea miyabei, Prunus padus v. glauca, Symplocos chinensis, Rhamnus davurica, Vaccineum koreanum, Rhododendron schlippenbachii, R. mucronulatum, Tripterygium regelii and Clematis ochotensis.

The ridge from the top of Mt. Odae-san towards the next top (1483 m) 2 km NE, consists of rich fine soil material with few rocks and stones. The relatively moist site is covered with hardwood förest, heights up to 15 m, with single individuals of old trees of Betula ermanii, Malus baccata, Tilia amurensis and Quercus mongolica. A very large Pyrus ussuriensis, certainly more than 100 years old, with rich fruit setting and the trunk covered with the fern Lepiosurus

Figure 12.Mt. Odae. Having lunch at the top, alt. 1565 m.
Photo M.H. 9.9.1976 (Neg.nr 17/76:6).

Figure 13. Mt. Odae. A very old Taxus cuspidata growing on the top ridge of Mt. Odae, altitude 1500 m. Photo M.H. 9.9.1976 (Neg. nr 17/76:11).

thunbergianus. Scattered in this forest grow very old trees of Taxus cuspidata, one of them measuring nearly 1 m in diameter at breast height. A few Abies nephrolepis. In the ground layer, in addition to those species mentioned above, occurs Magnolia sieboldii.

The soil is covered with a very dense vegetation of high herbs such as Cimicifuga spp., Aconitum spp., Ligularia sp. Lychnis sp. and Angelica.

The road down from the top goes along a stony southern slope with a high forest of Quercus mongolica, Mixed in the oak forest grow Fraxinus sp., Betula ermanii, Acer mono, A. triflorum, A. pseudosieboldianum, Sorbus commixta and Corylus sieboldiana.

Along the forest road below 1200 m grows a rich forest with Abies holophylla, Cornus controversa and Kalopanax pictus.

X. 37°35' N 128°18' E, 850 m.

Southern slope of Mt. Taegi-san, on sandstone. A valley exposed S where the old forest has been cut. Some single trees of old Quercus mongolica, Acer mono and Tilia sp. are still standing.

In the coppice of the same species occurs also Quercus dentata. The dominating small trees and shrubs are Acer pseudosieboldianum, Magnolia sieboldii, Aralia elata, Acanthopanax sessiliflorus, Lespedeza spp., Deutzia glabrata, D. parvifolia and Rhododendron schlippenbachii.

The rich growth of climbers forming an unpenetrable net among the shrubs consists of Tripterygium, Actinidia arguta, A. polygama, A.kolomikta, Schizandra chinensis and Vitis amurensis.

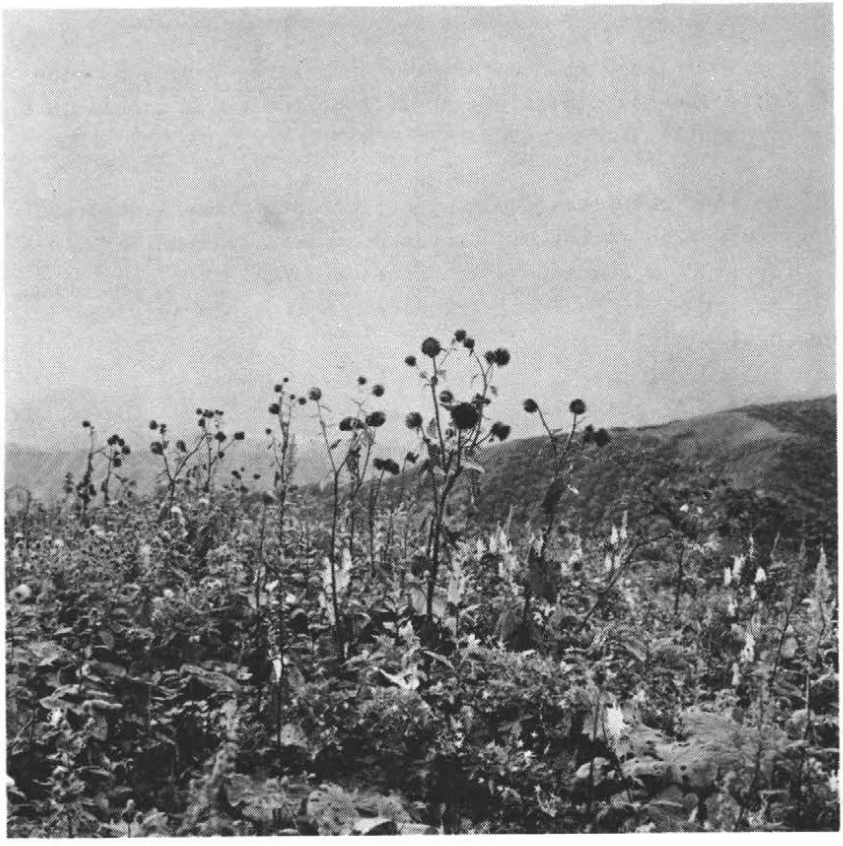

Figure 14. Mt. Odae. Ground vegetation on top of Mt. Odae, station V, altitude 1480 m. Synurus deltoides, Circium coreanum, Aconitum ushiyamay, A.pseudo-laeve, Lychnis dahurica etc.
Photo M.H. 9.9. 1976 (Neg.nr 17/76:12)

Y. 37°39' N 128°10' E, 500 m.

Near the road east of Byeongmu-san. A narrow valley with a small river at the bottom, granite, stones and gravel along the river.

Open forest with shrubs: Quercus mongolica, Betula ermanii, B. schmidtii, Ulmus spp., Carpinus cordata, C. laxiflora, Acer mono, A. ginnala, Fraxinus sp., Cornus controversa, Styrax obassia and Pinus densiflora.

The shrub vegetation along the river is dominated by Euonymus sachalinensis, Deutzia parvifolia, Magnolia sieboldii, Philadelphus scaber and Acer pseudosieboldianum.

The shrubs are decorated with climbing plants: Vitis amurensis, Actinidia spp., Clematis trichotoma, C. mandschurica, Smilax sieboldii and Dioscorea quinqueloba.

Z. 37°42' N 128°27' E, 1000 m.

Along the pass road from Chang-chon-ri across Mt. Gyebang-san, 3,5 km from the top towards SW. Northern slopes of the mountain with high forest on steep slopes exposed NNW. Very few shrubs in the ground layer. Quercus mongolica is dominating and other important species are Fraxinus rynchophylla, Ulmus sp., Acer mono and Cornus controversa. Single trees of Abies holophylla, Kalopanax pictus and Juglans mandschurica.

At the top of the pass (1100-1150 m) a belt of land formerly subject to shifting cultivation, surrounded by forest of Quercus mongolica together with Acer mono, A. pseudosieboldianum and Sorbus alnifolia. Under the trees grows Rhododendron schlippenbachii.

On the former fields grow a few shrubs: Weigela sp., Philadelphus and Tripterygium in a rich herb - and grassvegetation.

Figure 15. Kyebang-san, pass 3 1/2 km SW of Mt. Gyebang. Station Z-W, altitude 1150 m. Different stages of vegetation after the fields of shifting cultivation have been abandoned.
Photo M.H. 11.9.1976 (Neg. nr 18/76:5).

Mischantus sp., Angelica gigas, Lilium tsingtauense. Astilbe spp., Filipendula palmata, Lysimachia sp., Iris nertschinskiana and Arisaema amurense are the most frequent elements of this flora.

W. 37°41' N 128°28' E, 800 m.

Along the road south of the pass across Mt. Gyebang-san. A sandy ravine broadening towards south. Open hardwood forest with islands of Pinus densiflora, especially along the small river, and single trees of Abies holophylla. In addition Fraxinus rynchophylla, Acer mono, A. pseudosiebodianum, Euonymus sachalinensis, Salix spp., Alnus sp., Sasa and many climbers.

∝. 37°12' N 128°27' E, 210 m.

Kalgul, along the river, 8 km from Yeong-wol. Limestone hills of 30-50 m relative height. Dry soil with coppice of Quercus dentata, Q. aliena, Q. acutissima, Euonymus alata, Eleangnus umbellata, Viburnum burjaeticum, Abelia koreana, Spiraea trichocarpa and Clematis brachyura.

β 37°09' N 128°51' E, 850 m.

Mt. Taebaek-san, Se-song. North slope c. 8 km NW of the top of Mt. Taebaek (1546 m). Heavy rain and high wind caused by a taifun from the Japan Sea prevented us from going higher up the slopes of Mt. Taebaek-san.

Limestone rocks and granite around a small creek with much gravel. The slope is very steep and the vegation shrubby as a result of coppicing for fuelwood. A few trees higher than 5m. Pinus densiflora and P. koraiensis and single trees of old Abies holophylla and Pyrus ussuriensis.

In the scrublayer young plants of Zelkowa serrata, Betula schmidtii, Carpinus spp., Fraxinus rynchophylla and F. sieboldiana.

Figure 16. Near Mt. Sogri. The Jeong-i-pum Pine. According to the legend of Yeonsong this old pine tree (Pinus densiflora) "lifted its boughs to make way for King Sejo (A.D. 1455-1468). Pleased by this tribute, the King awarded the tree the senior grade of the 2nd Court rank, "Jeong-i-pum" ". This rank is still respected to-day and the tree a National Monument.
Photo M.H. 16.9.1976 (Neg.nr 19/76:1).

The shrub vegetation is rich and consists of Euonymus spp., Spiraea spp., Lespedeza spp,, Deutzia spp., Viburnum carlesii, Abelia koreana, Philadelphus spp., Weigela spp., Acer pseudosieboldianum, Corylus sieboldiana, Magnolia sieboldii, Rhus japonica, R. trichocarpa and Rhamnus schneiderii.

The clibers are well developed, and among others Actinidia spp., Aristolochia mandschuriensis, Clematis serratifolia, Tripterygium and Dioscorea are common.

♂ 38°08' N 128°44' E, 450 m.

Nokcheon-ni, c. 34 km from Yeong-wol. Narrow pass at the road where the river and the road break through a steep rocky hill. Among the pure rocks of the slopes Pinus densiflora grows up to the top of the hill. Coppice of Quercus aliena, Q. dentata and Ulmus sp.. Rhododendron micrantum is growing on the slopes and the moist rock-faces are partly covered with Parthenocissus tricuspidata.

Second collecting tour to central, southeastern and southern parts of the Korean mainland.

AA. 36°33' N 127°51' E, 500-850 m.

Mt. Sogri-san, western slope on granite above the temple Pop-ju.

Rich deciduous forest with single conifers, old large Pinus densiflora. Quercus-Carpinus forest with Q. aliena, Q. serrata, Carpinus cordata and C. laxiflora. Fraxinus runchophylla, Zelkowa serrata, Stewartia koreana, Acer mono, Ilex macropoda, and Acer pseudosieboldianum.

Very rich shrub layer with Wuonymus oxyphyllus, Styrax obassia, Magnolia sieboldii, Desmodium oldhamii and climbers such as Actinidia spp., Smilax china, Akebia quinata, Vitis amurensis and Tripterygium regelii. The ground is totally covered with Sasa purpurascens.

AB. 36°33' N 127°51' E, 550-850 m.

Mt. Sogri-san. Steep slope (45° - 50°) with stones and very little topsoil in a deep gorge with a small stream at the bottom. Rich deciduous forest of a moist fresh type dominated by Carpinus laxiflora mixed with C. cordata, Zelkowa, Quercus aliena, Q. serrata, Q. acutissima, Q. mongolica, Prunus serrulata and Fraxinus rynchophylla.

In the scarce understorey growth of Ilex macropoda, Styrax obassia, Rhus trichocarpa, Acer pseudosieboldianum, Lindera obtusiloba and L. erythrocarpa.

At 600 m the vegetation changes to a Quercus mongolica forest with a lower layer poor in species. Single trees of Cornus controversa, Styrax obassia, Ilex macropoda, Pinus densiflora and small Magnolia sieboldii, Fraxinus sieboldiana, Symplocos sp., Acer pseudosieboldianum and Maackia amurensis.

Shrubs of Rhododèndron mucronulatum, R. schlippenbachii, Stephanandra incisa and Corylus sieboldiana. The ground is covered by Sasa.

At 700 m a rich mixture of Betula schmidtii in the oak forest. Some Magnolia sieboldii where the oaks are not too dense.

At the small temple Kwanum-am (850 m) in rocky terrain, Pinus densiflora, Sorbus alnifolia, Cornus controversa, Euonymus oxyphyllus and Betula chinensis.

AC. 36°32' N 127°50' E, 500 m.

Mt. Sogri-san, near temple Pop-ju. Dry granite ridge with sand and pine forest. (At the lower slopes of this ridge grows the rich deciduous forest described at AA.) High forest

Figure 17. Mt. Doekyu. Abies koreana growing on the eastern slopes of the mountain at an altitude of 1450 m. Photo M.H. 18.9. 1976 (Neg. nr 19/76:6).

of Pinus densiflora under which a shrubby layer of Juniperus rigida, Vaccinum oldhamii, Fraxinus sieboldiana, Rhododendron mucronulatum and R. schlippenbachii.

AD. 35°51' N 127°45' E, 850-1550 m.

Mt. Daekyu-san, starting from the temple Paekyeon-sa (890 m). Along a small stream the dominating vegetation is a Quercus-Carpinus forest with Quercus mongolica, Q. variabilis, Q. serrata, Carpinus cordata and C. laxiflora. Other trees are Betula davurica and Kalopanax pictus. In the shrub layer, which is fairly dense, grows Lindera obrusiloba, L. erythrocarpa, Rhododendron schlippenbachii and in thick shrubbery along the stream R. yedoense v. poukhanense.

At 1000 m. oak forest: Quercus mongolica with Betula ermanii, B. schmidtii, B. platyphylla, B. costata, Kalopanax pictus, Maackia amurensis and Prunus serrulata.

The shrub layer is dominated by Acer pseudosieboldianum, Rhododendron mucronulatum and R. schlippenbachii. Lindera obtusiloba, Rhus trichocarpa, Vaccinium oldhamii, Stephanandra incisa and Symplocos chinensis are common.

This oak forest grows on an exposed ridge and is poorer in the species composition than the more vigorous type of forest that grows higher up at 1350 m where the ridge levels out and continues in an even slope. Low bamboos (Sasa sp.) and climbers form a dense mat together with the understorey of shrubs such as Magnolia sieboldii and Acer pseudosieboldianum. The stand is not very dense and broad crowned trees of Quercus mongolica, Fraxinus mandschurica, F. rynchophylla, Acer mono, Betula ermanii, Sorbus commixta grow together with good specimens of Taxus cuspidata and Abies koreana. Here and there are small groups of Picea jezoensis.

At 1450 m the tree line is reached and the vegetation is not higher than about 3 m with the exception of a few conifers, mainly old and partly dried Taxus and Abies koreana. In the shrub layer Abies koreana shows good regeneration. The

Figure 18. Mt. Doekyu. Different forms of cones of Abies koreana, one blue and one green, found by professor T.B.Lee.
Photo M.H. 18.9. 1976 (Neg.nr 19/76:8).

dominating species are Betula ermanii, Quercus mongolica, Salix hallasanensis v. longifolia, Magnolia sieboldii, Acer pseudosieboldianum, A. tschonoskii v. rubripes, Sorbus commixta, Lonicera spp., Weigela subsessilis, Viburnum sargentii, Syringa velutina, Rhododendron mucronulatum and R. schlippenbachii.

Rich growth of Tripterygium regelii and Sasa sp. makes the penetration of the vegetation very difficult. Here and there among the shrubs grow stunted trees of Pinus koraiensis.

This vegetation type continues all the way up to the at 1594 m. The tree line is lower on the southern side of the mountain than on the other sides. There is more Pinus koraiensis on the southern slopes but on the northern side Quercus mongolica is more common.

Down at the foot of the mountain near the Paekyeon-sa temple grows a very old and big pear tree from which fruits were collected (Nr. AD 375).

AE. 35°55' N 127°46' E, 500 m.

North slope of Mt. Daekyu-san along a river. Dense hardwood forest with several species of oak, Cornus kousa, Styrax japonica, Zelkowa sp.. Ligustrum obtusifolium and Rhododendron yedoense v. poukhanense grow along the riverbanks.

AF. 35°00' N 127°46' E, 100 m.

A solitary mountain near the city of Taegu. Site of a natural stand of Thuya orientalis protected as a Natural Monument (Nr. 1). Collection numbers 399b, c and d.

Under the same station AF collections where also made at two other localities:

AF. 35°47' N 129°21' E, 200-500 m.

The area around Pulguk-sa, and

AF. 35°59' N 128°46' E, 500-1050 m.

Mt. Palgong-san where the collections mainly were made around the temple Pudo-am at 800 m. Near the temple stands of Cephalotaxus koreana. On the ridges the forest consists of Pinus densiflora and Quercus mongolica mixed with Betula schmidtii and Sorbus commixta.

In the lower layer Rhododendron mucronulatum, R. schlippenbachii, Vaccinium koreanum and Fraxinus sieboldiana are common.

On the less exposed slopes where the ground is moister the dominating forest is composed of Carpinus and oak (Carpinus laxiflora, C. cordata and Quercus mongolica). Single trees of Prunus serrulata, Alnus hirsuta, Ilex macropoda and Magnolia sieboldii are mixed with the Carpinus-forest. Aralia elata and Rhododendron schlippenbachii form the dense shrub layer.

At the top (1050 m), a windexposed granite rock, a small growth of Betula chinensis, about 2 meter high, was holding stand above a ground layer of Vaccinium koreanum.

In the crevices many herbs were growing, among them Astilbe koreana, Hosta minor and Chrysanthemum zawadskii.

AG. 35°19' N 128°44' E, 850-1900 m.

Mt. Jiri-san, approached from the southeastern part of the massif.

The vegetation around the highest part of the mountain (1915 m) consists of low shrubby forest of Abies koreana, Picea jezoensis, Pinus koraiensis and Betula ermanii.

In mixture with these species grow Acer pseudosieboldianum, Weigela subsessilis, Syringa velutina v. palibiniana, Vaccinium koreanum, Rhododendron mucronulatum, R. schlippenbachii, R. tschonoskii, Clematis chiisanensis and Tripterygium regelii.

The vegetation changes little along the narrow ridge from the top and down to 1600 m. Scattered trees of Abies koreana - which does not grow below c. 1600 m - under c. 10 meter high Quercus mongolica forest, or in shrubby growths together wigh Betula ermanii, Acer mono, A. pseudosieboldianum, Rhododendron mucronulatum and R. schlippenbachii. In the oak forest there are also Stuartia koreana and many species of Clematis.

From a small temple (1400 m) along a sheltered creek down to c. 1250 m grows high forest of Quercus mongolica and Acer mono with Stuartia koreana and Phellodendron amurense. The shrubs of Acer pseudosieboldianum and Rhododendron schlippenbachii are densely covered with climbers such as Tripteryqium, Actinidia spp., Clematis heracleifolia and others.

From 1200 m to 900 m there is a steep ridge exposed south, where the forest has been cut and the coppice in some places has been replanted with Japanese larch. Among the rocks Quercus mongolica, Rhododendron schlippenbachii and Lespedeza spp. are growing.

Below 900 m the forest changes to a more warmth-demanding vegetation with Styrax japonica, Stuartia koreana, Lindera obtusiloba, L. erythrocarpa and several species of Quercus.

Luxuriant climbers, Smilax spp., Clematis apiifolia, Vitis flexuosa and Actinidia spp., cover the lower vegetation. The ground is very stony and along the small streams at the foot of the mountain Rhododendron yedoense v. poukhanense forms large stands. It seems that this species is very dependent on moist grounds in order to grow well.

AH. 35°17' N 127°38' E, 600-850 m.

Mt. Jiri-san, southwestern slopes and a valley at Pyok-soryong.

In the lower parts, fields have been roded and rice grows along the road, whereas beans, Polygonum and other crops climb the steeper fields on the slopes.

The forest is a mixture of trees and shrubs: Pinus densiflora, Quercus serrata, Pyrus ussuriensis, Castanea crenata, Phellodendron amurense, Stuartia koreana, Syringa reticulata, Euonymus sieboldiana, Aralia elata, Rosa multiflora and Rhododendron yedoense v. poukhanense.

Around 850 m along a new road going up across mountain, there is a dense shrub- and climbervegetation under an open forest of Zelkowa serrata, Carpinus laxiflora, Quercus mongolica, Q. serrata, Cornus controversa, Stuartia koreana and a few Meliosma myriantha.

The shrub layer is dominated by Euonymus oxyphyllus, Lindera obtusiloba, L. erythrocarpa, Styrax japonica, Clerodendron thrichotomanes and everything is woven together by Ampelopsis brevipendunculata v. citrulloides, Vitis flexuosa, V. amurensis, Tripterygium, Celastrus stephanitifolius and others. Third collecting tour to the island of Cheju-do (Quelpart).

BA. 33°28' N 126°52' E, 50 m.

Cheju-do island. Forest of Torreya nucifera, about 500 years old. Among the Torreyas grow Acer palmatum, Viburnum awabuki, Cornus controversa, Ligustrum japonicum and Clerodendron trichotomanes. The climbers are represented by Hedera rhombea, Parthenocissus tricuspidata, Hydrangea petiolaris and Akebia quinata. Here, as over whole island, the soil is volcanic.

Figure 19. Cheju-do, Mt. Halla. Abies koreana and Taxus cuspidata growing at 1700 m on the W-side of the mountain, station BC. Dense low shrubs of Rhodo - dendron mucronulatum, R.yedoense v.poukhanense, and mat-forming groups of Juniperus chinensis v. sargentii.
Photo M.H. 28.9.1976 (Neg.nr.21/76:5).

BB. 33°22' N 126°28' E, 1000 m.

Mt. Halla-san, at the highest point of the western cross-road. Low hardwood forest and pastures with dense thorny shrubs. The soil is dense, moist and rich in fine material. On drier parts along the road grows Pinus thunbergii which might be planted. The shrubby forest consists of Quercus mongolica, Carpinus spp. and Sorbus alnifolia. The shrubbery it self is formed of Acer pseudosieboldianum, Styrax japonica, Cornus kousa, Malus asiatica v. wrightii, Photinia glabra, Symplocos sp., Vaccinium oldhamii - height to 2 m - Viburnum furcatum, V. erosum, V. erosum v. taquetii, Eleagnus umbellata, Euonymus alata, Ligustrum ovalifolium, Rosa maximowiczii, Iles crenata, Maackia faurei, Rhododendron yedoense v. poukhanensen and Taxus cuspidata.

Smilax china, Tripterygium, Euonymus fortunei v. radicans, Akebia quinata and Hydrangea petiolaris grow among the shrubs. In the ground flora there are many thistles, Senecio and Ligularia japonica and even familiar northern plants such as Parnassia can be seen where the ground is moist.

Where the forest is dense, Carpinus tschonoskii, C. laxiflora and Quercus mongolica form the high forest with Cornus kousa, Viburnum furcatum, Prunus serrulata, Hydrangea serrata and a few Daphniphyllum and Rhododendron weyrichii in the understorey.

BC. 33°22' N 126°30-32' E, 1300-1900 m.

Mt. Halla-san. On the south and southwestside of the mountain the Carpinus-Quercus forest continues to about 1250 m. Abies koreana is seen as a mixture from 1200 m. Cornus kousa is very common up to the tree line on the exposed southern side.

From the tree line the vegetation changes into pasture-like meadows with a low flora of shrubs and herbs: Stephanandra Ilex crenata, Taxus cuspidata, Cimicifuga taquetii, Aster sp., Astilbe chinensis v. davidii, Pedicularis sp. and others.

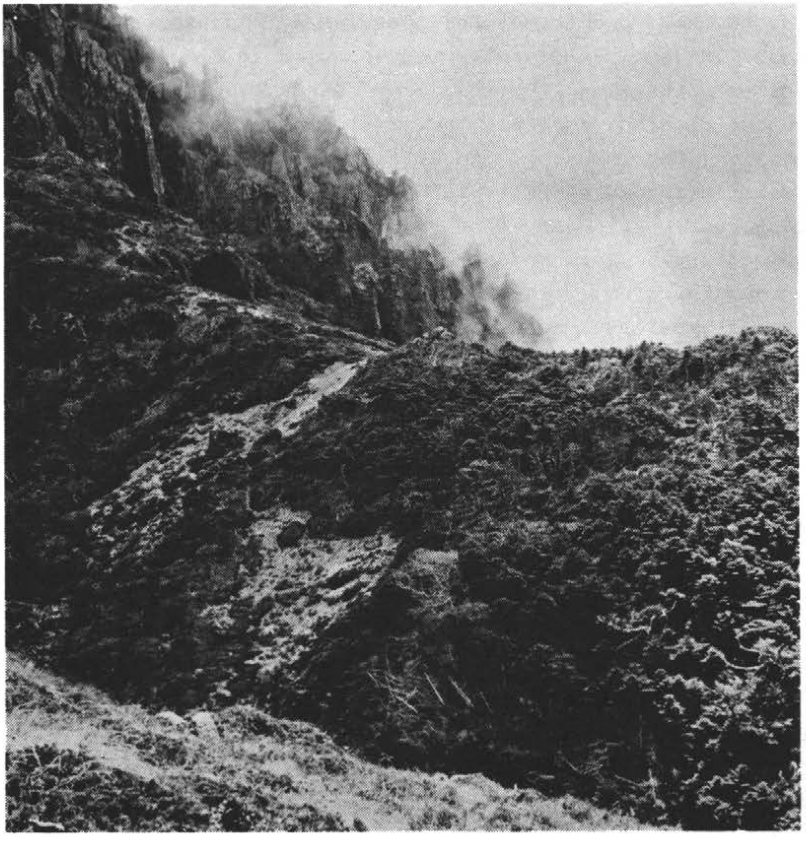

Figure 20. Cheju-do, Mt.Halla. Alpine forest consisting of Abies koreana and Betula ermanii at an altitude of 1750 m and exposed N. Station BC. Photo M.H. 28.9.1976 (Neg. nr 21/76:6).

On the northern slopes the mixed coniferous-hardwood forest with Abies koreana, Taxus cuspidata, Sorbus commixta and Betula ermanii reaches very near the top of the old volcano.

Onwards from 1400 m there is a broad ridge towards the very steep wall which surrounds the old crater (1700-1900 m). This ridge is partly covered with a low shrub vegetation consisting of Rhododendron mucronulatum, R. yedoense v. poukhanense and mixing with Taxus cuspidata, Abies koreana and Juniperus chinensis v. sargentii. Alternating with the lower shrubs are somewhat higher groups of Abies, Sorbus, Betula, Taxus, Malus asiatica, Magnolia sieboldii together with Vaccinium japonicum, Lonicera chrysanta, Hydrangea serrata, Weigela subssessilis, Rosa multiflora and climbers such as Hydrangea petiolaris, Euonymus fortunei v. radicans, Clematis koreana and Tripterygium regelii.

On the inside of the old crater there is a meadow around the small lake at the bottom and the walls are covered with a mixture of Abies koreana, Taxus cuspidata, Betula ermanii and Juniperus chinensis v. sargentii. There are also the same species of Rhododendron as on the outside.

BD. 33°23' N 126°32-35' E, 1950-1000 m.

Mt. Halla-san, eastern side. From the rim of the crater to 1800 m the boulder field is covered with mats of Juniperus, Taxus, Empetrum and Rhododendron.

Below 1800 m the forest begins again, and is at first dominated by Abies koreana and Taxus cuspidata. This forest changes down the slope into hardwood forest with the same species as mentioned under BC.

From about 1200 m the forest changes into a pure hardwood forest with Betula, Quercus and Sorbus and in addition Prunus serrulata v. spontanea, Cornus kousa, Carpinus spp., many Euonymus alata, Photinia, Malus asiatica and Vaccinium. The ground is covered with Sasa.

Figure 21. Cheju-do, Mt.Halla. Mixed forest on the east slope, station BD, altitude 1650 m. Abies koreana, Sorbus commixta, Taxus cuspidata, Euonymus alatus, Weigela, Rhododendron mucronulatum, and Vaccineum. Photo M.H. 28.9. 1976 (Neg. nr 21/76:10).

Figure 22. Cheju-do, Mt.Halla. Hardwood forest on the eastern slope of Mt. Halla at an altitude of 1300 m, station BD. This mixed forest is dominated by Quercus mongolica, Cornus kousa,Carpinus tchonoskii, Acer pseudosieboldianum, Hydrangea serrata, H. petiolaris.The shrub layer includes Euonymus alatus, Weigela and bamboos.
Photo M.H. 28.9 1976 (Neg.nr 21/76:11).

Still further down the slope the forest changes into a pure Carpinus forest with very little or no shrubs.

BE. 33°21' N 126°28' E, 1000-900 m.

This is the same station as BB. somewhat extended down the road to about 900 m.

In the forest grows increasing numbers of Rhododendron weyrichii and a very peculiar variety of Hydrangea petiolaris with very toothed leaves. A description of this variety has not yet been found in the literature.

BF. 33°23' N 126°37' E, 800 m.

Mt. Halla-san, eastern side.
Forest with a mixture of Carpinus and Quercus. The dominating species is C. tschonoskii. In the shrub layer the main species are Dapniphyllum and Cornus kousa. Rhododendron weyrichii, Meliosma myriantha, Sapium japonicum, Prunus serrulata and Ilex crenata are common.

On ground which is a little drier Maackia faurei grows together wiht Cornus kousa surrounded by a shrub layer in which Ilex crenata is dominating.

BG. 33°15' N 126°22' E, 50 m.

Southern coast of Cheju-do. Subtropical vegetation with many evergreens in a sheltered valley near Jungmun.

Other collecting localities.

BH. 36°49' N 126°09' E, 0-50 m.

Chuuli-po on the west coast of Korea around the Arboretum of Mr. Carl Ferris Miller.

The area consists of low mountains (100-150 m) with pine and oak forests. In the valleys rice is grown. The hills

form steep slopes along the coast with sandy beaches and dunes in between. The many islands are covered with pine forest and the understorey is Carpinus coreana. Vitex rotundifolia and Rosa rugosa grow on sands along the shore. On uncultivated land in the valleys there are Tilia coreana, Paulownia koreana, Kolreuteria paniculata, Platycaria strobilaceae, Campylotropis macrocarpa, Grewia sp., Rubus triphyllis, Coceolus trilobus, Berberis koreana, Meliosma oldhamii and others.

CA. 37°35' N 127°03' E, 50 m.

Seoul city. Seed samples obtained from the Arboretum of the Forest Research Institute. Some samples bought as fruits in the city market are also listed under this station.

DA. 37°47' N 127°37' E, 200-300 m.

Chun-cheon, Kuri-po. A small valley south of Chun-cheon along the Han river.

Northern slopes covered with hardwood forest, mainly Quercus mongolica and Q. aliena. Plantations of Larix leptolepis and Pinus koraiensis. Shrubs such as Deutzia spp., Philadelphus spp., Calicarpa sp., Rosa spp. and Clematis are common. Along a small stream in the bottom of the valley many Crataegus, Malus and Salix.

MATERIAL COLLECTED

The total number of samples collected by the expedition is 765.

Of these 141 are from coniferous trees, 223 from hardwoods, 343 from shrubs and climbers and 58 from other plants.

The material consists mainly of seed samples because due to the field work conditions there were little possibilities for collection and storage of living plants and cuttings and it was not possible to reach air freight or other shipping facilities in short times.

A few samples of cuttings survived, however, the strain of prolonged car transport and inadequate storage and were taken home when the members of the expedition returned.

The efforts of the expedition were concentrated on trees and shrubs but seeds of herbaceous plants were collected only occasionally. When forest trees of possible value for tree breeding were collected samples were usually taken from single trees and kept separate. These individual collections were noted in the seed list with sublettering a, b, c...

Herbarium specimens were taken from most of the collected numbers. This material was compared at Seoul with reference material of the F.R.I. and we tried as far as possible to verify the indentification notes made in the field.

The detailed list of the material collected is seen in Appendix 1.

The same data have also been published separately in the "Seed List 1976, Seed from S.Korea" by the Forest Research Institute, Forest tree breeding station, 01590 MAISALA, Finland.

HANDLING AND DISTRIBUTION OF SEEDS AND PLANTS

Seeds were collected in paperbags or nylon-net bags in the field since plastic bags proved to dense and samples in them were frequently taking molds and rot.

Samples were not usually opened en route due to the tight scheme of travelling but when returning from the field trip the lots were ventilated and dried at the headquarters in Seoul.

Berries and fruits were cleaned from their fleshy organs, washed and dried. During the warm and sometimes humid conditions of transport it could not, however, sometimes be avoided that mold or rot destroyed samples.

It seems, that in the conditions of early autumn in Korea a rapid handling of the seed lots, using permanent headquarter staff provided with cleaning and storage facilities would improve the work of a collecting expedition.

Sometimes it was necessary to collect seeds that were not quite ripe, because a return to the locality was not possible. In such cases some of the germination power might have been lost and further collectors should study the ripening conditions an possibilities for after-ripening of the seeds of important species such as Magnolia sieboldii.

Dry seeds were packed in dried paper bags and cones in nylon net and packed tight in wooden boxes which, when full, were sent home by ships provided with cold stores for the passage through tropical waters.

All boxes arrived at Copenhagen in the beginning of December

1976 and between the 11. - 14. of this month the seeds were unpacked, checked and distributed to the four participating countries.

Seed lots were given permanent seed numbers (the G-numbers of the seed list) and seed register cards were set up for each lot.

A seed list was made in the winter of 1976-77 and sent out to 78 institutions in 12 different countries.

Of these institutions 39 from 14 countries returned orders for seed and a total of 3 310 lots of material has been distributed by 1978.

Due to lack of space and working capacity all samples could not be sown in the same place and the Scandinavian material was therefore divided according to climatological conditions and to particular interests. Some of the material is still in the stage of stratification since the germination rate for some species was very low at the beginning.

When plants have been obtained, the plant material is registered on plant cards for each lot and these cards contain also information about the further distribution of the plants.

Inventories and records of germination have been kept in all stations growing the material in the Nordic countries.

As mentioned above, herbarium material was also collected. The herbarium plants were as well as possible dried en route and stored at the headquarters until they could be sent home with the seed boxes.

The mainherbarium collection has been given to the Botanical Museum, University of Helsinki and the Botanical Museum

University of Uppsala where it will be included in the museum's collections and be disposable for scientists interested in the Korean flora. Smaller herbaria are given to the Arboretum Hørsholm and the Agricultural High School, Ås.

It is intended that further herbarium specimens will be collected from the material grown, in order to provide for studies about variation within the species.

SUGGESTIONS FOR FURTHER ACTIVITIES

The conditions in Korea are to a high degree suitable for the evolution of geographical varieties.

In our material there is already at the nursery stage indications that for instance in the Rhododendron species there are provenances with distinct habits on the different mountains where these species were collected.

The same might be the case for many of the other widely distributed trees and shrubs.

The material now growing in the nurseries should therefore, whenever possible, be the object of provenance experiments for which the different localizations of the Nordic arboreta provide a great opportunity.

Since provenance experiments with ornamental trees and shrubs have hardly been heard of before, schemes for observations must be worked out and distributed.

On the basis of these observations and results from the experiments a more consistent view of collection areas and plant variation in Korea might be obtained.

The observations on which provenances are good for which localities should also be compared with the views of the Korean botanists.

This work provides, in the long run, for more detailed instructions for Korean plant collectors, and it might in the future be possible to develop an organization for collection and distribution of seed of known origin,

a material for which there, no doubt, is a great need.

Minor products form a good part of the trade of Korean forest products and, once a reliable system is established, there seems to be a market also for seeds.

One might consider that a permanent committee could be set up for the cooperation between the Nordic countries and the Republic of Korea in these and related fields.

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STATEMENT OF ACCOUNTS

Expences

		Norw.Kr
Travel in Korea		
Hagman	7690.57	
Feilberg	9978.13	
Sanda	6358.00	
Lagerström	6450.07	30 746.77
Flight tickets to Korea (Hagman&Lagerström)		12 309.17
Freight and distribution of material		2 046.40
Equipment and packing material etc.		727.56
Bank costs and other overhead		1 192.20
Travel to final expedition meeting for checking and distribution of the material collected		
Hagman	1072.85	
Sanda	850.00	
Lagerström	800.14	2 722.85
Printing costs		2 943.00
Total		52 687.95

Income

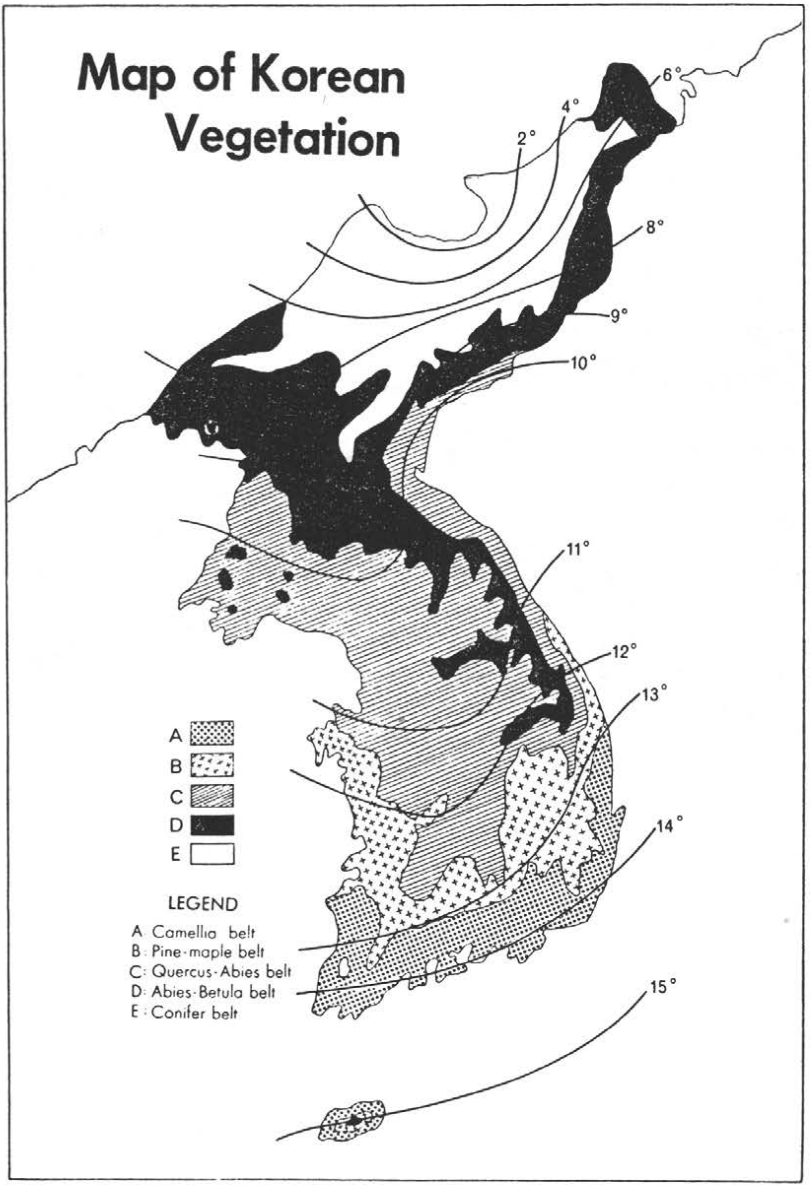
Nordisk Kulturfond	50 499.27
Rents	2 188.68
Total	52 687.95

Feilberg's and Sanda's flight tickets to Korea were paid by Danmarks Nationalbanks Jubilaeumsfond and Mr.Tom Wilhelmsen respectively.

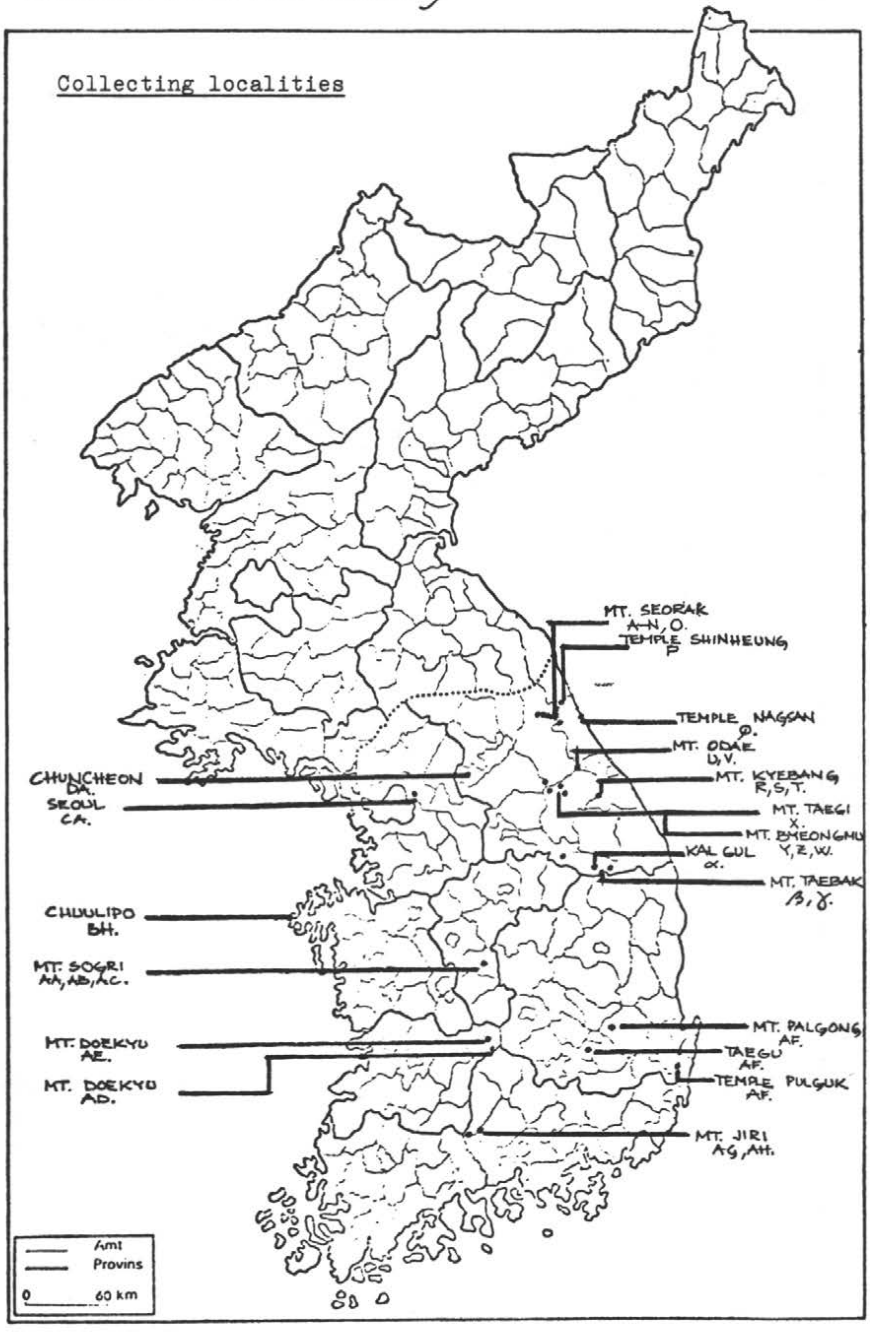
Figure 23. Back at home, the sorting and distribution work has begun.
Photo M.H. Dec. 1976 (Neg. nr 22/76:12).

APPENDIX I

Maps and list of material collected.



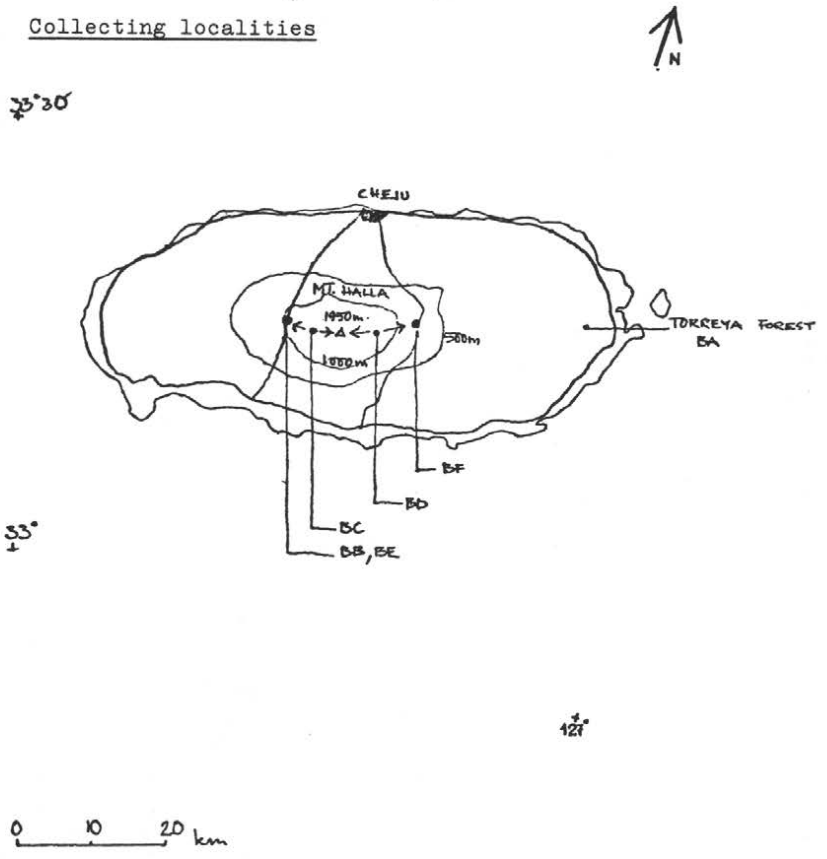
Indsamlingslokaliteter i Syd Korea 1976
Nordisk Arboret Udvalg



CHEJU - ISLAND

(QUELPART)

Collecting localities



Seed list n.	Store reg. n.	Species	Collect. locality	n.
1.	G1-76- 996	Abelia coreana, Nakai	∝	245
2.	G1-76-1018	Abelia coreana, Nakai	β	274
3.	G1-76- 853	Abies holophylla,Max.	U	154 a
4.	G1-76- 981	Abies holophylla,Max.	W	239
5.	G1-76-1093	Abies koreana,Wilson	AD	334 a
6.	G1-76-1094	Abies koreana, Wilson	AD	334 b
7.	G1-76-1095	Abies koreana, Wilson	AD	334 c
8.	G1-76-1096	Abies koreana, Wilson	AD	334 d
9.	G1-76-1121	Abies koreana, Wilson	AD	355 e
10.	G1-76-1122	Abies koreana, Wilson	AD	355 f
11.	G1-76-1123	Abies koreana, Wilson	AD	355 g
12.	G1-76-1124	Abies koreana, Wilson	AD	355 h
13.	G1-76-1125	Abies koreana, Wilson	AD	355 i
14.	G1-76-1126	Abies koreana, Wilson	AD	355 j
15.	G1-76-1127	Abies koreana, Wilson	AD	355 k
16.	G1-76-1128	Abies koreana, Wilson	AD	355 l
17.	G1-76-1129	Abies koreana, Wilson	AD	355 m
18.	G1-76-1208	Abies koreana, Wilson	AD	411 a
19.	G1-76-1209	Abies koreana, Wilson	AD	411 b
20.	G1-76-1283	Abies koreana, Wilson	BC	473
21,	G1-76-1284	Abies koreana, Wilson	BC	474
22.	G1-76-1288	Abies koreana, Wilson	BC	478 a
23.	G1-76-1289	Abies koreana, Wilson	BC	478 b
24.	G1-76-1290	Abies koreana, Wilson	BC	478 c
25.	G1-76-1291	Abies koreana, Wilson	BC	478 d
26.	G1-76-1292	Abies koreana, Wilson	BC	478 e
27.	G1-76-1296	Abies koreana, Wilson	BC	482
28.	G1-76-1305	Abies koreana, Wilson	BC	491 a
29.	G1-76-1306	Abies koreana, Wilson	BC	491 b
30.	G1-76-1307	Abies koreana, Wilson	BC	491 c
31,	G1-76-1308	Abies koreana, Wilson	BC	491 d
32.	G1-76-1309	Abies koreana, Wilson	BC	491 e
33.	G1-76-1310	Abies koreana, Wilson	BC	491 f
34.	G1-76-1317	Abies koreana, Wilson	BC	498 a
35.	G1-76-1318	Abies koreana, Wilson	BC	498 b
36.	G1-76-1319	Abies koreana, Wilson	BC	498 c
37.	G1-76-1320	Abies koreana, Wilson	BC	498 d
38.	G1-76-1321	Abies koreana, Wilson	BC	498 e
39.	G1-76-1322	Abies koreana, Wilson	BC	498 f
40.	G1-76-1323	Abies koreana, Wilson	BC	498 g
41,	G1-76-1324	Abies koreana, Wilson	BC	498 h
42.	G1-76-1334	Abies koreana, Wilson	BC	508 a
43.	G1-76-1335	Abies koreana, Wilson	BC	508 b
44.	G1-76-1336	Abies koreana, Wilson	BC	508 c
45.	G1-76-1337	Abies koreana, Wilson	BC	508 d
46.	G1-76-1338	Abies koreana, Wilson	BC	508 e
47.	G1-76-1342	Abies koreana, Wilson	BD	523 a
48.	G1-76-1343	Abies koreana, Wilson	BD	523 b
49.	G1-76-1366	Abies koreana, Wilson	BD	546 a
50.	G1-76-1367	Abies koreana, Wilson	BD	546 b
51.	G1-76-1368	Abies koreana, Wilson	BD	546 c
52.	G1-76-1452	Abies koreana, Wilson		
53.	G1-76- 718	Abies nephrolepis, Maximowicz	H	40
54.	G1-76- 738	Abies nephrolepis, Maximowicz	L	58
55.	G1-76- 892	Abies nephrolepis, Maximowicz	V	181

56.	G1-76- 950	Acantopanax sessiliflorus, Rupr. & Max.	Z	221	a
57.	G1-76- 695	Acer barbinerve,Maximowicz	C	19	a
58.	G1-76- 719	Acer barbinerve, Maximowicz	H	41	
59.	G1-76- 798	Acer mandshuricum, Maximowicz	N	105	
60.	G1-76- 899	Acer mandshuricum, Maximiwicz	V	187	a
61.	G1-76- 900	Acer mandshuricum, Maximowicz	V	187	b
62.	G1-76- 772	Acer mono, Maximowicz	M	89	
63.	G1-76- 870	Acer mono, Maximowicz	U	164	
64.	G1-76- 968	Acer mono, Maxomowicz	Z	234	
65.	G1-76- 982	Acer mono, Maximowicz	W	240	
66.	G1-76-1260	Acer palmatum, Thunberg	BA	454	
67.	G1-76- 694	Acer pseudo-sieboldianum, Komarov	C	19	
68.	G1-76- 727	Acer pseudo-sieboldianum, Komarov	K	48	
69.	G1-76- 739	Acer pseudo-sieboldianum, Komarov	L	59	
70.	G1-76- 756	Acer pseudo-sieboldianum, Komarov	L	77	
71.	G1-76- 759	Acer pseudo-sieboldianum, Komarov	L	79	
72.	G1-76- 831	Acer pseudo-sieboldianum, Komarov	R	134	
73.	G1-76- 839	Acer pseudo-sieboldianum, Komarov	T	142	
74.	G1-76- 848	Acer pseudo-sieboldianum, Komarov	T	150	
75.	G1-76- 866	Acer pseudo-sieboldianum, Komarov	U	162	
76.	G1-76- 893	Acer pseudo-sieboldianum, Komarov	V	182	
77.	G1-76- 894	Acer pseudo-sieboldianum, Komarov	V	183	
78.	G1-76- 951	Acer pseudo-sieboldianum, Komarov	Y	222	
79.	G1-76- 965	Acer pseudo-sieboldianum, Komarov	Z	231	
80.	G1-76-1115	Acer pseudo-sieboldianum, Komarov	AD	353	
81.	G1-76-1142	Acer pseudo-sieboldianum, Komarov	AD	365	
82.	G1-76-1213	Acer pseudo-sieboldianum, Komarov	AG	415	
83.	G1-76- 680	Acer ginnala, Maximowicz	A	6	
84.	G1-76- 931	Acer ginnala, Maximowicz	Y	213	
85.	G1-76-1443	Acer ginnala, Maximowicz	DA	653	
86.	G1-76- 807	Acer triflorum, Komarov	P	109	
87.	G1-76- 699	Acer tschonoski, Max. var. rubripes Komarov	E	22	a
88.	G1-76- 701	Acer tschonoski, Max. var. rubripes Komarov	E	24	
89	G1-76- 883	Acer tschonoski, Max. var. rubripes Komarov	V	176	
90	G1-76-1116	Acer tschonoski, Max. var. rubripes Komarov	AD	354	
91.	G1-76-1439	Acer tegmentosum, Maximowicz	CA	642	
92.	G1-76- 743	Acer ukuruduense, Trautvetter & Meyer	L	63	
93.	G1-76- 745	Acer ukuruduense, Trautvetter & Meyer	L	65	
94.	G1-76- 767	Acer ukuruduense, Trautvetter & Meyer	M	84	
95.	G1-76- 794	Acer ukuruduense, Trautvetter & Meyer			
96.	G1-76- 910	Actinidia arguta, Planchon	X	194	
97.	G1-76- 929	Actinidia arguta, Planchon	Y	212	
98.	G1-76-1054	Actinidia arguta, Planchon	AB	299	
99.	G1-76- 750	Actinidia kolomikta, (Max. & Rupr.) Max.	L	70	
100.	G1-76- 895	Actinidia kolomikta,(Max. & Rupr.) Max.	V	184	
101.	G1-76- 909	Actinidia kolomikta,(Max. & Rupr.) Max.	X	193	

102.	G1-76- 989	Actinidia kolomikta,(Max. & Rupr.) Max.	Z	247	
103.	G1-76-1009	Actinidia polygama, (S & Z)Max.	β	266	
104.	G1-76-1240	Actinidia polygama, (S & Z)Max.	AH	436	
105.	G1-76-1315	Adenophora taquetii, Leveille	BC	496	
106.	G1-76- 821	Adenophora	P	124	
107.	G1-76-1075	Akebia quinata,Decaisne	AC	319	
108.	G1-76-1015	Alangiuma plantanifolium, (S & Z) Harms	β	271	
109.	G1-76-1391	Albizzia julibrissin, Durazzini	BG	583	
110.	G1-76-1177	Alnus hirsuta, (Spach)Ruprech	AF	387	
111.	G1-76- 720	Alnus maximowiczii,Call.	H	42	
112.	G1-76- 692	Alnus	β	17	
113.	G1-76-1152	Ampelopsis brevipedunculata, (Max.) Trautvetter	AD	374	a
114.	G1-76-1194	Ampelopsis brevipedunculata, (Max.) Trautvetter	AF	399	d
115.	G1-76-1233	Ampelopsis brevipedunculata, (Max.) Trautvetter	AH	429	
116.	G1-76- 777	Angelica gigas, Nakai	M	92	
117.	G1-76- 954	Angelica gigas, Nakai	Z	223	
118.	G1-76- 723	Angelica sp.	H	45	
119.	G1-76- 731	Angelica sp.	K	52	
120.	G1-76-1344	Angelica sp.	BD	524	
121.	G1-76-1392	Aphananthe aspera, Planchon	BG	584	
122.	G1-76- 911	Aralia continentalis,Kitagawa	X	195	
123.	G1-76- 702	Aralia elata, Seemann	E	25	
124.	G1-76- 855	Aralia elata, Seemann	U	155	a
125.	G1-76- 955	Aralia elata, Seemann	Y	224	
126.	G1-76- 987	Aralia elata, Seemann	W	245	
127.	G1-76-1151	Aralia elata, Seemann	AD	374	
128.	G1-76-1257	Aralia elata, Seemann	AH	452	
129.	G1-76- 914	Arisaema amurense,Max.	X	198	
130.	G1-76- 956	Arisaema amurense,Max.	Z	224	a
131.	G1-76-1256	Arisaema amurense, Max.	AH	452	
132.	G1-76-1412	Aristolochia contorta, Bunge	BH	606	
133.	G1-76- 800	Aristolochia mandshuriensis, Komarov	P	105	b
134.	G1-76-1007	Aristolochia mandshuriensis, Komarov	β	264	
135.	G1-76-1417	Artemissia	BH	611	
136.	G1-76- 786	Aruncus sp.	N	100	
137.	G1-76-1312	Astilbe chinensis, Max. v. davidii Franchet	BC	493	
138.	G1-76-1186	Astilbe koreana, Nakai	AF	395	
139.	G1-76-1374	Astilbe koreana, Nakai	BE	565	
140.	G1-76- 970	Astilbe sp.	Z	235	
141.	G1-76- 730	Berberis amurensis, Ruprecht	K	51	
142.	G1-76-1421	Berberis koreana Palibin	BH	615	
143.	G1-76-1059	Betula chinensis, Max.	AB	304	
144.	G1-76-1190	Betula chinensis, Max.	AF	399	
145.	G1-76-1091	Betula costata, Trautvetter	AD	333	
146.	G1-76-1103	Betula davurica, Pallas	AD	341	
147.	G1-76- 705	Betula ermanii, Chamisso	F	28	a
148.	G1-76- 711	Betula ermanii, Chamisso	H	33	
149.	G1-76-1113	Betula ermanii, Chamisso	AD	351	
150.	G1-76-1197	Betula ermanii, Chamisso	AG	401	
151.	G1-76-1286	Betula ermanii, Chamisso	BC	476	

152.	G1-76-1316	Betula ermanii, Chamisso	BC	497	
153.	G1-76-1325	Betula ermanii, Chamisso	BC	499	
154.	G1-76- 926	Betula schmidtii,Regel	Y	210	
155.	G1-76-1064	Betula schmidtii, Regel	AB	309	
156.	G1-76-1389	Buxus microphylla v. koreana	BE	581	a
157.	G1-76-1440	Callicarpa japonica,Thunberg	DA	650	
158.	G1-76-1415	Campylotropis macrocarpa,Rehder	BH	609	
159.	G1-76- 787	Carpinus cordata, Blume	N	101	
160.	G1-76- 788	Carpinus cordata, Blume	N	101	a
161.	G1-76- 840	Carpinus cordata, Blume	T	143	
162.	G1-76-1161	Carpinus cordata, Blume	AF	383	
163.	G1-76-1409	Carpinus coreana, Nakai	BH	603	
164.	G1-76-1418	Carpinus coreana, Nakai	BH	612	
165.	G1-76- 790	Carpinus laxiflora, Blume	N	102	a
166.	G1-76-1053	Carpinus laxiflora, Blume	AA	298	
167.	G1-76-1385	Carpinus tschonoskii,Maximowicz	BF	578	
168.	G1-76-1224	Castanea bungeana, Blume	AH	425	
169.	G1-76-1448	Castanea crenata, Sieb. & Zucc.	CA	658	
170.	G1-76- 677	Celastrus (orbiculata,D.Don.?)	A	3	
171.	G1-76- 814	Celastrus orbiculatus, Thunberg	P	116	
172.	G1-76- 908	Celastrus orbiculatus, Thunberg	X	192	
173.	G1-76- 967	Celastrus orbiculatus, Thunberg	Z	233	
174.	G1-76-1236	Celastrus orbiculatus, Thunberg	AH	432	
175.	G1-76-1248	Celastrus stephanifolius,(Max.) Makino	AH	444	
176.	G1-76- 960	Celastrus	Z	226	a
177.	G1-76-1393	Celtis jessoensis, Koidz.	BG	585	
178.	G1-76-1397	Celtis sinensis, Persoon (v. japonica Nakai)	BG	589	
179.	G1-76-1176	Cephalotaxus koreana, Nakai	AF	386	
180.	G1-76- 779	Chosenia bracteosa, Nakai	M	93	b
181.	G1-76- 837	Cimicifuga simplex,(Wornesh) v. typica (Nakai)	S	140	
182.x)	G1-76-1311	Cimicifuga taquetii, Leveille	BC	492	
183.x)	G1-75-1348	Cimicifuga sp.	M	91	
184.	G1-76- 995	Clematis apiifolia, A.P. DC	α	253	
185.	G1-76-1218	Clematis apiifolia, A.P. DC	AG	420	
186.	G1-76-1245	Clematis apiifolia. A.P. DC	AH	441	
187.	G1-76- 993	Clematis brachyura, Max.	α	251	
188.	G1-76-1199	Clematis chiisanensis, Nakai	AG	403	
189.	G1-76-1446	Clematis florida, Thunberg	DA	656	
190.	G1-76- 715	Clematis fusca, Turcz. v.koreana Nakai	H	37	
191.	G1-76- 778	Clematis fusca, Turczaninow	M	93	a
192.	G1-76- 877	Clematis fusca, Turczaninow	U	170	
193.	G1-76- 781	Clematis heraclaefolia, DC	N	95	
194.	G1-76- 919	Clematis heraclaefolia, DC	Y	203	
195.	G1-76-1216	Clematis heraclaefolia, DC	AG	418	
196.	G1-76- 716	Clematis koreana, Komarov	H	38	
197.	G1-76- 887	Clematis koreana, Komarov	U	177	a
198.	G1-76-1298	Clematis koreana, Komarov	BC	484	
199.	G1-76- 923	Clematis mandshurica, Rupr.	Y	207	
200.	G1-76-1263	Clematis paniculata,Thunberg	BB	462	
201.	G1-76-1016	Clematis serratifolia,Rehder	β	272	
202.	G1-76- 903	Clematis trichotoma, Nakai	X	189	
203.	G1-76- 922	Clematis trichotoma, Nakai	Y	206	
204.	G1-76- 990	Clematis sp.	Z	248	

205.	G1-76-1301	Clematis	BC	487	
206.	G1-76-1326	Clematis	BC	499	a
207.	G1-76-1055	Clerodendron trichotomum, Thunberg	AB	300	
208.[x)]	G1-76-1238	Clerodendron trichotomum, Thunberg	AH	434	
209.	G1-76- 762	Clintonia udensis,Trautvetter & Meyer	L	82	
210.	G1-76-1001	Cocculus racemosa,(trilobus DC)	∝	259	
211.	G1-76-1426	Cocculus trilobus, DC	BH	620	
212.	G1-76- 700	Cornus controversa, Helmsley	E	23	
213.	G1-76- 751	Cornus controversa, Helmsley	L	71	
214.	G1-76- 824	Cornus controversa, Helmsley	R	127	
215.	G1-76- 958	Cornus controversa, Helmsley	Z	225	a
216.	G1-76- 969	Cornus controversa, Helmsley	Z	235	
217.	G1-76-1060	Cornus controversa, Helmsley	AB	305	
216.	G1-76-1159	Cornus kousa, Buerg.	AE	381	
217.	G1-76-1303	Cornus kousa, Buerg.	BC	489	
218.	G1-76-1329	Cornus kousa, Buerg.	BC	502	
219.	G1-76-1347	Cornus kousa, Buerg.	BD	527	
220.	G1-76-1354	Cornus kousa, Buerg.	BD	534	
221.	G1-76-1361	Cornus kousa, Buerg.	BD	541	
222.	G1-76-1371	Cornus kousa, Buerg.	BE	562	
223.	G1-76-1246	Cornus walteri, Wangerin	AH	442	
224.	G1-76-1072	Corylus heterophylla, ?	AC	317	
225.	G1-76- 801	Corylus sieboldiana, Blume	N	106	
226.	G1-76- 835	Corylus sieboldiana, Blume	R	138	
227.	G1-76- 841	Corylus sieboldiana, Blume	T	144	
228.	G1-76- 860	Corylus sieboldiana, Blume	U	158	a
229.	G1-76- 871	Corylus sieboldiana, Blume	U	165	
230.	G1-76- 878	Corylus sieboldiana, Blume	U	171	
231.	G1-76-1146	Corylus sieboldiana, Blume	AD	369	
232.	G1-76- 728	Crataegus komarovii, Sargent	K	49	
233.	G1-76- 679	Crataegus pinnatifida, Bunge	A	5	
234.	G1-76- 934	Crataegus pinnatifida, Bunge	Z	215	a
235.	G1-76-1004	Crataegus pinnatifida, Bunge	β	261	a
236.	G1-76-1445	Crataegus pinnatifida, Bunge	DA	655	
237.	G1-76-1188	Crysanthemum zawadskii,Herbich var. latilobum, Kitam	AF	397	
238.	G1-76-1384	Daphniphyllum macropodum, Miq.	BF	577	
239.	G1-76-1046	Desmodium oxyphyllum, DC ?	AA	291	
240.	G1-76- 985	Deutzia coreana, Leveille	W	243	
241	G1-76- 906	Deutzia glabrata, Komarov	X	191	
242.	G1-76-1442	Deutzia glabrata, Komarov	DA	652	
243.	G1-76- 913	Deutzia parviflora,Bunge	X	197	
244.	G1-76- 920	Deutzia parviflora, Bunge	Y	204	
245.	G1-76- 930	Dioscorea quinquëloba, Thunberg	Y	212	a
246.	G1-76- 963	Dioscorea,quinqueloba, Thunberg	Z	229	
247.	G1-76-1019	Dioscorea quinqueloba, Thunberg	β	275	
248.	G1-76-1026	Dioscorea quinqueloba, Thunberg	δ	282	
249.	G1-76- 756	Echinopanax horridum,(non.Decne) Komarov	L	76	
250.	G1-76- 992	Eleagnus umbellata, Thunberg	∝	250	
251.	G1-76-1079	Eleagnus umbellata, Thunberg	AC	323	
252.	G1-76-1424	Elysium	BH	618	
253.	G1-76- 933	Euonymus elatus, Siebold	Y	215	
254	G1-76- 991	Euonymus elatus, Sieboldi	∝	249	
255.	G1-76-1345	Euonymus elatus, Siebold	BD	525	
256.	G1-76-1282	Euonymus bungeanus,Max.	BC	472	

257.	G1-76-1280	Euonymus fortunei, (Turcz) Handel-Mazetti v. radicans (Seib. & Miq.) Rehder	BB	469	
258.	G1-76-1299	Euonymus fortunei, (Turcz) Handel-Mazetti v. radicans (Sieb. & Miq.) Rehder	BC		
259.	G1-76- 874	Euonymus macropterus. Ruprecht	U	167	a
260.	G1-76- 685	Euonymus sachalinensis, (Fr. Sch.) Max.	A	11	
261.	G1-76- 785	Euonymus sachalinensis, (Fr. Sch.) Max.	N	99	
262.	G1-76- 953	Euonymus sachlainensis, (Fr. Sch.) Max.	Y	223	
263.	G1-76- 980	Euonymus sachalinensis, (Fr. Sch.) Max.	W	238	
264.	G1-76- 984	Euonymus sachalinensis, (Fr. Sch.) Max.	W	242	
265.	G1-76-1252	Euonymus sieboldiana, Blume	AH	448	
266.	G1-76- 799	Euonymus oxyphyllus, Miquel	N	105	a
267.	G1-76-1014	Euonymus oxyphyllus, Miquel	β	270	
268.	G1-76-1057	Euonymus oxyphyllus, Miquel	AB	302	
269.	G1-76-1234	Euonymus oxyphyllus, Miquel	AH	430	
270.	G1-76- 687	Euonymus sp.	B	13	
271.	G1-76-1396	Euscarpis japonica, (Thunberg) Kanitz	BG	588	
272.	G1-76-1193	Evodia daniellii, Helmsley	AF	399	c
273.	G1-76-1002	Exochorda serratifolia, S. More	∝	260	
274.	G1-76-1416	Grewia biloba, G. Don v. parviflora (Bunge) Handel-Mazetti	BH	610	
275.	G1-76- 784	Filipendula palmata, (Pallas) Max.	N	98	
276.	G1-76- 971	Filipendula	Z	235	
277.	G1-76- 792	Forsythia ovata, Nakai	N	103	a
278.	G1-76- 791	Fraxinus mandshuricum, Ruprecht	N	103	
279.	G1-76- 804	Fraxinus rynchophylla, Hance	P	107	b
280.	G1-76- 846	Fraxinus rynchophylla, Hance	T	148	a
281.	G1-76- 927	Fraxinus rynchophylla, Hance	Y	211	a
282.	G1-76- 928	Fraxinus rynchophylla, Hance	Y	211	b
283.	G1-76- 961	Fraxinus rynchophylla, Hance	Z	227	
284.	G1-76-1013	Fraxinus sieboldiana, Blume v. longicuspis	β	269	
285.	G1-76-1044	Fraxinus sieboldiana, Blume v. longicuspis	AA	289	
286.	G1-76-1063	Fraxinus sieboldiana, Blume v. longicuspis	AB	308	
287.	G1-76-1454	Hanabusaia	U	163	b
288.	G1-76-1100	Hemerocallis lilioasphodelus, L.	AD	338	
289.	G1-76-1189	Hosta minor, (Baker), Nakai	AF	398	
290.	G1-76- 812	Hovenia dulcis, Thunberg	P	114	
291.	G1-76-1295	Hugeria japonica, Nakai	BC	481	
292.	G1-76-1355	Hugeria japonica, Nakai	BD	535	
293.	G1-76-1313	Hydrangea petiolaris, (Sieb.&Zuc.). v. cordifolia, Franchet & Savatier	BC	494	
294.	G1-76-1351	Hydrangea petiolaris, (Sieb.&Zuc.) v. cordifolia, Franchet & Savatier	BD	531	
295.	G1-76-1364	Hydrangea petiolaris, (Sieb.&Zuc.) v. cordifolia, Franchet & Savatier	BD	544	

296.	G1-76-1377	Hydrangea petiolaris, (Sieb.&Zuc.) v. cordifolia, Franchet & Savatier	BE	568	
297.[x)]	G1-76-1333	Hydrangea serrata, Seringe f. fertilis	BC	507	
298.	G1-76-1382	Hydrangea serrata, Seringe	BF	575	
299.	G1-76-1211	Hypericum japonicum,Thunberg	AG	413	
300.	G1-76- 834	Hypericum sp.	R	137	
301.	G1-76-1279	Ilex crenata, Thunberg	BB	468	
302.	G1-76-1358	Ilex crenata, Thunberg	BD	538	
303.	G1-76-1041	Ilex macropoda,Miq. f. pseudo-macropoda (Loesen) Hara	AA	286	
304.	G1-76-1052	Ilex macropoda, Miq. f. pseudo-macropoda (Loesen) Hara	AB	297	
305.	G1-76-1066	Ilex macropoda, Miq. f. pseudo-macropoda (Loesen) Hara	AB	311	
306.	G1-76-1078	Ilex macropoda, Miq. f. pseudo-macropoda (Loesen) Hara	AC	322	
307	G1-76-1181	Ilex macropoda, Miq. f. pseudo-macropoda (Loesen) Hara	AF	391	a
308	G1-76-1182	Ilex macropoda, Miq. f. pseudo-macropoda (Loesen) Hara	AF	391	b
309.	G1-76- 946	Iris nertschinskia, Loddiges	Z	219	a
310.	G1-76-1450	Juglans sinensis, (DC) Dode,	CA	660	
311.	G1-76-1287	Juniperus chinensis, L.v. sargentii, Henry	BC	477	
312.	G1-76-1293	Juniperus chinensis, L. v. sargentii, Henry	BC	479	
313.	G1-76-1362	Juniperus chinensis, L. v. sargentii, Hara	BD	542	
314.	G1-76-1043	Juniperus rigida, Sieb.&Zucc.	AA	288	
315.	G1-76-1047	Juniperus rigida, Sieb.&Zucc.)	CA	630	
316.	G1-76-1436	Kalopanax pictus(Thunberg)Nakai	CA	639	
317.	G1-76-1438	Kalopanax pictus, (Thunberg) Nakai	CA	641	
318.	G1-76-1411	Koelreuteria paniculata, Laxman	BH	605	
319.	G1-76- 896	Lepisorus thunbergianus,(Kaulf) Ching	V	185	
320.	G1-76- 945	Lespedeza bicolor, Turecz	Y	219	
321.	G1-76- 943	Lespedeza cyrtobotrya, Miq.	Y	218	
322.	G1-76- 941	Lespedeza friebeana, Schindler	Y	217	
323.	G1-76- 947	Lespedeza japonica, Bailey	Y	220	
324.	G1-76-1138	Lespedeza maximowiczii,Schneider	AD	361	
325.	G1-76-1346	Ligularia japonica, Less.	BD	526	
326.	G1-76-1261	Ligustrum japonicum, Thunberg	BA	455	
327.	G1-76-1157	Ligustrum obtusifolium, Sieb.&Zuc.	AE	379	
328.	G1-76-1294	Ligustrum obtusifolium,Sieb.&Zuc.	BC	480	
329.	G1-76-1331	Ligustrum obtusifolium,Sieb.&Zuc.	BC	504	
330.	G1-76- 942	Lilium tsingtauense, Gilg.	Z	217	a
331.	G1-76- 789	Liliaceae fam.	N	102	
332.	G1-76- 688	Lindera obtusiloba, Blume	B	14	
333.	G1-76-1006	Lindera obtusiloba, Blume	β	263	
334.	G1-76-1147	Lindera obtusiloba, Blume	AD	370	
335.	G1-76- 888	Lonicera crysantha,Turcz v. crassipes Nakai, bicolor Turcz	V	178	a
336.	G1-76-1139	Lonicera crysantha, Turcz v. crassipes Nakai, bicolor Turcz	AD	362	

337.	G1-76-1302	Lonicera crysantha, Turcz (v. wrightii)	BC	488	
338.	G1-76- 852	Lonicera subsessilis, Rehder	T	154	
339.	G1-76- 717	Lonicera sp.	H	39	
340.	G1-76- 843	Lonicera sp.	T	146	
341.	G1-76- 873	Lychnis cognata, Max.	U	167	
342.	G1-76- 898	Lychnis dahuricum, ?	V	187	
343.	G1-76-1241	Lysimachia clethroides, Duby	AH	437	
344.	G1-76- 972	Lysimachia sp.	Z	235	c
345.	G1-76-1356	Maackia fauriei,(Lev.) Takeda	BD	536	
346.	G1-76- 681	Magnolia sieboldii, K. Koch	A	7	
347.	G1-76- 696	Magnolia sieboldii, K. Koch	D	20	
348.	G1-76- 703	Magnolia sieboldii, K. Koch	E	26	
349.	G1-76- 753	Magnolia sieboldii, K. Koch	L	73	
350.	G1-76- 754	Magnolia sieboldii, K. Koch	L	74	
351.	G1-76- 760	Magnolia sieboldii, K. Koch	L	80	
352.	G1-76- 765	Magnolia sieboldii, K. Koch	M	83	
353.	G1-76- 884	Magnolia sieboldii, K. Koch	V	176	a
354.	G1-76- 907	Magnolia sieboldii, K. Koch	X	191	a
355.	G1-76- 949	Magnolia sieboldii, K. Koch	Y	221	
356.	G1.76.1020	Magnolia sieboldii, K. Koch	β	276	
357.	G1-76-1061	Magnolia sieboldii, K. Koch	AB	306	
358.	G1-76-1086	Magnolia sieboldii, K. Koch	AD	328	
359.	G1-76-1102	Magnolia sieboldii, K. Koch	AD	340	
360.	G1-76-1150	Magnolia sieboldii, K. Koch	AD	373	
361.	G1-76-1179	Magnolia sieboldii, K. Koch	AF	389	
362.	G1-76-1214	Magnolia sieboldii, K. Koch	AG	416	
363.	G1-76-1221	Magnolia sieboldii, K. Koch	AG	422	a
364.	G1-76-1349	Magnolia sieboldii, K. Koch	BD	529	
365.	G1-76-1363	Magnolia sieboldii, K. Koch	BD	543	
366.	G1-76-1332	Malus asiatica, Nakai (v. quelpartense ?)	BC	506	
367.	G1-76-1359	Malus asiatica,Nakai v. wrightii	BD	539	
368.	G1-76-1369	Malus asiatica,Nakai	BE	560	
369.	G1-76- 844	Malus baccata, Borkhausen	T	147	
370. x)	G1-76- 872	Malus baccata, Borkhausen	V	178	
371. x)	G1-76-1071	Malus baccata, Borkhausen	AD	332	
372. x)	G1-76-1341	Malus micromalus,Makino	BD	522	
373. x)	G1-76-1237	Meliosma myriantha, Sieb.&Zucc.	AH	433	
374.	G1-76-1386	Meliosma myriantha, Sieb.&Zucc.	BF	579	
375.	G1-76-1420	Meliosma oldhamii, Maxim.	BH	614	
376.	G1-76- 979	Miscanthus sinensis, Andersson v. purpurascans Rendle	W	237	
377.	G1-76-1149	Miscanthus sinensis, Andersson v. purpurascans Rendle	AD	372	
378.	G1-76-1453	Oenothera odorata,	X		
379.	G1-76-1394	Orixa japonica, Thunberg	BG	586	
380.	G1-76- 805	Parthenocissus tricuspidata, (S & Z) Planchon	N	108	
381.	G1-76- 813	Parthenocissus tricuspidata, (S & Z) Plachon	P	115	
382.	G1-76-1027	Parthenocissus tricuspidata, (S & Z) Planchon	δ	283	
383.	G1-76-1410	Paulownia coreana, Uyeki	BH	604	
384.	G1-76- 820	Paulownia sp.	Q	122	
385.	G1-76-1255	Penisetum alopecuroides,(L) Spreng	AH	451	
386.	G1-76- 709	?	G	31	
387.	G1-76-1148	Phellodendron amurense,Ruprecht	AD	371	
388.	G1-76-1250	Phellodendron amurense, Ruprecht	AH	446	

389.	G1-76-1437	Phellodendron amurense, Ruprecht	AG	640	
390.	G1-76- 957	Philadelphus scaber, Nakai	Y	225	
391.	G1-76- 780	Philadelphus schrenkii, Ruprecht	N	94	
392.	G1-76- 864	Philadelphus schrenkii, Ruprecht	U	161	
393.	G1-76-1003	Philadelphus schrenkii, Ruprecht	β	261	
394.	G1-76-1447	Philadelphus schrenkii, Ruprecht	DA	657	
395.	G1-76-1350	Photinia villosa,Decaisne v. cordifolia,Franchet et Savatier	BD	530	
396.	G1-76-1360	Photinia villosa, Decaisne v. cordifolia, Franchet et Savatier	BD	540	
397.	G1-76-1373	Photinia villosa, Decaisne	BE	564	
398.	G1-76-1205	Picea jezoensis, Carriere	AG	409	a
399.	G1-76-1206	Picea jezoensis, Carriere	AG	409	b
400.	G1-76-1097	Picea jezoensis, Carriere	AD	335	
401.	G1-76-1130	Picea jezoensis, Carriere	AD	356	a
402.	G1-76-1131	Picea jezoensis, Carriere	AD	356	b
403.	G1-76-1132	Picea jezoensis, Carriere	AD	356	c
404.	G1-76-1133	Picea jezoensis, Carriere	AD	356	d
405.	G1-76- 678	Picrasma quassioides, Bennet	A	4	
406.	G1-76-1435	Pinus bungeana, Zucc. F.R.J.	CA	638	
407.	G1-76- 796	Pinus densiflora, Sieb. & Zucc.	O	104	b
408.	G1-76- 810	Pinus densiflora, Sieb. & Zucc.	P	112	
409.	G1-76- 932	Pinus densiflora, Sieb. & Zucc.	Y	214	
410.	G1-76- 973	Pinus densiflora, Sieb. & Zucc.	W	236	a
411.	G1-76- 974	Pinus densiflora, Sieb. & Zucc.	W	236	b
412.	G1-76- 975	Pinus densiflora, Sieb. & Zucc.	W	236	c
413.	G1-76- 976	Pinus densiflora, Sieb. & Zucc.	W	236	d
414.	G1-76- 977	Pinus densiflora, Sieb. & Zucc.	W	236	e
415.	G1-76- 978	Pinus densiflora, Sieb. & Zucc.	W	236	f
416.	G1-76-1028	Pinus densiflora, Sieb. & Zucc.	δ	284	
417.	G1-76-1029	Pinus densiflora, Sieb. & Zucc.	δ	285	a
418.	G1-76-1030	Pinus densiflora, Sieb. & Zucc.	δ	285	b
419.	G1-76-1031	Pinus densiflora, Sieb. & Zucc.	δ	285	c
420.	G1-76-1032	Pinus densiflora, Sieb. & Zucc.	δ	285	d
421.	G1-76-1033	Pinus densiflora, Sieb. & Zucc.	δ	285	e
422.	G1-76-1034	Pinus densiflora, Sieb. & Zucc.	δ	285	f
423.	G1-76-1035	Pinus densiflora, Sieb. & Zucc.	δ	285	g
424.	G1-76-1036	Pinus densiflora, Sieb. & Zucc.	δ	285	h
425.	G1-76-1037	Pinus densiflora, Sieb. & Zucc.	δ	285	i
426.	G1-76-1038	Pinus densiflora, Sieb. & Zucc.	δ	285	k
427.	G1-76-1039	Pinus densiflora, Sieb. & Zucc.	δ	285	l
428.	G1-76-1040	Pinus densiflora, Sieb. & Zucc.	δ	285	m
429.	G1-76-1077	Pinus densiflora, Sieb. & Zucc.	AC	321	
430.	G1-76-1163	Pinus densiflora, Sieb. & Zucc.	AF	385	a
431.	G1-76-1164	Pinus densiflora, Sieb. & Zucc	AF	385	b
432.	G1-76-1165	Pinus densiflora, Sieb. & Zucc.	AF	385	c
433.	G1-76-1166	Pinus densiflora, Sieb. & Zucc.	AF	385	d
434.	G1-76-1167	Pinus densiflora, Sieb. & Zucc.	AF	385	e
435.	G1-76-1168	Pinus densiflora, Sieb. & Zucc.	AF	385	f
436.	G1-76-1169	Pinus densiflora, Sieb. & Zucc.	AF	385	g
437.	G1-76-1170	Pinus densiflora, Sieb. & Zucc.	AF	385	h
438.	G1-76-1171	Pinus densiflora, Sieb. & Zucc.	AF	385	i
439.	G1-76-1172	Pinus densiflora, Sieb. & Zucc.	AF	385	k
440.	G1-76-1173	Pinus densiflora, Sieb. & Zucc.	AF	385	l
441.	G1-76-1174	Pinus densiflora, Sieb. & Zucc.	AF	385	m
442.	G1-76-1175	Pinus densiflora, Sieb. & Zucc.	AF	385	j
443.	G1-76-1226	Pinus densiflora, Sieb. & Zucc.	AH	427	a
444.	G1-76-1227	Pinus densiflora, Sieb. & Zucc.	AH	427	b

445.	G1-76-1228	Pinus densiflora, Sieb. & Zucc.	AH	427	c
446.	G1-76-1229	Pinus densiflora, Sieb. & Zucc.	AH	427	d
447.	G1-76-1230	Pinus densiflora, Sieb. & Zucc.	AH	427	e
448.	G1-76-1231	Pinus densiflora, Sieb. & Zucc.	AH	427	f
449.	G1-76-1407	Pinus densiflora, Sieb. & Zucc.	BH	601	
450.	G1-76-1431	Pinus densiflora, Sieb. & Zucc.	CA	634	
451.	G1-76- 684	Pinus koraiensis, Nakai	A	10	
452.	G1-76-1080	Pinus koraiensis, Nakai	AC	324	
453.	G1-76-1081	Pinus koraiensis, Nakai	AC	324	a
454.	G1-76-1451	Pinus koraiensis, Nakai	CA	661	
455.	G1-76-1266	Pinus Thunbergii, Parlatore	BB	465	a
456.	G1-76-1267	Pinus Thunbergii, Parlatore	BB	465	b
457.	G1-76-1268	Pinus Thunbergii, Parlatore	BB	465	c
458.	G1-76-1269	Pinus Thunbergii, Parlatore	BB	465	d
459.	G1-76-1270	Pinus Thunbergii, Parlatore	BB	465	e
460.	G1-76-1271	Pinus Thunbergii, Parlatore	BB	465	f
461.	G1-76-1272	Pinus Thunbergii, Parlatore	BB	465	g
462.	G1-76-1273	Pinus Thunbergii, Parlatore	BB	465	h
463.	G1-76-1274	Pinus Thunbergii, Parlatore	BB	465	i
464.	G1-76-1275	Pinus Thunbergii, Parlatore	BB	465	j
465.	G1-76-1276	Pinus Thunbergii. Parlatore	BB	465	k
466.	G1-76-1398	Pinus Thunbergii, Parlatore	BH	600	a
467.	G1-76-1399	Pinus Thunbergii, Parlatore	BH	600	b
468.	G1-76-1400	Pinus Thunbergii, Parlatore	BH	600	c
469.	G1-76-1401	Pinus Thunbergii, Parlatore	BH	600	d
470.	G1-76-1402	Pinus Thunbergii, Parlatore	BH	600	e
471.	G1-76-1403	Pinus Thunbergii, Parlatore	BH	600	f
472.	G1-76-1404	Pinus Thunbergii, Parlatore	BH	600	g
473.	G1-76-1405	Pinus Thunbergii, Parlatore	BH	600	h
474.	G1-76-1406	Pinus Thunbergii, Parlatore	BH	600	i
475.	G1-76-1413	Platycarya strobilaceae, Sieb.&Zucc.	BH	607	
476.	G1-76- 734	Pleurospermum kamtschaticum, Hoffmann	K	54	a
477.	G1-76-1212	Potentilla dickinsii, Fr. et Sav.	AG	414	
478.	G1-76- 774	Prunus maximowiczii, Ruprecht	M	90	a
479.	G1-76- 769	Prunus maximowiczii, Ruprecht	M	86	a
480.	G1-76- 868	Prunus maximowiczii, Ruprecht	U	163	
481.	G1-76-1258	Prunus mume, Sieb. & Zucc.	AH	452	b
482.	G1-76- 729	Prunus padus, L	K	50	
483.	G1-76- 741	Prunus padus L. v. glauca, Nakai	L	61	
484.	G1-76- 897	Prunus padus, L.	V	186	
485.	G1-76-1429	Prunus padus , L.	CA	632	
486.	G1-76-1381	Prunus quelpartensis, Nakai	BE	572	
487.	G1-76-1434	Pseudocydonia chinensis, Schneider	CA	637	
488.	G1-76- 856	Pyrus ussuriensis, Maximow.	U	156	
489.	G1-76- 861	Pyrus ussuriensis, Maximow.	U	159	
490.	G1-76- 891	Pyrus ussuriensis, Maximow.	V	180	
491.	G1-76-1076	Pyrus ussuriensis, Maximow.	AC	320	
492.	G1-76-1082	Pyrus ussuriensis, Maximow.	AD	325	
493.	G1-76-1153	Pyrus sp. (ussuriensis)	AD	375	
494.	G1-76-1223	Pyrus ussuriensis, Maximow.	AH	424	
495.	G1-76-1433	Pyrus sp.	CA	636	
496.	G1-76-1000	Quercus acutissima, Carr.	X	258	
497.	G1-76- 999	Quercus aliena, Blume	X	257	
498.	G1-76-1024	Quercus aliena, Blume	♂	280	
499.	G1-76-1070	Quercus aliena, Blume	AC	315	
500.	G1-76-1444	Quercus aliena, Blume	DA	654	
501.	G1-76- 998	Quercus dentata, Thunberg	X	256	

502.	G1-76-1408	Quercus dentata, Thunberg	BH	602	
503.	G1-76- 793	Quercus mongolica, Fischer	O	103	b
504.	G1-76- 851	Quercus mongolica, Fischer	T	153	
505.	G1-76- 917	Quercus mongolica, Fischer	X	201	
506.	G1-76- 936	Quercus mongolica, Fischer	Z	216	a
507.	G1-76- 937	Quercus mongolica, Fischer	Z	216	b
508.	G1-76- 938	Quercus mongolica, Fischer	Z	216	c
509.	G1-76- 939	Quercus mongolica, Fischer	Z	216	d
510.	G1-76- 940	Quercus mongolica, Fischer	Z	216	e
511.	G1-76-1160	Quercus mongolica, Fischer	AE	382	
512.	G1-76-1191	Quercus mongolica, Fischer	AF	399	a
513.	G1-76-1220	Quercus mongolica, Fischer	AG	422	
514.	G1-76- 797	Quercus serrata, Thunberg	O	104	c
515.	G1-76- 818	Quercus serrata, Thunberg	P	120	
516.	G1-76-1069	Quercus serrata, Thunberg	AC	314	
517.	G1-76-1073	Quercus serrata, Thunberg	AC	318	
518.	G1-76-1074	Quercus serrata, Thunberg	AC	318	a
519.	G1-76-1225	Quercus serrata, Thunberg	AH	426	
520.	G1-76-1156	Quercus serrulata (x aliena ?) Thunberg	AE	378	
521.	G1-76-1083	Quercus variabilis, Blume	AD	325	a
522.	G1-76-1390	Raphiolepes umbellata, (Thunberg) Makino v. longifolia	BG	582	
523.	G1-76-1365	Reynoutria cuspidata, Sieb. & Zucc.	BD	545	
524.	G1-76- 733	Rhamnus davurica, Pallas	K	54	
525.	G1-76-1455	Rhamnus davurica, Pallas	U	166	a
526.	G1-76-1017	Rhamnus schneideri, Leveille & Vanioit	β	273	
527.	G1-76- 693	Rhododendron Fauriei, Franchet	B	18	
528.	G1-76- 704	Rhododendron Fauriei, Franchet	F	27	
529.	G1-76- 761	Rhododendron Fauriei, Franchet	L	81	
530.	G1-76- 771	Rhododendron Fauriei, Franchet	M	88	
531.	G1-76- 865	Rhododendron Fauriei, Franchet	U	161	a
532.	G1-76-1022	Rhododendron micranthum, Turcz.	γ	278	
533.	G1-76- 706	Rhododendron mucronulatum, Turcz	F	28	b
534.	G1-76- 712	Rhododendron mucronulatum, Turcz	H	34	
535.	G1-76- 735	Rhododendron mucronulatum, Turcz	K	55	
536.	G1-76- 842	Rhododendron mucronulatum, Turcz	T	145	
537.	G1-76- 859	Rhododendron mucronulatum, Turcz	U	158	
538.	G1-76-1092	Rhododendron mucronulatum, Turcz	AD	333	a
539.	G1-76-1104	Rhododendron mucronulatum, Turcz	AD	342	
540.	G1-76-1141	Rhododendron mucronulatum, Turcz	AD	364	
541.	G1-76-1198	Rhododendron mucronulatum, Turcz	AG	402	
542.	G1-76-1300	Rhododendron mucronulatum, Turcz	BC	486	
543.	G1-76-1314	Rhododendron mucronulatum, Turcz	BC	495	
544.	G1-76-1085	Rhododendron mucronulatum, Turcz. v. ciliatum, Nakai	AD	327	
545.	G1-76- 689	Rhododendron Schlippenbachii, Max.	B	14	a
546.	G1-76- 714	Rhododendron Schlippenbachii, Max.	H	36	
547.	G1-76- 752	Rhododendron Schlippenbachii, Max.	L	72	
548.	G1-76- 755	Rhododendron Schlippenbachii, Max.	L	75	
549.	G1-76- 827	Rhododendron Schlippenbachii, Max.	R	130	
550.	G1-76- 847	Rhododendron Schlippenbachii, Max.	T	149	
551.	G1-76- 854	Rhododendron Schlippenbachii, Max.	U	155	
552.	G1-76- 879	Rhododendron Schlippenbachii, Max.	U	172	
553. x)	G1-76-1005	Rhododendron Schlippenbachii, Max.	β	262	
554.	G1-76-1049	Rhododendron Schlippenbachii, Max.	AA	294	
555.	G1-76-1056	Rhododendron Schlippenbachii, Max.	AB	301	

556.	G1-76-1088	Rhododendron Schlippenbachii, Max.	AD	330
557.	G1-76-1089	Rhododendron Schlippenbachii, Max.	AD	331
558.	G1-76-1105	Rhododendron Schlippenbachii, Max.	AD	343
559.	G1-76-1108	Rhododendron Schlippenbachii, Max.	AD	346
560.	G1-76-1140	Rhododendron Schlippenbachii, Max.	AD	363
561.	G1-76-1144	Rhododendron Schlippenbachii, Max.	AD	367
562.	G1-76-1180	Rhododendron Schlippenbachii, Max.	AF	390
563.	G1-76-1200	Rhododendron Schlippenbachii, Max.	AG	404
564.	G1-76-1210	Rhododendron Schlippenbachii, Max.	AG	412
565.	G1-76-1217	Rhododendron Schlippenbachii, Max.	AG	419
566.	G1-76-1201	Rhododendron Tschonoskii, Max.	AG	405
567.	G1-76-1376	Rhododendron weyrichii, Max.	BE	567
568.	G1-76-1383	Rhododendron weyrichii, Max.	BF	576
569.	G1-76-1154	Rhododendron yedoense, Max. v. poukhanense (Lev.) Nakai	AD	376
570.	G1-76-1158	Rhododendron yedoense, Max. v. poukhanense (Lev) Nakai	AE	380
571.	G1-76-1219	Rhododendron yedoense, Max. v. poukhanense (Lev.) Nakai	AG	421
572.	G1-76-1254	Rhododendron yedoense, Max. v. poukhanense (Lev.) Nakai	AH	450
573.	G1-76-1277	Rhododendron yedoense, Max. v. poukhanense, (Lev.) Nakai	BB	466
574.	G1-76-1330	Rhododendron yedoense, Max. v. poukhanense (Lev.) Nakai	BC	503
575.	G1-76-1375	Rhododendron yedoense, Max. v. poukhanense (Lev.) Nakai	BE	566
576.	G1-76- 817	Rhus japonica, ?	P	119
577.	G1-76-1025	Rhus japonica, L	δ	281
578.	G1-76-1395	Rhus officinalis, ?	BG	587
579.	G1-76-1012	Rhus tricocarpa,	β	268
580.	G1-76-1137	Ribes Komarovii, A. Pojarkova	AD	360
581.	G1-76- 921	Rodgersia podophylla v. viridis	Y	205
582.	G1-76- 744	Rosa acicularis, Lindley	L	64
583.	G1-76- 876	Rosa acicularis, Lindley	U	169
584.	G1-76- 881	Rosa maximowicziana, Regel	U	174
585.	G1-76-1264	Rosa maximowicziana, Regel	BB	463
586.	G1-76-1339	Rosa maximowicziana, Regel	BD	520
587.	G1-76-1353	Rosa maximowicziana, Regel	BD	533
588.	G1-76- 925	Rosa multiflora, Thunberg	Y	209
589.	G1-76- 986	Rosa multiflora, Thunberg	W	244
590.	G1-76-1222	Rosa multiflora, Thunberg	AH	423
591.	G1-76-1265	Rosa multiflora, Thunberg	BB	464
592.	G1-76-1422	Rosa multiflora, Thunberg	BH	616
593.	G1-76-1423	Rosa rugosa, Thunberg	BH	617
594.	G1-76-1101	Rubus crataegifolius, Bunge	AD	339
595.	G1-76- 935	Rubus parvifolius, L.	Y	216
596.	G1-76-1425	Rubus triphyllis, Thunberg	BH	619
597.	G1-76- 833	Rubus sp.	R	136
598.	G1-76- 736	Salix hallaisanensis, Level	K	56
599.	G1-76-1204	Sanguisorba hakusanensis, Makino	AG	408
600.	G1-76- 708	Sanguisorba (officinalis, v. carnea?)	G	30
601.	G1-76- 822	Sanguisorba	Q	125
602.	G1-76-1387	Sapium japonicum, Pax & Hoffmann	BF	580
603.	G1-76- 758	Saussurea koreana, ?	L	78
604.	G1-76- 912	Schizandra chinensis, Baillon	X	196
605.	G1-76-1432	Sciadopitys verticillata, Sieb.& Zucc.	CA	635

606.	G1-76- 815	Securinega suffruticosa,Rehder	P	117	
607.	G1-76-1045	Securinega suffruticosa,Rehder	AA	290	
608.	G1-76- 948	Sedum erythrosticum, Miquel	Z	220	a
609.	G1-76- 768	Smilacina racemosa, ?	M	85	
610.	G1-76- 867	Smilacina sp.	U	162	a
611.	G1-76-1050	Smilax china, L.	AA	295	
612.	G1-76-1430	Smilax china, L.	CA	633	
613.	G1-76-1278	Smilax china L. v. microphylla Nakai,f. microphylla Rehder	BB	467	
614.	G1-76-1023	Smilax mandshurica,	δ	279	
615.	G1-76- 924	Smilax sieboldii Miquel	Y	208	
616.	G1-76-1010	Spiraea blumei Don v. latifolia cho. red	β	267	
617.	G1-76-1011	Spiraea blumei Don v. latifolia cho green	β	267	
618.	G1-76-1184	Spiraea fritschiana, Schneider (= coreana, Nakai)	AF	393	
619.	G1-76- 836	Spiraea mayabei, Koidz.	S	139	
620.	G1-76- 882	Spiraea mayabei, Koidz.	U	175	
621.	G1-76- 682	Spiraea pubescens, Turcz.	A	8	
622.	G1-76-1008	Spiraea pubescens, Turcz.	β	265	
623.	G1-76- 994	Spiraea tricocarpa, Nakai	α	252	
624.	G1-76- 826	Sorbus alnifolia, (S&Z) K. Koch.	R	129	
625.	G1-76- 952	Sorbus alnifolia, (S & Z) K. Koch	Z	222	a
626.	G1-76-1058	Sorbus alnifolia, (S & Z) K. Koch	AB	303	
627.	G1-76- 829	Sorbus amurensis, Koehne	R	132	
628.	G1-76- 691	Sorbus commixta, Hedlund	B	16	
629.	G1-76- 742	Sorbus commixta, Hedlund	L	62	
630.	G1-76- 747	Sorbus commixta, Hedlund (yellow fruits)	L	67	
631.	G1-76- 748	Sorbus commixta, Hedlund	L	68	
632.	G1-76- 766	Sorbus commixta, Hedlund	M	83	a
633.	G1-76-1098	Sorbus commixta, Hedlund	AD	336	
634.	G1-76-1285	Sorbus commixta, Hedlund	BC	475	
635.	G1-76-1304	Sorbus commixta, Hedlund	BC	490	
636.	G1-76-1441	Solanum niponnense, Makino	DA	651	
637.	G1-76- 675	Staphylea bumalda, DC.	A	1	
638.	G1-76- 806	Staphylea bumalda, DC	P	108	b
639.	G1-76- 959	Staphylea bumalda, DC	Y	226	
640.	G1-76- 916	Stephanandra incisa, Zabel	X	200	
641.	G1-76-1183	Stephanandra incisa, Zabel	AF	392	
642.	G1-76-1145	Stephanandra incisa, Zabel	AD	368	
643.	G1-76-1048	Stewartia koreana, Nakai	AA	293	
644.	G1-76-1215	Stewartia koreana, Nakai	AG	417	
645.	G1-76-1243	Stewartia koreana, Nakai	AH	439	
646.	G1-76-1253	Stewartia koreana, Nakai	AH	449	
647.	G1-76-1155	Styrax japonica,Sieb. & Zucc.	AE	377	
648.	G1-76-1195	Styrax japonica,Sieb. & Zucc.	AF	399	e
649.	G1-76-1235	Styrax japonica,Sieb. & Zucc.	AH	431	
650.	G1-76-1372	Styrax japonica,Sieb. & Zucc.	BE	563	
651.	G1-76- 118	Styrax obassia, Sieb. & Zucc.	P	118	
652.	G1-76- 686	Styrax obassia, Sieb. & Zucc.	B	12	
653.	G1-76- 795	Styrax obassia, Sieb. & Zucc.	N	104	a
654.	G1-76-1065	Styrax obassia, Sieb. & Zucc.	AB	310	
655.	G1-76- 802	Symplocos chinensis, Nakai f. villosa Ohwi	P	106	b
656.	G1-76- 885	Symplocos chinensis, Merr f. pilosa, Nakai	V	176	b
657.	G1-76- 683	Symplocos panniculata, (Thunberg) Miquel	A	9	

658.	G1-76-1067	Symplocos prunifolia, Sieb. & Zucc.	AB	312	
659.	G1-76-1109	Symplocos prunifolia, Sieb. & Zucc.	AD	347	
660.	G1-76-1134	Symplocos prunifolia, Sieb. & Zucc.	AD	357	
661.	G1-76- 811	Syringa reticulata, (Bl) Hara v. velutina	P	113	
662.	G1-76- 838	Syringa reticulata, (Bl.) Hara	S	141	
663.	G1-76- 850	Syringa reticulata, (Bl.) Hara	T	152	
664.	G1-76- 983	Syringa reticulata, (Bl.) Hara	W	241	
665.	G1-76-1251	Syringa reticulata, (Bl.) Hara	AH	447	
666.	G1-76- 770	Syringa velutina, Komarov	M	87	
667.	G1-76- 858	Syringa velutina, Komarov	U	157	a
668.	G1-76- 905	Syringa velutina, Komarov	X	190	
669.	G1-76-1087	Syringa velutina, Komarov	AD	329	
670.	G1-76-1114	Syringa velutina, Komarov	AD	352	
671.	G1-76-1136	Syringa velutina, Komarov	AD	359	
672.	G1-76-1203	Syringa velutina, Komarov	AG	407	
673,	G1-76- 722	Syringa wolfii,Schneider	H	44	
674.	G1-76- 724	Syringa wolfii,Schneider	I	46	
675.	G1-76- 725	Syringa wolfii, Schneider	I	46	b
676.	G1-76- 726	Syringa wolfii, Schneider	I	47	
677.	G1-76- 740	Syringa wolfii, Schneider	L	60	
678.	G1-76- 857	Syringa sp.	U	157	
679.	G1-76- 823	Taxus cuspidata, Sieb. & Zucc.	R	126	
680.	G1-76- 890	Taxus cuspidata, Sieb. & Zucc.	V	179	
681.	G1-76-1111	Taxus cuspidata, Sieb. & Zucc.	AD	349	
682.	G1-76-1327	Taxus cuspidata, Sieb. & Zucc.	BC	500	
683.	G1-76-1328	Taxus cuspidata, Sieb. & Zucc.	BC	501	
684.	G1-76-1340	Taxus cuspidata, Sieb. & Zucc.	BD	521	
685.	G1-76-1357	Taxus cuspidata, Sieb. & Zucc.	BD	537	
686.	G1-76- 783	Thalictrum sp	N	97	
687.	G1-76- 737	Thuja koraiensis, Nakai	L	57	
688.	G1-76- 749	Thuja koraiensis, Nakai	L	69	
689.	G1-76-1192	Thuja orientalis, L.	AF	399	b
690.	G1-76- 776	Tilia amurensis, Ruprecht	M	91	a
691.	G1-76- 782	Tilia amurensis, Ruprecht	N	96	
692.	G1-76- 828	Tilia amurensis, Ruprecht	R	131	
693.	G1-76-1414	Tilia coreana, Nakai	BH	608	
694.	G1-76-1068	Tilia mandshurica,Ruprecht	AC	313	
695.	G1-76- 746	Tilia taquetii, Schneider	L	66	
696,	G1-76-1259	Torreya nucifera,Sieb. & Zucc. v. matsumurae, Makinoi	BA	453	
697.	G1-76- 676	Tripterygium regelii, Sprague et Takeda	A	2	
698.	G1-76- 707	Tripterygium regelii. Sprague et Takeda	G	29	
699.	G1-76- 721	Tripterygium regelii, Sprague et Takeda	H	43	
700.	G1-76- 830	Tripterygium regelii, Sprague et Takeda	R	133	
701.	G1-76- 819	Tripterygium regelii, Sprague et Takeda	P	121	
702.	G1-76- 869	Tripterygium regelii, Sprague et Takeda	U	163	a
703.	G1-76- 880	Tripterygium regelii, Sprague et Takeda	U	173	
704.	G1-76- 901	Tripterygium regelii, Sprague et Takeda	X	188	
705.	G1-76- 964	Tripterygium regelii, Sprague et Takeda	Z	230	

706.	G1-76-1062	Tripterygium regelii, Sprague et Takeda	AB	307	
707.	G1-76-1112	Tripterygium regelii, Sprague et Takeda	AD	350	
708.	G1-76-1135	Tripterygium regelii, Sprague et Takeda	AD	358	
709.	G1-76-1143	Tripterygium regelii, Sprague et Takeda	AD	366	
710.	G1-76-1196	Tripterygium regelii, Sprague et Takeda	AG	400	
711.	G1-76-1239	Tripterygium regelii, Sprague et Takeda	AH	435	
712.	G1-76- 902	Ulmus davidiana,Planch v. jap.Nak. f. suberose Nak.	X	188	a
713.	G1-76- 690	Vaccinium koreanum, Nakai	B	15	
714.	G1-76- 713	Vaccinium koreanum, Nakai	H	35	
715.	G1-76-1099	Vaccinium koreanum, Nakai	AD	337	
716.	G1-76-1178	Vaccinium koreanum, Nakai	AF	388	
717.	G1-76-1202	Vaccinium koreanum, Nakai	AG	406	
718.	G1-76-1047	Vaccinium oldhamii, Miquel	AA	292	
719.	G1-76-1084	Vaccinium oldhamii, Miquel	AD	326	
720.	G1-76-1281	Vaccinium oldhamii, Miquel	BB	470	
721.	G1-76-1380	Vaccinium oldhamii, Miquel	BE	571	
722.	G1-76- 732	Weigela florida, (Bunge) A. DC.	K	53	
723.	G1-76-1107	Weigela florida, (Bunge) A. DC.	AD	345	
724.	G1-76- 845	Weigela subsessilis, L.H. Bailey	T	148	
725.	G1-76- 863	Weigela subsessilis, L.H. Bailey	U	160	a
726.	G1-76- 886	Weigela subsessilis, L.H. Bailey	U	177	
727.	G1-76- 944	Weigela subsessilis, L.H. Bailey	Z	218	a
728.	G1-76-1110	Weigela subsessilis, L.H. Bailey	AD	348	
729.	G1-76-1297	Weigela subsessilis, L.H. Bailey	BC	483	
730.	G1-76-1352	Weigela subsessilis, L.H. Bailey	BD	532	
731.	G1-76-1262	Viburnum awabucki, Koch	BA	456	
732.	G1-76- 997	Viburnum burejaeticum, Regel et Herder	α	255	
733.	G1-76- 698	Viburnum dilatatum, Thunberg	E	22	
734.	G1-76- 710	Viburnum dilatatum, Thunberg	G	32	
735.	G1-76- 803	Viburnum erosum, Thunberg	N	107	
736.	G1-76- 832	Viburnum erosum, Thunberg	R	135	
737.	G1-76-1370	Viburnum erosum, Thunberg	BE	561	
738.	G1-76-1379	Viburnum erosum, Thunberg	BE	570	
739.	G1-76-1378	Viburnum furcatum, Blume	BE	569	
740.	G1-76- 763	Viburnum koreanum, Nakai	L	82	a
741	G1-76- 697	Viburnum sargentii, Koehne	D	21	
742.	G1-76- 764	Viburnum sargentii, Koehne	L	82	b
743.	G1-76- 849	Viburnum sargentii, Koehne	T	151	
744.	G1-76- 875	Viburnum sargentii, Koehne	U	168	
745.	G1-76-1106	Viburnum sargentii, Koehne	AD	344	
746.	G1-76- 773	Viburnum wrightii, Miquel	M	90	
747.	G1-76- 862	Viburnum wrightii, Miquel	U	160	
748.	G1-76-1187	Viola albida, Palibin	AF	396	
749.	G1-76-1419	Vitex rotundifolia, Linn.	BH	613	
750.	G1-76- 825	Vitis amurensis, Ruprecht	R	128	
751.	G1-76- 966	Vitis amurensis, Ruprecht	Z	232	
752.	G1-76- 988	Vitis amurensis, Ruprecht	Z	246	
753.	G1-76-1051	Vitis amurensis, Ruprecht	AA	296	
754.	G1-76-1021	Vitis flexuosa, Thunberg	♂	277	
755.	G1-76-1242	Vitis flexuosa, Thunberg	AH	438	
756.	G1-76-1249	Vitis flexuosa, Thunberg	AH	445	
757.	G1-76-1247	Zantoxylum piperitum	AH	443	

758.	G1-76-1232	Zantoxylum schinifolium,Sieb. & Zucc.	AH	428
759.	G1-76- 808	Zantoxylum	P	110
760.	G1-76-1162	Zelkova serrata,Makino	AF	384
761.	G1-76-1244	Zelkova serrata, Makino	AH	440
762.	G1-76-1428	Zelkova serrata, Makino	CA	631
763.	G1-76-1449	Zizyphus jujuba, Mill.	CA	659

x) Additions and corrections

182 a	G1-76- 775	Cimicifuga sp.	M	91
207 a	G1-76-1185	Clerodendron trichotomum, Thunberg	AF	394
296 a	G1-76-1042	Euonymus oxyphyllus,Miquel	AA	287
370 a	G1-76- 889	Malus baccata,Borkhausen	V	178
372 a	G1-76-1090	Malus sieboldii,(Regel)Rehder	AD	332
552 a	G1-76- 918	Rhododendron Schlippenbachii,Max.	X	202

"... When the tall pines swing to the cold wind on rocky crests,
The sun is down and the woodsmen are gone from the forest.
They mediated long under the bright moon at night;
They flew aimlessly on the fluttering wings of the wind.
On the iris bed they lay and fell fast asleep;
Their souls were not tied to early cares even in dreams.
The unfeeling clouds sail over the two ruined hermitages as of yore.
In glens untrodden by men only deer leap in wild joy."

Ilyon (1206-1289), Samguk Yusa:
Song in praise of the two saints.

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