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About the Institute
The Hunt Institute for Botanical Documentation, a research division of Carnegie Mellon University, specializes in the history of botany and all aspects of plant science and serves the international scientific community through research and documentation. To this end, the Institute acquires and maintains authoritative collections of books, plant images, manuscripts, portraits and data files, and provides publications and other modes of information service. The Institute meets the reference needs of botanists, biologists, historians, conservationists, librarians, bibliographers and the public at large, especially those concerned with any aspect of the North American flora.

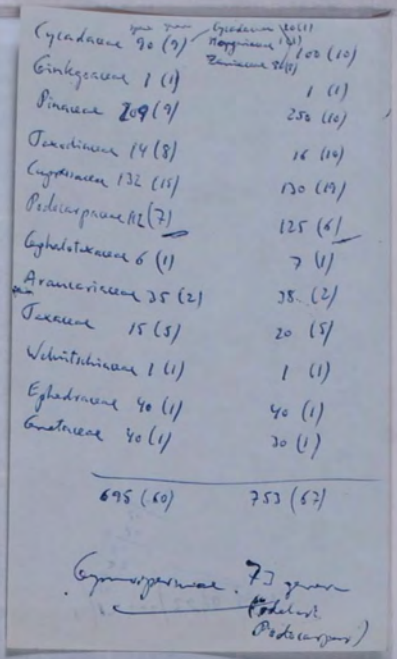
Hunt Institute was dedicated in 1961 as the Rachel McMasters Miller Hunt Botanical Library, an international center for bibliographical research and service in the interests of botany and horticulture, as well as a center for the study of all aspects of the history of the plant sciences. By 1971 the Library's activities had so diversified that the name was changed to Hunt Institute for Botanical Documentation. Growth in collections and research projects led to the establishment of four programmatic departments: Archives, Art, Bibliography and the Library.

Askell:

This was on my desk when I returned from S.F. I think that the only alternative for you on this is to take it up formallywith your attorney friend. I'll try to get in touch with Garnsey but he will have to have particulars on what you claim you are entitled to. O.K.?

It was good to see you ifonly for the hour; Sammie thakks Doris for the lemons.

Bill


Cycadaceae 90 (9) Gnetaceae 40 (1) Podocarpaceae 82 (7) 100 (10)
Ginkgoaceae 1 (1) 1 (1)
Pinaceae 209 (9) 258 (10)
Taxodiaceae 14 (8) 16 (10)
Cupressaceae 132 (15) 130 (19)
Podocarpaceae 82 (7) 125 (6)
Cephalotaxaceae 6 (1) 7 (1)
Araucariaceae 35 (2) 38 (2)
Taxaceae 15 (5) 20 (5)
Welwitschiaceae 1 (1) 1 (1)
Ephedraceae 40 (1) 40 (1)
Gnetaceae 40 (1) 30 (1)
695 (60) 753 (57)
Gymnospermae. 71 genera
Podocarpaceae)

UNIVERSITY OF COLORADO
OFFICE OF THE CHANCELLOR
BOULDER, COLORADO 80309

February 7, 1977

Professor William Weber
Henderson Museum
Room 216
Campus

Dear Bill:

I think by now I've talked to everyone associated in almost any way with the resignation of Axel Love. There is just not a suggestion of evidence that Professor Love was promised or is entitled to any compensation beyond that described in his signed resignation. The University has no further obligation to Professor Love.

My only suggestion for Professor Love or for you in his behalf is to contact Richard Tharp, who is still acting as University Counsel for the Boulder Campus.

Yours truly,

Joanne E. Arnold
Associate Vice Chancellor

JEA:af

cc: Richard Tharp

Weber
UNIVERSITY OF COLORADO MUSEUM
BOULDER, COLORADO 80302

DENVER, CO
PM
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DEFEAT
MUSCULAR
SUPPORT

United States 13c

Dr. Askell Löve
5780 Chandler Court
San Jose Ca 95123

MUSEUM

University of Colorado at Boulder
Boulder, Colorado 80309 U.S.A.

3 Jan. 1976

Dear Askell:

Now I want to ask you for something small. Would you like to write a letter of recommendation for me for the job of curator of the Rocky Mountain Herbarium? Not that I want to leave Colorado, but there is the probability that my future here is bleak (no space, and no adequate retirement until ten years from now). Who knows, I might actually be able to pry loose this herbarium and establish it up there although I wouldn't want that mentioned. We have some small alternatives here at Boulder, such as abolishing the display area of the Museum, which I am all for right now, but there seems to be no real future for the museum at the present time and probably not for the future given the state of the legislature or the legislature of the State.

Incidentally, I have talked to the Vice-Chancellor. She did understand what you wanted, and telked to the lawyer. Everybody seems to feel that you have nothing coming from the University since you did not retire in the ordinary sequence etc. She promised me that she would talk to Crowe and find out what she could about the agreement, which she evidently has seen. I really think that you are going to have to get involved with your lawyer friend in San Francisco and see if he thinks you have any kind of a case. I should continue to help you all I can, but I feel a little weak myself since I have done as much as I can thus far. Mrs. Arnold frankly told me that she expects to get no help from Crowe. However, as you suggest, I will first get in touch with Morris Garnsey and Gale Vetter and let you know what they feel. I presume that Vetter certainly knows something about the situation.

I myself am going to have words with Mary Berry since I wrote a strong letter to her last week about my impossible situation.

Well, thanks too for the information on ferns and Lappula. I sent spores to Manton years ago; did she not publish a count from our material??? I would not say that the Boulder plant is calciphile, since it occurés in a non-calcareous sandatone!

Well, getting back to the first question, would you write a letter to Dan Crawford, Acting Chairman, Dept. Botany, Univ. of Wyoming, Laramie 82070, and I'll appreciate it very much.

Will get back to you later.

Sincerely,

Bill

UNIVERSITY OF COLORADO MUSEUM
BOULDER, COLORADO 80302

8 Jan. 1977

Dear Askell:

I called Morris Garnsey and he suggested that I write him a letter (a copy of this enclosed) so that he could go into a preliminary investigation and find out what he k can. Looking over that sentence in the Crowe agreement, I can't see that anything is promised there, unless you have reason to believe that it was formally considered that you had retired, because as I understand it the supplementary benefits are for retirement incomes.

If Morris is going to get anywhere at all, he is going to have to get more of the facts in the case than I know, or that anyone I know knows, and this means that I think you will not have a chance if you plan to hold the whole matter in confidence because of possible implications for Yugoslavs. I think that if you are not willing to air the whole thing you might as well forget about recovering anything. So I hope that you will be able to carry some of the ball yourself with Morris and give him a chance to really help you out.

Beautiful weather here as usual. The ski people who overexpanded their commercial areas are suffering, poor things, and I really hope they have a disastrous rest of the winter.

I hope that you received the books. I possibly should have held on to them longerto avoid the rest of the Christmas rush, but didn't. This week I haveheen working overtime trying to distribute duplicates and create some little space to fill with more junk. About 8500 specimens we have played solitaire with so far but are about at the end of it.

Had a phone call from Linna from Montreal; they are living in St. Lambert if you know where that is. They're glad to be back over on this side, and being nominally catholic they probably will be o.k. there.

As ever, Bill

REPORT OF ACTIVITIES THE FIRST SEASON: SUMMER 1971.

As the first step in the study of the cytotaxonomy of the remarkable flora of Yugoslavia, it was proposed that extensive studies be made towards an evolutionary-ecological synthesis of the history of alpine vegetation of this region, beginning with cytotaxonomical studies of as many as possible of the species of higher plants in the Julian Alps. Our Yugoslavian colleagues were, however, of the opinion that such a review of the entire flora of Slovenia as a whole would be more appropriate. The flora of this part of Europe, and then especially the alpine regions, is known to be rich in endemic species, whereas it seems to be typical of various regions of Slovenia that related taxa intergrade or mix in zones where the nemoral flora of western Europe meets the Mediterranean vegetation. The work was planned as a cooperative effort between a team of cytotaxonomists from the University of Colorado and a group of cytologists, taxonomists, ecologists, and technicians from the University of Ljubljana, centering at the Institute of Biology and the Botanical Garden.

Due to various circumstances, the American team could not be in the field for more than two months this first summer (1971), but during that time extensive work on orientation, collecting, microscoping as well as library and writing work was carried on every day, including every weekend and all days of the week. Although the work could be grouped in various other ways, we find it easiest to report about it under the following headings:

1. A review of the flora of Slovenia and the Alps.

In order to acquaint the five members of the American team with details of and problems in the Slovenian flora, the Yugoslavian team had planned travel to areas of various kinds during the first four weeks of our stay, combined and interspersed with extensive collection of living material for further study in the Botanical Garden. These travels took the group all over Slovenia, though they were mainly concentrated to the alpine regions. Material brought to the Botanical Garden in Ljubljana and the Juliana Botanical Garden in the Julian Alps included all the endemic species of the eastern Alps in the widest sense. Also, a good proportion of the non-endemic alpine flora of the Julian Alps, Kamnian Alps, the Karavanken, and Trnovski Gozd was brought into cultivation for further study, in addition to selected material from other regions for comparison. The American team became thoroughly acquainted with the about 80 endemic species of this area, and also with the numerous endemic subspecies, varieties, forms and demes, and with the flora as a whole, which the two American principal investigators knew previously as belonging to the western European nemoral flora.

During the travels, numerous problems to be studied through this cooperative effort were discussed in detail with the Yugoslavian botanists. Based on these discussions, the four senior scientists, Askell Löve, Doris Löve, Ernest Mayer and Franc Sušnik, compiled a report which reviews the problems from various points of view and describes the evolutionary background for the planned work. It is hoped that this paper will be printed this winter in a Yugoslavian journal.

For the latter part of the summer, the team was joined by the Norwegian cytotaxonomist and specialist on alpine flora, Dr. Gunvor Knaben of Oslo, who has studied similar problems in Scandinavia and Alaska for many years. She spent considerable time in the Julian Alps together with her Norwegian assistant and one of the skilled Slovenian students, concentrating mainly on studies of critical groups of the large genus Saxifraga. All the cost for her stay and travels and those of her assistant were paid by a special grant from the Norwegian Research Council, but she shared our laboratory without compensation.

In connection with the survey of the flora, the American principal investigators and one of their assistants compiled a critical checklist of the entire Slovenian flora, which comprises about 2900 species, and prepared it for computerization. This list also includes information on previously determined chromosome numbers and the distribution of each taxon within Slovenia. The list is being circulated within the entire group of researchers in the cooperative team as a computer printout, will be made available to others as soon as it has been completed, and it will serve the group as a basis for selection of critical groups for study during the years to come. Our Yugoslav colleagues feel that its publication would make it useful for several other groups of scientists inside and outside Yugoslavia, so we plan to print it in some Slovenian publication series during the winter or next summer. Although about 60-70% of the species seem to have been cytologically studied from elsewhere in Europe, less than 5% of the taxa have been determined from Slovenia itself, and most of the critical groups remain cytologically unknown.

2. Cytotaxonomical work.

As mentioned above, considerable collections were brought to the Botanical Gardens during the summer, both from the trips of the entire group, and from numerous individual trips when both teams split up into smaller expeditions. All this material was potted in the Gardens and much of it has already been fixed for cytological study, at the same time as duplicate vouchers were carefully produced for more detailed identification later. Considerable number of cytological preparations had already been studied before the American team returned home at the end of August, but the rest will be worked out during the winter months. The numbers for 115 species, representing 80 genera and 38 families, have already been submitted for printing in November in the journal Taxon. These include some of the more remarkable endemics, whereas most of the endemics of the Julian Alps, the Karavanken, the Kamnian Alps, and Trnovski Gozd will be studied closer during the winter, together with some selected taxa of special interest.

3. The endemics.

In addition to field observations of the endemics and studies of their chromosome numbers, we tried to make a complete taxonomical review of all the Slovenian endemics and studied them morphologically and chorologically in great detail. A thorough study of their distribution, including mapping, is being made by Ernest Mayer. These studies are being coordinated with similar studies in the central and western Alps by Professor Cl. Favarger and his students in Neuchatel in Switzerland, the foremost specialist on the cytotaxonomy of the Alpique flora, and with studies of endemics and alpine plants from Spain and Italy performed but not yet published by Askell & Doris Löve and on alpine plants from the arctic regions of Atlantic Europe by the American principal investigators and Dr. Gunvor Knaben. Although all the Slovenian endemics were under study already this first season, special attention was given the following complexes and taxa, which may serve as examples:

a. Iris cengialti Ambr. and I. illyrica Tommas. - These are taxa of the eastern Alps and of the coastal mountains of the northern Adriatic. Although morphologically and geographically distinct, these species have been known to cross and give rise to apparently fertile hybrids, and on basis of morphology some botanists of the past have regarded them as races only of the much more widespread southeast European Iris pallida Lam. Our chromosome studies do not contradict this conclusion, since all these taxa are characterized by the same number (2n = 24) and at least very similar morphology of chromosomes. However, a more detailed study of already available artificial hybrids will be performed before a final conclusion is reached, although the present evidence seems to be in favor of regarding them only as minor geographical races, or varieties, of a single species.

b. Aconitum angustifolium Bernh. - This taxon of the eastern Alps has recently, by Tutin in the Flora Europaea, been regarded as a doubtful variation, which some others have even thought of as a possible hybrid between A. variegatum L. and A. compactum Rchb. Our studied showed it to be a hexaploid, which is possibly derived from the diploid and tetraploid species just mentioned, ~~xxx~~ No further investigation is needed for its acceptance as a good endemic species, although more work has to be done before its mode of evolution can be ascertained.

c. Papaver julicum Mayer & Merxmüller. - Our studies of the cytology of this taxon have confirmed that it is a diploid belonging to the diploid complex P. alpinum L., most closely related to its ssp. sendtneri (Kerner) Schinz & Keller. Our preliminary observations seem to indicate that its ~~xxxxxxx~~ correct evolutionary status may be as a variety of this major race, but hybridization experiments may be required before that question can be definitely settled.

d. Pastinaca fleischmannii Hladnik. - This taxon was discovered on the slopes of the Castle Mountain in Ljubljana more than 150 years ago and brought into the Botanical Garden. There it survives thanks to help from the gardeners, but it is extinct on the mountain. We have found it to be cytologically identical with P. sativa of which it is apparently a one-gene mutation, so it is most correctly regarded as a genetically deviating deme or local population of interest mainly as the lowest observable level of endemism.

e. Hladnikia pastinacifolia Rchb. - This umbelliferous genus is one of the most distinct endemics in Europe, met with only near the eastern and western borders of the Trnovski Gozd, which is the southernmost part of the Slovenian Alps in the karst region. We studied it from various points of view with Professor Sušnik and are working on a comprehensive report of the

cytotaxonomical, chemotaxonomical, morphological, ecological, and chorological characteristics of this monotypic genus. These studies seem to confirm earlier opinions that this is a relic paleoendemic of such a distinction that even our detailed methods are not able to reveal its relationship to anyk other genus of the family anywhere in the world.

f. Gentiana froelichii Jan. - The American principal investigators have long been working on the reclassification of the collective genus Gentiana, a work in which they have cooperated with Swedish and Japanese specialists. Ernest Mayer of the Slovenian team has also been interested in the subdivision of this taxon into more natural genera, on morphological and chorological grounds. Through his help and that of the other Yugoslav colleagues we became well acquainted with several of the groups represented in Yugoslavia. Our attention was especially directed towards the beautiful high-alpine species which were thought to be related to taxa in the Himalayas and other southern mountains. Of these species we became especially interested in G. froelichii, which is known only from two small areas in the easternmost Alps and in the eastern Italian Alps. Although it remains somewhat of the small species of the Frigida group of southern Eurasiatic mountains, it differs from all its species in several respects, so specialists have been inclined to distinguish it in a section of its own. We were already acquainted with many of the other species, but the distinction of this taxon struck us at once, and when we could add the observation that it is a hexaploid with distinct chromosome morphology and the basic number x = 7, which is rare in the Gentianaceae, we drew the conclusion that it would be more correctly treated as a genus of its own, monotypic and endemic without closer relatives, perhaps the most distinct genus ever separated from Gentiana s. lat. We are still working on this problem, but expect to be able to publish the description of the new genus later this winter in a paper by Á. Löve and E. Mayer.

We hope to collect considerably more material of these and all the other endemics for further investigation next summer, although it may require several years to find a satisfactory solution of the complex cytotaxonomical problems of this interesting group. It is our hope that these studies may carry us one step closer to the understanding of the evolutionary problems of endemism. It is evident already at this stage, however, that polyploidy is no more a factor in the evolution of such plants than it is in that of other species in the same flora, wince we find its frequency to be the same within this group and in the entire flora of the eastern Alps, an observation also made by us within other regions which we have had an opportunity to investigate. However, we found some indications that special pollination mechanisms may play a role in the evolution of these alpique endemics, though some other factors are apparently also effective in their isolation and survival, and we are in no doubt that the solution may be different for more recent endemics within the species and the old and very distinct paleoendemics of the type of, e.g. Hladnikia and Gentiana froelichii.

4. Polyploidy.

The ecological composition of the alpine flora of Slovenia is well known, and detailed phytosociological levies are available from various areas of climatical and ecological variability, especially in the Julian Alps and the caves and deep grooves or "dolinas" of the karst region. Combining such studies with investigations on the frequency of polyploids by aid of computer techniques ~~ix~~ may be expected to result in the detection of stress areas which may be of some importance for the understanding of phenomena of selection that could have affected the evolution of endemics, at the same time as this may perhaps help the understanding of several other ecological phenomena. One of our assistants, William Reid, did considerable work in this field during the summer, together with Slovenian colleagues. He has already started to work out a computer program for this material, which he wants to complement next summer, and we expect that he will be able to present the results as his Ph.D. thesis during the winter 1972-73.

The chromosome checklist mentioned above is composed in such a way that it will be easy to use ~~it~~ it, by aid of the computer, to compare the frequency of polyploids within the phytogeographic areas into which the Slovenian botanists have divided their country. This may be preliminarily completed during this winter, although it will hardly be ripe for publication until later, when still more material becomes available. Also, the checklist will be useful as a basis for other studies on the frequency of polyploids, including studies at different altitudes, in order to check some hypotheses and discrepancies between northern and southern regions previously studied from these points of view.

We started studies on some polyploid complexes, especially within the fern genera Ceterach and Pteridium, but also from other groups, like Acetosella, Dactylis, Dactylorhiza (of which the group discovered a new species for Slovenia),

Leucanthemum and several others, all of which are represented by at least two ploidy levels in this area. Some of these studies are already so close to completion that we have drafted papers describing the results, whereas others will be studied closer during the next seasons, and still others are planned for use by Slovenian students for their thesis work.

5. Scopolia.

It is the very legitimate wish of the Yugoslavian team that the results obtained be published in Yugoslavian journals as far as possible, and for this purpose $1000 were budgeted for the first year. The only Slovenian publication available for such a purpose is Biološki Vestnik, which at irregular intervals publishes papers on various biological subjects but has a very small circulation in botanical fields and outside Yugoslavia. The same is true for other Yugoslavian local journals, which we nevertheless plan to use for printing some of our results. After considerable discussions the conclusion was reached that a national botanical journal with international scope specializing in evolutionary botany including taxonomy and phytogeography would be highly desirable. It was decided by the University authorities to start such a journal early in 1972, principally on funds from the University and from other Yugoslavian sources available. The name selected for this journal is Scopolia, in honor of the classical Slovenian botanist Scopoli, who in 1772 published the very important and still classical Flora carniolica, the first manual of the plants of any part of present Yugoslavia. Editors from Ljubljana have already been selected and a list made of five foreign and five Yugoslavian members of an editorial board and twenty-five foreign collaborators, to insure the quality of the journal from the beginning. Instead of supporting directly the printing of individual papers this coming year from our program with the certainly insufficient sum of $1000 budgeted, it is our opinion that it would be more appropriate to use this sum as a direct support for the journal, properly acknowledged on the title page of each volume, and then print most of the papers there without direct individual support. The acceptance of the Smithsonian Institution Foreign Currency Program is hereby sought for this usage of the publication support.

6. Summing up.

The first summer of the cooperative study of the cytotaxonomy of the Yugoslavian flora was, by necessity, spent mainly for orientation about the problems to be investigated and then almost exclusively within Slovenia and primarily in the Slovenian mountains which are the easternmost parts of the Alps. On basis of this review, it was decided that although the first objective of this cooperative effort still must remain the study of the Yugoslavian flora as a whole, with the main concentration during the first five years on the well known flora of Slovenia, this opportunity should also be used for a concerted attack on the evolutionary problem of endemism, because nowhere else are met with so many endemic taxa at all levels. In addition to this orientation the following results were obtained during the first summer:

a. A critical checklist of the Slovenian flora, including detailed information on chromosome numbers and distribution of all the taxa, was compiled by Á. & D. Löve and L. Kaersvang. It will be completed and computerized during the fall and, hopefully, printed in the spring or summer.

b. Numerous samples of several hundreds of species were collected and transplanted to the Botanical Gardens for further cytological and taxonomical study. Among these were living and herbarium material of all the endemic species of the Julian Alps, Trnovski Gozd, Kamnian Alps, and the Karavanken. Some of these studies are already nearing completion, and papers reporting the results will probably be completed this winter.

c. In connection with the compilation of the chromosome checklist, detailed studies are being made on the frequency of polyploids within the flora of Slovenia as a whole and also within each of its distinct phytogeographical regions. In addition, one of the American graduate students has selected as his thesis subject a xxxxxxx computer study of environmental stress as observable from combined studies of phytosociological levies and polyploidy

from the alpine regions to the lowlands and from karst caves and deep grooves.

d. As an indirect result ~~XXXX~~ of the cooperative efforts, the University of Ljubljana has decided to start a new national botanical journal with an international scope, named Scopolia after the first author of a Slovenian flora. This journal will be an appropriate place of publication of most of the papers that derive from this cooperative study.

e. The members of the cooperative group spent some time during the summer to prepare several papers, which will hopefully be completed during the winter. The following are the preliminary titles of these:

Chromosome atlas of Slovenian plant species (Á. & D. Löve, L. Kaersvang).

A new genus of Gentianaceae (Á. Löve & E. Mayer).

Chromosome numbers of 115 Yugoslavian plant species (M. Lovka, F. Sušnik, Á. & D. Löve, to be published in IOPB Chromosome Number Reports 34, Taxon, November, 1971).

Cytotaxonomy of Yugoslavian plants. I. Introductory remarks (Á. & D. Löve, E. Mayer & F. Sušnik).

Polyploidy in the Slovenian flora (Á. & D. Löve).

Cytotaxonomy and chemotaxonomy of the paleoendemit Hladnikia pastinacifolia (F. Sušnik & Á. Löve).

Cytotaxonomy and distribution of diploid and tetraploid Ceterach. (M. Lovka, F. Sušnik & Á. Löve).

Some chromosome numbers of eastern Alpique endemics (Á. & D. Löve, M. Lovka & F. Sušnik).

The significance of Pastinaca fleischmannii (F. Sušnik & Á. Löve).

5 - 8 papers in the series: Cytotaxonomy of Yugoslavian plants (Á. & D. Löve, M. Lovka & F. Sušnik).

Naturally, the support from the Smithsonian Institution will be appropriately acknowledged in these papers, reprints of which will be sent to theOffice of International Activities as soon as available.

PLAN FOR THE SECOND YEAR (1972 - 1973)

Based on the experience from the first summer, we would like to propose the following plan for the second summer and year:

1) Intensified and organized collection of Slovenian plants with an emphasis on the alpine species, the endemics, and species not previously counted from elsewhere. These collections ought to be made by smaller groups rather than by the entire cooperative team, concentrating on the flora of preselected areas, and they must be connected with observations on various environmental factors that may be of importance for the understanding of cytotaxonomical observations. Whenever a collection is being made, at least two identical voucher specimens must be collected for the herbaria, and several individuals will be transplanted to pots in the Botanical Garden in Ljubljana and to the Juliana Botanical Garden in the Julian Alps. As far as possible, chromosome studies will be performed on this material during the summer, but other specimens will be fixed for later observation.

2) Special attention should be given the alpine endemics, of which much more material must be collected from various parts of their limited ranges. It is important that these populations be evaluated exactly from the point of view of their possible evolution, and for that purpose different approaches and methods will have to be employed. For the morphological and chorological part of this study, Professor E. Mayer's taxonomical skill and knowledge of the distribution of the Slovenian plants will be extremely important, and so will also the ecological knowledge of the young ecologists Martinčič and Wraber. As far as possible, observations on pollination mechanisms will be made both in the field and in the garden, and crossing experiments performed whenever feasible.

3) Material should be collected of some critical species from the lowland and coastland which either seem to hybridize easily or have been observed to pass successively into each other within ecological and geographical transition zones in this region. Although cytological examinations of the original collections may sometimes give a clue to an explanation of such observations, it is expected that combined morphological and cytological observations employing some of Anderson's hybrid index methods may be better for this study, as are probably also cultivation experiments and hybridization studies in the garden.

4) We still believe that our work should be concentrated upon the Slovenian flora with a special emphasis on its endemics. However, our colleagues in Ljubljana are of the opinion, which we share, that it is important for the understanding of many of the Slovenian problems to have a thorough knowledge not only of the nemoral European flora, but also of the flora of other parts of Yugoslavia, thus remembering Kipling's classical words: ..."what should they know of England, who only England know?" Therefore, our colleagues want to make a botanical orientation excursion with us throughout Yugoslavia for two to three weeks of the early summer, during which extensive collections will be sent back to Ljubljana for later study. The excursion, which is being planned in detail by Professor E. Mayer, will also bring the group in direct contact with the botanists of other republics of Yugoslavia, many of whom have expressed their wish to be allowed to take an active part in the work and to learn our techniques during this second season, in the hope that such an approach can be shared also by them when our Slovenian review has advanced further.

BUDGET FOR THE SECOND YEAR

I. International travel and transportation

1. Airfare, 9 round trips Denver to Ljubljana à ca. $1100.00	$9,900
2. Airfare, one round trip Copenhagen to Ljubljana à ca. $300 (for Danish consultant)	300
3. Excess baggage or airfreight for books, equipment, etc.	500
Subtotal (I)	$10,700

II. Expenditures in Yugoslavia

A. For American participants

1. Salaries and wages	
a. Áskell Löve, Principal investigator, 3 months à $2200	6,600
b. Doris Löve, Principal investigator, 3 months à $1800	5,400
c. Four assistants, each 3 months à $900 per month	10,800
d. Danish consultant, one month à $2000	2,200
2. Per diem, 570 man-days à $17	9,690
3. Mileage and rent of cars	5,000
4. Office rent for two American PI, 3 months	1,000
5. Books, xeroxing, reprints, etc.	800
Subtotal (II-A)	$41,490

6. Medical and other insurance required by the University authorities: Sum and conditions unknown to applicants, but authorization requested for the American Embassy in Belgrad for negotiation.

B. For Yugoslavian participants

1. Salaries and wages	
a. Franc Sušnik, Principal investigator, 5 months à $550	2,750
b. Ernest Mayer, Principal investigator, 3 months à $550	1,650
c. Two senior botanists (A. Martinčič and T. Wraber) each 3 months à $500	3,000
d. Four senior botanists one each from four of the republics, each one month à $500	2,000
e. Student assistant, 12 months à $300	3,600
f. Two student assistants, each 3 months à $300	1,800
g. Technical assistant, 6 months à $300	1,800
h. Gardener, 12 months	4,800
2. Local travel (mileage and rental for cars)	4,000
3. Field maintenance and per diem	4,000
Subtotal (II-B)	33,400

C. For cooperative efforts

1. Orientation excursion through Yugoslavia	1,000
2. Non-expendable equipment	
a. One stereo-microscope	800
b. Growth chambers	4,000
3. Supplies	
a. Laboratory supplies	500
b. Photographic and other supplies	500
4. Laboratory and office rent	4,000
5. Publication costs	2,000
6. Administrative costs	2,500
Subtotal (II-C)	15,300

Second year total: $100,890

EXPLANATION OF SOME BUDGET ITEMS

The budget for 1972 is based upon pur experience during the summer 1971, with slight increases caused by the devaluation of the dollar and expected inflation in Yugoslavia. If these two changes become substantially greater during the winter and spring, we trust that the officers of the Smithsonian Foreign Currency Program and the American Embassy in Belgrad will be able and willing to make an appropriate correction of the budget before the final dollar sum is fixed. The budget is made carefully and as exactly as possible and based on what we believe is minimum need for maximum efficiency, so we hope it will not be drastically reduced without proper consultation, since we believe that such action curtailed our activities last summer and forced us and the assistants to supplement per diems and travel costs unduly much out of our salaries.

Most of the increase as compared with last year's budget is caused by 1/3 increase in time to be spent in the field, a necessary increase in participation by senior scientists and assistants, and by slight but normal salary increases. Also, the cost of international travel had already increased from the budgeted $820 per person to $930 per person when used, thus eliminating the possibility of overseas travel for one American PI this winter for consultation during writing, or for one Yugoslav coming to America for the same. This time our estimate of the possible increase in airfare is hopefully not too low, but the correct price will not be exactly known until next winter.

We would like to explain especially the following items:

I,2; II,A,1 & 2: Danish consultant. These items include the cost of bringing Professor Tyge W. Böcher from Copenhagen to Yugoslavia as a consultant on various problems and techniques, which he has employed for many years in investigations that include numerous Mediterranean, arctic and alpine plants. Such a consultation is highly recommended also by our Yugoslav colleagues, and it is likely to be of great help in organizing our cultivation experiments and in the discussion of the results obtained.

II,A,2: Per diem. In our revised budget of January 28, 1971, which was based on discussions a few weeks earlier with the authorities in Ljubljana, we calculated with per diems based on $17 per day as given in the information packet on Yugoslavia. Although we had mentioned that this might even be too low for Slovenia, this was reduced to $12 per day, with the oral telephone explanation that this had to be done because of lack of funds but mainly because Slovenia was said to be less expensive than Belgrad and Serbia. We had no way protesting this, but during the summer we could confirm the fact that since Slovenia is considerably more developed than other parts of the country, it is also more expensive for travelling and living. This reduction in per diem forced us and our assistants to pay out of our pockets whenever we needed an accomodation outside our base in Ljubljana, and it also made it mandatory that we make our own food almost every day, thus spending valuable time that otherwise could have been used for the research work. This time we again calculate with $17 per diem and trust it will not be reduced, though we would expect it to be more realistic, after the devaluation of the dollar and the 15-20% annual inflation in Yugoslavia, if the per diem were raised to $20-25, especially for cases that require both a base station and wide travels to other regions.

II,A,3: Mileage and rent of cars. After a visit to Ljubljana in January 1971, Å. Löve was aware of that even the estimated sum of $3000 for mileage and rent of cars would be insufficient for an efficient work by two principal investigators and three assistants, since the rent-a-car business in Yugoslavia seems to be no less of a racket than it is elsewhere. However, this low estimate was cut to $1800, thus jeopardizing the collecting work which is the most basic for our project, since this sum would have been sufficient only for the hiring of a small car for only part of the time. Fortunately, the University of Ljubljana lent our team two cars from its limited carpool with considerable sacrifice in order to make our collection trips possible, but it was expressly told to us when we left that this could not be done another year.

Our plans for a slightly larger group next summer make it necessary to increase the sum available for mileage and rent of cars. If our estimate of $5000 for this purpose proves to be too low, we will be able to switch parts of our efforts to other parts of the program, and if it is too high, the remaining sum will, naturally, revert to the Embassy funds. The lower sum for the Yugoslav participants is possible and reasonable because they are able to use their own cars for the part of the time used for the project, without paying exorbitant sums for rent that includes requirement of minimum mileage per day that is almost sufficient to carry one throughout Yugoslavia.

II,A,4: Office rent for two American principal investigators. The laboratory space rented from the University for this project is sufficient for the laboratory work and as a place for the assistants we had last summer, but it is not sufficient for the work of the principal investigators. We know of available and appropriate office space not far from the Botanical Garden that could be rented last summer for 4500 ND per months, so we expect it to be available for three months next summer for the equivalent of $1000. If rented for this

purpose, it will greatly facilitate the investigations, calculations, and writing by the two principal investigators, who otherwise will have to be crowded in space not appropriate for this kind of work.

II,A,6: Insurance covering. When we arrived in Ljubljana last June, the University authorities told us that it would be desirable that all the American participants be insured under the medical scheme of the country, in order to prevent hardship to the University in case of sickness or death. Professor Sušnik contacted the American Embassy personally for informations about this, and was told that the American principal investigators ought to write to Mr. Schmertz to ask for such an authorization for the Embassy. This was done, but the letter was probably lost in the mail, since no answer ever arrived, the same happened to another letter later written about another need and mentioning the former letter. We could not get informations about the sum involved, but we understand the concern of the University, because one accidental death and one case of serious illness hit other foreign colleagues in this area last summer. Therefore, we urge that this matter be taken up specially with the Embassy and solved to the satisfaction of the University before the beginning of next season.

II,B,1: Salaries and wages of Yugoslav participants. Adjustment of the salaries of the two principal investigators is selfexplanatory.

After the success of the restricted beginning, the Yugoslavs want to increase their participation to a size more comparable to what was originally planned in the application of 1969. Therefore, we ask that two senior scientists, the ecologist-taxonomists A. Martinčič and T. Wraber, be added to the team for three months. They worked with us a good deal last summer without compensation and we found their assistance to be very important,

especially in the Alps and in the cave regions of the karst area. Their qualifications are above dispute, although we have not been able to get copies of their vitae so far.

The Slovenian principal investigators also find it highly recommendable that we accept the wish of botanists from other republics to be allowed to participate actively in the work, as was originally planned. Since the selection of the most appropriate persons apparently takes longer time than expected and has to be left to local botanists and the Yugoslav principal investigators, we propose that the inclusion of this item in the budget be accepted, in the trust that only well qualified botanists will be proposed and agreed upon by the team.

One student on a whole-year salary is added to the Yugoslav group. This is our most qualified assistant, whom we want to employ as a fulltime microscopist-cytotaxonomist. Instead of local labor, which we found to be insufficient for taking care of the plants, we ask for a fulltime gardener as included in the original application, in the hope that he will be able to keep the death of the transplanted plants to a minimum and their growth anf flowering to the maximum.

II,C,1: Orientation ~~trip~~ excursion. A new item is added for an orientation excursion through Yugoslavia for the principal participants, during which other centers of botanical activities will be visited and studies and collections made of critical species from other regions of interest. This trip is being organized and planned by Ernest Mayer, who is an outstanding specialist on the taxonomy and distribution of the flora of the entire country.

II,C,2: Non-expendable equipment. Last year a stereomicroscope, valued at $600, was left out when the budget was trimmed. This influenced negatively some of our identification work this last summer, so the item is again included in the present budget, but to a higher price for inevitable reasons.

Since Ljubljana is a warm city during the summer months, it is difficult to keep alive and growing some of the delicate alpine plants that we could not study at the Juliana Botanical Garden in the Julian Alps. Therefore, we feel it is necessary to add growthchambers to the facilities at the Botanical Garden in Ljubljana. We have seen such chambers that were built in Yugoslavia and feel confident that the sum of $4000 will be sufficient for appropriate growth chambers for our needs.

II,C,4: Laboratory and office rent. This item must be increased because more space is needed for the assistants during the summer and coming winter because of their increase in number. Other members of the team also use the laboratories, but the Yugoslav senior members use their own offices and the herbarium for much of their laboratory work on the project.

II,C,5: Publication costs. The doubling of the sum allotted for this purpose last year is an evident result of the expectation that considerably more results will need to be printed the second year, if all goes as well as it has done hitherto. This cost will, likely, be used as a direct support for the journal Scopolia in its second year since most of the papers will be printed on its pages.

CU Proposal No. 70.7.104
2/70

A Proposal to the

Smithsonian Institution

for

RESEARCH SUPPORT IN YUGOSLAVIA UNDER THE FOREIGN CURRENCY PROGRAM

Name and Address of Institution: The Regents of the
University of Colorado
Boulder, Colorado 80302

Title of Proposed Research: Cooperative Studies on the Cytotaxonomy of the Yugoslavian Flora.

Principal American Investigators: Áskell Löve, Professor and Chairman
Doris Löve, Research Associate
Department of Biology
University of Colorado
Boulder, Colorado 80302, U.S.A.

Principal Yugoslavian Investigators: Franc Sušnik, Professor of Botany
Ernest Mayer, Professor of Taxonomic Botany
Department of Botany
University of Ljubljana,
Ljubljana, Yugoslavia

Desired Starting Date: ~~Spring, 1970~~ 10-1-71

Estimated Duration of Project: Five years

Amount Requested for the First Year: $48,520

Amount for Four Following Years: Cannot be Estimated

Áskell Löve
Chairman and Principal Investigator

Doris Löve
Principal Investigator

Thurston E. Manning
Vice President for Academic Affairs

If a Smithsonian Foreign Currency Program grant is awarded for the conduct of the research described in the attached proposal, it is hereby requested that an advance payment, as set forth in the project budget, also be authorized to begin carrying out the work, since this institution is a non-profit institution without working capital to initiate research. Moreover, to employ dollar funds to begin this work would be contrary to the President's directives to avoid expenditures abroad which might contribute to the U.S. balance of payments deficit.

ABSTRACT

Extensive cytotaxonomical studies of as many as possible of the species of higher plants in the Julian Alps are proposed as a step towards an evolutionary-ecological synthesis of the history of the remarkable alpine vegetation of Yugoslavia. The project is to be a coöperative effort between American and Yugoslavian botanists, the former contributing their cytotaxonomical experience and skill, and the latter their wide and thorough knowledge of the taxonomy and geography of the flora of Yugoslavia and of its ecological and phytosociological conditions. Both will contribute to a final evolutionary-ecological synthesis of the results. Yugoslavia is an ideal basis for such an approach to evolutionary ecology, because its flora and vegetation are better known than those of most other regions of similar size and environmental variability, though it still remains less known from cytotaxonomical points of view than any other comparable part of Europe.

It is expected that five years of intensive cooperation will put the cytotaxonomical knowledge of Yugoslavian alpine plants on the level with the best known regions in the world, thus allowing a fruitful synthesis of the results and a detailed comparison with other regions, which then will strengthen immensely the already good understanding of the ecological conditions in the country. During the investigation, emphasis will be put mainly on chromosome number counting.

The American participants will be Askell Löve and Doris Löve, one laboratory technician, and one graduate student from the University of Colorado in Boulder. The active Yugoslavian participants will be F. Sušnik and E. Mayer from the University of Ljubljana, while V. Blečić from the University of Belgrade, K. Micevski from the University of Skopje, and some other botanists not yet selected, will act as unsalaried consultants during the first summer and, hopefully, later become actively involved in the work together with their students.

DESCRIPTION OF BACKGROUND

Yugoslavia is known as a country of various languages, where cultures and religions may change from one valley to another, and where the appearance of the people on the street reveals the history of past migrations of races and nations that went through the land at various times and left their marks on the still heterogeneous gene pool, which we call the Yugoslavs.

Geologically, the Blakan Peninsula and the eastern Alps, of which the country is the backbone, is a young but very variable formation, the history of which still remains to be satisfactorily explained, though it is evident that the uplift of these mountains is relatively recent. So is also the denudation and weathering which have formed the landscape. Pleistocene glaciers affected some of the highest mountains somewhat, and the eroding effects of the Pleistocene rains are supposed to have been considerable.

The geological history and the favorable climates of Yugoslavia, past and present, have caused this land to become occupied by an unusually rich vegetation, which ascends vertical rocks, descends into waters, penetrates into subterranean caverns, and forces its way into every clump of earth and even floats in the air as an invisible aeroplankton. It successfully withstands the scorching heat of summer in the karst areas and in the semi-deserts of some mountain valleys in the south, and endures the severe climates of the high mountains, at the same time that it defies wind and avalanches, and lives in the rushing currents of streams and in the mobile sand of dunes.

The vegetation that first invaded Yugoslavia came from different directions. Some of it dispersed from the old coasts of the Tethys, which were inhabited by a warm temperate or subtropical forest. Other plants came from the coastal mountains of this former Mediterranean sea, as demonstrated by the relationships of some Yugoslavian and eastern Alpine plants to those of southern Asiatic mountains. According to a recent geological hypothesis connected with the theory of continental drift, much of the Balkan Peninsula may be closely related to northeastern Africa and indeed, there may be indications of botanical relationships between these areas. Much of the alpine vegetation of Yugoslavia is related to that of the western Alps and the Carpathians, and some arctic influence on the flora seems evident. A substantial part of the original vegetation seems to have dispersed at various times from the Hungarian-Russian plains, and the effects of the boreal and Siberian forests is as evident as is the influence of the forests of Asia Minor. All these and many more dispersals blended into vegetation associations that are more variable than in any comparably sized region of Europe.

The species of plants that originally invaded Yugoslavia from various directions have since mixed and evolved under the influence of the geological and climatic conditions. Numerous endemic species have resulted from this evolution, and the variability below the species level of many other species shows that the original gene pools have been greatly influenced by the new land so that its flora has become unusually rich in local areas. Such species and races still are being discovered and described in profusion every year, and when the methods of cytotaxonomy and chemotaxonomy will be

added to the classical methods of the taxonomists of this country, such discoveries certainly will increase considerably.

Scandinavia and Britain are the only areas of a similar size that have been studied more intensely by botanists than Yugoslavia. Since the country's present political boundaries are very different from its previous divisions into states that belonged to different kingdoms at various times, no flora manual covering all the region has ever been published. However, the good ecological and taxonomical knowledge of the flora of the country is well documented in numerous more or less local flora manuals, mainly from the northern parts of the country, from the classical and still useful Flora Carniolica which Scopoli published in 1772, through the also classical Flora von Bosnia und Herzegowina, published in 1891 by the famous Swedish taxonomist Murbeck, to the recent and very detailed list of the flora of Slovenia, published by Ernest Mayer in 1952, and the modern Flora of Slovenia, published by A. Martincic and F. Susnik in 1969.

Innumerable scientists have contributed to the knowledge of this flora. Before the first world war these were mainly foreigners, and the initial investigations of the botany of this area are connected with the names of some of the great botanists of those times, like Aichinger, Becherer, Beck von Mannagetta, Deschmann, Fritsch, Gayer, Handel-Mazetti, Hayek, Janchen, Keller, Kerner von Marilaun, Koch, Maly, Murr, Rechinger, Scharfetter, Tommasini, Vierhapper, Wettstein, and Widder, to mention only a few. Later, taxonomical studies of the flora, and also innumerable ecological investigations have been performed mainly by Yugoslavian botanists, who have frequently put a strong emphasis on descriptive ecology, so that few areas of Europe are presently better known in this respect. The most recent review of this work in Yugoslavia was compiled by Mayer (1963), who also is the author of an outstanding checklist of the Slovenian flora with a thorough review of the literature of the past. The list of papers relevant to the flora of the northern parts of the country takes up 23 pages in Mayer's list from 1952, whereas in 1963 he adds nine pages of references to publications printed 1945-1961 on the plants of various parts of the entire country. This compares very favorably with similar activities in northern and central Europe, but widely surpasses the efforts in these fields in other countries of southern Europe. The great botanical activity is also clearly documented by the fact that no less than nineteen journals connected with botany are published regularly in the country, according to Mayer's review from 1963.

Since an exact and modern checklist of all the plants of the Yugoslavian flora still has not been compiled, an exact number of the species of the country is missing. A rough estimate, however, indicates that more than one-third of the approximately 17,000 species of higher plants which will be included in Flora Europaea which covers entire Europe, are met with in Yugoslavia, and a considerable number of these species are met with nowhere else on the continent.

As mentioned above, intensive studies have been made of the ecology of the Yugoslavian vegetation during the past half century, and these studies have also resulted in considerable taxonomical information. Studies of the evolution of this remarkable flora by aid of the modern methods of biosystematics, cytotaxonomy, and chemotaxonomy, have, however, been very scanty, because of lack of facilities rather than because of lack of interest.

This has hampered developments in several fields that are based on a firm knowledge of the biological species, and has also contributed to the dwindling interest in botanical studies by the young generation, which everywhere wants to synthesize rather than describe. Only a handful of the more than 6,000 species of higher plants of Yugoslavia have so far been cytologically studied, all within the last few years and all by very recent graduates and young botanists. Of about 40,000 species of higher plants which have been cytologically studied in the entire world, less than one in a thousand are from Yugoslavia.

Since the flora of Yugoslavia certainly is well known, it is ideal as a subject of a conserted biosystematic-ecological study, which should aim at an evolutionary-ecological synthesis of the history of the entire flora. Such studies ought, primarily, to concentrate upon simple cytotaxonomical investigations of chromosome numbers and geographical-morphological variation, since the results obtained from such an approach will clarify to a high degree the basic evolutionary processes that have shaped the flora. Such studies, if kept within their relatively narrow limits of, e.g., the alpine plants, are likely to result in a complete knowledge of the chromosome numbers of all the species of orophytes within a period of five years, provided that funds are available for assistance, and for travel at times when the rarest plants flower or set seed. Áskell and Doris Löve have worked on such a synthesis of the floras of Scandinavia, Iceland, the Arctic, Spain, northern Italy, alpine regions of eastern and western North America, the nemoral flora of eastern North America, and the flora of the Canadian prairies, with considerable success despite lack of ideal facilities and conditions, and also have found time to compile a complete review of our present cytotaxonomical knowledge of the floras of central and northwestern Europe, in addition to numerous more detailed studies of the cytotaxonomy of selected genera and individual species complexes. Their experience shows that such work can be completed within a reasonable period of time by aid of more concerted efforts.

It should also be mentioned that the plants of Yugoslavia in general and her alpine species in particular, because of their history and the variable conditions under which they seem to have developed, may be better suited for genecological and chemotaxonomical studies of subspecific variation than are the plants of any other part of Europe, not excluding those of areas directly affected by the Pleistocene glaciations. Therefore, it would be advisible that selected groups be collected not only for chromosome studies but also for long term investigations by aid of various transplantation techniques, emphasizing both similar and dissimilar history and environments. The great geographical variability of the flora also makes it ideal for an attempt to gain some understanding of the processes of evolution that are connected with various kinds of polyploidy, apomixis, and, above all, autogamy, which are phenomena of great importance from the points of view of evolution and scientific taxonomy. Such problems can only be solved with the aid of intensive experimental studies of carefully selected species. Studies of that kind and also genecological investigations are time consuming and require certain experimental facilities which are available only in a few places at present; although the present plan is mainly for the cytotaxonomical approach, it would be unwise not to think also about the other two possibilities, since the first step, if successful, would logically be followed by the two others, provided that facilities and interest and knowledge are at hand. We realize, of course, that this is outside the scope of the present proposal, except insofar as the team can induce interest in such approaches among the young generation of botanists, who will inherit the land.

PERTINENT LITERATURE

Instead of compiling the customary incomplete lists of literature which pertains to the approach in question, reference should be given to the very thorough literature review on the Yugoslavian flora which is listed on 23 pages in Ernest Mayer's "Seznam Praprotnic in Cvetnic Slovenskega Ozemlja," published by the Slovenska Akademija Znanosti in Umetnosti in 1952, with nine additional pages of references added by E. Mayer in 1963 in his comprehensive review on "Die floristische und taxonomische Tätigkeit in Jugoslawien von 1945-1961," published in Webbia 18, 1963, pp. 347-365. All pertinent cytological references to the European flora are given on almost 200 pages in Á. and D. Löve's: "Chromosome numbers of Central and Northwest European plant species," published in Opera Botanica Vol. 5, 1961, pp. 1-581, and the philosophical and evolutionary background of such studies is summarized by Á. Löve in an article on "The biological species concept and its evolutionary structure," originally published in Taxon 13, 1964, pp. 33-45, and recently reprinted as the first article in "Contemporary Readings in Ecology," edited by A.S. Boughey in 1969.

OUTLINE OF THE WORK

It is proposed that, based on the considerations above, the alpine flora of Yugoslavia and that of the Julian Alps of Slovenia ought to be studied cytotaxonomically by concerted American and Yugoslavian efforts. Since most recent work on the flora has been carried out from the well-equipped Department of Botany of the University of Ljubljana, where good facilities for cultivation in a botanical garden and greenhouses are available and also some laboratory space, it is proposed that this Department be established as the main base of the investigations, later perhaps to be widened by subbases, at Departments of Botany at other Universities. Although there is some difficulty in planning other participation before the work has commenced, it is anticipated that students from other universities will join in the work in later years, so that the program may ultimately involve all such institutions in the country, while from the beginning professors from Belgrade and Skopje will act as consultants for the project.

In order to determine exactly the chromosome numbers of the various species, collections will be made in the field of fixed root-tips and flower buds from properly vouchered specimens. Various fixing media will be used, and determinations will be made with the microscope in the field as well as in the laboratories. Since fixations made in the field in warm climates sometimes have a tendency not to give proper results, living material of every species that does not give results at once in the field will be transplanted into pots in Ljubljana for later re-fixation. In the case of annual plants, seeds will be collected for cultivation in the botanical garden at Ljubljana, and such seeds will also be collected from selected annual and perennial material for further biosystematic investigations in Boulder.

In addition to the cytological investigations, critical species will also be compared in great detail during the winter, by aid of ordinary

taxonomical and various biometric methods. In critical cases hybridization experiments may be planned already the first summer, if possible, though these will not give final results until later. It is expected that some of the American and Yugoslavian students who hopefully will take part in the work may select such critical groups for further investigations as their thesis projects.

Since it is important for the success of the project that extensive collection be made during the vegetation period, most chromosome counting may have to be deferred to the winter time or to days of bad weather. However, we will train our Yugoslavian colleagues in the use of microtomes and microscopes during the summer so that they and their assistants can work further on the determinations of chromosome numbers and on the exact classification of the material during the following winter. Naturally, we will also bring such material to Boulder, including duplicates of the voucher specimens, but taxonomical decisions will be left to our Yugoslavian colleagues except in critical cases which may require close cooperation and discussions.

We plan to work in cooperation for five years, if support becomes available, but thereafter it is expected that several young Yugoslavian botanists will have been thoroughly trained in cytotaxonomical methods so that they will continue the investigations until all the flora has been studied from this approach. Our work will, at least during the first year, concentrate on the Julian Alps and adjacent regions of Slovenia, which is the part of the country with the longest history of floristic research and which has the most modern flora manual. We expect to be able to collect and study several hundred of the 2,843 species of the Slovenian flora the first summer. The success of the work will have to decide if the investigations are to be widened to include other areas in consecutive years.

The results obtained will be published jointly and separately in numerous papers, but, we hope, also in a general book to be completed when the project is finished. More general papers on selected topics of international interest will be published in some international journals. It is the legitimate wish of the Yugoslavian team that most of the results be printed in Yugoslavian journals, for obvious reasons. Since a speedy publication in these journals will require considerable subsidy, our proposal includes a reasonable sum to make it possible to print the first papers without delay.

BUDGET FOR THE FIRST YEAR

I. Expenditures for International Travel and Transportation	
1. International travel from Denver, Colorado, to Ljubljana, Yugoslavia and return via jet tourist at $820. The personnel and trip numbers are as follows: A. Löve (2), D. Löve (2), lab. technician (1), grad. student (1), total 6 trips.	$ 4,920
2. Transportation of books and certain equipment from Boulder to Ljubljana and back, and of herbarium vouchers, seeds, and plants to Boulder.	100
Sub Total (I)	$ 5,020
II. Expenditures in Yugoslavia	
A. For American participants.	
1. Salaries and Wages	
a. Áskell Löve, Principal Investigator, 3 mos.	6,000
b. Doris Löve, Principal Investigator, 3 mos.	6,000
c. Laboratory technician, 3 mos.	1,800
d. One Graduate student, 3 mos.	2,000
2. Travel	
Mileage and rent for cars	2,000
3. Field maintenance, including food, lodging, utilities, etc.	2,000
Sub Total (IIA)	$19,800

B.	For Yugoslavian participants	
1.	Salaries and Wages	
	a. Franc Susnik, Principal Investigator, 5 mos.	$ 2,500
	b. Ernest Mayer, Principal Investigator, 2 mo.	1,000
	c. Two students, 3 mos. each	1,800
	d. Technical assistant, 3 mos.	900
	e. Local labor	1,500
2.	Travel	
	Mileage and rent for vehicles	3,000
3.	Field maintenance, including food, lodging, utilities, etc.	3,000
	Sub Total (IIB)	$13,700
C.	For Cooperative Efforts	
1.	Gardening and herbarium equipment, including pots, hoses, soil, presses, paper, etc.	500
2.	Equipment	
	a. Zeiss camera microscope	5,000
	b. Freezer	300
	c. Tents and field shelters	500
3.	Supplies and services	
	a. Laboratory supplies	500
	b. Cooking and digging utensils	200
4.	Laboratory and office rent	1,000
5.	Publication costs	1,000
6.	Administrative costs	1,000
	Sub Total (IIC)	$10,000

Total Requested From Smithsonian for One Year: $48,520

EXPLANATIONS OF CERTAIN BUDGET ITEMS

Part I of the budget is self-explanatory, since travel between America and Yugoslavia is needed not only for the start and end of the season's work, but also for when the work has entered its first phase. A maximum number of trips is provided for in the budget, in the hope that this will exceed rather than fall short of our needs.

Part II, A covers the expenditures in Yugoslavia for the American participants. Since both the investigators and their graduate students have only nine-month appointments at the University of Colorado and thus will be working on time which otherwise would be covered by other American research grants or summer school teaching, they would not be ready to spend their time on this project except for similar remuneration. Likewise, the laboratory technician requires an outside salary when abroad. During other parts of the year these workers will continue their studies of the Yugoslavian material without other remuneration than their salaries at the University. Naturally, duplication of pay will not occur, and we are aware that taxes for this income will have to be paid to America.

As to travel costs estimated in this part of the budget, mileage is needed for travel in personal cars between the collection sites and also for possible short excursions to other parts of the country to review the flora for further work during consecutive years. The cost of field maintenance includes per diem for some of the researchers during such travels, and for some of the time spent in the field.

Part II, B considers our Yugoslavian colleagues. We feel their proposal is a very moderate budget, which will not require further explanation. The travel costs are mainly for mileage and rent of vehicles for alpine driving.

Part II, C includes the cost of equipment, which our Yugoslavian colleagues have assured us is available for dinars in Yugoslavia, though some time may be required for the ordering of major equipment. A good microscope is the minimum requirement. The budget items under II, C are estimates which we realize are on the low side, though we trust that the sums given may be switched around somewhat if this is required.

V. Personnel Data

A. LÖVE, Áskell

Born: 20 October 1916

Position: Professor and Chairman, Department of Biology, University of Colorado

Education:

B.A., Reykjavik College, 1937
M.S., Cytogenetics, Botany, Zoology, University of Lund, Sweden, 1941
Ph.D., Cytogenetics, Botany, University of Lund, Sweden, 1942
D.Sc., Cytogenetics, University of Lund, Sweden, 1943

Employment Record:

Research Associate, Institute of Genetics, University of Lund, 1942-45
Research Worker (on leave), University of Iceland Research Institute, Reykjavik, 1942-45
Director, Institute of Botany and Genetics, University of Iceland Research Institute, Reykjavik, 1945-51
Associate Professor of Botany, University of Manitoba, Winnipeg, 1951-56
Research Professor of Biosystematics, Institut Botanique, Université de Montréal, 1956-63
Associate Professor, Department of Biology, University of Colorado, 1964-66
Professor and Chairman, Department of Biology, University of Colorado, 1966-

Fellowships and Professional Honors:

Fellow, Icelandic Academy of Learning since 1946; corresponding member since 1951
Permanent member of the Board of the International Association of Plant Geographers since 1953
Rapporteur and Vice President, Section of Cytology, VIIIth International Botanical Congress, Paris, 1954
Member, International Committee for Genetical Nomenclature and Symbolization (I.U.B.S.), 1956-58
Member of the Editorial Board of the journal Nucleus since 1958
Technical Consultant on Cytotaxonomy for Flora Europaea since 1955
President, International Organization of Biosystematists, 1960-64
Honorary Foreign Member, Swedish Phytogeographical Society since 1960
President, Symposium on North Atlantic Biota and their History, Reykjavik, July 1962
Vice President, International Committee on Chemotaxonomy, 1964-
John Simon Guggenheim Memorial Fellow, 1963-64
Honorary Foreign Member, Czechoslovak Botanical Society since 1968

Publications:

(Dr. Löve has published over 500 papers and books, of which the following selected publications are relevant to the proposed project).

Cytogenetic studies in Rumex. Botaniska Notiser, 157-169 (1940).

Études cytogénétiques des Rumex. II. Polyploidie geographique-systématique du Rumex subgenus Acetosella. Botaniska Notiser, 155-172 (1941).

Polyploidy in Polygonum Convolvulus L. s. lat. Hereditas 28, 227-228 (1942).

Cytotaxonomic studies on boreal plants. I. Some observations on Swedish and Icelandic plants. Kungliga Fysiografiska Sallskapets i Lund Forhandlingar 12 (6), 1-19 (1942), with D. Löve.

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Íslenzk ferdaflóra (Icelandic excursionsflora). Reykjavik 1970 (in press).

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B.S., Kristianstad College, Sweden, 1937
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Instructor (amanuensis), Institute of Genetics, University of Lund, 1940-43
Research Associate, Institute of Genetics, University of Lund, 1943-45
Geneticist, University of Iceland Research Institute, Reykjavik, 1945-51
Herbarium Curator, University of Manitoba, Winnipeg, Canada, 1951-56
Associate Professor (research), Institut Botanique, Université de Montréal, Canada, 1956-63
Faculty Research Associate, Department of Biology, Institute of Arctic and Alpine Research, and University Museum, University of Colorado, 1964-

Fellowships and Professional Honors:

Fellow, Mendelian Society of Lund, Sweden since 1941
Several research scholarships and awards from the Royal Physiographic Society of Lund, Lund Botanical Society, and the Swedish Academy of Sciences, 1941-45
Research Fellowship from the Icelandic Cultural Fund, 1945-50
British Council invitation to visit British institutions in genetics and plant breeding, Summer 1949
Research grants from the National Research Council of Canada, 1956-64, and the National Science Foundation, 1967

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(Mrs. Löve has published over 100 papers and books. The following selections relate to the proposed project.)

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Publications:

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Experiments in Biology. Ljubljana 1961.
Poisonous plants of Slovenia. Ljubljana 1962 (with A. Martincic).
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b. Papers

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Publications:

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September 25, 1972.

An Interim Report to the Smithsonian Institution

for

RESEARCH SUPPORT IN YUGOSLAVIA UNDER THE FOREIGN CURRENCY PROGRAM

Name and Address of Institution: The Regents of the
University of Colorado
Boulder, Colorado 80302

Title of Research: Cooperative Studies on the Cytotaxonomy of the Yugoslavian Flora

American Principal Investigators: Áskell Löve, Professor
Doris Löve, Research Associate
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Yugoslavian Principal Investigators: Franc Sušnik, Professor
Ernest Mayer, Professor
Institute of Biology
University of Ljubljana
Ljubljana, Yugoslavia

Report for the second summer and the first winter.

Áskell Löve
Principal Investigator

Doris Löve
Principal Investigator

Report of Activities for the Second Session: Summer 1972.

The project on Cooperative studies on the cytotaxonomy of the Yugoslavian flora is based on the radically new approach to taxonomical botany that has emerged from the interaction of cytogenetics and the classical approaches to the classification of plants into an evolutionary system. It concerns a field of study which is in the process of a revolutionary conceptual reorganization by a limited international elite the majority of which is located in Europe, where the approach arose. Its effect on Central and North European botany has been considerable during the last few decades. It was because the Yugoslav botanists had observed the benefits this approach has had and is having on the botany of the neighboring countries that Dr. Sušnik originally proposed to the principal American investigators in this study that they and he should seek assistance from the Smithsonian Foreign Currency Fund for such an investigation in his country, the flora of which still remains less known than that of other parts of Europe. Dr. Sušnik had then spent some time on Boulder as an exchange scholar of the NRC to learn some of the newest techniques in this field.

We refer to the description of plans in our first proposal, presented in 1969. We were later forced to revise this well conceived proposal under threat of no-support, without acceptable reasons and apparently without proper knowledge by those who gave the advice about the European flora and its problems or about the philosophy behind the proposal. Our Yugoslav cooperators could not understand this restriction in their plans by people who apparently were not specialists in the field. They realized, however,

that the flora of the Julian Alps has very few problems of the kind that such an approach would be needed to solve, whereas the flora of Yugoslavia as a whole is an ideal field for concerted cytotaxonomical investigations into its evolutionary classification and history of the kind that the American cooperators has previously performed with great success in Iceland, Scandinavia, Central Europe, Spain, Italy, Canada, the White Mountains of New Hampshire, and the Rocky Mountains, and stimulated strongly in all these countries and also in Bulgaria, Czechoslovakia, Italy, Poland, France, Switzerland, Japan and even in the Soviet Union and elsewhere. Therefore, they preferred to ignore the limitations on these activities put up by the Smithsonian "specialists", whereas we concentrated the first summer on the Julian Alps and Slovenia and then on Slovenia as a whole, with introductory studies only in other parts of the country.

As shown in the report of activities for the two months of the summer 1971, which we were required to compose without warning during the first two weeks after our return in the fall, our Slovenian colleagues cooperated with us in collections and studies of Slovenian plants that summer and during the three months of the summer 1972, whereas during other months they continued their collections elsewhere in Yugoslavia and we worked out the results for publication. It should be emphasized, that the work during the summers is by necessity that of collection of material for further cytological and morphological study, although some cytological work has also been performed during that period. Because of drastic cuts in our original budget, however, only a single microscope is available for these studies in Ljubljana, for ten or more cytologosts eager to use it at the same time, so only a fraction of that part of the work can be done during the time when both teams are together. And the American team is not being paid for its work for more than the short summers. The material

collected is being cultivated mainly at the Botanical Garden of the University of Ljubljana, but also partly at the Juliana Botanical Garden in the Alps, but facilities at both places are very limited and both lack any gardener assistance specially for this project, because such help has constantly been taken out from our budget estimates by those who thought they understood better the needs of cytotaxonomists. When the material is collected and cultivated, voucher specimens have been made for the Herbarium of the University of Ljubljana, with duplicates available for an American herbarium when the work has been completed. Because of the lack of an adequate library for this kind of botany at Ljubljana, almost all the important bibliographical work has been performed at Boulder by the two principal American investigators during times of the year when they have no benefit of the grant in Yugoslavian dinars, and all computer work has been paid out of funds they have for other research purposes, or out of their own pocket.

Some of the highlights of the work and observations during this summer are the following:

1) As mentioned in the first report, we realized already the first summer the dire need for the compilation of a critical and computerized checklist of the Slovenian flora, with a complete atlas of chromosome numbers determined elsewhere for the taxa involved and a complete bibliography. The basic checklist, which required considerable bibliographic and systematic study to ascertain the correct nomenclature for the strictly defined taxa, had been partially completed as a card-index before the first report was sent in, but computerized only for the ferns and fern-allies. In our report we optimistically expressed the hope that this list would be completely computerized during the fall of 1971 and then printed during the spring, innocently unaware of the fact that it might involve the punching of over 100.000 cards before it could be finally printed out or put on tape.

Naturally, the work was considerably greater than we had anticipated, and although Áskell Löve used almost all his research time for his part of the work from October to May, and Doris Löve worked on it, keypunching, programming and printing it out, for at least 10 to 12 hours a day, Sundays not excluded, during the entire winter, without pay, time was too short to complete the taxonomic checklist and to include all the chromosome references to the last one-third of it before we returned to Yugoslavia in the spring. Nevertheless, the atlas contained basic chromosome information for all the taxa but only two-thirds included complete references to all chromosome number determinations for each taxon. The printout is over 600 pages, whereas we expect that the final and completed printout, which then will be ready for publication, is supposed to become well over 1000 pages, so this will become the largest and most complete regional chromosome atlas ever compiled. We are already working on the continuation of this list in the hope to get it completed during the winter, despite the fact that no funds have ever been available for this work in Boulder.

Because of the lack of funds, we have only been able to make a few printouts of it so far, by aid of limited funds for computer work given to us by the University of Colorado. We have shown these printouts and sent them around to selected colleagues with a thorough knowledge of the European flora and of cytotaxonomy, and it has also been demonstrated to specialists from many lands belonging to the Flora Europaea Organization. The enthusiasm with which it has been met everywhere by these experts cannot be described, and several of them have expressed the opinion that this work alone has increased the knowledge and understanding of the Slovenian flora up to the high level of the Scandinavian and Czechoslovakian floras, which in this respect are better known than any other areas in the world.

When our Yugoslavian colleagues got an opportunity to study the chromosome atlas, they at once decided that this substantial work should be printed in one of the special series of their Academy as soon as possible after its completion, so that the atlas could become available not only to our small group but also to all others interested in a modern treatment of the Slovenian flora or in the floras of the surrounding countries.

Unfortunately, the price of each printout is $40 or more, and since no funds have been given for this, we are unable to furnish the Smithsonian Institution with more than a single printout of the list as far as it is completed. We emphasize that this is an incomplete copy because the chromosome number references are missing in its last one-third part and there are no bibliographic references yet attached to it. It is a manuscript copy to which we reserve all rights and we trust that it will be treated as a confidential manuscript, although permission is hereby given for xeroxing of it all or parts thereof for legitimate purposes of review by trustworthy and competent scientists.

We have built into the atlas detailed information of various kinds in order to make it possible to use it for various purposes other than simple retrieval of taxonomical and cytological information. Thus, we will be able to extract from it information about levels of polyploidy within different regions of Slovenia, the coverage of thorough taxonomical, geographical and cytological knowledge within each region of the country and the eastern Alps, frequency and distribution and occurrance of hybrids and apomicts, etc., etc. The most practical results, for the present program, that we have been able to retrieve from the atlas already is the information, that although only a few species of the Slovenian flora have been cytotaxonomically studied from indigenous material, over 90% of the

more than 3000 species of the flora of higher plants are so well known in this respect from the neighboring countries that it would be a waste of time to repeat most of these studies for Slovenia. It has also been possible to pick out groups that remain entirely unknown cytologically (about 200 species) and even those that are critical in some respect or another or have been reported to have more than a single chromosome number elsewhere (about 300 species). The list has also been helpful in selecting out endemics of two kinds, at or above the species level and below that category, and to list species in which apomixis is known or suspected, etc.

It must be mentioned that the Yugoslavian botanists as a whole are eager to get such a computerized and critical checklist and chromosome atlas compiled for the flora of the entire country, with possibilities to pull out from it complete checklists for the different republics and smaller areas. As a matter of fact, we have been able to almost complete a card-index of the species of the entire flora already by aid of the main literature, but much work is still needed before all the smaller publications have been extracted and also before all the chromosome information has been added and the taxa at various levels evaluated in the light of the evidence available, since this list will include at least about 11.000 species or over 15.000 taxa. Computerization of this material will require longer time and it ought also to be supported in such a way that we could have appropriate assistance to keypunch the cards which certainly will run into several hundred thousands.

The Yugoslavs want to emphasize that such a compilation for the entire Balkan flora seems to be a possibility if this good team will be allowed to continue its cooperation and widen it to include also botanists from Bulgaria, Greece, Albania and Romania, since botanists from these lands have expressed great interest in giving all the assistance available for

making such an atlas for the entire region and its remarkable but critical flora. If that could be accomplished as a kind of a sideline from the American-Yugoslavian cooperative work, this would be the first time in history that a peaceful and scientific cooperation between all the Balkan countries had been established - and that based on influence from the outside and encouragement from America.

2) Although we concentrated this summer upon the work with the Slovenian flora and then especially the species which are either unknown cytologically (ca. 200 taxa) or confused (ca. 300 taxa), other groups have also been collected and cultivated from Slovenia but especially from other regions of Yugoslavia. More than 700 of these species have already been cytologically determined by members of the cooperative team. This must be regarded as a considerable achievement in the light of the fact that we have found that behind every single determination lies at least one week of intensive work, plus an average of four to five days for processing it for publication even when this is done summarily in the IOPB chromosome number reports in Taxon, where numbers without a problem are printed most effectively and without much delay. We have already printed three such lists in the IOPB reports reporting the numbers for 218 species, but expect or hope to be able to process more than 500 additional numbers during 1972-73. These results from two short summers compare nicely with about 300 numbers counted by a well-equipped team of ten specialists in Sofija in Bulgaria during the past four years, of about 1000 numbers counted by a much larger group in Czechoslovakia during the past 8-10 years, and of a little over 100 numbers reported by a team of twenty or more Italians the past two years. In addition, we have in press the first report in a series of more detailed studies of 25 species each that comprises mainly critical taxa requiring more detailed information.

3) In addition to these general studies, the team has found some time to concentrate upon several more special problems of evolution and classification of some selected groups, although most detailed investigations of such problems observed during the basic work must wait until later. The American team has completed its part of several papers which were mentioned in the first report, but some of these have not yet gone to press, either because our Slovenian colleagues have not had time to complete their part of the work, or simply because the publishing in Yugoslavia is no faster that is printing of scientific reports in the United States. These incomplete papers are also listed in the summarized review at the end of this report.

Several other papers mentioned in the first report as in preparation have progressed, and a few have been completed or almost so. Material for several reports in the series on chromosome numbers of Yugoslavian plants is also being progressed for the second and following fascicles of Scopolia, the new botanical journal that has grown out of this work, and also at least three more papers in the series on nomenclatural changes in the Slovenian flora. The complete or preliminary titles of these papers are also listed in the summarized review.

4) We have a complete information from the chromosome atlas on the frequency of polyploids within each of the floristic regions of Slovenia and also within each of the different mountain complexes of the eastern Alps. Since some additional calculations are being worked out by W. Reid in connection with preparation of his Ph. D. thesis, we wait with the completion of a report on this subject. However, we can reveal at this time that the computer work seems to indicate that polyploids also here show a selective superiority in areas of stress, especially correlated with the length of the vegetative period or with the risk of occasional frosts in the summer, as, e.g., in certain of the alpine areas and in the dolinas of the karst region.

5) In addition to the work on some endemics mentioned in the first report, we have initiated cooperation with Ernest Mayer on a detailed investigation of the evolutionary processes that lead to the development or survival of endemic taxa as reflected in the immense regions of serpentine soils in central Serbia. These studies will require several years, but from the preliminary observations it seems evident that the endemics of these regions fall mainly into two categories. They are frequently only local races of more or less recent origin selected from the surrounding populations and, therefore, apparently too high classified when named as species. Whereas sometimes they have no closer relatives in the Balkans and seem to be of a relict nature. Our preliminary observations furnish us with reasons to doubt that polyploidy has been an important factor in the development of these endemics or even in their survival. However, these observations may change substantially when we have had an opportunity to study all the about 1000 taxa involved.

6) We want to emphasize at this point that it is unusual that any collection work of this magnitude results in even a single paper published within two years of initiation, and that the majority of the results to be expected will not become properly processed for printing within the next five to ten years. With the same speed of work, however, there is a reason to hope that the flora of Yugoslavia can become satisfactorily known from the cytotaxonomical point of view within the next decade, and that with proper support and less irritations of bureaucratic nature such a cooperation for five more years will be sufficient to make this still too little known flora quite comparable to those of the best known areas in Europe.

Summarized Review.

1) The collection of cytotaxonomical material of the Yugoslavian flora has proceeded satisfactorily for two summers, and over 700 species have so far been exactly identified taxonomically and determined as to their chromosome number. The processing of this material for publication is either completed or in progress.

2) A critical and computerized checklist of the Slovenian flora is being compiled. Added into this list is an atlas of chromosome numbers published for these species from elsewhere and from within Yugoslavia, and various other informations are added for easy retrieval. The atlas is only 2/3 completed but will hopefully be finished during this winter, including its very extensive and hopefully complete bibliography. A basic taxonomical checklist for the entire Yugoslavian flora has already been put on cards by the American team but not yet computerized. And the need for enlarging it to include all the Balkan flora has been pointed out.

3) Although most of the results from these studies cannot be completed for publication until at a later date, because their complete processing requires considerable time in addition to the two summers of collection work and a single winter of microscope and bibliographical work, we classify the results obtained as follows:

a) Results already published and printed:

LOVKA, M., SUŠNIK, F., LÖVE, Á. & LÖVE, D. 1971: IOPB chromosome number reports XXXIV. - Taxon 20: 788 - 791. (114 species).

LOVKA, M., SUŠNIK, F., LÖVE, Á. & LÖVE, D. 1972: IOPB chromosome number reports XXXVI. - Taxon 21: 337 - 339. (75 species).

SUŠNIK, F., DRUSKOVIC, B., LÖVE, Á. & LÖVE, D. 1972: IOPB chromosome number reports XXXVI. - Taxon 21: 345. (29 species).

LÖVE, Á. & LÖVE, D. 1972: Vermeulenia - a new genus of orchids. - Acta Botanica Neerlandica 21: 553 - 554. (October, no reprints yet).

b) Papers in press, accepted for publication:

LÖVE, Á. & LÖVE, D. 1972: Favargera and Gentianodes, two new genera of Gentianaceae. - Botaniska Notiser 125: ooo - ooo.

LÖVE, Á., LÖVE, D., MAYER, E. & SUŠNIK, F. 1972: Cytotaxonomy of Yugoslavian plants: Introductory remarks. - Scopolia 1: ooo - ooo.

LÖVE, Á. & SUŠNIK, F. 1972: Chromosome numbers of Yugoslavian plants. I. - Scopolia 1: ooo - ooo.

LÖVE, Á., LÖVE, D. & SUŠNIK, F. 1972: Nomenclatural adjustments in the Yugoslavian flora. I. Some monocotyledons from Slovenia. - Scopolia 1: ooo - ooo.

c) Papers in preparation. Single or joint authorship undecided, and some may need a few more years for completion.

Cytotaxonomy and chemotaxonomy of the paleoendemit Hladnikia pastinacifolia.

The significance of Pastinaca fleischmannii.

Cytotaxonomy and chorology of diploid and tetraploid Ceterach.

Hybrids and endemics of Yugoslavian Iris.

Chromosome numbers of Yugoslavian plants. II, III, etc.

Nomenclatural adjustments in the Yugoslavian flora. II - IV.

Reports for IOPB chromosome number reports XXXIX - XLII.

Balkan endemics of Apiaceae.

Autoploidy and alloploidy in Phyllitis and continental drift.

Polyploidy in the Slovenian flora.

Polyploidy and environmental stress in Yugoslavia.

Serpentine endemics in Serbia.

d) Computerized results, to be constantly updated until printed:

LÖVE, Á. & LÖVE, D. 1972 etc.: Chromosome atlas of the Slovenian flora. - Incomplete at reporting time, but over 600 pages of printout.

SMITHSONIAN INSTITUTION
Washington, D.C. 20560
U.S.A.

October 18, 1971

Dr. Askell Löve
Department of Environmental, Population
and Organismic Biology
University of Colorado
Boulder, Colorado 80302

Dear Dr. Löve:

I refer to your letter of September 15, 1971, regarding your botanical research in Yugoslavia under Smithsonian Foreign Currency Grant SFG-1-5484.

I am glad to hear that you have had a successful summer in Yugoslavia. When our Biology Advisory Council approved your project for an initial year, they hoped that your project would lead to a productive working relationship with Yugoslav botanists and would therefore be our first major project in Yugoslavia in the biological sciences. As such, your project is rather pivotal in the development of our Yugoslav program and it is especially important that the maximum scientific accomplishment be obtained from your work. Support for your next season's work, however, is nevertheless completely dependent upon approval by our Advisory Council, which will be examining your record of scientific achievement carefully for the reasons I have outlined above.

We have now received your renewal proposal, and, after preliminary analysis, a formal acknowledgement will be sent to you. If any further information is required, we will inform you at that time. The Advisory Council in Biology will probably be meeting in early December to consider proposals. You are correct in assuming that your August 1, 1971 interim financial report which by the way we have received, should show those expenses which you incurred through June 30, 1971. In your final financial report on the current grant, of course, it will be necessary for you to report the expenses of both the American and Yugoslav teams. As you know, the University of Colorado is responsible for complete accounting of grant

funds, and must make effective arrangements with your Yugoslav collaborators for ensuring that they provide sufficient information about their own expenditures to you to enable you to report to us.

I am returning the copies of your international travel ticket and excess baggage stubs. Expenditures for these purposes should be reported on your scheduled financial reports and the documentation (i.e.: the stubs) should be retained by you for a period of three years beyond the closing of your grant, to be available if they are needed for audit purposes. Section 16 on page 15 of the "Administration of Smithsonian Institution Foreign Currency Grants", which I have also attached for your reference sets forth this requirement. You should also note the provisions of Section 17 of this document which describes grantee responsibilities where projects involve collaborating institutions, as does yours.

Since it appears you also enclosed the excess baggage coupons for your return to the States, are we correct in assuming that you will not need the remaining $250 budgeted for shipping? If this is not the case, please let me know so we can authorize Pan Am to issue the additional excess baggage authorization to you.

If you have further questions regarding your renewal proposal or the general administration of your grant, please let me know.

Sincerely yours,

Kenneth D. Whitehead

Kenneth D. Whitehead
Deputy Director
Foreign Currency Program
Office of International Activities

Enclosures

SMITHSONIAN INSTITUTION
Washington, D.C. 20560
U.S.A.

February 10, 1972.

Mr. Lawson Crowe
Provost and Vice President for
Research
The University of Colorado
Boulder, Colorado 80302

Dear Mr. Crowe:

I refer to CU Proposal No. 71.7.383, Dr. Askell Löve's proposal to continue his "Cooperative Studies on the Cytotaxonomy of the Yugoslavian Flora." I regret that, after careful review of the results of Dr. Löve's first year of work in Yugoslavia, as outlined in his renewal proposal, the Smithsonian has reached the conclusion that the project cannot be supported as a continuing project. Our review included consultation with scientists particularly qualified to comment on the subject matter of the proposal; after that the proposal was reviewed by the regular Smithsonian Foreign Currency Program Advisory Council in Biology which has a rotating membership drawn from established American biologists. The conclusion of the Advisory Council was that the results of the first year's work do not warrant continued support for the project. However, since both the American and Yugoslav teams engaged in the project were proceeding on the expectation of continued support, the Advisory Council voted to award the sum of $40,000 equivalent in "excess" Yugoslav Dinars for a terminal season of work in order to allow the data obtained in the first year to be consolidated and the project to be closed out in the most orderly possible manner.

The Smithsonian's decision not to support this project on a continuing basis, even though support for the first year was awarded on the basis of Dr. Löve's original application, is based on our Foreign Currency Program policy as outlined in our regular Program Announcement (latest edition dated July 1, 1971): "SFCP grants normally provide support for only one year's research even though the original proposal anticipates several years' work. To secure funds for each succeeding year, a renewal proposal is required."

KDWhitehead:pbk