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HUNT INSTITUTE for BOTANICAL DOCUMENTATION
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Archives

Telephone (412) 578-2437

8 April 1983

Dr. Robert M. King
Department of Botany
Smithsonian Institution
NHB-166
Washington, D.C. 20560

Dear Dr. King:

In 1979 you sent us a photograph of A. M. de Carvalho (Xerox copy enclosed). We would like to include an entry for this photograph in the catalogue we are compiling for our portrait collection but are unable to find any biographical information about Carvalho in our reference sources. Can you give us his address so that we may send him a biographical data sheet to complete? Of, if his address is not available, can you give us his full name, his botanical specialty and the date and place of his birth?

We appreciate any help you can give us.

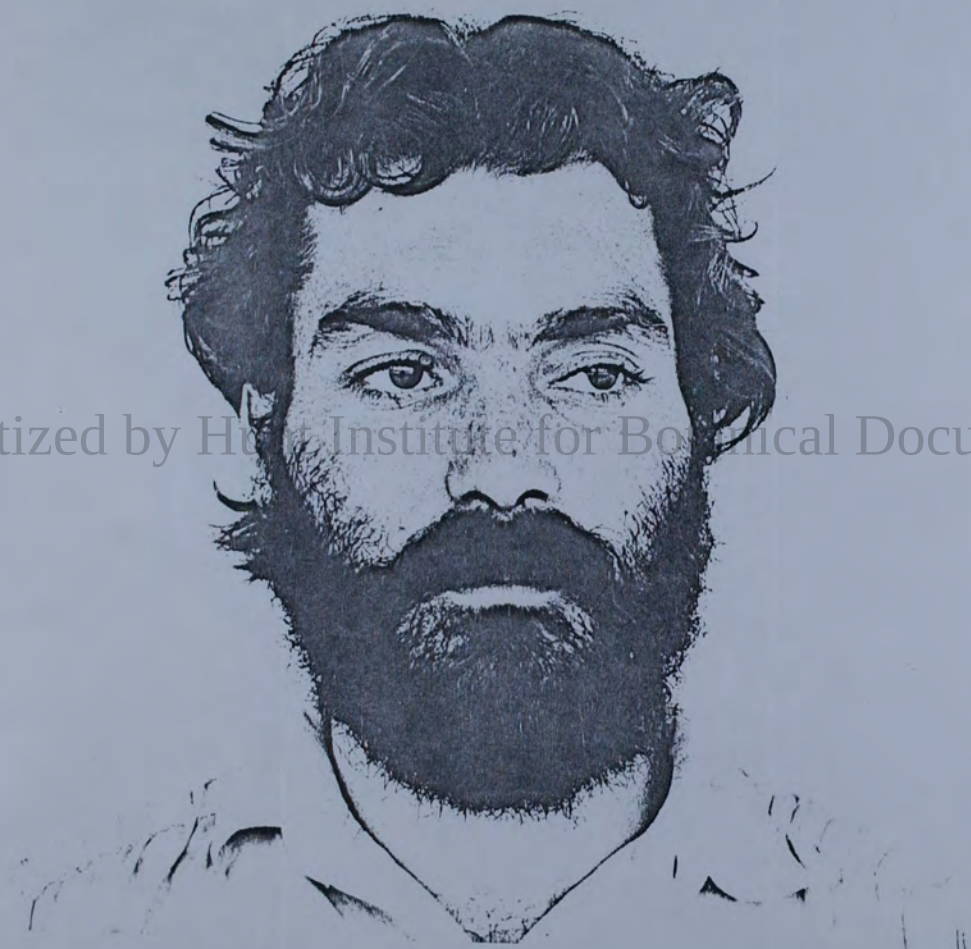
Sincerely yours,

ALK:kb

Anita L. Karg
Assistant Archivist

Enclosure: Xerox copy of photograph.

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HUNT INSTITUTE for BOTANICAL DOCUMENTATION
Carnegie-Mellon University · Pittsburgh, Pennsylvania 15213

Archives

Telephone (412) 578-2437

15 April 1983

Dr. Robert M. King
Department of Botany
Smithsonian Institution
NHB-166
Washington, D.C. 20560

Dear Dr. King:

Thank you for calling us to let us know where we could write to Dr. A. M. de Carvalho. We have the portraits of Luther Earl Bishop and Talmon Soares dos Santos which you sent us, but we do not have any biographical information about them. I plan to send an extra biographical data sheet to Carvalho and ask him if he would give it to dos Santos to complete. With regard to Bishop, do you know where I may write to him?

Enclosed is a photograph of Graziela Barroso. Please return it as soon as possible.

We appreciate the many photographs you send us and the help you give us with respect to their biographies.

Sincerely yours,

ALK:dc

Anita L. Karg
Assistant Archivist

Enclosure: Photograph.

November 30, 1982

Dr. Christel Kasselmann
Bussardweg 10
4790 Paderborn
West Germany

Dear Dr. Kasselmann:

Thank you for the specimen of Shinnersia rivularis (A. Gray) R. M.
KING & H. ROBINSON. Would you please send a label with a more exact
locality other than just Mexico. May I ask the nature of your study?

Sincerely yours,

Robert M. King

Department of Botany

CALIFORNIA POLYTECHNIC STATE UNIVERSITY

SAN LUIS OBISPO, CALIFORNIA 93407
(805) 546-0111



23 April 1981

Dr. Robert M. King
Department of Botany
Smithsonian Institution
Washington, D.C.

Dear Bob:

Thank you for your call last week. I am very much interested in the possibility of going to Peru with you. This would tie in very well with my own research needs. I talked to my department head about the possibility of taking Winter quarter off in exchange for teaching in the subsequent summer quarter and he was very encouraging. I see no problems with this type of arrangement.

I would like to get from you some details of the arrangements for the trip. I need to know such things as dates, sponsorship, how arrangements would be made for travel, etc. What collecting supplies will be needed? What will be the disposition of the collections made on the trip? etc. etc.

I am looking forward to hearing from you about this.

Best wishes,

David J. Keil
Associate Professor of Botany
Biological Sciences Department

357-2545

July 14, 1981

Dr. Dave Keil
Biological Sciences Department
California Polytechnic State University
San Luis Obispo, CA 93407

Dear Dave:

I thought it best that I write to you now to let you know that I may not be going to Peru in January.

I have had a medical problem, specifically I had a tumor removed from my back and right now I don't know whether I will be up to making the trip. In any event, you should not plan on a trip with me.

I am writing to you as early as I can, and hope that I have not caused you any inconvenience.

With kind regards,

Sincerely,

Robert M. King
Department of Botany

PROPOSAL NO. DEB-8200265	INSTITUTION RANDOLPH-MACON COL	PLEASE RETURN BY
PRINCIPAL INVESTIGATOR KING	BRUCE L	NSF PROGRAM SYSTEMATIC BIOLOGY PROGRAM
TITLE BIOCHEMICAL SYSTEMATICS OF THE TRIBE VERNONIEAE (COMPOSITAE)		

COMMENTS (CONTINUE ON ADDITIONAL SHEET(S) AS NECESSARY)

QUALITY OF THE PROPOSED RESEARCH (INCLUDING BUDGET AND INSTITUTIONAL CAPABILITY):

The proposal presents a slight problem. The project seems valid and deserves support, but the taxonomic base for the project must be improved. Unfortunately, the principal investigator is not responsible for the taxonomy. Perhaps Jones can be induced to reevaluate his concepts in Lychnophora. Certainly, Haplostephium has three species of it is distinct from Lychnophora. I see mention of L. heterotheca, which is Lychnophoropsis, a generic segregate worth more than Haplostephium. There is uncited literature that must eventually be integrated but, I presume this will be done. I hope the flavonoids are as useful at the generic level as the proposal suggests, but my main reason for encouraging the project is to help resolve some of the hybrid species complexes that are apparent in Lychnophora.

RECENT RESEARCH ACHIEVEMENTS OF THE PRINCIPAL INVESTIGATOR(S):

Recent publications of the P. I. show a strong background in the type of work that he proposes.

OVERALL RATING: ☐ EXCELLENT ☒ VERY GOOD ☐ GOOD ☐ FAIR ☐ POOR

Verbatim but anonymous copies of reviews will be sent only to the principal investigator/project director. Subject to this NSF policy and applicable laws, including the Freedom of Information Act, 5 USC 552 and formal requests from Chairpersons of Congressional committees having responsibility for NSF, reviewers' comments will be given maximum protection from disclosure.

REVIEWER'S SIGNATURE

Robert M King

OTHER SUGGESTED REVIEWERS (OPTIONAL)

REVIEWER'S NAME (TYPED)

ROBERT M. KING

REVIEWER'S COPY

RUN DATE: 10/07/81

82-00265

RESEARCH PROPOSAL TO: National Science Foundation

By
Randolph-Macon College
Ashland, VA 23005

TITLE: Biochemical Systematics of the Tribe Vernonieae (Compositae) Phase I.
Flavonoid Systematics of Lychnophora, Haplostephium and Piptolepis.

PRINCIPLE INVESTIGATOR:

Name: Bruce L. King

Title: Assistant Professor of Biology

Social Security Number: 428-86-5732

Phone Number: 804-798-8372

PROPOSED AMOUNT \$54452 PROPOSED EFFECTIVE DATE: 1 June 82

PROPOSED DURATION 3 years.

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Make Award to RANDOLPH-MACON COLLEGE, Ashland, VA 23005

ENDORSEMENTS

Bruce L. King
PRINCIPAL INVESTIGATOR

W. Wallace Martin
DEPARTMENT HEAD
W. Wallace Martin

Donald P. Reid
INSTITUTIONAL ADMINISTRATIVE OFFICIAL
Donald P. Reid, Treasurer

DATE 9/25/81

Phone: 804-798-8372
For Negotiations Contact the Treasurer.

ABSTRACT

It is proposed that a comprehensive survey of the flavonoids of the taxa of the tribe Vernoniae be initiated. The flavonoid information would complement and add a new dimension to the revisionary, chromosomal and pollen studies in progress. Chemically, the tribe Vernoniae is the most poorly understood in the family Compositae. Initial studies suggest that the flavonoids have considerable systematic potential at the generic, subgeneric, sectional, specific and infraspecific levels.

The object of the current proposal is to continue and complete a systematic survey of the flavonoids of all species new referable to the syncephalous and taxonomically difficult genera Lychnophora, Haplostephium and Piptolepis. Lychnophora and Haplostephium have at times been combined and a number of species originally in Lychnophora have been excluded in a recent revision and tentatively referred to Piptolepis. Piptolepis has not been revised since the genus was first described in 1863.

The goals of the current proposal include: 1) isolation and identification of the approximately 50 flavonoids detected among species of Lychnophora, Haplostephium and Piptolepis; 2) completion of the survey of the leaf flavonoids among the taxa; 3) a survey of floral flavonoids which may serve to distinguish between species with otherwise identical leaf patterns; 4) to use flavonoid information to test the hypothesis, based on macromorphology, that Lychnophora, Haplostephium and Piptolepis are distinct albeit closely related genera derived from a single ancestral line; 5) to use flavonoid information to test the infrageneric classifications of Lychnophora and Piptolepis; 6) to analyze intraspecific variation; 7) to formulate chemophyletic interpretations of the data including the testing of evolutionary hypotheses based on macromorphology and cladistic analysis.

A preliminary flavonoid survey: 1) suggests that Lychnophora, Haplostephium and Piptolepis have generic chemical profiles; 2) indicates that many of the species may be distinguished by their chemical profiles including taxa that are morphologically very similar; 3) supports the revisionary work in Lychnophora including the conservative treatment of most species; and 4) suggests a complex pattern of flavonoid evolution in Lychnophora that may have involved diversification of methoxylated flavonoids and O-glycosylation accompanied by a reductionary trend in C-glycoflavones.

INTRODUCTION

The tribe Vernoniaceae Cass. has about 70 genera and 1500 species. Members of the tribe are largely perennial herbs, sometimes annuals, shrubs, vines or trees and are widely distributed in North America, South America, Africa, Madagascar, Southern Asia and the Malay Archipelago. The largest genus is Vernonia Schreb. (ca 1000 species) which seems to form the central core of the tribe (Bentham, 1873; Jones, 1977a). Other genera of notable size include Erlangea Sch. Bip. (ca 60 species), Piptocarpha R. Br. (50), Elephantopus L. (32), Haplophyllum DC. (25), Eremanthus Less. (25), Gutenbergia Sch. Bip. (20), Centratherum (Cass. (20) and Stilnopappus Mart. ex DC. (20).

The systematics of the tribe Vernoniaceae has been reviewed by Jones (1977a). The general classification of the tribe was established from 1817 to 1873 largely by Cassini (1817, 1819), Lessing (1829), 1831a, b), de Candolle (1836) and Bentham (1873). Cassini (1817) recognized five subtribes while Bentham (1873) recognized only two; the Vernoniaceae and the Lychnophoreae, the former with separate heads and disjunct involucre and the latter with few-flowered heads aggregated into glomerules i.e., syncephaly. Philpson (1938) felt that the older arrangement of Cassini provided for better classification. Jones (1977a), noting that some genera which typically have separate heads have species that are almost syncephalous, believes that Bentham's subtribal classification was artificial.

There has been no comprehensive treatment of the tribe Vernoniaceae since that of Bentham (1873) and until recently there have been few systematic studies attempted. The genus Corymbium L. was revised by Markötter (1939). Cuatrecasas (1956) published a synopsis of sections Critiniopsis of Vernonia while Clonts (1972) and Clonts and McDaniel (1978) provided a treatment of Elephantopus. An extensive series of biosystematic studies of Vernonia have been performed by Jones and associates (e.g. Jones, 1968a; 1970a, 1972 a, b, c; 1973; 1976 a, b, 1977 b; 1979 a; Jones et al., 1970; Urbatsch, 1972; Faust and Jones, 1973, King and Jones, 1975a; Chapman and Jones, 1978; Keeley and Jones, 1977a). A systematic revision of the tribe is in progress which has been supported by comparative pollen morphology studies and by cytotaxonomic investigations (e.g. Jones; 1968b; 1970b; 1974; 1976; 1977 a, b; 1979b, c; Keeley and Jones, 1977b; Jones and Faust, 1978; Stutts; 1979, 1980, Stutts and Muir, 1981; Coile and Jones, in press).

The current delimitation of many of the genera in the Vernoniaceae is nebulous and there are numerous problems in infrageneric classification (Jones, 1977a). The cream, yellow and orange flowered species of Vernonia from Africa and Madagascar were placed in Gongrothamnus Steez by Merxmüller (1954) although tentatively Jones (1977a) retains them in Vernonia. The traditional sections of Vernonia are considered artificial; based on few, poorly understood characters (Smith, 1971; Jones, 1977a, 1979b). Jones (1979b, 1981) has developed a synoptic classification of Vernonia based on gross morphological features and pollen types. This preliminary treatment was intended as a working hypothesis for later detailed studies of sections, subsections and series.

A number of genera such as Centratherum, Erlangea and Gutenbergia are heterogeneous or not well delimited and are in need of revision while many of the smaller genera need to be reevaluated and perhaps could be included in others (Jones, 1977a). Several of the smaller genera in the Vernoniaceae, including Stokesia L'her, Corymbium L., Struchium P. Br., Pacourina Aubl., and Heterocoma DC. have the essential features of the tribe but are not

especially close to Vernonia making classification difficult (Jones, 1977a). Stokesia approaches the tribe Mutisieae in features of the corolla, yet has the anther style and pollen of the Vernonieae.

CHEMOSYSTEMATICS

Chemically the Vernonieae is the most poorly understood tribe in the composite family (Hagnauer, 1964, Harborne and Williams, 1977). Various taxa have been surveyed for terpenoids, flavonoids, alkaloids, lipids, cyclitols and acetylenes. Approximately 50 genera have been examined for chemical constituents but these have usually been restricted studies seldom including more than one to 10 species and have often been made simply to describe the analysis of individual compounds or to determine the potential pharmacological properties of the plants.

Taxonomically the most promising compounds are the sesquiterpene lactones and the flavonoids (Harborne and Williams, 1977; Mabry et al., 1975). Sesquiterpene lactones have been examined from various species of Elephantopus (Kupchan et al., 1966; Kupchan et al., 1969a; Lee et al., 1973; Bohlman et al., 1980a), Eremanthus (Vichnewski and Gilbert 1972; Bohlman et al., 1980b); Vanillosmopsis (Corbella et al., 1974; Kupchan et al., 1969b, 1969c; Bohlman et al., 1981b), and Lychnophora, Piptolepis, Centratherum, Piptocarpha, and Albertinia (Bohlman et al., 1980 a, c; Bohlman et al., 1981) but no comprehensive studies of any of the large genera have been attempted. The most extensive work has been that of Mabry et al. (1975) in which 38 species of Vernonia were examined for sesquiterpene lactones. The species examined were mostly North American in distribution but included some African and South American taxa. The sesquiterpene lactone data was believed to support the earlier hypothesis of Gleason (1923) that Vernonia has two major centers of distribution, one in South America and the other in Africa. Supporting evidence is also available from cytotoxonomic studies (Jones, 1977a).

Flavonoid studies in the Vernonieae have been largely confined to the genus Vernonia (Harborne and Williams, 1977; Mabry et al., 1975) although Ghanim et al. (1963) reported a Luteolin 7-O-glycoside from Elephantopus scaber and the smaller genera Pollalesta (Stutts, 1979) and Piptocoma (Stutts and Muir, 1981) have been examined to some extent.

Mabry et al. (1975) identified 27 flavonoids from 39 species of Vernonia. The flavonoids were found to be useful in classification at the subgeneric, sectional, specific and infraspecific levels. Like the sesquiterpene lactones the flavonoid data seemed to support the hypothesis of a common ancestral line for both North and South American species of Vernonia and provided evidence linking the old and new world species. Correlations of morphological and chemical characters suggested that the presence of a large number of chemical constituents might be regarded as a primitive character within the genus. King and Jones (submitted) found the flavonoids useful in the classification of the series Flexuosae of Vernonia and reported the presence of C-glycoflavones as a common features of the group. It was suggested that the series Flexuosae might be considered a comparatively primitive group of the New World Vernonia in the sense that it retains a set of flavonoids (C-glycoflavones) believed to represent a relatively early development in flavonoid evolution (Cooper-Driver, 1980). It was also found that taxa nearer the presumed center of origin for the group (South-Central Brazil) have greater flavonoid diversity than those species with distributions further to the south.

Harborne and Williams (1977) surveyed 31 genera (52 species) of the Vernoniaceae and suggested that the flavonoids show some promise of being of value in relation to the systematics of Vernonia. It was also suggested, however, that the old world species of Vernonia are "depauperate" in flavonoids as well as most other genera examined (e.g. Pollalesta and Lychnophora). Only six old world species of Vernonia were examined and one to three species of the other genera (seven were monotypic). Harborne and Williams (1979) reported only general flavonoid classes and did not consider specific glycosylation patterns. Some genera examined by Harborne and Williams are now known to be rich in glycosylated and methoxylated flavonoids (e.g. Pollelesta, 40 compounds, Stutts, 1979; some Lychnophora species, 35 compounds, King, preliminary data and some old world taxa of Vernonia, Stutts, unpublished). The old world taxa of Vernonia were believed to produce only flavones but the flavonols quercetin 3-methyl ether and quercetin 7-O-methyl ether have recently been isolated from several old world species (Stutts, personal communication).

It is likely that our overall picture of flavonoid distribution and chemophylogeny in the Vernoniaceae is going to change significantly as more taxa are thoroughly examined for their flavonoid constituents. For example, recent evidence suggests that C-glycoflavones are not rare for the tribe as has previously been thought and probably have a fairly widespread distribution in several Vernoniaceae groups (King and Jones, submitted; Stutts, 1979, 1981).

The General Proposal: Biochemical Systematics of the Tribe Vernoniaceae (Compositae).

It is proposed that a comprehensive analysis of the flavonoids of the taxa of the tribe Vernoniaceae be initiated. The flavonoid information would complement and add a new dimension to the extensive revisionary, chromosomal and pollen studies already in progress by S. B. Jones and associates at the University of Georgia.

The long-term goals of the proposed study would be: 1) to determine differences and similarities at the generic, subgeneric and sectional levels, 2) to delimit species groups and analyze species complexes, 3) to determine interspecific differences in flavonoids, 4) to analyze for infraspecific variation patterns, 5) to analyze problems in interspecific hybridization where feasible and 6) to formulate chemophyletic interpretations of the data. The correlation of the large mass of chemical data with morphological and other characters would be aided by numerical methods including cladistics and cluster analysis.

Where extensive surveys of large numbers of taxa have been carried out, the flavonoids have proven helpful at a variety of taxonomic levels and in some cases have been the primary source of taxonomically useful data: e.g. The Lemnaceae (McClure and Alston, 1966); Umbelliferae (Hegnauer, 1971); Psilotaceae (Cooper-Driver, 1977); Onagraceae (Averett et al. 1979); Ulmaceae (Giannasi, 1978); gymnomorpha ferns (Giannasi, 1980); Baptisia (Alston, 1967); Coreopsis (Crawford et al., 1980); Helenium (Bierner, 1973); Dahlia (Giannasi, 1975); Solanum (Whalen, 1978); Phlox (Levy and Levin, 1971); Lasthenia (Ornduff et al., 1974); and Rhododendron (Harborne and Williams, 1971; King, 1980).

The detailed chemical work of Mabry et al. (1975) demonstrated the potential of the flavonoids at the subgeneric, sectional, specific and infraspecific levels in Vernonia; suggested some possible phylogenetic trends

in the genus, and the chemical data correlated very well with morphological studies. King and Jones (submitted) found that the flavonoid distribution in the series Flexuosae of Vernonia supported the classification of the series based on macromorphology. Flavonoid information would provide significant support to the detailed revisionary studies of sections, subsections and series of Vernonia as the working hypothesis for the synoptic classification of Vernonia (Jones, 1979, 1981) is tested. Stutts (1981 and unpublished data) suggests that the flavonoids will prove of considerable value at the intergeneric level in the tribe Vernonieae (Table I) and my initial examinations of Lychnophora, Haplostephium, and Piptolepis, support this view. A preliminary paper chromatographic survey of the heterogeneous Eremanthus complex of the Vernonieae (N. MacLeish, University of Georgia, pers. com.) has suggested that the flavonoids would prove useful in delimiting infrageneric taxa and a similar survey of the difficult genus Piptocarpha (G. L. Smith, University of Georgia, pers. com.) has also suggested that the flavonoids would be of value at several levels including the delimitation of sections and infraspecific categories.

The teamwork of S. B. Jones (University of Georgia) and T. J. Mabry (University of Texas) during the revisionary and chemosystematic work of the North American Vernonia has demonstrated the value of this approach to a complex group of plants. Certainly the field work, morphological, cytological and chemical studies would be beyond the capabilities of a single person.

In the proposed study the morphological and field work would be carried out by S. B. Jones and associates and the flavonoid chemistry by myself. The ongoing revisionary work and the continuous collecting program would ensure a supply of plant material for chemical analysis from herbarium specimens and field collections, including bulk samples of many species. In addition to chemical comparisons at the higher taxonomic levels this approach would also allow for adequate interspecific and infraspecific surveys.

The need is emphasized for a concentrated effort on the flavonoid chemistry of the Vernonieae that would be synchronized as nearly as possible with the ongoing revisionary work in the tribe. My previous chemosystematic work in Rhododendron (King, 1977a; 1977b; 1980), experience in Vernonia (King and Jones, 1975) and a fifteen year association with Dr. Jones should contribute toward a professional and smoothly functioning teamwork approach to the taxonomic problems in the Vernonieae. My study of the flavonoids of Vernonia series Flexuosae (submitted, 1981) was performed at the University of Georgia during the Summer of 1980 and was funded by a budget amendment to an NSF Grant to Dr. Jones. Preliminary chemical work on Lychnophora, Haplostephium and Piptolepis during the Summer of 1981 was performed under a similar NSF program and the results of this work have provided the rationale for the present proposal.

The Present Proposal: Phase I. Flavonoid Systematics of Lychnophora, Haplostephium and Piptolepis.

1. Taxonomic History.

The genus Lychnophora Mart. is a group of shrubs endemic to campo rupestre habitats of the Serra do Espinhaço in the Brazilian states of Minas Geras, Bahia and Goiás where the species often form a dominant component of some plant communities (Eiten, 1978; Coile and Jones, in press). The plants are adapted to a seasonal dry, fire environment and occur on shallow soils of rock outcrops

Table I. Classes of Flavonoids in Selected Genera of Vernonieae Based on

Preliminary Studies.*

GENUS	FLAVONES						FLAVONOLS					
	OMe		OGl		C-Gly		OMe		OGly		OMe+OGly	
	A	L	A	L	A	L	K	Q	K	Q	K	Q
Haplostephium	+		+		+			+				
Lychnophora		+	+	+	+	+	+	+	+	+		
Vernonia	+	+	+	+	+	+	+	+	+	+		
Pollalesta		+	+	+	+	+	+		+		+	
Piptocarpha			+	+	+	+	+		+		+	+
Piptocoma								+		+		
Piptolepis					+		+	+				

A = apigenin, L = luteolin, K = kaempferol, Q = quercetin OMe = methoxylation,
OGly = Oxygen glycosylation, C-Gly = carbon glycosylation.

*From J. Stutts (unpublished), Modified by B. King.

of sandstone, quartzite or ferrous parent materials. The species of Lychnophora are believed to be edaphically restricted to either certain substrates or to differential moisture regimes (Coile and Jones, in press).

Lychnophora is characterized by the syncephalous arrangement of heads in terminal, usually globose glomerules (syncephala). Lychnophora is unusual in appearance with prominent spiral leaf scars suggestive of lycopods and its stems are usually covered with a dense tomentum. The plants are generally highly branched and have narrow crowded leaves (Coile and Jones, in press).

The genus Lychnophora was first described by Martius (1822) including eight species. In 1829, Lessing transferred the species to Vernonia. However, in 1836, de Candolle accepted Martius' Lychnophora and named a new species, L. phyllicifolia. He also described Lychnocephalus tomentosus Mart. ex DC. Schultz-Bipontinus (1863a) transferred the monotypic Lychnocephalus to Lychnophora and added several new species of Lychnophora. Baker (1873) prepared a revision of these plants that conceptually followed that of Schultz-Bipontinus, although several new infraspecific taxa were described. Coile and Jones (in press) revised the group combining Lychnophoriopsis with Lychnophora and reducing the number of accepted species from 23 to eleven. One new species, L. diamantinana Coile and Jones, was described. A number of taxa were excluded from Lychnophora and tentatively referred to other genera including Piptolepis. Lychnophora is considered one of the most difficult groups in the Vernonieae (Coile and Jones, in press). Lychnophora ericoides, one of the more abundant species, is highly variable in leaf length and outer pappus length and on further study could possibly be separated into three infraspecific taxa (Coile and Jones, in press).

The monotypic genus Haplostephium (H. passerina Mart. ex DC.) was placed in Lychnophora by Gardner (1846). Coile and Jones (in press) excluded Haplostephium from Lychnophora on the basis of its unusual pappus, tiny leaves and compact habit. Preliminary flavonoid studies seemed to support the exclusion of Haplostephium from Lychnophora.

The genus Piptolepis was established by Schultz-Bipontinus (1863b) and he included eight species. Several of the species were transferred from Vernonia or Albertinia Spreng. Piptolepis schwackeana was described by Glaziou in 1909 and P. glaziouana by Beavere in 1913. Piptolepis is in need of a modern taxonomic revision and the relationships among Piptolepis, Haplostephium and Lychnophora are not clearly understood. Haplostephium and Piptolepis are restricted to the Serra do Espinhaço of Brazil and may be biologically sympatric with Lychnophora species.

2. Specific Goals.

The goals of the current proposal are: 1) to survey the 32 taxa now referable to Lychnophora, Haplostephium and Piptolepis for flavonoids; 2) to structurally identify the flavonoids detected; 3) to use flavonoid information to test the hypothesis, based on macromorphology, that Lychnophora, Haplostephium and Piptolepis are distinct albeit closely related genera derived from a single ancestral line; 4) to use flavonoid information to test the infrageneric classifications of Lychnophora and Piptolepis based on current revisionary work; 5) to analyze species groups and determine interspecific differences in

flavonoids; 6) to analyze species complexes and infraspecific variation patterns; 7) to correlate chemical data with morphological and ecological information; 8) to formulate chemophyletic interpretations of the data including the testing of evolutionary hypotheses based on macromorphology and cladistic analysis. Cladistic analysis has been performed for Lychnophora (N. Coile, UGA, unpublished) and eventually will be extended to include all taxa.

3. Methodology.

Initial examinations of Lychnophora (11 species), Haplostephium passerina, and Piptolepis (three species) representing 55 collections indicate that there are about 50 flavonoids which must be structurally characterized as completely as possible. The general techniques to be followed for the isolation and purification of flavonoids by 2-D paper chromatography and for spectral analysis are basically those of Mabry et al. (1970). The taxa to be investigated contain large numbers of aglycones and glycosides. These may be easily separated from each other by partitioning with chloroform and water. Polyamide chromatography (Abdel-Baset, 1973) is effective for the isolation of aglycones from the chloroform fraction. Preparative Sephadex-LH-20 column chromatography using methanol-water solvent systems (B. A. Bohm, unpublished procedural guide) has proven useful for separation of the flavonoid glycosides into groups of mono-, di-, and tri-glycosides. Further separation and isolation of individual glycosides is accomplished by paper chromatography; Sephadex LH-20 column chromatography using TBA:MeOH Solvent systems; Polyamide column chromatography or by thin-layer chromatography; the exact procedures depending on the nature of the compounds to be separated.

The demethylation procedures to be used in the analysis of methoxylated flavonoids are those of Abdel-Baset (1973). Isomerization procedures for C-glycoflavones are those of Mabry et al. (1970). Acid hydrolyses of flavonoid O-glycosides will be performed using procedures established by B. A. Bohm (unpublished procedural guide) in which trifluoroacetic acid is used instead of hydrochloric acid. This procedure gives superior results especially for timed experiments in the analysis of diglycosides and triglycosides. Enzyme hydrolyses (Abdel-Baset, 1973; Giannasi, 1975) will also be used in the analysis of flavonoid O-glycosides. Sugar identifications will follow the (TLC and GC) techniques of Mabry et al. (1970) and Abdel-Baset (1973). Access to NMR (Randolph-Macon College) will facilitate identification of flavonoids not easily identified by standard U.V. spectroscopic techniques.

Nearly 300 leaf samples from field collections and herbarium specimens are available for the survey and bulk samples of Haplostephium passerina, five species of Lychnophora and one species of Piptolepis are currently available for analysis. Sufficient material is available from the more complex species of Lychnophora to examine for infraspecific variation. Additional samples of Piptolepis species will be obtained.

The initial phase of the study will focus on isolation and identification of as many of the flavonoids as possible relying heavily on the bulk samples. This will allow accumulation of a large number of authentic samples which when supplemented by flavonoids available from commercial and other sources may be used for co-chromatographic analyses in later phases of the study. Much of the survey work will of course be performed by 2-D paper chromatography. In

working with a large number of compounds and taxa it is not unusual for some compounds to look very similar or, conversely, differ just enough chromatographically to be designated initially as different compounds. Thin-layer co-chromatography will be used to decide which is the answer in such cases. Crawford and Dorn (1971) have discussed the significance of such problems in flavonoid surveys.

An examination of floral material will be conducted to determine the systematic potential of the floral flavonoids and whether or not detailed chemical analyses should be pursued beyond the initial survey. In some instances floral patterns have been shown to distinguish between taxa with otherwise identical leaf patterns (e.g. Giannasi, 1975). Although fewer collections of floral material are available, a number of representative samples have been obtained.

4. Morphological Work and Field Collecting.

There is a primary division of labor in the proposed investigation in that the morphological studies and field work are being carried out by Dr. S. B. Jones and associates at the University of Georgia while the chemical work will be performed by myself at Randolph-Macon College. For this reason, funding is requested in the present proposal only for the chemical work. I will make several trips to the University of Georgia for consulting purposes and to obtain additional leaf material from greenhouse grown collections and herbarium specimens.

The University of Georgia group have made several recent collecting trips to Brazil to collect Vernoniace taxa including Lychnophora and Haplostephium and additional trips are planned. In the most recent trip (Sept-Oct, 1980) over 600 collections were made. In addition several important contacts in Brazil have been made who have provided assistance and collections of a number of Vernoniace taxa (Prof. J. P. Carauta, Research Associate, FEEMA-DECAM; Dra. E. F. Guimarães, Head, Systematic section; Dra. G. M. Barroso, Senior Taxonomist and Brazilian Specialist in the Compositae; V. F. Ferreira, Collector; G. Martinelli, Collector, Jardim Botânico do Rio de Janeiro).

5. Progress to Date.

A preliminary chromatographic survey of eleven species of Lychnophora, three species of Piptolepis and Haplostephium passerina (total, 55 collections) has been performed. Fifteen of the approximately 50 flavonoids detected have been isolated and examined spectroscopically including: apigenin 7-O-glucoside, luteolin 7-O-glucoside, an apigenin 6-C-glycoside, an apigenin 6,8-C-diglycoside, a luteolin 6-C-glycoside, quercetin 3-O-glucoside, a quercetin 3-O-diglycoside, a kaempferol 3-O-glycoside, quercetin 3-methyl ether, quercetin 3'-methyl ether, quercetin 3,3'-dimethyl ether, quercetin 3,3',4'-trimethyl ether, kaempferol 3-methyl ether, apigenin 7-O-methyl ether, and luteolin 7-O-methyl ether.

The preliminary leaf flavonoid survey suggests the following:

- 1) Haplostephium, Lychnophora and Piptolepis have generic chemical profiles (Table I). In addition to the differences suggested in the table there are believed to be significant differences between these genera in specific

glycosides and methoxylation patterns. The *Piptolepis* species examined have comparatively simple profiles producing five methoxylated flavonols and a single glycoflavone; O-glycosylation may not occur in this group. 2) The species examined have their own distinct flavonoid profiles including some species that are very similar morphologically (e.g. *Lychnophora diamantinana* and *L. heterotheca*). 3) The preliminary flavonoid data in general seems to support the revisionary treatment of *Lychnophora* by Coile and Jones (in press); however, *Lychnophora reticulata* was excluded from that genus and tentatively referred to *Piptolepis*. Chromatographic spot patterns suggest that *L. reticulata* may not be referable to *Piptolepis* but its relationships remain unclear. Structural identification of flavonoids in all taxa should aid in clarifying this problem. 4) Most of the species have not yet been analyzed in sufficient detail to comment on the significance of infraspecific variation. A number of specimens of *Lychnophora ericoides* from different geographic areas, however, have been examined by 2-D paper chromatography. In this species three variations of outer pappus can be distinguished and it was suggested by Coile and Jones (1981, in press) that on further study outer pappus characteristics might be useful in separating three infraspecific taxa. A conservative approach was taken because measurements of other characters overlapped. There also appears to be little geographic correlation in these characters. In prior treatments this taxon had been separated into a number of species and varieties. The available data suggests that *L. ericoides* is variable in flavonoids but these variations appear to be sporadic and do not correlate well with morphological features; nor do there appear to be geographic correlations. The initial flavonoid survey, therefore, seems to support the conservative treatment of this taxon by Coile and Jones (in press). 5) Interspecific variation appears to be correlated geographically in the genus *Lychnophora* to the extent that species with limited distributions in the state of Minas Gerais tend to have comparatively simple chromatographic profiles while those with wider geographic distributions produce larger numbers of compounds. As more specimens are examined and structural elucidation of compounds is completed additional geographic or morphological correlations may become evident. 6) Mabry et al. (1975) found that in *Vernonia*, taxa judged to be morphologically "advanced" contain simple flavonoid profiles. It was suggested that advanced taxa will tend to have relatively fewer and structurally simpler compounds. This relatively "straightforward" pattern probably does not occur in *Lychnophora*. *Lychnophora* species containing fewer compounds (total) may be either "primitive" or "advanced" as judged by morphological criteria. The preliminary data suggests that there are five major flavonoid systems in *Lychnophora*: 1) methoxylation of flavones, 2) methoxylation of flavonols, 3) O-glycosylation of flavones, 4) O-glycosylation of flavonols and 5) C-glycosylation of flavones. Based on preliminary comparisons of the species the hypothesis is proposed that flavonoid evolution in *Lychnophora* involved diversification in the first four systems accompanied by a reductionary trend in C-glycoflavones.

The genus *Lychnophora* is remarkable for its morphological adaptation to fire and xeric habitats and for its elaborate speciation in a limited geographic area (Coile and Jones, in press). Species of *Lychnophora* (also *Piptolepis* and *Haplostephium*) are found in specialized campo rupestre habitats which occur as isolated units in a larger area of upland vegetation called Cerrado. Much of the flora of campo rupestre is endemic to these areas and it exhibits convergent evolution (Eiten, 1978). The parent rock material, soil characteristics and moisture regimes may vary greatly over a short geographic distance. These salient features must be considered when formulating phylogenetic interpretations of morphological and chemical data.

Timetable

June 1, 1982 - May 1983. Isolation and Identification of the flavonoids of Lychnophora species. The initial phase of this study will focus largely on isolation and identification of flavonoids from the bulk samples of Lychnophora. Initiate survey of Lychnophora species.

June, 1983 - May, 1984. Continue Survey of Lychnophora species. Isolation and identification of flavonoids from Haplostephium passerina and Piptolepis species using bulk samples. Begin survey of Haplostephium passerina and Piptolepis species.

June, 1984 - May 1985. Continue isolation and identification of flavonoids as needed. Completion of survey. Analysis of data and preparation of manuscripts.

Facilities and Equipment

1. Equipment for chemical studies: My research laboratory at Randolph-Macon College has adequate space and contains a fume hood, a UV-VIS spectrophotometer, a rotary evaporator, a Desage spreader for TLC, a TLC developing tank, two chromatocabs for paper chromatography, a large chromatographic jar assembly, a pH meter, an analytical balance, a hot plate/stirrer, a table top centrifuge, a small water bath, a U.V. lamp and a Waring blender. NMR facilities are available in the Chemistry department as well as a gas chromatograph and arrangements have been made to use these facilities.
2. Additional supporting equipment and facilities available in the Biology Department of Randolph-Macon College include: a completely equipped darkroom, a water still, a deionized water source, a small herbarium, a refrigerated high speed centrifuge, a greenhouse and a large walk-in growth chamber. In addition, a completely equipped wood-working shop and a metal-working shop are shared with the Chemistry and Physics departments.
3. Computer Facilities: The computer facility at Randolph-Macon College is new (1980) and was obtained by RMC through a grant to replace the older outdated system. Computer time and staff assistance for RMC faculty are free of charge. "Canned" computer programs for cladistic analysis, Wagner trees and UPGMA are available.
4. Plant Material: Samples of Haplostephium passerina, all species of Lyncophora and three species of Piptolepis (Total, 300 collections) are presently available from herbarium collections and from previous field work by Jones, Stutts, MacLeish and Smith. Additional Piptolepis collections will be obtained during the course of the on-going revisionary work at the University of Georgia. Large bulk samples (ca one kg each) of Haplostephium passerina, five species of Lyncophora and one species of Piptolepis are available for analysis.

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PROPOSAL BUDGET

First Year Budget: June 1, 1982 -May 31, 1981A. Salaries and Wages

- | | |
|--|---------|
| 1. Principal Investigator | \$ 4000 |
| Bruce L. King, Randolph-Macon College | |
| 2. Associate Investigator | |
| Samuel B. Jones, University of Georgia | ----- |

TOTAL WAGES AND SALARIES

 \$ 4000
B. Permanent Equipment

- | | |
|---|---------|
| 1. Wiley Mill | \$ 800 |
| 2. Vacuum Pump, Precision | \$ 1200 |
| 3. Refrigerator, Laboratory, Fischer | \$ 1200 |
| 4. Shaker, Flask, New Brunswick Scientific | \$ 2200 |
| 5. Solvent Assemblies (2), hardware & lumber for
four chromatocabs (locally built) | \$ 2000 |
| 6. TLC tanks (3), dessicant chamber, racks | \$ 500 |
| 7. Rotary evaporator, Buchler | \$ 1500 |
| 8. Cooling & Circulating Pump, Lauda K4-R | \$ 2000 |
| 9. Drying oven, Precision | \$ 1200 |

TOTAL PERMANENT EQUIPMENT

 \$12600
C. Expendable Supplies and Equipment

- | | |
|---|---------|
| 1. Chromatographic supplies, chemicals, glassware | \$ 4500 |
| 2. Photographic supplies & xerox | \$ 250 |

TOTAL EXPENDABLE SUPPLIES AND EQUIPMENT

 \$ 4750
D. Travel (Domestic)

- | | |
|--|---------|
| 1. Consulting with Dr. Samuel B. Jones (UGA) | \$ 1000 |
| 2. To scientific meetings | \$ 500 |

TOTAL TRAVEL

 \$ 1500
E. Publication Costs

 \$ 400

F.	<u>Computer Costs</u> (RMC Library, On Line Search Service)	\$ 150
	TOTAL DIRECT COSTS	\$23400
G.	<u>Indirect Costs</u> (70.7% of Salaries & Wages)	\$ 2828
	TOTAL COSTS	\$26228

PROPOSAL BUDGET

Second Year Budget: June 1, 1983-May 31, 1984A. Salaries and Wages

1. Principal Investigator

Bruce L. King, Randolph-Macon College \$ 4280

2. Associate Investigator

Samuel B. Jones, University of Georgia -----

TOTAL WAGES AND SALARIES

\$ 4280

B. Permanent Equipment -----C. Expendable Supplies and Equipment

1. Chromatographic supplies, chemicals, glassware

\$ 4100

2. Photographic supplies and xerox

\$ 250

TOTAL EXPENDABLE SUPPLIES AND EQUIPMENT

\$ 4350

D. Travel (Domestic)

1. Consulting with Dr. Samuel B. Jones (UGA)

\$ 1000

2. To scientific meetings

\$ 500

TOTAL TRAVEL

\$ 1500

E. Publication Costs

\$ 400

F. Computer Costs (RMC Library, On Line Search Service)

\$ 150

TOTAL DIRECT COSTS

\$10680

G. Indirect Costs (70.7% of Salaries & Wages)

\$ 3026

TOTAL COSTS

\$13706

PROPOSAL BUDGET

Third Year Budget: June 1, 1984-May 31, 1985A. Salaries and Wages

1. Principal Investigator

Bruce L. King, Randolph-Macon College \$ 4580

2. Associate Investigator

Samuel B. Jones, University of Georgia -----

TOTAL WAGES AND SALARIES

\$ 4580

B. Permanent Equipment -----C. Expendable Supplies and Equipment

1. Chromatographic supplies, chemicals, glassware

\$ 4000

2. Photographic supplies and xerox

\$ 250

TOTAL EXPENDABLE SUPPLIES AND EQUIPMENT

\$ 4250

D. Travel (Domestic)

1. Consulting with Dr. Samuel B. Jones (UGA)

\$ 1000

2. To scientific meetings

\$ 500

TOTAL TRAVEL

\$ 1500

E. Publication Costs

\$ 800

F. Computer Costs (RMC Library, On Line Search Service)

\$ 150

TOTAL DIRECT COSTS

\$11280

G. Indirect Costs (70.7% of Salaries & Wages)

\$ 3238

TOTAL COSTS

\$14518

TOTAL BUDGET (Years 1, 2 and 3) \$54452

SEE INSTRUCTIONS ON
REVERSE BEFORE
COMPLETING

Cumulative Budget SUMMARY PROPOSAL BUDGET

FOR NSF USE ONLY		
PROPOSAL NO.	DURATION (MONTHS)	
	Proposed	Granted
AWARD NO.		

ORGANIZATION
Randolph-Macon College
PRINCIPAL INVESTIGATOR/PROJECT DIRECTOR

Bruce L. King

A. SENIOR PERSONNEL PI/PO, Co PI's, Faculty and Other Senior Associates
(List each separately with title, A.6. show number in brackets)

NEED PERSON MOS.	FUNDS REQUESTED BY PROPOSER	FUNDS GRANTED BY NSF (IF DIFFERENT)
CAL	ACADSUMR	

1. Bruce L. King, PI, Assistant Professor of Biology
2. Samuel B. Jones, Co-investigator (unfunded) Univer. Ga.

	6	\$ 12860	\$
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3.
4.
5. () OTHERS (LIST INDIVIDUALLY ON BUDGET EXPLANATION PAGE)

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6. () TOTAL SENIOR PERSONNEL (1-5)

	6	12860	
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B. OTHER PERSONNEL (SHOW NUMBERS IN BRACKETS)

1. () POST DOCTORAL ASSOCIATES

2. () OTHER PROFESSIONALS (TECHNICIAN, PROGRAMMER, ETC.)

3. () GRADUATE STUDENTS

4. () UNDERGRADUATE STUDENTS

5. () SECRETARIAL CLERICAL

6. () OTHER

TOTAL SALARIES AND WAGES (A+B)

C. FRINGE BENEFITS (IF CHARGED AS DIRECT COSTS)

TOTAL SALARIES, WAGES AND FRINGE BENEFITS (A+B+C)

D. PERMANENT EQUIPMENT (LIST ITEM AND DOLLAR AMOUNT FOR EACH ITEM EXCEEDING \$1,000;
ITEMS OVER \$10,000 REQUIRE CERTIFICATION)

1. Wiley Mill \$800	6. TLC Tanks (3), dessicant chamber, racks \$500
2. Vacuum Pump \$1200	7. Rotary Evaporator \$1500
3. Refrigerator \$1200	8. Cooling + Circulating pump \$2000
4. Shaker, Flask \$2200	9. Drying oven \$1200
5. Solvent Assemblies, Hardware, Chromato-cabs \$2000	

E. TRAVEL 1. DOMESTIC (INCL. CANADA AND U.S. POSSESSIONS)
2. FOREIGN

F. PARTICIPANT SUPPORT COSTS

1. STIPENDS \$
2. TRAVEL
3. SUBSISTENCE
4. OTHER

TOTAL PARTICIPANT COSTS

G. OTHER DIRECT COSTS

1. MATERIALS AND SUPPLIES
2. PUBLICATION COSTS/PAGE CHARGES
3. CONSULTANT SERVICES
4. COMPUTER (ADPE) SERVICES RMC On Line Literature Search Service
5. SUBCONTRACTS
6. OTHER

TOTAL OTHER DIRECT COSTS

H. TOTAL DIRECT COSTS (A THROUGH G)

I. INDIRECT COSTS (SPECIFY)

70.7% of Salaries and Wages, Rate as directed by Treasurer, Randolph-Macon College.

TOTAL INDIRECT COSTS

J. TOTAL DIRECT AND INDIRECT COSTS (H + I)

K. RESIDUAL FUNDS (IF FOR FURTHER SUPPORT OF CURRENT PROJECTS GPM 252 AND 253)

L. AMOUNT OF THIS REQUEST (J) OR (J MINUS K)

PI/PO TYPED NAME & SIGNATURE

DATE

INST. REP. TYPED NAME & SIGNATURE

DATE

FOR NSF USE ONLY

INDIRECT COST RATE VERIFICATION

Date Checked Date of Rate Sheet Initials - DGC

Program

Explanation of Budget

1. Salaries, Wages and Fringe Benefits

Money is requested for summer salary of the principal investigator for 2/9 of the academic year salary, based on projected academic year salaries for 1982-83, 1983-84 and 1984-85 (7% per year increase). Fringe benefits No funding is requested for Dr. S. B. Jones.

2. Permanent Equipment

- a. Wiley Mill - The large amount of plant material to be examined must be ground to facilitate extraction of flavonoids, consequently, funding is requested for a Wiley Mill.
- b. Chromatocabs - Funding is requested for glassware assemblies, hardware and lumber for four chromatocabs for 2-D paper chromatography. The chromatocabs would be built in the RMC woodworking shop. The two small chromatocabs presently available would be insufficient for the large numbers of chromatograms that must be run in a project of this size.
- c. Shaker (Flask) - To facilitate extractions of plant material and the elution of flavonoids from paper after chromatography a shaker is required and funds are requested for this item.
- d. Evaporation System - Funding is requested for a rotary evaporator, cooling pump and a vacuum pump. At present one old rotary evaporator is available but the efficiency of the project would be greatly increased by the availability of a second evaporator. A large number of plant extracts will need to be evaporated as well as large numbers of fractions from columns. The efficiency of the evaporators themselves would be improved through a cooling pump especially during the summer months when the tap-water temperature is too high for efficient functioning of the system. The vacuum pump is required as an adjunct to the evaporative system especially for such treatments as preparation of flavonoid derivatives for NMR or sugar derivatives for GC since their preparation requires anhydrous conditions.
- e. Laboratory Refrigerator - The refrigerator is requested for storage of enzymes, small quantities of specialized volatiles, plant extracts, chromatography standards etc. There are only two refrigerators in the Biology Department and one is used for Biohazardous materials and the other for storage of department fine chemicals.
- f. Drying Oven - Funding for a drying oven with thermostatic temperature control is requested for drying of chromatograms, activation of TLC plates, incubation of reaction mixtures etc. Up to this point an old drying oven has been used for these purposes but the lack of accurate temperature control has caused difficulty in obtaining optimal results and the oven receives considerable student use.

- g. TLC tanks, dessicant chamber, racks - The proposed project would require a large amount of thin-layer chromatography especially for co-chromatography of flavonoids. I have in my laboratory the necessary equipment for spreading TLC plates, however, only one TLC developing tank is available. Funds are requested for two additional tanks and a storage rack. In addition a dessicant chamber for TLC plates will be necessary.

3. Expendable Supplies and Equipment

The prices of glassware, chemicals and chromatographic supplies have increased drastically over the past few years. The request reflects as much as possible an accurate estimate of the amount of supplies needed for the project and the cost of supplies based on current prices. Included in the request for glassware are such specialized items as chromatography columns.

4. Travel

Funding for three trips to the University of Georgia are requested for consulting purposes and to obtain leaf samples from herbarium specimens and from greenhouse grown material. Travel Funds are also requested so that the P.I. can attend A.I.B.S. meetings to present aspects of the chemical work.

5. Publication Costs

The amount requested for the first two years will cover page costs for publication of preliminary data on the identification of flavonoids in recognized phytochemical journals. The larger amount requested for the third year will subsidize the publication of the total results in a suitable journal such as Brittonia.

6. Indirect Costs

These are computed as 70.7% of Wages and Salaries as directed by the financial officer of Randolph-Macon College.

Other Grant Support

The preliminary study was supported by a supplement to NSF Grant DEB-7909831, amend. 02 to Dr. S. B. Jones at the University of Georgia during the Summer of 1981. The chemosystematic research is not currently supported by grant funds from the National Science Foundation or from other sources.

VITAE

Name: Bruce L. King

Date of Birth: October 9, 1943

Place of Birth: Hattiesburg, Mississippi

Marital Status: Single

Education: B. S. 1967, University of Southern Mississippi,
Major: Biology, Minor: Chemistry
M.S. 1971, University of Georgia, Botany
Ph.D., 1975, University of Georgia, Botany

Grants:

NSF Grant (GB 35480) for Improvement of Doctoral Dissertations. 1972. \$1900.
Rhododendron reserach.

Callaway Foundation Grant, for disserational research. 1972. Rhododendron
research. \$2400.

Shell Grants (Randolph-Macon College), Summer, 1976 and 1977. \$400. Rhododendron
Research.

NSF (ISEP) Grant (SER 78-14647). Improved Instrumentation for Cell Biology.
1978. \$8900.

Additional Grant Support:

NSF Support for Small College Faculty through grants at Large Institutions.
Summer, 1980. Chemosystematics of Vernonia series Flexuosae. \$6000. Summer,
1981. Flavonoid Chemistry of Lychnophora. \$9000. Supplements to NSF Grant
DEB-7909831 to Dr. Samuel B. Jones, University of Georgia.

Publications:

King, Bruce L., F. C. Galle and S. B. Jones. 1972. A chemical technique applied
to the study of our native azaleas. Quart. Bull. Amer. Rhod. Soc. 26:275-276.

King, Bruce L. and S. B. Jones. 1975. The Vernonia lindheimeri complex
(Compositae). Brittonia 27:74-86.

Mabry, T. J., Sakakibari, M. and Bruce L. King. 1975. Asebotin and its
aglucone from three species of Rhododendron. Phytochemistry 14:1448-1450.

King, Bruce L., S. B. Jones and F. C. Galle. 1975. The Flavonoid chemistry
of our native azaleas: Uses in classifications. Quart. Bull. Amer. Rhod.
Soc. 29:179-182.

King, Bruce L. 1977. The Flavonoids of the deciduous Rhododendron of North
America. Amer. J. Botany 64:350-360.

King, Bruce L. 1977. Flavonoid analysis of hybridization in Rhododendron
section Pentanthera (Ericaceae). Systematic Botany 2:14-27.

King, Bruce L. 1980. The systematic implications of flavonoids in Rhodendron
subgenus Pentanthera. IN: James L. Luteyn and Mary E. O'Brien (eds.),
Contributions Toward a Classification of Rhododendron. Proceedings
International Rhododendron Conference, May 15-17, 1978, New York Botanical
Garden, pp. 163-186.

King, Bruce L. and S. B. Jones. Submitted, Bull. Torr. Bot. Club. Chemosystematics of Vernonia series Flexuosae (Vernonieae: Compositae).

Presentations of Papers:

- 1971. The systematics of the Vernonia lindheimeri complex. Association of Southeastern Biologists, Richmond, VA.
- 1972. The Vernonia lindheimeri complex. A.I.B.S., American Society of Plant Taxonomists, Minneapolis.
- 1974. Systematic implications of the flavonoids in Rhododendron subgenus Pentanthera. Association of Southeastern Biologists, Savannah, Ga.
- 1974. Flavonoids in Rhododendron subgenus Pentanthera. A.I.B.S., American Society of Plant Taxonomists, Tempe, Arizona.
- 1978. The systematic implications of flavonoids in Rhododendron subgenus Pentanthera. International Rhododendron conference, May 15-17, New York Botanical Garden.
- 1981. The flavonoid systematics of Vernonia series Flexuosae (Vernonieae: Compositae). Association of Southeastern Biologists, Knoxville, TN.

Employment Experience:

- 1961-1966 Forest Farms, Merchants Company, Hattiesburg, MS.
- 1967-1969 U.S. Army, Sergeant.
- 1969-1971 University of Georgia, Biology Teaching Assistant.
- 1971-1974 University of Georgia, Botany Teaching Assistant.
- 1975 University of Georgia, Instructor, Botany.
- 1975-Present Assistant Professor, Biology, Randolph-Macon College, Ashland, VA.

Courses Currently Taught at Randolph-Macon College:

(Academic Calendar: Fall Term, Spring Term, May Short Term)
 General Biology
 Genetics and Developmental Biology (Team Taught with A. Conway)
 Cell Biology
 Local Flora (short term)

Courses Previously Taught at Randolph-Macon College:

Plant Taxonomy
 General Botany
 Genetics
 Biosystematics
 Bioethics (short term)
 Tropical Biology (short term, field course in Jamaica, with J. I. McClurkin).
 Instrumentation in Biology (short term)

Special Training: Three weeks training in Dr. Tom J. Mabry's Phytochemical Laboratory at the University of Texas learning the techniques for isolation and identification of flavonoids.

Botanical Collecting Experience:

- Sept. 1970. Mississippi with Dr. S. B. Jones for Mississippi Flora Project.
 Aug. 1970, 1971. Arkansas, Mississippi, Louisiana, Texas and Mexico for *Vernonia* with Dr. G. Chapman.
 Sept. 1972. Pine Mt., Georgia with Dr. S. B. Jones for Flora of Pine Mountain.
 Spring, 1973 & 1974. South Carolina, Georgia, Alabama, Mississippi, Louisiana, east Texas, Oklahoma for *Rhododendron* specimens.
 Spring, 1977 & 1978. Virginia, West Virginia, Pennsylvania, Tennessee, North Carolina, South Carolina, Kentucky collecting *Rhododendron* specimens.
 Jan, 1979. Jamaica, collecting for field course, Tropical Biology with Dr. J. I. McClurkin.
 1979-1981. Collecting for floristic study, Little River, Hanover Co., VA.

Professional Associations:

Sigma Xi; Botanical Society of America; American Society of Plant Taxonomists; Southern Appalachian Botanical Club; Association of Southeastern Biologists; Virginia Academy of Science.

Committee Service at Randolph-Macon College:

Committee on Activities and Special Events. 1978-1980.
 Scholarship and Financial Aid Committee (Secretary). 1978-
 Teacher Preparation Committee. 1978-

Courses taken at University of Southern Mississippi:

Bacteriology	Ichthyology
Protozoology	Biogeography
Genetics	Principles of Nomenclature
Macroscopic Invertebrates	General Botany
Comparative Anatomy	General Biology
Ecology	Plant Morphology
Embryology	General Chemistry
Histology	Organic Chemistry
Microtechnique	Analytical Chemistry
Local Flora	Plant Anatomy

Courses Taken at the University of Georgia:

Molecular and Cellular Biology	Statistics
Cytology	Calculus
Biosystematics	North American Physiography
Plant Genetics	Spanish: Techniques in Translation.
Cytogenetics	Evolution
Community Ecology	Nonvascular Plants
Vascular Palnts	Taxonomy of Seed Plants
Plant Physiology	

Samuel B. Jones, Jr.

Professor of Botany, and Director of the Botanical Garden at the University of Georgia, Dr. Jones received his B.S. (1955) and M.S. (1961) from Auburn University and the Ph.D. from the University of Georgia (1964). He has been at the University of Georgia since 1967. From 1964 to 1967, Dr. Jones was an Assistant Professor at the University of Southern Mississippi.

Dr. Jones' research has dealt with the systematics of the tribe Vernonieae of the Compositae Family. In addition, he has published a series of papers on the Flora of Mississippi and is Director of the University of Georgia Herbarium. Dr. Jones has authored or co-authored over 95 journal papers and book chapters. He is the senior author of a taxonomy textbook, Plant Systematics, published in 1979 by McGraw-Hill Book Company.

He is a member of the Association of Southeastern Biologists, Botanical Society of America, American Society of Plant Taxonomists, Southern Appalachian Botanical Club, New England Botanical Club, Torrey Botanical Club, Phi Beta Kappa, Phi Kappa Phi, Sigma Xi, and Gamma Sigma Delta. Since 1966, ca. \$300,000 in grant funds have been awarded to projects directed by Dr. Jones.

The University of Georgia

BOTANY DEPARTMENT • Athens, Georgia 30602 • TEL. 404 542-3732

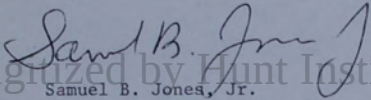
September 1, 1981

Systematic Biology Program
National Science Foundation

Re: Dr. Bruce L. King

It has been my pleasure to work with Dr. King for over 15 years, first as an undergraduate and later to direct his graduate work. Bruce has a strong work ethic and puts in long hours in the lab. His work on the flavonoids of Rhododendron has been widely cited. Having worked on Vernonia for his M.S. degree and on the tribe Vernonieae for the past two summers, he is competent to tackle the problems outlined in this proposal.

The Vernonieae group at Georgia is active and we consider Bruce an important and vital member of our team. The focus of his proposal can provide information essential to our systematic studies. We intend to cooperate in every possible way.



Samuel B. Jones, Jr.

Professor and Director of
the Botanical Garden

Digitized by Hunt Institute for Botanical Documentation

357-2545

March 19, 1981

Dr. Joe Kirkbride
Departamento de Biologia
Instituto de Bio-Ciencias
Universidade de Brasilia
Brasilia, D. F., Brasil

Dear Joe:

Enclosed please find copies of Phytologia that you requested for your herbarium library. If you need others, please let me know which genera are involved.

Thanks to you and Christina for all your help and advice while at the herbarium. Earl and I really enjoyed having dinner with you.

The rest of the trip went very well. All of our specimens arrived in good condition and most have already been identified. We have three new genera and a number of new species of Compositae. After the labels are printed and typed, we will be sending you your set for Brasilia.

Please give my best regards to George.

Sincerely,

Robert M. King
Department of Botany

Enclosures

357-2545

June 10, 1982

Dr. Siro Kitamura
Department of Botany
Faculty of Science
Kyoto University
Kyoto City, 15 Tanaka
Higashitakahara-cho, Sakyo-ku
Japan

Dear Dr. Kitamura:

I am writing to inquire if you still have copies of your *Compositae Japonicae* available. I believe that a copy was sent earlier to Dr. E. H. Walker, who has been long retired. The result is that your great important work is not easily available to me.

I would appreciate any assistance that you might offer.

Thanking you in advance.

Very sincerely,

Robert M. King
Department of Botany

RMK;cap

UNITED STATES DEPARTMENT OF AGRICULTURE
AGRICULTURAL RESEARCH SERVICE
NORTHEASTERN REGION
AGRICULTURAL RESEARCH CENTER
BELTSVILLE, MARYLAND 20705

August 20, 1976

Subject: Insect Identification

To: Dr. R. M. King, C/O Department of Botany
Museum of Natural History
Smithsonian Institute, Washington, D. C.

The enclosed list of identifications is a partial report on the material submitted in May 1976.

These identifications have been provided by our research scientists of the Systematic Entomology Laboratory, IIBIII, unless otherwise stated. As additional determinations become available, we will report again.

Lloyd Knutson / *Lmk*
Lloyd Knutson, Chairman
Insect Identification and Beneficial
Insect Introduction Institute

Enclosure

COLEOPTERA

Elaeteridae		
6631	Agriotes sp.	1
6639	Genus near Eanus	1
	Determined by T. J. Spilman	
Chrysomelidae		
6686	Omophoita sp., not in USNM	4
6691	" " "	
6679	Genus nr. Euphytrus	1
6609	Diabrotica sp., nr. quidecimpunctata	1
	Germer	
6715	near Diabrotica	1
6686	Diabrotica sp., nr. lebasii Baly	2
6642	Diabrotica sp., not in USNM	3
6552	Nodonota sp.	1
6567	Genus near Nodonota	3
6568	" " "	
6682	Chaetocnema sp.	1
6681	Strabala or nr.	1
6680	probably Altica sp.	1
6682	Chaetocnema sp.	1
6504, 6697,	Trichaltica sp.	6
6554, 6541,	" " "	
6517, 6505	" " "	
	Determined by R. E. White	

DIPTERA

Cecidomyiidae		
6610	Contarinia sp.	1
Mycetophilidae		
6682	Mycomya sp.	1
6679	Leia sp.	1
Sciaridae		
6503	Genus sp. ?	1
6681	Genus sp. ?	2
6735	Genus sp. ?	1
6679	Genus sp. ?	1
6610	Genus sp. ?	1
6605	Rhynchosciara sp.	1
Muscidae		
6735	Coenosia sp.	1
6621	" "	2
6505	Fannia sp.	2
6729	Helina sp.	1
Sarcophagidae		
6508	Andinoravinia rufipes Townsend	1
6608	" " " "	1
6505	" " " "	2
6616	" " " "	1
6679	" " " "	1
	Determined by R. J. Gagné	

DIPTERA

Empididae		
6515	Drapetis sp. Determined by L. Knutson	3
Tachinidae		
6511	Microphthalma sp.	1
6517	Ptilodexia sp.	1
6682	Archytas sp.	1
Chloropidae		
6621	Hippelates australis Fabr.	2
6504	Hippelates aequatorialis Beck.	1
6505	" " " "	2
6639	Hippelates selectus Beck.	1
6500	Hippelates sp.	1
6682	Elachiptera (Melanochaeta) sp.	1
6616	Conioscinella sp.	1
6511	Oscinella sp.	2
6616	" "	
6682	Oscinella sp.	1
Anthomyzidae		
6682	Mumetopia n. sp. Determined by C. W. Sabrosky	1
Lauxaniidae		
6682	Camptoprosopella sp.	2
Heleomyzidae		
6595	Prosopentrum n. sp. Determined by G. Steyskal	1
Dolichopodidae		
6545	Sciapus sp.	1 ♂
6682	Genus sp. ?	1 ♀
6505	Genus sp. ? Determined by F. C. Thompson	1 ♀
Syrphidae		
6507	Eristalis bogotensis Macquart	1 ♀
6621	Carposcalis sp.	1 ♂
6729	Tuberculanostoma sp.	1 ♀
6568	Toxomerus sp. Determined by F. C. Thompson	1 ♀
Phoridae		
6735	Megaselia sp.	1
6511	Drosophila spp.	20
6709, 6517,	" " "	
6522, 6679,	" " "	
6594, 6532,	" " "	
6729, 6508,	" " "	
6509, 6620,	" " "	
6680, 6507,	" " "	
6621, 6609	" " "	
6609	Scaptomyza sp. Determined by W. W. Wirth	1

DIPTERA

Page 3

	Ceratopogonidae	
6500	Atrichopogon sp.	2
6511	Forcipomyia sp.	3
6735	" " "	

	Chironomidae	
6681	Gen. & spp.?	1
6500	" "	2
6511, 6532,	" "	13
6680, 6735,	" "	
6564, 6503,	" "	
6508, 6681,	" "	
6729, 6620	" "	

Determined by W. W. Wirth

HEMIPTERA-HOMOPTERA

	Cicadellidae	
Vial 6680	Sp. of Cicadellini	1 nymph
6663	Tettigella crassa (Walker)	1
6541	Amblyscarta latercula (Breddin)	1
6515	Empoasca sp.	1 ♀, 1 nymph
6642	Empoasca sp.	2 ♀♀
6514	Empoasca sp.	3 ♀♀ damaged
6679	Agalliopsis sp.	1 nymph
6639	Gypona sp.	1 ♀
6507	Graminella sp.	1 ♀
6500	Paratanus sp.	1 ♀
6735	Yungasia sp.	1
	Delphacidae	
6504	Delphacodes sp.	1
	Membracidae	
6697	Polyglypta sp.	1
6561	Cyphonia sp.	1
6691	Micrutalis sp.	1
6514	Genus, sp. ?	1 nymph
	Cercopidae	
6715	Tomaspis sp.	1
6642	Tomaspis sp.	1

Determined by J. P. Kramer

HYMENOPTERA

	Ichneumonidae	
6505	Leipeulus sp.	1 ♀, 2 ♂
6515, 6609	" "	
	Determined by R. W. Carlson	

	Platygastridae	
6735, 6511	Proplatygaster spp.	2
6609, 6517	Synopeas sp.	16
6503, 6504,	" "	
6509, 6697,	" "	
6710	" "	
6517	Platygaster sp.	1
	Determined by P. M. Marsh	

HYMENOPTERA

	Scelionidae	
6575,6682	Telenomus spp.	2
6545	unknown genus	1
	Diapriidae	
6567	Trichopria sp.	1
	Braconidae	
6681	Bracon sp.	1
6616,6609,	Dapsilarthra sp.	3
6715	" " "	

Determined by P. M. Marsh

	Cynipidae	
6729	Alloxysta (=Charips) sp.	1
6715	Genus sp. ?	3
6508,6680	Genus in Eucollinae	
6517	Genus sp. ?	1
6681	Alloxysta (=Charips) sp.	1
6511	Genus in Eucollinae	1

Determined by A. S. Menke

	Formicidae	
6684	Odontomachus sp.	1 ♀
6575	Camponotus sp.] same species	1 worker
6572	Camponotus sp.] same species	1 worker

Determined by D. R. Smith

NEUROPTERA

	Hemerobiidae	
6538	Genus ?	2 larvae

Determined by O. S. Flint, USNM

COLEOPTERA

	Staphylinidae	
6631,6515	No taxonomist available	4 returned
6515,6647	" " " "	

ORTHOPTERA

	Tridactylidae	
6511	No taxonomist available	1 returned
6686	Vial broken when received, specimen not found	
6564	Specimen missing from point, date pin returned	

ACARINA

Erythraeidae

#6500	Leptus sp.	kept
6610	Balaustium sp.	kept
6697	No specimens found	
	Determined by E. W. Baker	

COLEOPTERA

Nitidulidae

#6715	Cnips sp.	1
6554	Conotelus mexicanus Murr.	1
6566	Conotelus mexicanus Murr.	2
6686	Conotelus mexicanus Murr.	1
6691	Conotelus mexicanus Murr.	1
6551	Conotelus sp.	2
	Determined by W. A. Connell, Cooperating Scientist, SEL	
	Beneficial Insect Research Laboratory, Newark, Delaware	

Rhizophagidae

6647	Hesperobaenus sp.	1
	Determined by J. M. Kingsolver	

Coccinellidae

#?	Scymnus (Pullus) sp.	4
	Determined by R. D. Gordon	
	Note: Incorporated into the National Museum	
	Collection before numbers were given, and is	
	now unable to find them.	

DIPTERA

Tipulidae

6503	Molophilus sp.	1 ♀
6557	Limonia (Geranomyia) sp.	1 ♀
6679	Limonia (Dicranomyia) sp.	1 ♂
	Determined by G. W. Byers, Cooperating Scientist, SEL	
	University of Kansas, Lawrence, Kansas	

HEMIPTERA-HOMOPTERA

Aphididae

6500	Myzus ornatus Laing	1
6501	Myzus ornatus Laing	1
6522	Masonaphis sp., near goldamaryae Knowlton	1
6529	Myzus ornatus Laing	2
6575	Aphis sp.	3
6595	Capitophorus sp.	1
6641	Myzus ornatus Laing	2
	Brachycaudus helichrysi (Kltb.)	2
6647	Aphis sp.	1
	Brachycaudus helichrysi (Kltb.)	4
6709	Brachycaudus helichrysi (Kltb.)	6
6710	Brachycaudus helichrysi (Kltb.)	2
6729	Aphis sp.	2
	Myzus ornatus Laing	2
6511	Macrosiphum sp.	1 nymph
	Determined by M. B. Stoetzel	

HEMIPTERA-HOMOPTERA

	Psyllidae	
#6504	Trioza sp.	1
6505	Trioza sp.	1
6511	Trioza sp.	1
6639	Trioza sp.	4
6735	Trioza sp.	1
	Determined by M. B. Stoetzel	

HYMENOPTERA

(Plant)	Eulophidae	
Gynoxys halli	Tetrastichus sp.	1
	Eurytomidae	
Chromolaena laevigata	Eurytoma sp.	1
	Eulophidae	
Viguiera incana	Tetrastichus sp.	1
Viguiera baccharoides	Tetrastichus sp.	2
Verbena sp.	Tetrastichus sp.	1
	Pteromalidae	
Zeluzania sodiroi	Sphegigasterini sp. 1	1
Monactis hexantha	Sphegigasterini sp. 2	1
	Eulophidae	
Monactis hexantha	Tetrastichus sp.	2
	Encyrtidae	
Baccharis latifolia	Encyrtinae ? Genus	3
Veronia baccharoides	Specimen missing from pin	1
	Determined by G. Gordh	

Note: Dr. Gordh also neglected to furnish the plant numbers, but listed the plant instead.

THYSANOPTERA

	Phlaeothripidae	
6500	Idolothripinae	1 ♂
	(This subfamily feeds on fungus spores.)	
	Thripidae	
6503	Frankliniella sp. #1	4 ♀
6504	Frankliniella sp. #1	3 ♀
6528	Frankliniella sp. #2	1 ♀
6534	Frankliniella sp. #3	2 ♀
6560	Frankliniella sp. may be #1	1 ♀ (broken)
6566	Frankliniella sp., related to #1, but not the same	2 ♀
6578	Frankliniella sp., near #1	1 ♀
	Frankliniella sp., near #2 & #3 but not the same as either	2 ♀
6594	Frankliniella sp. #4	4 ♀
6595	Frankliniella sp. #4	2 ♀
	Frankliniella sp. near #1	2 ♀
6596	Frankliniella sp. near #1	1 ♀
6600	Frankliniella sp. same as above (6596)	1 ♀
	Determined by K. O'Neill	
6609	Frankliniella sp. #5	1 ♀

THYSANOPTERA (Continued)

Thripidae

6610	Frankliniella sp. near #1 & #4	1 ♀ each
6647	Frankliniella sp. ^{new} #3	1 ♀
6665	Frankliniella spp. near #4 & #3	1 ♀ each
6710	Frankliniella sp. near #3	1 ♀
6715	Frankliniella spp. near #4 & #3	2 ♀, 1 ♀
6729	Frankliniella sp. near #1	2 ♀

Note: Specimens kept too long in preservative
for best condition.

Determined by K. O'Neill

COLLEMBOLA

Entomobryidae

6689	Entomobrya nivalis Linn.	1
6686	Entomobrya portrifasciata Denis	1 (w/ nice find!)
	Drepanocyrtus sp.	1
6575	Entomobrya portrifasciata Denis	1
6500	Entomobrya atrocincta Schött	1
6554	Lepidocyrtus usitatus Folsom	3
6641	Entomobrya sp.	1
6564	Lepidocyrtus usitatus Folsom	3

Sminthuridae

6528	Bourletiella hortensis Fitch	4
------	------------------------------	---

Determined by D. L. Wray, Cooperating Scientist, SEL
Raleigh, North Carolina

357-2545

August 16, 1982

Dr. H. W. Lack
Botanischer Garten und Botanisches Museum
Berlin-Dahlem, Konigen-Luise Strasse 6-8
D-1000 Berlin 33, West Germany

Dear Dr. Lack:

Enclosed please find photographs of the following botanists:

E. Kaun, A. P. Decandolle, N. Harriman, R. Jansen, O. Huber,
D. Kaun, J. Steyermark, C. Jeffrey, L. E. Bishop, S. Mori,
O. Tovar, D. Keil, G. Nesom, D. Rindos, S. McDaniel, E. Schilling,
B. Nordenstam, V. Badillo.

I hope that this series will be a welcome addition to your
collections.

Sincerely,

Digitized by Hunt Institute for Botanical Documentation

Robert M. King
Department of Botany

RMK:cap
Enclosures

357-2545

March 5, 1981

Mr. Ming-Jou Lai
Department of Botany
Taiwan Museum
No. 2 Siangyang Road
Taipei, Taiwan
Republic of China

Dear Dr. Lai:

I am writing to thank you for having the Compositae of China sent to me. It is a very welcome addition to my library.

I have learned from Dr. Hale that you expect to visit Washington in the near future. Perhaps it will be possible to discuss my proposed trip to Taiwan with you then.

Looking forward to see you.

Sincerely,

Robert M. King
Department of Botany

Department of Botany
TAIWAN MUSEUM
NO. 2, SIANGYANG ROAD, TAIPEI, TAIWAN
REPUBLIC OF CHINA

Dr. Robert M. King
Department of Botany
NHB-166
Smithsonian Institution
Washington, D. C. 20560
U. S. A.

11 April 30, 1981

Dear Dr. King:

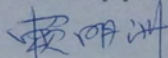
Thank you very much for your letter of March 5. I am terribly sorry to write so late, because recently I have been busy on preparing myself a rather long leave for a trip abroad. Also before I leave, some administration should be arranged for some body to take care.

Supervising the research programs and grants at the Museum, I take the pleasure to send you an application form for your planned trip to Taiwan. Probably you might like to try Pacific Cultural Foundation other than the National Science Foundation. You are welcome to be the guest of the Museum. The Project Manager is another my "brother" Dr. Nathan Y. J. Lai, and his wife was my colleague at National Taiwan University.

Owing to the complicate visa problem, I may fly straightly to Europe. Now I am waiting for an official permission from the Ministry of Education.

With all best wishes, and please extend my regards to Dr. Robinson, Doretha.

Sincerely yours,



Ming-Jou Lai

M. J. Lai
BOTANICAL MUSEUM
UNIVERSITY OF HELSINKI
Unioninkatu 44
SF-00170 HELSINKI 17
FINLAND

Dr. Bob King
Department of Botany
Smithsonian Institution
Washington, D. C. 20560
U. S. A.

July 12, 1981

Dear Dr. King:

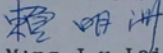
Best regards from Finland ! I am doing all right now.
Just came back from the 4th Nordic Lichen Society Excursion.
Hopefully I shall be able to go back this September to Taipei.
Now I am busy organizing the thesis.

Enclosed is a news^{about} our excursion in Kuusamo, Northern
Finland. I was visited by a reporter, since I was the only
'internationality' among the group that the participants
are all from Scandinavia. Would you please hand one to Ms
Jane Lewis ? Thank you.

In the evening we had sauna together with Dr. Santesson
from Sweden.

With best wishes, and please extend my best regards to
Dr. Robinson and Dr. Skog.

Sincerely yours,


Ming-Jou Lai

357-2545

August 10, 1981

Dr. Ming-Jou Lai
Department of Botany
Taiwan Museum
No. 2 Siangyang Road
Taipei, Taiwan
Republic of China

Dear Mr. Lai:

Thanks so much for your letter and the newspaper clippings. Your picture looked very good. I gave the copy to Jane Lewis as you suggested.

I have been looking into getting money to visit you in Taiwan. It seems that it will be more difficult than I expected, but not impossible. When you return home, perhaps you could calculate how much my expenses per day would be, not including overseas travel.

Glad to learn that everything is going well for you.

Sincerely,

Robert M. King
Department of Botany

TAIWAN MUSEUM
NO. 2, SIANGYANG ROAD, TAIPEI, TAIWAN
REPUBLIC OF CHINA

Dr. Robert M. King
Department of Botany
NHB-166
Smithsonian Institution
Washington, D. C. 20560
U. S. A.

October 1, 1981

Dear Dr. King:

Thank you very for your kind letter of August 10, and the help in send some books back for me. I also would like to thank you for the two copies of the botany textbooks that I have received.

I just got back from the long trip abroad on September 28. I have been busy keep everything running again since I got back.

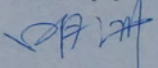
A lot of accumulated work has been waiting to do.

I was told by Dr. Heppner from his recent letter that he was granted a travel support from the Pacific Cultural Foundation to come over here working on the moths of Taiwan.

Please extend my best regards to Dr. Robinson and everybody. I have not heard any news from Jane Lewis. Has she moved to Hawaii? I hope to hear a few words from her. May be she is too busy on her checklist of the Taiwan marine algae.

With all best wishes,

Sincerely yours,


Ming-Jou Lai, Ph D
Associate Curator

357-2545

September 3, 1982

Dr. Ming-Jou Lai
Department of Botany
Taiwan Museum
No.2 Siangyang Road
Taipei, Taiwan
Republic of China

Dear Dr. Lai:

Thanks so much for your letter. I'm sorry to be so late in answering, but I needed to get some information.

I spoke with Dr. Heppner as you suggested and he answered many of my questions.

My budget for this trip will be very tight but should be enough. It will be very helpful if you can provide a vehicle and I will provide the gas.

Could you send me a list of genera and species of Compositae in Taiwan? Also, what is the best month to collect Compositae? I am planning to visit in June, 1983 but perhaps August would be best. Please let me know.

I need to emphasize that I will be on a very tight budget and will need to save money every chance possible.

Looking forward to hearing from you.

Sincerely yours,

Robert M. King
Department of Botany

RMK:cap

Department of Botany
TAIWAN MUSEUM
NO. 2, SIANGYANG ROAD, TAIPEI, TAIWAN
REPUBLIC OF CHINA

Dr. Robert M. King
Department of Botany
Smithsonian Institution
Washington, D. C. 20560
U. S. A.

September 14, 1982

Dear Dr. King:

Thank you very much for your letter of September 3.
I am so glad to hear that you shall visit Taiwan to
collect Compositae next June.

Enclosed please receive a list of all the genera
of the Compositae occur in Taiwan. For species there
is already ^acomplete taxonomical treatment on our "Flora
of Taiwan, vol. IV, 1978".

I have made a formal memorandum to the Museum about
your coming here to work with us. I think in June is
fine to collect some flowering Compositae.

With all the best wishes,

Sincerely yours,

賴明洲

Ming-Jou Lai
Associate Curator

292. VALERIANACEAE

Patrinia (3)*Triptostegia* (1)*Valeriana* (4)

293. DIPSACACEAE

Scabiosa (1)

Order Cucurbitales

294. CUCURBITACEAE

Actinostemma (1)*Pyronopsis* (1)*Gynopetalum* (1)*Gynostemma* (1)*Melothria* (5)*Momordica* (2)*Neocalamita* (1)*Thladiantha* (3)*Trichosanthes* (8)

Order Campanulatae (Asterales)

295. CAMPANULACEAE

Adenophora (5)*Campanumosa* (2)*Codonopsis* (1)*Lobelia* (5)*Peracarpa* (1)*Praia* (1)*Sphaeroclea* (1)*Wahlenbergia* (1)

296. GOODENIACEAE

Scavola (3)

300. COMPOSITAE (ASTERACEAE)

Adenostemma (2)*Ainsliaea* (6)*Anaphalis* (5)*Artemisia* (17)*Aster* (10)*Bidens* (4)*Blumea* (12)*Cacalia* (2)*Carpestium* (5)*Centipeda* (1)*Chrysanthemum* (3)*Cirsium* (12)*Coryza* (3)*Conula* (1)*Crassocephalum* (1)*Crepidastrium* (2)*Crossostephium* (1)*Dichrocephala* (1)*Echinops* (1)*Eclipta* (1)*Elephantopus* (2)*Emilia* (1)*Erechtis* (2)*Erigeron* (4)*Ethulia* (1)*Eupatorium* (8)*Farfugium* (2)*Glossogyne* (1)*Gnaphalium* (8)*Grangea* (1)*Gynura* (4)*Hemistepta* (1)*Heteropappus* (2)*Hieracium* (2)*Ixeris* (10)*Kallimeris* (2)*Lactuca* (4)*Lagenophora* (1)*Laggera* (1)*Lapsana* (1)*Leibnitzia* (1)*Leontopodium* (1)*Ligularia* (3)*Microglossa* (1)*Mikania* (1)*Myriacris* (1)*Paraixeris* (1)*Pertusa* (1)*Petasites* (1)*Pieris* (2)*Pluchea* (2)*Prenanthes* (1)*Pseudoelephantopus* (1)*Rhynchospermum* (1)*Saussurea* (5)*Senecio* (8)*Siegesbeckia* (2)*Solidago* (1)*Sonchus* (2)*Sphaeranthus* (1)*Sphaeromorphaea* (1)*Splanchina* (1)*Synedrella* (1)*Synilesis* (2)*Taraxacum* (1)*Vernonia* (5)*Tridax* (1)*Wedelia* (4)*Xanthium* (1)*Youngia* (1)

November 13, 1986

Dr. N. S. Lander
Western Australian Herbarium
Department of Agriculture
George Street
South Perth
Western Australia
Australia

Dear Nick,

Thanks for your letter which arrived today. Thanks also for sending the samples to B. Bohlmann. Bohlmann tells me that everything has arrived in good condition. However, my voucher specimens have not arrived here. Would you please put a tracer on them? I assume that you sent them via air mail as we agreed.

Thanks for taking us out on a field trip. It was very nice to see the country.

The information that you requested is:

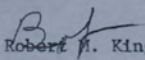
Western Australia: 22 kms S of Cue along route #95. Elevation ca. 1,225 ft.

Common roadside weeds, ray flowers white or very light lavender, disc flowers yellow, biochemical voucher. September 13, 1986. R. M. King & R. M. Carvey
9581

That should be what you need. I will begin on labels as soon as the vouchers arrive. I asked Bohlmann to work this sample first and will let you know when I hear.

Again thanks for your help.

Sincerely,


Robert M. King

Department of Botany

WESTERN AUSTRALIAN HERBARIUM

DEPARTMENT OF AGRICULTURE

GEORGE STREET, SOUTH PERTH, WESTERN AUSTRALIA 6151 • TELEPHONE (09) 368 3418 • TELEX AA93304 • TELEGRAMS AGDEP PERTH

(09) 368 3418

Your Ref.

Our Ref. 466/74

Date 21 January 1987

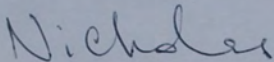
NSL:VH

Dr R.M. King
National Museum of Natural History
Smithsonian Institution
Washington D.C. 20560
U.S.A.

Dear Robert

Please find with this lists of your W.A. collections in numerical order and in alphabetical order respectively. The identifications were made for you by myself, Dr P.S. Short of the National Herbarium of Victoria, and Mr P.G. Wilson of this institution whose assistance in this regard should be acknowledged in your paper.

Yours sincerely



Nicholas S Lander
Botanist

WESTERN AUSTRALIAN HERBARIUM

DEPARTMENT OF AGRICULTURE

GEORGE STREET, SOUTH PERTH, WESTERN AUSTRALIA 6151 • TELEPHONE 089 368 3418 • TELEX AA93304 • TELEGRAMS AGDEP PERTH

(09) 368 3418

Your Ref.

Our Ref. 466/74

Date 6 April 1987

NSL:VH

Dr R.M. King
C/- National Museum of Natural History
Dept. of Botany
Stop #166
Smithsonian Institution
Washington D.C. 20560
U.S.A.

Dear Robert

Herewith copies of my identification lists of the specimens collected by you in Western Australia. You will note that these are in numerical order and alphabetical order respectively. I have already sent copies of these to Dr Bohlmann Direct.

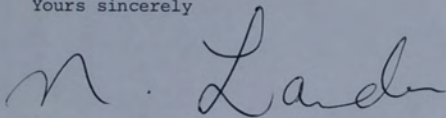
I have now divided the duplicate set of specimens here. These will be dispatched air-mail to you shortly. Let's hope these don't go astray.

I apologize for my delay in getting around to this but a month's holiday in New Zealand and pressing editorial duties have distracted me.

My paper concerning Minuria tridens (D.A.Cooke) Lander (your 9581) is currently in press.

With best wishes

Yours sincerely



N.S. Lander
Botanist

April 21, 1987

Mr. N. S. Lander
Western Australian Herbarium
Department of Agriculture
George Street
South Perth
Western Australia
Australia

Dear Nick,

Thanks so much for your letter of 6 April.

The specimens have arrived and are being fumigated in our freezer. I will have the labels prepared soon and will send you the ones for the Perth set. It will be done right after I get back from a trip to Costa Rica next week. Thanks also for the list of names.

Soon we will have some information to share with you regarding Minuria and others. Please send me a reprint of your Minuria paper when it is published.

With kind regards

Sincerely,

RM
Robert M. King
Department of Botany

December 29, 1982

Meredith A. Lane
Assistant Professor
122 Ramaley
Campus Box B-334
University of Colorado, Boulder 80809

Dear Dr. Lane,

Thank you for your letter and the invitation to the symposium on Generic Concepts in the Compositae. I will, indeed, plan to attend this conference.

I would request that Harold Robinson be invited to participate with me on the Eupatorieae. As I am sure you know Harold and I have worked together in this tribe for nearly twenty years. It would be most unfair not to include him. Since Harold will be making the presentation, the names should be as H. Robinson and R. M. King.

Sincerely,

R. M. King

UNIVERSITY OF COLORADO, BOULDER

Environmental, Population
and Organismic Biology



Mr. R. M. King
co/ Dept. of Botany
Natural History Museum
Smithsonian Institution
Washington, DC 20560

13 Jan 1983

Dear Mr. King:

Thank you for your letter of 29 December, which I have only recently received due to the Christmas break.

Of course your long and fruitful working relationship with Dr. Robinson is well known, and your arrangement with him concerning the symposium on generic concept in the Compositae is appreciated. I am very glad that both yourself and Dr. Robinson will be attending the conference, and I wish to tell you that the program of the symposium has been changed to accomodate your wishes.

Please do not hesitate to contact me concerning any questions you may have, or, if I can be of service to you in any way. I am looking forward to seeing you next summer in Grand Forks. Until then, I remain

Sincerely yours,

A handwritten signature in dark ink, reading "Meredith A. Lane".

Meredith A. Lane
Assistant Professor (Botany)

MAL/jc

357-2545

May 8, 1981

Dr. Edmund Launert
Department of Botany
British Museum
(Natural History)
Cromwell Road
London, SW7 5BD
England

Dear Dr. Launert:

Thanks for your letter. I have now requested the specimens for the Flora Zambesiaca. As I told you earlier, I expect to complete this manuscript sometime in the fall.

Regarding the illustrations, I have inquired of the well known free lance illustrator, Dr. Regina O. Hughes if she would do them. She will do them for \$150.00 a plate. I believe I will need 6 plates. I cannot be certain at this time until I see all the species involved. Could this financial arrangement be acceptable to you?

Sincerely,

Robert M. Kind
Department of Botany

357-2545

June 5, 1981

Dr. Edmund Launert
Department of Botany
British Museum (Natural History)
Cromwell Road
London, SW7 5BD
England

Dear Dr. Launert:

Thanks for your letter. Regarding the illustrations, I have shown Dr. Hughes your letter. Since she is not very busy at this time, she has agreed to meet your price. This arrangement would be far better for me as I would be able to work with her more closely.

I hope that this arrangement is satisfactory.

Sincerely,

Robert M. King
Department of Botany

Telegrams: *Nathismus, Southkens, London*
Telephone: 01-589-6323



BRITISH MUSEUM (NATURAL HISTORY)
Cromwell Road
London, S. W. 7

12th June, 1981

Dr. Robert M. King,
Department of Botany,
National Museum of Natural History,
Smithsonian Institution,
WASHINGTON,
DC 20560,
USA

Dear Dr. King,

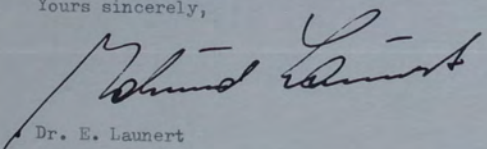
Thank you very much indeed for your letter of 5th June which has just reached me. I am delighted to learn that your artist will be able to produce artwork on our behalf at a price which we can afford. Let me repeat, we usually pay about £33 for one illustration but if the work is excessive, in other words if you have to put more details in than can be reasonably expected we are prepared to vary our price to about £35 or even £37. Please, if you can possibly avoid it, stick to the general format.

With regard to the size of the original drawings, I would like to have them executed twice the size at which they will appear in the publication. It would therefore be convenient if all the magnifications which are used for detailed drawings could be divisible by two.

I may have told you before that we usually commission one illustration per genus but if a genus should have more than ten species we are roughly preparing one illustration per eight or ten species. I have, however, a feeling that none of the genera you are dealing with is of a size that would make this necessary.

Trusting that your work for us will give you pleasure and with many thanks in anticipation for your cooperation I remain,

Yours sincerely,


Dr. E. Launert

June 3rd, 1982

Dr. Edmund Launert
Department of Botany
British Museum (Nat. Hist.)
Cromwell Road
London SW7 5BD
England

Dear Dr. Launert:

I am obliged to inform you that I have not made much progress on the Eupatorieae for your area. All my time is being spent completing my monograph of the tribe Eupatorieae. I hope to be able to spend full time on the African project this fall. I hope that this will be acceptable to you.

Sincerely yours,

Robert M. King
Department of Botany

First

here

Sender's name and address

BRITISH MUSEUM (NATURAL HISTORY)

CROMWELL ROAD,

LONDON, SW7 5BD

Dr. E. Launert - Botany

An air letter should not contain any enclosure

The 'APSLEY' Air Letter

A Dickinson Robinson Group Product

Form approved by the Post Office (United Kingdom) No. A4/2

Second fold here

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By air mail Air letter
Par avion Aerogramme

ON HER BRITANNIC MAJESTY'S SERVICE



Mr. Robert M. King

Dept. of Botany

National Museum of Natural History

Smithsonian Institution

Washington, D.C. 20560

USA

1/2



BRITISH MUSEUM (NATURAL HISTORY)

Cromwell Road,
London, SW7 5BD.

Telegrams: NATHISMUS, LONDON, S.W.7.

Telephone: National 01-589 6323 ext 488
International +44 1 5896323

Mr. Robert M. King
Dept. of Botany
National Museum of Natural History
Smithsonian Institution
Washington, D.C. 20560
USA

EL/DMS
9th June 1982

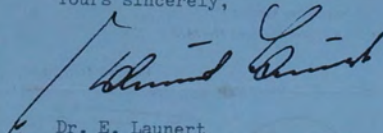
Dear Mr. King,

Thank you very much indeed for your frank letter informing me about your present commitments. Your proposal to start work on our project in the autumn of this year will suit me well. I hope to have the relevant part of Flora Zambesiaca ready for the printers in late spring of next year. Since your contribution will not be an unduly large one, I think we can co-ordinate our efforts nicely. Bear in mind however, that the borrowing of material usually takes some time and may therefore cause some further delays. It will be advisable to ask for loans before you start work.

Dr. Christopher Humphries showed me a letter of yours in which you mentioned recently the name of another potential author. I certainly may need his help later. Could you inform me please in what ~~area~~^{tribe} or sub family his group of interest is placed?

Looking forward to a fruitful co-operation, I remain with many thanks again and my best wishes for your work and to you personally,

Yours sincerely,


Dr. E. Launert
Secretary Flora Managing Committee

357-2545

June 16, 1982

Dr. Edmund Launert
Department of Botany
British Museum (Nat. Hist.)
Cromwell Road
London, SW7 5BD
England

Dear Dr. Launert:

Thanks for your letter and your understanding of the situation.

In my letter to Dr. Humphries I was suggesting that Dr. Robinson would be interested in contributing the ms for the Liabeae for the Flora Mesoamericana and not for the African flora. Please explain that to him.

Sincerely yours,

Robert M. King
Department of Botany

RMK:cap

357-2545

January 25, 1982

Sra. Lilly
Hostal Beech
Los Libertadores 163
San Isidro
Lima, Peru

Dear Senora Lilly:

I want to take the opportunity to thank you again for all your help while I was sick at your hotel. I very much appreciated it.

I hope to visit Lima again in about one year and will plan to stay at your hotel.

Sincerely yours,

Robert M. King
Department of Botany

HERBARIUM
SOUTHERN METHODIST UNIVERSITY
DALLAS, TEXAS 75275
(214) 692-2257

31 May 1983

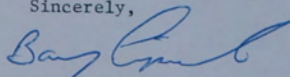
R.M. King
Botany Dept.
Smithsonian Institution
Washington, D.C. 20560

Dear Dr. King:

In regards to your subscription to SIDA, Dr. Mahler has suggested that you handle it in any way you would like. You may pay the subscription rate of \$10/year or send specimens.

It was nice to talk with you over the phone. Please note that we have been receiving reprints and they have been incorporated into the herbarium library. Thank you.

Sincerely,



Barney Lipscomb
Editor, SIDA

August 10, 1983

Robert M. King

Collaborator in the Department of Botany

Dr. Mark Littler, Chairman

I request that I be appointed Collaborator in the Department of Botany, Smithsonian Institution. I suggest that you consult with Dr. Harold Robinson of my munerous accomplishments and gifts to the Department. Thank you.

cc. Dr. Harold Robinson

April 20, 1985

Sr. Werner Lorenz
Villa Union
La Rioja
ARGENTINA

Dear Sr. Lorenz:

I wanted to take tis opportunity to thank you for your help and kindness while we were in Villa Union this past January. I hppe to return in perhaps 2 years.

Sincerely,

Robert M. King

Department of Botany

The University of Georgia

BOTANY DEPARTMENT ● Athens, Georgia 30602 ● TEL. 404 542-3732

Robert M. King
U.S. National Herbarium
Department of Botany
Smithsonian Institution
Washington D.C. 20560

11 November 1981

Dear Sir:

My apologies for not contacting you during the MO Symposium - unfortunately, a mutually-acceptable opportunity did not present itself. Certainly, I would be very happy to review any Brazilian collections of Vernonieae you have available. If I recall correctly, your last Brazilian trip was centered in Goiás, and, indeed, there are several new species to be described from that area. Currently, I am planning to visit the Smithsonian during late December; if it is convenient I would be very pleased to examine your material at that time. However, receipt of syncephalous (or aggregate) taxa is welcome at Georgia at any time.

In addition, although I suspect my files of your (and Dr. Robinson's) Vernonieae publications are reasonably complete, I would appreciate receiving reprints of these and other articles concerned with syncephalous genera or suprageneric Compositae classification.

Thank you very much for your time and trouble.

Respectfully,

Nanda F. F. MacLeish

Nanda F. F. MacLeish

June 18, 1984

Dr. Clodomiro Marticorena, Director
Herbario, Departamento de Botanica
Instituto de Biologia
Universidad de Concepcion
Casilla 1367
Barrio Universitario
Concepcion, CHILE

Dear Clodomiro,

As you may have already heard, I would like to make a collecting trip to Chile. The main purpose of the trip would be to collect material of Compositae for biochemical study by my collaborator, Prof. Dr. F. Bohlmann of Berlin. I believe that Prof. Bohlmann has already written to Prof Silva of your university.

I would like to visit Chile for the month of January, 1985. I would like to request your cooperation. Would there be a jeep or car at the university that we could use to do the collecting? Could we dry material at the university? Is a permit necessary?

I am especially interested in obtaining material of the tribe Mustieae for biochemical study. This tribe is the poorest known in all the Compositae for its chemistry. Perhaps you could suggest localities that would be good for collecting.

I hope to hear from you soon and I look forward to seeing you again in January.

King regards,

Sincerely yours,

Robert M. King

Department of Botany

Concepción, 2 de agosto de 1984

Estimado Bob:

Traté de hacer un mapa con los lugares con mayor concentración de Mutisieae, pero dada la gran cantidad de géneros y especies creo que primero debes examinar la lista de las Mutisieae de Chile que incluyo en esta carta. Espero que esta lista te sea de utilidad.

En enero solo podrás coleccionar especies que crecen en las cordilleras o en el sur de Chile; todas las especies primaverales o de la parte baja del desierto de Atacama, entre los grados 25 y 30, habrán desaparecido.

La parte entre Santiago y Concepción es muy cultivada y por eso no es fácil encontrar plantas a lo largo de la carretera. Hay que tomar caminos transversales que se acerquen a la cordillera.

En general el clima es bueno en enero, pero en el sur puede llover en ese mes; sin embargo, son lluvias cortas.

Creo que lo mejor que puedes hacer es que al empezar el viaje vengas directamente a Concepción, examinar el material en el herbario y así seleccionar los lugares más convenientes, para aprovechar el tiempo al máximo y coleccionar la mayor cantidad de especies.

Tenemos un jeep, pero desgraciadamente generalmente está ocupado por los miembros del Departamento; Silva tiene un pick-up y habría que preguntarle si lo presta para tus viajes. En todo caso, acá es fácil arrendar un vehículo. Si necesitas los datos del valor diario del arriendo, indicando el tipo de vehículo, puedo hacer las consultas y mandarte la información.

No hay problemas para secar el material aquí en el Departamento de Botánica; no es necesario que traigas papel y cartón corrugado para el secado de las plantas, ya que puedes usar los nuestros; solo tendrías que traer prensas.

Generalmente no es necesario contar con un permiso para coleccionar en Chile, salvo que sea un área reservada, por ejemplo un parque nacional.

Si necesitas otro tipo de información, te ruego que escribas.

Cordiales saludos,

Clodomiro

Clodomiro Marticorena

Depto. Botánica, Univ. Concepción

357-2546

December 20, 1984

Dr. Clodomiro Marticorena, Director
Herbario, Departamento de Botanica
Instituto de Biologia
Universidad de Concepcion
Casilla 1367

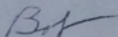
Barrio Universitario
Concepcion, CHILE

Dear Ma~~rticorena~~^{rticorena},

Thanks so much for your letter. I now have had a change of plans. In consideration of the political problems now in Chile, I have decided to go to Argentina instead. I trust that you will understand. I was looking forward to seeing you again. Another time perhaps.

Digitized by Hunt Institute for Botanical Documentation

Sincerely yours,



Robert M. King

Department of Botany

December 11, 1967

Dr Gordon McPherson
Smithsonian Tropical Research Institute
Box 2072
Balboa, Panama

Dear Dr McPherson,

Thanks so much for your note and the application
to visit STRI.

I am still not sure of my plans. I did
get my money and I will be coming.
I plan to stop in Costa Rica for a couple of
days and go up Volcan Turrialba. There are
several species that I want from there.

Right now I expect to spend the 4th and
5th of January in Costa Rica and would
arrive in Panama on the 6th of January
in the AM. I haven't heard from people
in Costa Rica so I can't say for sure
just now.

I'll write again soon when I
know for sure.

Most sincerely

December 16, 1987

Dr. Gordon McPherson
Smithsonian Tropical Research Institute
Box 2072
Balboa, Panama

Dear Dr. McPherson,

My travel plans are now firm. I now plan to arrive in Panama on Jan 7 on Pan Am #428 at 825 AM. I expect to leave on Jan 16. Would you be able to meet me at the airport? Hopefully we can do some collecting that same day.

There are two collections that you made that I would like to recollect. They are McPherson #9436 and 9760. Both are *Neomirandea*. Both are critical species and I would want to recollect them several times.

I am eager to meet and work with you.

Digitized by Hunt Institute for Botanical Documentation

Sincerely,

Robert M. King
Department of Botany

357-2545

February 9, 1982

Dr. Rogers McVaugh
Herbarium
Department of Botany
The University of North Carolina
Chapel Hill,
North Carolina 27514

Dear Dr. McVaugh:

Thanks for your letter. You are quite correct in that
Steviopses adenolepis was a slip of the typewriter.

Hope that all is well with you.

Sincerely yours,

Digitized by Hunt Institute for Botanical Documentation

Robert M. King
Department of Botany

919 -962-6931



THE UNIVERSITY OF NORTH CAROLINA

AT

CHAPEL HILL

18 Feb 1982

Department of Botany

The University of North Carolina at Chapel Hill
Coker Hall 010 A
Chapel Hill, N.C. 27514

Dear Bob:

I have about finished the necessary cutting and pasting on the comp manuscript for Flora Novo-Galiciana, so that I can send it to the press. The one major exception is Eupatorium, sensu lato, i.e. before King & Robinson. I am going to start on that next week. I promise to take you seriously, but I don't promise anything else yet.

Now I have a question for you. In your paper on the Eupatorieae of Nueva Galicia you included Isocarpha oppositifolia. I seem to have no other record of it from the area. Can you put me right on this? And if necessary see that I can borrow the validating specimen(s), plus enough others from Mexico so that I can make up a good description, plus a state-by-state geographical range in Mexico? I would much appreciate the favor.

Did you get my query about the perhaps non-existent Steviopsis adenolepis?

With thanks, and best wishes as ever,

Sincerely

Rogers McVaugh

357-2545

August 16, 1982

Dr. H. Merxmuller, Director
Botanische Staatssammlung
Menzinger Str. 67
D-8 Munchen 19, W. Germany

Dear Dr. Merxmuller:

Enclosed please find photographs of the following botanists:

E. Kaun, A. P. Decandolle, N. Harriman, R. Jansen, O. Huber,
D. Kaun, J. Steyermark, C. Jeffrey, L. E. Bishop, S. Mori,
O. Tovar, D. Keil, G. Nesom, D. Rindos, S. McDaniel, E. Schilling,
B. Nordenstam, V. Badillo.

I hope that this series will be a welcome addition to your
collections.

Sincerely,

Robert M. King
Department of Botany

RMK:cap
Enclosures

BOTANISCHE STAATSSAMMLUNG
MÜNCHEN

Direktor: Prof. Dr. H. Merxmüller

Botanische Staatssammlung München · Menzinger Straße 67 · D-8000 München 19

Dr. Robert M. King
National Museum of Natural History
Smithsonian Institution
WASHINGTON, D.C. 20560
U.S.A.

Ihre Nachricht vom
Ihre Zeichen

Bitte bei Antwort angeben
unser Zeichen

Tel. (0 89) 17 92-1

München, den

Tgeb.-Nr.: 626

251

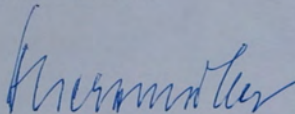
29. September 1982/ mb

Dear Dr. King,

Because of a very long illness I couldn't thank you earlier
for the two issues of synantherologist's photographs you so
kindly sent me. I appreciate them very much, of course.
If my recovering should continue I certainly shall try to
get a nice photograph of myself for your collection.

With best wishes

sincerely yours



Prof. Dr. H. Merxmüller

357-2545

September 3, 1981

Dr. Peter W. Michael
Department of Agronomy and
Horticultural Science
Faculty of Agriculture
University of Sydney
Sydney 2006
New South Wales
Australia

Dear Dr. Michael:

I wanted to tell you how much I enjoyed meeting and speaking with you again at the Congress. I thought that the Congress was a huge success.

I am planning to visit Western Australia next August, if I can get the money. I would stop in Sydney and perhaps see you.

Sincerely yours,

Robert M. King
Department of Botany

357-2545

September 22, 1981

Dr. Peter W. Michael
Department of Agronomy and
Horticultural Science
Faculty of Agriculture
University of Sydney
Sydney 2006
New South Wales
Australia

Dear Dr. Michael:

I would like to request a small favor of you. While I was in Sydney, for the Congress, I collected some seed of Ageratina adenophora (Spreng.) K. & R. at the location that you showed me, near the West End Hotel. Unfortunately, the seeds have not germinated. I believe that there was some Bartlettina sordida (Lessing) K. & R., growing at the same locality. Would it be possible for you to send me some viable seed of each? We need these for breeding and cytological studies. No voucher would be needed.

Thanks very much for your help.

Sincerely yours,

Robert M. King
Department of Botany

Scott Mori
The New York Botanical Garden
Bronx, New York 10458

Dr. Robert King
U. S. National Herbarium
166 NHB
Smithsonian Institution
Washington, D. C. 20560



March 17, 1981

Dear Bob:

I called Brazil today and they said our permits should reach us in several days. If true, that means that I will be in Bahia in a couple of weeks. One of the things I want to do is to visit Pico das Almas and area for a couple of weeks. I want to recommend it as a possible national park via our World Wildlife Fund project. As part of the proposal I want to make a checklist of the plants found on the peak and its vicinity. Could you please send me a list of the comps we collected so I can add them to the list? I would like to take the list with me so I can learn the plants better. I would also like to use the comps as an example of how poorly known the flora is and also how many endemic species are found there.

This will also give you a chance to make any requests before I leave. You may want to supply us with bottles of fixative etc.

Hope to hear from you soon.

Best wishes.

Scott

357-2545

March 25, 1981

Dr. Scott A. Mori
Herbarium
The New York Botanical Garden
Bronx Park, N. Y. 10458

Dear Scott:

Please find enclosed the list of plants that we collected near and on the Pico das Almas. I would suggest that you collect every Compositae that you can on the Pico. It would be wise to collect the genus, Agrianthus sterile if necessary as it can be named without flowers.

John Wurdack made an interesting observation the other day, that only Luetzelburg, Harley, Mori, King and Bishop have collected on the Pico. You might want to check this out.

Sincerely,

Robert M. King
Department of Botany

Enclosure



The New York Botanical Garden

Bronx, New York 10458

(212) 220 8700

July 21, 1981

Dr. Robert M. King
Department of Botany
National Museum of Natural History
Smithsonian Institution
Washington, D. C. 20560

Dear Bob:

I am back but the collections will not reach me for at least another 3 months because I had to send them by surface mail. Our money ran out!

The CEPEC herbarium has asked me to remind you that you have their entire collection of Vernonia, Ageratum and Eupatorium. It is important to get the material back to them as soon as possible because they have several projects for which they need to know the correct names for species of these genera.

Will talk to you soon.

Sincerely,

Scott Mori

Scott Mori
Associate Curator

357-2545

June 16, 1981

Dr. Nancy R. Morin
Administrative Curator
P. O. Box 299
St. Louis, MO 63166

Dear Dr. Morin:

Thanks for your letter of May 20, 1981.

The loan of material of Eupatorieae (Asteraceae) that I requested from your herbarium will be used in my treatment in the Flora Zambesica. As you well know, the Missouri Botanical Garden probably has the best collection of African plants in this country.

I very much appreciate your help.

Sincerely,

Robert M. King
Department of Botany



DEPARTMENT OF BOTANY

DUKE UNIVERSITY
DURHAM, NC 27706
919-684-3715

June 12, 1983

Dear Dr. King,

I'm just leaving for Colombia now, my trip being delayed a bit. I gathered together all the information I had available on Colombia. You might also try to catch Adrian Juncosa, who was collecting in Antiochia recently for the Missouri Bot Garden. He's at Harvard for the summer working in the Anatomy department, but has a permanent box here at Dept of Botany, Duke, too.

I'll call you in September!

Yours,

Nora Murphy

P.S. Could I consider meeting up with you on your paramo trip to help collect? nm.

357-2546

July 28, 1983

MS Nora Murphy C/O Parra
Caruna 22 No 36A14
Palmirap Valle, Colombia

Dear Nora,

Thanks for you letter and the seeds. We were not able to name the seeds for you. however. I would be interested in having you send some seed of the tribe Eupatorieae and the tribe Liabeae. These are the tribes that are most important to us for our biochemical studies.

I hope that everything is going well for you. I will be eager to talk with you in the fall.

Sincerely,

Robert M. King
Robert M. King

Department of Botany

Duke University
Dept of Botany
Oct 13, 1983

Dr. King -

I thought you might like to look through this pamphlet that I found in Colombia this summer. Some of the names of administrators may be out of date now, but the rest of it should be all right.

Adrian Juncosa, a Duke PhD recently contracted to collect in the Choco area of Colombia by Missouri Bot Gardens, will be in Medellin this coming week. I can't unearth his ~~direction~~ address right now, but will send it to you if I find it. Or, he can be reached via Marshall Crosby at Missouri.

Wishing you the best, then, I

am

Sincerely yours,

Nora Murphy

Missouri
Botanical
Garden



125th
Anniversary

Sept 19, 1984

Hi Dr. King,

I got a job here at MO. We have an ID of one of your collections:

KING 8249 *Cambessedesia hilariana* (St.Hil. ex Bonpland) D.C.
det. A. Martins 1984

I hope everything's going well for you,

Digitized by Hunt Institute for Botanical Documentation

Yours,

Honora Murphy
Honora Murphy

P.O. Box 299
St. Louis, Missouri 63166-0299
Telephone: (314) 577-5100
Telex: 466224
Cables: MOBOTSTL

December 12, 1986

Mr. Kenneth Murray
American Embassy
La Paz
Bolivia

Dear Mr. Murray:

We are planning a collecting trip to Bolivia in February of next year. Our main concern will be to collect material of the plant family Compositae. This will be done in cooperation with the local university in La Paz.

I would like to request that you allow our plant collections to be shipped back to the Smithsonian via the unclassified diplomatic pouch. I will bring with me enough of the Smithsonian franked mailing labels

Thank you very much.

Sincerely,

Robert M. King
Department of Botany

September 16, 1985

Dr. Cirilo Nelson
Departamento de Biología
Universidad Nacional Autónoma de Honduras
Tegucigalpa
Honduras

Dear Dr. Nelson:

I am writing to request the loan of *Eupatorium sotorum* C. Nelson that you recently described from Honduras (Nelson 8179). As you may know, I have just completed a book on this group and would like to include your species. It would even be better if you had a duplicate for the United States National Herbarium here.

Thanks so much.

Sincerely,

Robert M. King
Department of Botany

357-2545

June 11, 1981

Mr. Edgard Novaes Nonato
Mouraria, 48 - Caixa Postal 632
40.000 - El Salvador
Bahia, Brasil

Dear Mr. Novaes:

Please excuse the long delay in writing to you.
I had temporarily misplaced your address.

Let me take this opportunity to thank you for your
very kind hospitality while we were in Salvador.
Because of you, our memories of Salvador are indeed
very pleasant.

I have ordered your briefcase and labels and should
be shipping them to you soon.

Again, thank you very much.

Sincerely,

Robert M. King
Department of Botany

Edgard Novaes Nonato

ADVOCADO

Salvador ,24th. August 1981.

Mr. Robert M. King
Washington D.C.

Dear Mr. King,

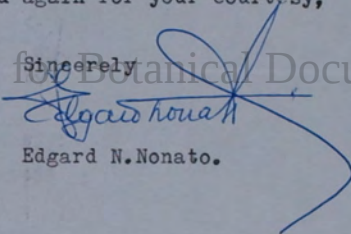
I take this opportunity to acknowledge receipt of your letter dated June 11th 1981, contents of which are duly noted.

Unfortunately, the briefcase and the labels have not arrived here so far.

Therefore, I ask you the kindness to find out about what has happened and please let me know if the shipping was made by regular mail or through some official channel.

Thanking you again for your courtesy,
I remain,

Sincerely


Edgard N. Nonato.

Digitized by Hunt Institute for Botanical Documentation

357-2545

May 3, 1982

Mr. Edgard Novaes Nonato
Mouraria, 48 - Caixa Postal 632
40.000 - El Salvador
Bahia, Brasil

Dear Mr. Nonato:

Finally I found a place where your labels can be printed.
I hope that they please you and arrive in good condition.
I am sending a copy of this letter separately so to know if things
arrive. Please write to me when you receive these so that I will
know everything got to you.

Hope that all is well with you.

Very sincerely,

Robert M. King
Department of Botany

357-2545

July 7, 1982

Dr. Tycho Norlindh
Section for Botany
Naturhistoriska riksmuseet
S-104 05
Stockholm, Sweden

Dear Dr. Norlindh:

I wish to acknowledge with thanks the recent copy of your great work on the Calenduleae. It is with pleasure that I add it to my book shelf. I expect to visit Stockholm in about a year. I hope to see then.

Enclosed also are some photographs that we had taken of Dr. Nordenstam when he visited Washington. Would you please pass these on to him. Would you have a photograph of yourself that you might sent me for my collection?

Sincerely yours,

Robert M. King
Department of Botany

RMK:cap
Enc.

357-2545

October 20, 1981

Mr. Frank Ortiz, Ambassador
Embassy of the United States
Lima, Peru

Dear Mr. Ortiz:

I am planning a plant collecting expedition to Peru for the month of January, 1982. I will be collecting specimens of the sunflower (Compositae) family to be used in writing the Flora of Peru. This material will need to be shipped back to the United States, and I would like to request that this material be shipped via the diplomatic pouch in the Embassy. All expenses will be paid by the Smithsonian Institution. I will bring the necessary mailing labels.

Thank you in advance for your kind cooperation to this matter.

Sincerely yours,

Robert M. King
Department of Botany



CNPq

CONSELHO NACIONAL
DE DESENVOLVIMENTO
CIENTÍFICO E TECNOLÓGICO

0300.594/83

Brasília, May 27, 1983

Dr. ROBERT M. KING
Department of Botany
National Museum of Natural History
Smithsonian Institution
Washington, D.C. 20560
U.S.A.

Dear Dr. King,

We have the pleasure to acknowledge the receipt of your letter enclosing a list of the species collected during your expedition in Brazil, as well as some reprints of scientific papers on the biochemical and cytological findings of the trip.

Otherwise, we are sending herewith a set of forms for you to apply for a new expedition.

Looking forward to hearing from you soon, we remain,

Sincerely Yours,

Luiz Carlos G. Pannunzio
Advisory Group for International Cooperation
Chief - Substitut

August 5, 1983

Dr. Victor M. Patino, Director
Instituto de Investigacion Cientifica del Valle
Apartado aereo 5660
Cali, Colombia, South America

Dear Dr. Patino:

I am writing to inquire of the possibility of my making a fieldtrip to southern Colombia for the month of January, 1984. I will be mainly concerned with collecting cytological and biochemical material of the family Compositae. I would like to make my headquarters with your institute. I will deposit a set of all the plants that I collect.

In a letter to Dr. Cuatrecasas, you indicated that there was a jeep that I could rent for ca. \$20.00 a day. I would need to rent it for the entire month of January. It would also be necessary to work some outside of El Valle.

Would you please issue me a collecting permit for the month of January, 1984. This should include Dr. Earl Bishop who will be accompanying me.

Thank you in advance for your help.

Sincerely yours,

Robert M. King
Department of Botany

cc. Dr. Jose Cuatrecasas

357-2546

November 7, 1983

Dr. Victor M. Patino, Director
Instituto de Investigation Cientificas
Apartado aereo 5660
Cali, Colombia

Dear Dr. Patino:

Thanks for your very kind letter. Dr. Bishop and I look forward to meeting and working with you. Your letter indicates that you will be very helpful. Every thing here is going well.

We will arrive on January 1 at 10 pm. on Eastern Airlines # 977. Would it be possible for you to have someone meet us at the airport to hel with customs etc?

Sincerely yours,

Robert M. King
Department of Botany



National Museum of Natural History • Smithsonian Institution

WASHINGTON, D.C. 20560 • TEL. 202-357-2026 NHB166

FAX 202-786-2563

19 December 1989

Ms. Elizabeth Berry
American Embassy Quito
APO Miami 34039

Dear Ms. Berry:

I am an agrostologist working on eragrostoid grasses and am contributing the genus Eragrostis for the flora of Ecuador. I am planning a two month collecting trip which will begin the first week of April and continue through May, 1990. This project is being conducted through Dr. Henrik Pederson at Pontificia Universidad Catolica Del Ecuador. He has arranged for a collecting permit for me and other members of my party.

I am requesting permission to use the diplomatic pouch to ship my dried plant specimens when returning from Ecuador and ship collecting material (plant presses and field equipment) prior to my arrival in Quito. I am prepared to pay for any extra costs which my material may incur. I am unfamiliar with the procedure and use of the diplomatic pouch and would need some suggestions as to size limitations of the mail items. Here at the Smithsonian we have mailing franks which I have used in the past to ship parcels to Panama. If permission is granted, when would you suggest I mail collecting material so it would be in Quito upon my arrival the first of April?

Your help on this trip is very much appreciated and I look forward to your reply.

Sincerely,

Paul M. Peterson
Associate Curator of Grasses
Department of Botany
Passport #: 070226720



Reference No: T/23A/433

MINISTRY OF AGRICULTURE
DEPARTMENT OF RESEARCH AND SPECIALIST SERVICES

Telephone No. 25313, 702236
Tel. Add. "SYSTBOT"

National Herbarium and National Botanic Garden
P.O. Box 8100, Causeway
Salisbury
Zimbabwe Rhodesia

18th June 1981

Dr. Robert M. King,
Department of Botany,
National Museum of Natural History,
Smithsonian Institution,
Washington, D.C. 20560,
U.S.A.

Dear Sir,

I refer to your letter of the 6th May requesting the loan of Flora
Zambesiaca material of the Eupatorieae.

On the 10th January, 1977, we sent to you via Pretoria, on loan, 339
SRGH specimens of this tribe. Please can you confirm that you have
received this material.

.... The specimens which have been added to our collection since that time
are indicated on the enclosed list. Should you wish to see any or
all of these please let me know.

Yours faithfully,

G. POPE
for OFFICER IN CHARGE

GP/DGG

Adenostemma cafferum DC. var. cafferum

Malawi N Grosvenor & Renz 1090
Pawek 12092

A. perrottetii DC.

Zimbabwe W Ncube 53

A. mauritianum DC.

Zimbabwe C Petheram 12
E Muller 3358
Malawi N Brummitt 12093
Pawek 13061
S Brummitt 9954, 11189

Ageratum conyzoides L.

Zimbabwe N Mitchell 1251
Nyariri 265
W Mshasha 74
Malawi N Brummitt 10547, 11971
C Brummitt 11523
Mozambique LM Marques 2465
Muvunga 33

A. houstonianum Mill.

Malawi S Brummitt 8774, 15019
Brummitt & Banda 10367

Eupatorium africanum (Oliv. & Hiern)

Zimbabwe N Nyariri 566
E Bamps, Symoens & van den Berghen 183
Malawi N Pawek 3956, 5939
Phillips 80, 128, 1100
S Brummitt 15140

E. adenophorum Spreng.

Zambia S Angus 3301

Mikania cordata (Burm.f.) B.L. Robinson

Zimbabwe E Muller 2984, 2993, 3036, 3114, 3363, 3375, 3399
Botswana N Astle 7538
Smith 1565
Malawi N Brummitt 10555, 11832, 12008

June 18, 1987

Sr. Luis Poveda
Herbario
Museo Nacional
San Jose
Costa Rica

Dear Luis,

I am writing to thank you for your help in my recent visit to Costa Rica.
It is always nice to collect with someone that knows all the plant like you.

I am inclosing the labels for my collections. I am sending them to you as I lost the name and address of the curator. Also, I am sending you some of the duplicates that were dried here.

Sincerely,

Robert M. King
Department of Botany

Robert

July 24, 1987

Sr. Luis Povada
Herbario Nacional
Museo Nacional de Costa Rica
San Jose, Costa Rica

Dear Luis,

Thanks for your letter. Enclosed please find the labels that were missing in the set that I sent to you earlier.

Enclosed also, is a photocopy of the genus, Standleyanthus as per your request. It would be great if you could find more of this plant. I have always looked for it every time that I have been in Costa Rica. Good luck!

With kind regards,

Digitized by Hunt Institute for Botanical Documentation

Sincerely,



Robert M. King

Department of Botany

23 de setiembre 1982



Sr.

Dr. R. M. King

Smithsonian Inst.

USA

Muy estimado Doctor:

Reciba un muy
atento saludo y sirva la presente
para comunicarle que esta semana
para comunicarle que esta semana
recibi la ejemplares para el
Herbario, le quedamos muy agrade-
cidos.

Ojala- que regrese pronto para
ir a coleccionar a varios lugares muy
interesantes. le envio duplicados

de mis colecciones

Hasta pronto, de Udo.

Muy respetuosamente
Luis J. Poveda A.



DEPARTMENT OF BIOLOGY
A/C 915 837-8112



SUL ROSS STATE UNIVERSITY
ALPINE, TEXAS 79830



29 June 1981

Robert M. King
Department of Botany
Smithsonian Institution
Washington, D.C. 20560

Dear Bob:

By parcel post I am returning vials that have accumulated for some time. We are getting settled back in the "new" building. The cytology lab is not yet in working condition but I hope to get back to steady progress before long.

Best regards,

Mike

A. Michael Powell, Professor
Department Chairman

AMP/bmp



SUL ROSS STATE UNIVERSITY

ALPINE, TEXAS 79830



Department of Biology
Phone (915) 837-8112

12 February 1982

Dear Bob:

The two woody bases sent to me as *Bajaranoa semistriata* (K 8032) are from different plants. I have enclosed heads of the two plants with the hope that this will be enough to identify the real *B. semistriata*. The leaves are similar. I have collected good buds of the plant with violet corollas and am waiting to get good buds of the other one.

I haven't made any counts lately but I frequently remind myself of what I need to do. With a little spare time I am trying to polish the manuscript of my book on Trees and Shrubs of Trans-Pecos Texas.

Best regards,

Mike

A. Michael Powell, Professor
Department Chairman

AMP/rgd

Enclosure



SUL ROSS STATE UNIVERSITY

ALPINE, TEXAS 79830



Department of Biology
Phone (915) 837-8112

10 Dec 1982

Dear Bob:

I've been meaning to write that the
Marshallia grandiflora buds were much too
old. Maybe we can try again.

Digitized by Hunt Institute for Botanical Documentation

Later,

Mike

(Powell)



SUL ROSS STATE UNIVERSITY

ALPINE, TEXAS 79832



Department of Biology
Phone (915) 837-8112

15 May 1986

Dr. Harold Robinson
Department of Botany
Smithsonian Institution
Washington, D.C. 20560

Dear Harold:

Enclosed is a list of chromosome counts from the King collections. Some of these I might have sent to you before, but the last few I completed only this week. Sorry it took so long.

I have now examined material from all the King vials in my possession. Jim Weedon (in Aurora, CO) has vials of some of the older material. He makes a few counts now and then, and I have encouraged him to finish them all.

The vials (not washed) will be returned by separate package. Do you have ca. 25 spare reprints of the recent paper in Mo. Bot. Gard.?

in early
June.

Best regards,

Mike

A. Michael Powell, Professor
Department Chairman

AMP/rgd

Enclosure

July 21, 1986

Dr. Peter Proksch
Institut für Pharmazeutische Biologie
der Technischen Universität
Braunschweig
West Germany

Dear Dr. Proksch:

Your plant is *Ageratina altissima* (L.) R.M. King & H. Robinson.
If you want your voucher returned, let me know.

Sincerely,

Robert M. King
Robert M. King
Department of Botany

Digitized by Hunt Institute for Botanical Documentation



The New York Botanical Garden

Bronx, New York 10458

(212) 220-8700

27 December 1988

Dr. Marshall Crosby
Herbarium
Missouri Botanical Garden
P. O. Box 299
St. Louis, MO 63166

Dear Dr. Crosby:

Last week Bob King telephoned me and asked why *Brittonia* has yet to publish a review of the King & Robinson *Eupatorieae* generic synopsis. He said that you said that a review copy was sent to *Brittonia* in 1987. Perhaps a copy was sent to NYBG, but apparently no copy clearly marked "Attn. *Brittonia*" was sent to, or received by anyone on the *Brittonia* editorial staff.

Brittonia will be more than happy to review this important work providing a review copy is sent to us.

Sincerely,

Digitized by Hunt Institute for Botanical Documentation

John Pruski
Associate Editor, *Brittonia*

cc. R. King

Bob - maybe this will get the
ball rolling. I hope so.

Happy new year

John

February 3, 1989

Dr. Lorenzo Ramella
Conservatoire et Jardin botaniques
de la Ville de Geneve
Geneva
Switzerland

Dear Dr. Ramella:

Thanks for your letter of December 15, 1988.

In regard to the treatment of the tribe Eupatorieae for the Flora of Paraguay, I must inform you that it will be at least 3-4 years before I would be able to complete it. I am sorry but I am behind on much of my work. My book on the Eupatorieae was very late also.

With kind regards,

Digitized by Hunt Institute for Botanical Documentation

Sincerely,

Robert M. King

Robert M. King

Department of Botany

357-2545

March 12, 1982

Dr. Peter H. Raven
Director
Missouri Botanical Garden
P. O. Box 299
St. Louis, MO 63166

Dear Peter:

I have just learned from Grady Webster that you will be visiting Costa Rica in the near future. Since you seem to be the only one that knows where the genus *Iltisia* grows, I would ask that you collect bud material of it. Viable seed if present would also be much appreciated.

Thanks for ~~your~~ help that you can give.

Sincerely yours,

Robert M. King
Department of Botany

Missouri
Botanical
Garden



April 5, 1982

Dr. Robert M. King
Department of Botany
National Museum of Natural History
Smithsonian Institution
Washington, D.C. 20560

Dear Bob:

I got your letter before I went to Costa Rica, but it was such a short trip that I knew I would not get to the Cerro de la Muerte, where I collected Iltisia in 1967. I do, however, have suggestions as to how you might be able to obtain material.

First, I sent quite a bit of material in FAA in 1967 to Dr. J. Rzedowski, Laboratorio de Botánica, Fanerogámica, Instituto Politécnico Nacional, Escuela Nacional de Ciencias Biológicas, Apartado Postal 17-564, Mexico 17, D.F., Mexico, who may still have some in FAA, and might be willing to make it available to you if you want it for further study.

Secondly, I suggest you write Dr. Luis Diego Gómez, who surely will know where Iltisia grows on the Cerro--trickles of water near the summit just on the south side--and can probably collect the other material you want. There is lots of activity and lots of OTS classes visiting the Cerro, so failing both of these, you might write Dr. Donald Stone, Executive Director, Organization For Tropical Studies, Inc., P.O. Box DM, Duke Station, Durham, N.C. 27706, and ask who will be down there with the summer class when they go right through the area where it occurs, and can collect the material for you. There must be some botanists going along, and it should really not be difficult--it is fairly common locally.

Sorry I couldn't help personally, but I feel quite sure that you will be able to come up with the material this way.

Cordially,

Peter H. Raven
Director

PHR/mlr

P.O. Box 299
St. Louis, Missouri 63166
314 577 5100

357-2545

April 26, 1982

Dr. Peter Røen
Missouri Botanical Garden
P. O. Box 299
St. Louis, MO 63166

Dear Peter:

Thanks so much for your two letters regarding Iltisia and your suggestions. I will write to these people but I don't have much hope. You seem to be the only person that knows where Iltisia grows. I have looked for the plant also.

Sincerely yours,

Digitized by Hunt Institute for Botanical Documentation

Robert M. King
Department of Botany

Missouri
Botanical
Garden



October 29, 1982

Dr. Robert M. King
Department of Botany
Smithsonian Institution
Washington, DC 20560

Dear Bob:

Many thanks again for the very nice set of reprints you recently sent,
which are very welcomed.

I hope all is going well with you and if there is anything I can do
here to be of assistance, please let me know.

Yours sincerely,

Peter

Peter H. Raven
Director

PHR/dm

P.S. I am really interested in the way you were able to collaborate
with so many chemists and produce such interesting results.

PR

November 8, 1982

Dr. Peter H. Raven
Missouri Botanical Garden
St. Louis, Missouri 63166

Dear Peter,

I am writing to you again in the hope that you can solve the problem of my using the Flora of Peru jeep in January of 1983. Marshall Crosby wrote me in July requesting information. I supplied the information and have heard nothing. I wrote to Al Gentry about a month ago and no answer. I desperately need the use of the jeep as my budget will not cover the high car rental. Would you speak with the appropriate people so that I get the authorization as quickly as possible so that I may proceed with my plans. I also need to know where to pick up the jeep.

plans

Thanks for your help.

Sincerely yours,

Robert M. King
Department of Botany

Xerox copies enclosed

May 5, 1983

Dr. Peter H. Raven, Director
Missouri Botanical Garden
P. O. Box 299
St. Louis, Missouri 63166

Dear Peter,

Enclosed please find the xerox material regarding the expedition to Neblina.

As I told you on the phone, I want to make you an offer that you can't refuse. I would like to participate in this expedition for the month of January 1984. I would take Dr. L. E. Bishop with me to help. I would give all of the plants to the Missouri Botanical Garden. I would pay all the expenses for myself and Bishop. I would only request that Mo pay to ship back the plants to the U.S.A. and prepare labels.

It seems that so many people want to go from the Smithsonian that I have very little chance. If you have questions, let me know.

Sincerely yours,

Bob

Robert M. King

Department of Botany

July 5, 1983

Dr. Peter H. Raven, Director
Missouri Botanical Garden
P. O. Box 299
St. Louis, Missouri 63166

Dear Peter,

I am writing to request a favor of you. Would you please write a letter of recommendation for me to Dr. Richard Fiske, Director, National Museum of Natural History, Smithsonian Institution. I wish to be named Collaborator in the Department of Botany. This is necessary in order for me to continue my professional work. You might mention some of my accomplishments such as the monograph of the genera of the Eupatorieae which has already been sent to Marshall Crosby to be published later this year by the MBG. Another project which is still in progress is the Biochemistry and Taxonomy of the Compositae. This study will result in another book in collaboration with Dr. F. Bohlmann, Director of the Biochemical Institute of the Technical University in West Berlin. The project will be completed by 1988. Another aspect of my work is the cytological series in the Compositae. Finally, my fieldwork has yielded nearly 10,000 numbers mostly deposited in the USNH. Incidentally the MBG receives the second set.

Any other kind words will be much appreciated. Thanks.

Sincerely,

Bob

Robert M. King
Department of Botany

Missouri
Botanical
Garden



August 4, 1983

Dr. Robert M. King
Department of Botany
National Museum of Natural History
Smithsonian Institution
Washington, D.C. 20560

Dear Bob:

Thank you very much for your letter. I would be happy to endorse your application to Mark Littler, Chairman of the Department of Botany, but I do not feel able to write a letter directly to the Director of the Museum as much as I think of your accomplishments. Please advise if you would wish me to write Dr. Littler, or if he would like me to add a letter to his recommendation to Dr. Fiske for this purpose.

With all good wishes to you, I am

Cordially,

A handwritten signature in cursive script that reads "Peter".

Peter H. Raven
Director

PHR:cc

cc: Dr. Mark M. Littler (w/enc.)

357-2546

August 10, 1983

Dr. Peter H. Raven, Director
Missouri Botanical Garden
P. O. Box 299
St. Louis, MISSOURI 63166

Dear Peter,

Thanks so much for your letter. In reference to my application for Collaborator in the Department of Botany, would you please write directly to Dr. Mark Littler, Chairman of the department.

Incidentally I intended no wrong when I requested that you write to Dr. Fiske. I was told by others that it was the proper procedure.

Sincerely,

Robert M. King
Robert M. King

Department of Botany

cc Dr. Mark Littler

December 12, 1984

Dr. Peter H. Raven, Director
Missouri Botanical Garden
P. O. Box 299
St. Louis, Missouri
63166-0299

Dear Peter,

I would like to inquire if you know of someone who would be willing to work with Harold Robinson and myself counting chromosomes of Compositae. As you know, we are continuing the chromosome series that you started more 20 years ago. Mike Powell at Sul Ross has been helping us but he has assumed some administrative duties and now has little time for chromosome counting. In spite of this, I have still been collecting buds and we now have a large backlog. Next month I'll be collecting more in Argentina!

I would appreciate it if you could suggest someone. We would, of course, include them in the authorship.

Is there anything that I can get for you in Argentina?

Sincerely,

Robert M. King
Department of Botany

March 23, 1985

Dr. Peter H. Raven, Director
Missouri Botanical Garden
St. Louis, Missouri

Dear Peter,

Thanks so much for your letter of December 21, 1984. I appreciate very much that you were able to suggest Dr. Gerald Carr of Hawaii to help us count chromosomes of Compositae. I wrote to him months ago and he has yet to answer my letter. I learned recently that he is apparently one of B. L. Turner's henchmen. I expect that explains no answer. In any event, could you suggest someone else? Thanks for your trouble.

Sincerely,

Robert M. King

Department of Botany

Missouri
Botanical
Garden



April 11, 1985

Dr. Robert M. King
Department of Botany
National Museum of Natural History
Smithsonian Institution
Washington, D.C. 20560

Dear Bob:

Gerry Carr does not and never has had anything to do with B. L. Turner -- he is just busy. He is a student of Don Kyhos at Davis. I feel sure he'll be able to help, so why don't you write him again? If that doesn't get anywhere, please get back to me.

With all good wishes, I am

Cordially,

A handwritten signature in blue ink that reads "Peter".

Peter H. Raven
Director

PHR/jw

P. O. Box 299
St. Louis, Missouri 63166-0299

Telephone: (314) 577-5100
Telex: 466224
Cables: MOBOTSTL

June 18, 1985

Dr. Peter H. Raven
Missouri Botanical Garden
P. O. Box 299
St. Louis, Missouri 63166

Dear Peter,

I want to tell you how pleased I am that you have recieved the MacArthur award. Enclosed is a copy of the notice that appeared in The Washington Post.

Sincerely,

R.M.K.
Robert M. King
Department of Botany

September 16, 1985

Dr. Peter H. Raven, Director
Missouri Botanical Garden
P. O. Box 299
St. Louis, MISSOURI 63166-0299

Dear Peter,

Enclosed is a clipping from The Washington Post that may interest you.

Best regards.

B

Sincerely,

Robert M. King
Department of Botany

July 10, 1987

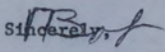
Dr. Peter H. Raven, Director
Missouri Botanical Garden
St. Louis, Missouri 63166-0299

Dear Peter,

A few weeks ago, David Smith was visiting the Smithsonian and gave us a very nice slide talk on Peru. Later, I talked with him and learned that the Missouri Botanical Garden/ Flora of Peru jeep was still available and was in good condition.

My request is this. Could I use the jeep for one month - perhaps in January or February of next year. I would use it to collect Compositae to be used in the Flora of Peru and also for our biochemical and cytological studies.

Thanks for your consideration. With kind regards.

Sincerely, 

Robert M. King
Department of Botany

Missouri
Botanical
Garden



July 16, 1987

Dr. Robert M. King
Department of Botany
National Museum of Natural History
Smithsonian Institution
Washington, D.C. 20560

Dear Bob:

Thanks for your letter. I need to pass the request on to Enrique Forero, who is currently in Europe. He will be in touch with you in August.

With many thanks, I am

Cordially,

A handwritten signature in blue ink that reads "Peter".

Peter H. Raven
Director

PHR/dgk

P. O. Box 299
St. Louis, Missouri 63166-0299

Telephone: (314) 577-5100
Telex: 466224
Cables: MOBOTSTL

October 8, 1987

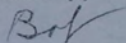
Dr. Peter H. Raven, Director
Missouri Botanical Garden
St. Louis
Missouri 63166-0299

Dear Peter,

I am writing again to request the use of the Missouri Botanical Garden/Flora of Peru jeep. You will recall that I wrote to you back in July and that you deferred to Enrique. He still has not answered even though I sent him a letter (copy enclosed). I would really like to know soon, so that I can make plans. Thanks for your help.

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Sincerely,



Robert M. King
Department of Botany

Missouri
Botanical
Garden

October 19, 1987



Dr. Robert M. King
Department of Botany
National Museum of Natural History
Smithsonian Institution
Washington, D. C. 20560

Dear Bob:

I have seen Al Gentry's letter to you about the jeep, so that is all in order. I did, however, want also to write and congratulate you on a really beautiful, and very outstanding publication on Eupatorieae. I am glad we were able to publish it, and very pleased with its appearance, as I hope you are.

With all good wishes, I am

Cordially,

Peter H. Raven
Director

PHR/law

P.O. Box 299
St. Louis, Missouri 63166-0299
Telephone: (314) 577-5100
Telex: 466224 MOBOT CI
Cable: MOBOTSTL

March 27, 1989

Dr. Peter H. Raven, Director
Missouri Botanical Garden
St. Louis, Missouri 63166-0299

Dear Peter,

Enclosed please find the Sunday issue of the Washington Post with an article on St. Louis and the Missouri Botanical Garden. I hope that you find it interest.

With kind regards,

Sincerely,

12/11
Robert M. King
Department of Botany

357-2545

July 29, 1982

Mr. J. Reed, Librarian
Missouri Botanical Garden
P. O. Box 299
St. Louis, MO 63166

Dear Mr. Reed:

Enclosed please find photographs of the following botanists:

E. Kaun, A. P. Decandolle, H. Harriman, R. Jansen, O. Huber,
D. Kaun, J. Steyermark, C. Jeffrey, L. E. Bishop, S. Mori,
O. Tovar, D. Keil, G. Nesom, D. Rindos, S. McDaniel,
E. Schilling, B. Nordenstam, V. Badillo.

I hope that this series will be a welcome addition to your
collections.

Sincerely,

Robert M. King
Department of Botany

RMK:cap
Encls.

Missouri
Botanical
Garden



August 10, 1982

Dr. Robert M. King
Department of Botany
Smithsonian Institution
National Museum of Natural History
Washington, D.C. 20560

Dear Dr. King:

The package with 29 photographs of botanists has arrived safely. We really appreciate your donating these for our portrait collection, which now approaches 1000 icones of botanists, ca. 1600 to the present.

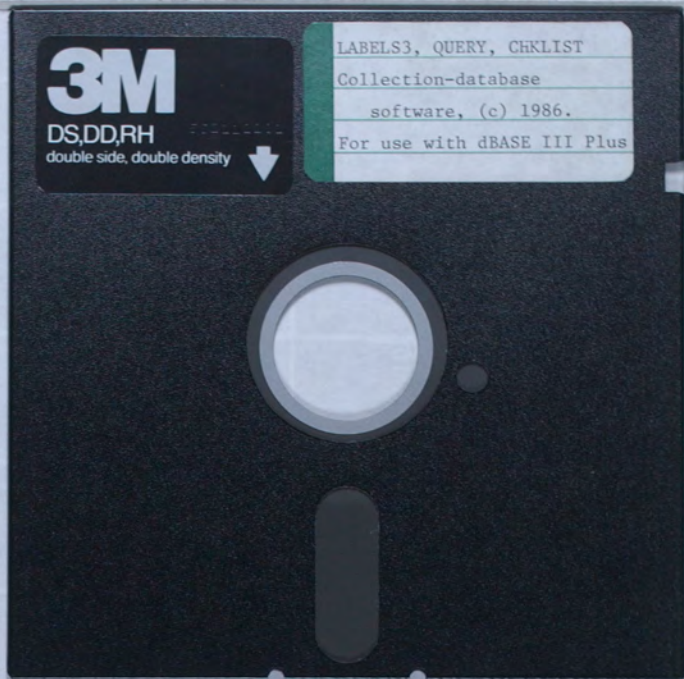
We are still interested in working with you on the drawings of Compositae we've discussed at previous Systematics Symposia. Do let me know what you require from us in order to facilitate this project.

Again, many thanks for the latest series of photographs. If you are planning to be here for this year's Symposium, I shall look forward to seeing you again.

Yours sincerely,

James R. Reed
Director of Libraries

JRR/mp



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19 September 1986

The enclosed collection-database software, LABELS3, QUERY, and CHKLIST, with MS-DOS format, and the accompanying documentation, *Labels3 User's Manual: Guide to the Development of a Collection Database* are being sent to you compliments of the Beal-Darlington Herbarium, Michigan State University (MSU). The *Manual* is currently unpublished, pending receipt of ISBN and Library of Congress classification numbers.

The disk must be used with dBASE III or dBASE III Plus software, commercially available. Included on the disk are 10 sample data files (file names beginning with the first four letters TRAN and MEGA, and having extensions .DBF, .DBT, AND .NDX). These can be deleted from the working disk after they have been used for practice or demonstration.

The authors would appreciate your comments or suggestions on this software package.

Sincerely,

Jacinto C. Regalado, Jr.
Richard K. Rabeler
John H. Beaman

**LABELS3
USER'S MANUAL**

Guide to Development of a Collection Database

Jacinto C. Regalado, Jr.

Richard K. Rabeler

John H. Beaman

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LABELS3 USER'S MANUAL

Guide to Development of a Collection Database

Jacinto C. Regalado, Jr.

Richard K. Rabeler

John H. Beaman

Digitized by Hunt Institute for Botanical Documentation

Beal-Darlington Herbarium
Department of Botany & Plant Pathology
Michigan State University
East Lansing, MI 48824-1312

Copies of this Manual and the software
described may be obtained on request to:

Curator
Beal-Darlington Herbarium
Department of Botany and Plant Pathology
Michigan State University
East Lansing, Michigan 48824-1312

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Michigan State University

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Labels3 User's Manual.

Includes index.

1. Plant Collections--Database Management. 2. Specimen Labels--
Computer Programs. 3. Botany--Herbarium Records. I. Rabeler,
Richard K., 1953- . II. Beaman, John H., 1929- .
III. Title.

ISBN

May 11, 1989

Mr. Areil Ricardo
Cuban Interest Section
2630 16th Street, N. W.
Washington, D.C. 20009

Dear Mr. Ricardo:

I am writing to request permission to conduct a scientific expedition to Cuba. The objective of the trip would be to collect biochemical and cytological information of the plant family Compositae. This would involve (1) preparing herbarium (museum) specimens to serve as voucher material, (2) collecting bulk material of the plants (ca. 1 kg dry weight) for chemical analysis and (3) flower buds preserved for chromosome study.

I would like to spend the month of January 1990 for this trip. I would be most interested in traveling in the eastern sections of Cuba. The results of this investigation could be coauthored with Cuban botanists. I look forward to hearing from you soon.

Sincerely yours,

Robert M. King

Department of Botany

357-2545

August 12, 1981

Dr. H. Riedl, Director
Herbarium
Natural History Museum
Burgring 7,
A-1014 Wien, Austria

Dear Sir:

I am writing to request the loan of Alomia pohlii Baker in the family Asteraceae. The specimen was collected by Pohl (#358) in Brasil. A type of photograph indicates the locality as Chile, but this is an error.

Thank you very much for your help.

Sincerely yours,

Robert M. King
Department of Botany

Dieter C. Wasshausen,
Chairman, Dept. of Botany

July 13, 1981

Harold Robinson

Inventory of Sinai

I would like to express my interest in participating in the inventory of the Sinai. If I am not available at the time, then R. M. King could go for me. There are some very interesting Compositae there.

August 5, 1985

Mr. C. R. Rogers
c/o Zion National Park
Springdale, Utah 84767

Dear Mr. Rogers:

I would like to thank you again for letting me collect the
plant at the park.

Sincerely yours,

Robert M. King

Department of Botany

April 12, 1989

Dr. J. H. Ross
National Herbarium of Victoria
Royal Botanic Gardens
Birdwood Avenue
South Yarra
Victoria 3141, AUSTRALIA

Dear Jim,

Please excuse the long delay in writing to you. I have just returned from a trip to Europe.

RV
I want to thank you for all your help while I was in Australia. I had a very good trip and I believe that I got a very good set of plants. The plants have all arrived in good condition. I believe that the Smithsonian has already set your herbarium a check for the postage. Let me know if it has not arrived. Please give my best regards to Phillip. Please tell him that we got a chromosome count for one of his new genera that I collected in W. A.

Most sincerely,

Robert M King
Department of Botany

First fold here

First fold here

Sender's name and address

BRITISH MUSEUM (NATURAL HISTORY)

CROMWELL ROAD LONDON SW7 5BD

Keeper of Botany

KC

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An air letter should not contain any enclosure

The 'APSLEY' Air Letter

A Dickinson Robinson Group Product

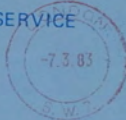
Form approved by the Post Office (United Kingdom) No. A4/2

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By air mail Air letter
Par avion Aerogramme

ON HER MAJESTY'S SERVICE



Dr G F Russell

Supervisor, Herbarium Services

Dept of Botany, NHB 166

Smithsonian Institution

WASHINGTON

DC 20560

USA

To open slit here

To open slit here

BRITISH MUSEUM (NATURAL HISTORY)

Cromwell Road London SW7 5BD

Telegrams: NATHISMUS, LONDON SW7

7 March 1983

JFMC/AMD/EE

Dr G F Russell
Supervisor, Herbarium Services
Dept of Botany
NHB 166
Smithsonian Institution
WASHINGTON
DC 20560

Dear Sir,

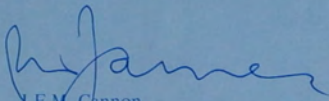
May I remind you that the material detailed below was
due back here on 6 January 1983
following the expiry of its current extension:

Loan No(s) 6856

Consisting of: 1 sheet of type specimen of Mikania
sagittifera sent for the attention
of Robert M King in July 1981

I should be grateful, therefore, if this material could be returned to us
as soon as possible.

Yours faithfully,


J.F.M. Cannon
KEEPER OF BOTANY

357-2545

January 12, 1981

Mr. S. Russell
Oriole Editions
19 West 44 Street
New York, N. Y. 10036

Dear Mr. Russell:

It has come to my attention that you have remaindered the rest
of Cassini on Compositae. I wonder if you could tell how I might
obtain copies of same.

Sincerely,

Robert M. King
Department of Botany

RMK:cap