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BELTSVILLE AGRICULTURAL RESEARCH CENTER
BELTSVILLE, MARYLAND 20705

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Subject: Feasible Samples for Field Work in East Africa:
Plants Active from Kenya and Tanzania

To: Robert E. Perdue, Jr., Chief
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Our current "want list" shows about 44 H and M species active from Kenya and Tanzania. Of these, 24 were determined as having a 50% or greater probability of being collected in lots of 300 to 500 pounds. Criteria used to assign probabilities were discussed in my memorandum "Plants Needed from Kenya and Tanzania" dated May 23, 1977.

Species are listed according to those available in Kenya and those available in Tanzania, and further divided under coastal and highland areas. It was found that all Kenya actives are available in Tanzania and that 23 of 24 are available in northeast Tanzania. A summary is shown indicating numbers of species available and expected numbers to be obtained within four outlined areas.

Northeast Tanzania appears to be an ideal area for field work. Within short distances one can collect the coastal endemics of forest, bushland and thicket (Excoecaria, Uvaria and Commiphora), species associated with the Guinee-Sudano-Zambezi savannas (Crossopteryx, Erythrophleum, Psorospermum, Parinari and Maprounea) and montane forest species (Aguaria, Warburgia, Acalphya and Afrocrania). The total number of expected collections from northeast Tanzania is about twice that for the southern Highlands and two to five times greater than that in Kenya. Also, only one species, Bridelia brideliifolia, appears not to be available in northeast Tanzania. Other species of interest that occur here are Brucea antidysenterica and Maytenus buchananii.

A table summarizes the available and expected number of species to be collected in four broadly defined areas. Incomplete collections refer to samples from one area that will weigh less than the required minimum of 300 or 500 pounds. However, if field work includes travel to both Tanzania and Kenya, then the chances of making a complete collection are increased. For example, one might collect 100 pounds of Taccazea galactogoga stems from Mufindi, another 100 pounds from Usambara Mts. and another 100 pounds from Mt. Kenya. A collection from any one area is considered as incomplete but the total or combined areas may yield a complete collection.

Guidelines are needed for the amount of time that should be devoted to (1) reconnaissance for a single species and (2) collecting a sample. Also what is the minimum weight of a sample that is acceptable? Should one



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disregard Monanthes buehneri if only 75 pounds of twigs are evident? Should one spend seven days searching for enough Monanthes buehneri to yield 300 pounds of twigs?

In 1973, I spent two weeks searching for 500 pounds of Gnidia subcordata leaves. On the fourth day, I found G. subcordata to be plentiful on the Kikuyu Escarpment; however, the plants there were leafless. Collections obtained from several other areas in Kenya totaled less than 100 pounds. At that time, a 500 pound sample was regarded as a major effort and in the case of G. subcordata, locality data from herbarium specimens were cabled to me in Kenya.

Because the weight requirements are 3 to 5 times greater than it was a few years ago, I have kept this in mind when evaluating the 44 current H and M actives needed from Kenya and Tanzania. The 24 selected species are those usually noted in descriptions of vegetation types or are mentioned in floras as being common. Botanical reviews, which have been completed for most species, should be supplemented by locality data from herbarium records at Kew, Nairobi and University of Dar es Salaam. It is not necessary to record all locality data for each species, only locations within areas selected for field work.

A cost estimate of about \$13,000 for field work in Tanzania was outlined in my memorandum dated July 15, 1977. The itinerary allowed two days for collecting each species. Also listed were 24 species that have a 50% or greater probability of being collected. If Kenya is to be included, a rough estimate might be about \$20,000 or about \$900/species (excluding shipping costs). Restricting the field work to only Tanzania reduces the expected number of complete collections from 23 to 18 with a cost of \$711/species. Restricting field work to only northeast Tanzania further reduces the expected number of collections by only three, but with a significant cost reduction - \$490/species.

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cc:
M. S. Hatcher

KENYA AND TANZANIA ACTIVES AVAILABLE IN KENYA

COAST

Forest

Hypoestes verticillaris rt-st-lf-fl-fr

Observed by Spjut in the Mwele Mdogo Forest (Game Reserve) in the Shimba Hills. A common-abundant species. Also observed by Sandra Saufferer in the Game Reserve outside the Mwele Mdogo Forest in grassy areas. A widespread species. 90-99% for the first 100 pounds, 67-90% for 300 pounds.

Bushlands and Thickets

Acacia mearnsii sb.

Observed by Spjut as an occasional shrub near Jilore. 50% for 100 pounds but difficult to find more except by large-scale reconnaissance. Native to Australia.

Commiphora boiviniana var. crenata tw

An occasional shrub seen by Spjut near Jilore. Probably can obtain 100 pounds. Without leaves or fruits, identification may be difficult because other species of Commiphora also occur there. 50% probable.

Phoenix reclinata rt-lf-(base)

Spjut and Ensor have collected more than 100 pounds near Kakyuni. 67-90%.

Ximenia caffra ws-sb

Spjut collected more than 100 pounds of roots near Jilore. 90-99%.

UPLAND

Moist Forests (Mt. Kenya, Mau Escarpment)

Afrocrania volkensii sb

90-99%. Based on literature review.

Aguaria salicifolia sb

90-99%. Based on literature review.

Hypoestes verticillaris rt-st-lf-fl-fr

67-90%. Based on field observations and literature review.

Begonia meyer-johannis rt-st-lf-fl

67-90%. Observed by Spjut as locally common on Mt. Kenya.

Ceriploca linearifolia st-lf

67-90%. Based on literature review and intuition.

Tacazzea galactogoga tw-lf-fr

50% probability. Based on literature review.

Bushlands and Thickets (Mt. Londiani, Narok)

Euphorbia candelabrum rt

67-90%. Based on field observations and literature review.

Sansevieria ehrenbergii st-lf

67-90%. Based on literature review.

KENYA AND TANZANIA ACTIVES AVAILABLE IN THE
COASTAL DISTRICTS OF TANZANIA

Species	Plant part	Probability	Weight (Pounds)
<u>Acacia mearnsii</u>	sb	50%	100
<u>Acalypha stuhlmannii</u>	pl	67-90%	200
<u>Afrocrania volkensii</u>	sb	90-99%	300
<u>Aguaria salicifolia</u>	sb	90-99%	300
<u>Begonia meyer-johannis</u>	pl	67-90%	200
<u>Commiphora boiviniana</u> var. <u>crenata</u> *	tw	50%	100
<u>Excoecaria bussei</u> *	sb	67-90%	300
<u>Gardenia jovis-tonantis</u> *	tw	50%	500
<u>Gnidia kraussiana</u>	st-lf-fl	50%	500
<u>Hypoestes verticillaris</u>	pl	67-90%	300
<u>Milletia oblata</u> ssp. <u>intermedia</u>	rt, sb	50%	300
<u>Monanthes buchananii</u> *	tw	67-90%	100
<u>Parinari curatellifolia</u>	fr	50%	300
<u>Periploca linearifolia</u>	st-lf	67-90%	300
<u>Phoenix reclinata</u>	rt-lf(base)	90-99%	300
<u>Psorospermum febrifugum</u>	rt	67-90%	500
<u>Sansevieria ehrenbergii</u> **	st-lf	90-99%	300
<u>Tabernaemontana Holstii</u>	rt	67-90%	500
<u>T. ventricosa</u> **	rt	90-99%	500
<u>Tacazzea galactogoga</u>	tw-lf-fr	50%	300
<u>Uvaria kirkii</u> *	tw-lf	67-90%	300
<u>Ximenia caffra</u>	ws-sb	67-90%	300
<u>Warburgia salutaris</u> **	sb	90-99%	300

* Species available only in the coastal districts.

** Species occurring in the coastal mountains but noted to be common or abundant in Lake Manyara National Park. (Greenway, 1969). These species are not available at Mufindi.

All species listed and probabilities are based mainly on literature reviews and personal knowledge of vegetation and flora of Africa. Botanical reviews have not yet been completed for Begonia, Ximenia and Uvaria. I have seen Begonia on Mt. Kenya and Ximenia in three places in Kenya and two in Zambia.

KENYA AND TANZANIA ACTIVES AVAILABLE IN THE
SOUTHERN HIGHLANDS OF TANZANIA

Species	Plant part	Probability	Weight (Pounds)
<u>Acalypha stuhlmannii</u>	pl	67-90%	200
* <u>Afrocrania volkensii</u>	sb	90-99%	300
* <u>Aguaria salicifolia</u>	sb	90-99%	300
<u>Begonia meyer-johannis</u>	pl	67-90%	200
<u>Bridelia brideliifolia</u>	rt	67-90%	500
<u>Gnidia kraussiana</u>	st-lf-fl	90-99%	500
<u>Hypoestes verticillaris</u>	pl	67-90%	300
<u>Milletia oblata</u> ssp. <u>intermedia</u>	rt, sb	50%	300
<u>Phoenix reclinata</u>	rt-lf(base)	67-90%	300
<u>Psorospermum febrifugum</u>	rt	90-99%	500

* Reported to be common in the Rungwe and Ngombe Districts.

SUMMARY OF 24 SPECIES ACTIVE FROM KENYA AND TANZANIA:
Available and Expected Number of Collections
According to Selected Geographical Areas

Geographical Area	Species Available	Expected Complete Collections	Expected Incomplete Collections	Species Total Complete and Incomplete
TANZANIA:				
Coastal Districts: Pare and Usambara Mts.; adjacent lowland forests, bushlands and thickets.	23	15	3	18
Southern Highlands: Mufindi, Rungwe and Njombe Districts.	10	8	1	9
Total for Tanzania	24	18	1	19
KENYA:				
Coastal Districts: Kalifi and Kwale Districts.	5	2-3	1	3-4
Uplands: Nairobi Forests, Mt. Kenya, Mt. Londiani or Narok or other.	8	6	2	8
Total for Kenya:	12	10	1	11
Kenya and Tanzania combined:	24	23	-	23

Complete collections are those that meet weight requirements.
Incomplete collections are those that are less than the weight requirements.