

Exhibit VII

TRAVEL REPORT*

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Texas, Nevada, California, and Oregon
April 15 - May 30, 1981

Purpose of Trip: (1) To procure large samples (recollections) of Kalanchoe tubiflora, Erioneuron pulchellum, Gutierrezia microcephala, Clapodium crispifolium and Iris missouriensis; (2) To procure general samples within the geographical range of recollections with emphasis on families, genera, species and selected medicinal samples new to the screen; and (3) To procure small samples of species of special request, Cerastium texanum and Abronia turbinata.

Summary: Large samples were procured for all targeted species and amounted to 493.5 pounds. Fifty-seven general samples of 50 species were collected and are represented by one new family (Tecophilaceae), 8 new genera (Pseudoclappia, Calylophus, Varilla, Clappia, Haploesthes, Odontostomum, Polycytenium, and Leucocrinum), 26 new species and targeted medicinal (folklore) samples of Porlieria angustifolia, Schaefferia cuneifolia, Leucophyllum frutescens, Porophyllum scoparium, Leucocrinum montanum, Paeonia brownii, and Abronia turbinata. The last one above also filled one to two special requests. Additionally, general samples of many other species were often limited to plant parts most likely to show anticancer activity; root of 14 species and inflorescence samples of three species; or, were of seldom-screened genera (Chamaesaracha, Acleisanthes, Peltiphyllum, and Hechtia) or of lower plants (6 species). Using a point system, the cost for this trip was a minimum 23% more effective than samples procured by contracting, compared to one major source of supply.

Detail:

A decision to undertake domestic field work for recollections weighed heavily on an assessment of locating adequate populations of species needed and obtaining vehicles required at a reasonable cost.

From literature research and previous trips to Texas, Nevada, and California, the prospects appeared promising for recollections of Kalanchoe tubiflora at Loyola Beach near Kingsville, Texas and Iris missouriensis in northern Nevada.

In the early stages of planning, Cerastium texanum seemed available in northern Texas, but the paucity of herbarium specimens at the Smithsonian (US) reduced my estimation of this recollection. Also, the geographical distribution of C. texanum is atypical, suggesting that this taxon is not clearly defined. The original collection was apparently from Arizona.

*USDA-NCI Cooperative Agreement to procure plant samples for anticancer screening of novel chemical substances that may have chemotherapeutic value in man.

Other doubtful recollections included Erioneuron pulchellum and Gutierrezia microcephala. Both flower in the summer and fall; thus, may not be easily identified in the spring flora.

Another difficult request was Abronia turbinata. Our want-list had also included Abronia exalata which I considered both as the same species. These were not active but were requested because of reported uses in folk medicine for treating cancer. Abronia turbinata is a fleshy, short-lived annual with a narrow range in geographical distribution (western Nevada & eastern California). Timing was considered crucial to locating this one.

Of high priority was a moss, Claopodium crispifolium. I first contacted Dr. Norris who earlier had mentioned he could obtain 200 pounds along the Van Duzen River on U.S. Highway 36 in Humboldt County, California. Dr. Norris was planning to leave for a six month trip to New Guinea on April 15 and thought he might have a problem in drying large samples if he collected during the winter months.

Realizing it may take time to collect 200 pounds alone, I contacted one of our suppliers, Chuck Edson. Unlike higher plants, casual labor can not be employed to collect a moss like Claopodium crispifolium. I needed someone who is reliable and has a good sense of judgement. Chuck never had any formal training in botany but has experience in supplying us with recollections of higher plants and has assisted me many times in collecting general samples.

Chuck, on his own initiative, set out to find Claopodium crispifolium in Oregon. He contacted Dr. David Wagner at Oregon State University who immediately questioned the validity of Claopodium crispifolium based on ecological data I gave Chuck. This led me to contact Dr. Wagner who indicated from his experience C. crispifolium was always on maple roots, logs or at the base of maple trees where a closely related species, C. bolanderi always occurs on rock. The original and one recollection was from rocks. Elva Lawton's 'Moss Flora of the Pacific Northwest' seemed to support Dr. Wagner's observations'. "C. bolanderi is commonly found on rock while C. crispifolium is usually on wood." I sent duplicate specimens to Dr. Wagner for his identification and to Chuck for his use in the field since he had already spent several weekends searching without success.

Later, I requested a demonstration of a microscope (recently purchased) and confirmed to my own satisfaction that the original and recollection obtained for NCI are indeed Claopodium crispifolium. The distinction between C. crispifolium and C. bolanderi rest on the number of papillae (or 'bumps') on each leaf cell (requires 100 x and 250 x magnification); C. crispifolium has a single papillae whereas C. bolanderi has 2-4 papillae. Macroscopically, these can be differentiated but only with a well-trained eye.

Both Claopodium bolanderi and C. crispifolium occur from southeast Alaska to central California but some ecological differences seem apparent. Lawton noted that "C. bolanderi grows at higher elevations" and under C. crispifolium she states "from the lowlands to about 1,000 meters." Based on my M.A. thesis of the Marble Mountain Wilderness Area, two collections of C. crispifolium were made at 3,600 feet in elevation which was near the lower elevation limits of the wilderness area and numerous collections were made from C. bolanderi at elevations up to 5,600 feet. The lower elevation forests often include a mixture of conifers

such as Douglas fir, incense cedar and hardwoods such as tan oak, California laurel, madrone while at higher elevations the hardwoods are replaced by other conifer species. Presently, we don't know about C. bolanderi in the screen but a sample was accessioned last December.

In planning to recollect Claopodium crispifolium, the number one habitat in my mind was rocky-forested benches along creeks and rivers below 3,600 feet in elevation.

In setting up a time table for recollections, I assume success for each species. Two weeks were allotted for Erioneuron pulchellum and Kalanchoe tubiflora in Texas and another two weeks for Gutierrezia microcephala and Iris missouriensis in Nevada and finally two weeks for Claopodium crispifolium in California and Oregon.

Although my strategy and general time table for recollections were laid out several months in advance, the trip still hinged on getting GSA Interagency motor pools to loan us one of their trucks. GSA offers cheap rental rates but in the past we have had very little success with them. Last November, I drew the line on renting from commercial sources when I cancelled tentative plans for Dan Norris and I to go into southern Mexico. From Yuma (the only place I could get a vehicle to take into Mexico), I estimated driving one way would cost over \$1,000.

I have pointed out on several occasions that general samples which cost us \$50.00 each could have cost us less than \$25.00 if we were allowed to purchase or lease a vehicle. Dr. Duke has tried but was denied on getting a vehicle for our laboratory.

Other government agencies also have motor pools and I can not understand why we are limited to just GSA. For example, the USDA Forest Service in Eureka, California seems to have mostly 4 x 4 trucks, the kind of vehicles we need but can rarely obtain through GSA.

From experiences in dealing through channels here for GSA vehicles, I felt if we stress the importance our project and limit our request for a short period of time, we might succeed in obtaining the vehicle we need. Denise Duigan, head of our motor unit, was certainly a big help in getting Interagency motor pools to come through in El Paso and in Las Vegas. I would have preferred San Antonio and Reno but I accepted driving an extra 500 to 800 miles when looking at the cost difference between commercial and GSA rates. We spent approximately \$1,370.00 for truck rental and gasoline on this trip but at commercial rates this would have cost about \$5,300.00; a difference of nearly \$4,000, or more than three times the GSA rate.

Another disadvantage to renting from GSA, is I can not confirm any reservations until 30 days before departure. By February 25, I had decided to fly somewhere in Texas on April 15 and to somewhere either in Nevada, California, Oregon, Washington or British Columbia on May 1. It was not until April 1, two weeks before my departure date, that I learned of my flight destinations. Fortunately, I was prepared to fly anywhere on the basis of research conducted in 1978 for new genera and species of general samples. Combining collections of general samples with recollections can increase productivity and help reduce the cost for both kinds of samples.

The 30 day restriction for vehicle reservations makes it nearly impossible to take advantage of lower air-fares. We also followed GSA regulations with regard to air-fare contracts but this may have cost us about \$400.00 more.

TEXAS - APRIL 15 - 30

April 15 When I arrived at the GSA Interagency Motor Pool in El Paso, the pick-up promised was not available. I accepted a van as a substitute.

I surveyed one site for Erioneuron pulchellum about 17 miles east of El Paso. This is a small perennial grass, averaging 5 centimeters in height, and was fairly common along 4 miles of pavement. It was not in flower but the leaves were beginning to turn green.

April 16 After 30 minutes at the unemployment office in El Paso, I located three persons who agreed to assist in the collection of Erioneuron at \$3.00 per pound. By noon most of the Erioneuron available was picked, about 50 pounds that later dried to 34. The remainder of the day was spent collecting three general samples: above ground parts of one new species and two inflorescence samples of species not new but acceptable to SLOP guidelines.

April 17 - 19 Drove about 800 miles to Weslaco. Enroute collected 11 samples, 4 of which belong to new genera. It rained frequently.

April 20 Contacted Dr. Gonzalez, a range scientist with SEA at Weslaco. He was expecting me from previous communications and arranged for me to leave samples to dry in a greenhouse with screen sidings. We also discussed plans on collecting general samples for April 22.

April 21 From Weslaco, I drove about 120 miles to Loyola Beach to locate Kalanchoe tubiflora, a succulent in the jade family (Crassulaceae) that is native to Malagasy and not Texas. Based on Correll & Johnston's Flora of Texas, it was reported as an escape at Loyola Beach, but after several hours search none was seen. I had a contact in Kingsville but decided to extend my search to other nearby beaches. At Riviera Beach, I spotted some along a fence surrounding a mesquite-cactus thicket. After collecting for about an hour, the landowner happened to drive by and inquire. I was invited on his ranch where he knew the plants were in thick stands and he also assisted in gathering. He mentioned that he had never seen any (Kalanchoe) at Loyola Beach. This is not surprising because it has been my experience that information in literature or from herbarium labels have to be used with caution. Kalanchoe daigremontiana was also abundant and a small sample was collected. According to the owner, both species were planted in their garden by their house about 50 years ago and subsequently have spread over many acres of their ranch.

April 22 Dr. Gonzalez, Jim Everitt and I drove 200 miles in their SEA truck (at no cost to EBL) to an area in Starr County where they felt we could get some of the targeted general samples (listed on the attachment to my memorandum of February 3). Within five minutes after arriving at our first stop, it began to rain. Since their truck was not a 4 x 4, we had to leave before the road became muddy. I managed to grab some Hechtia glomerata.

On returning to Weslaco, Jim Everitt was trying to recall where he had once collected a specimen of Clappia (new genus) during his college days. After one attempt, we succeeded in locating it not far from my motel in Mercedes.

April 23 Returned to Riviera Beach to collect more Kalanchoe tubiflora. About 1:00 P.M. it began to pour and by now I had accumulated 10 sacks, each weighing about 100 pounds.

April 24 - 27 Samples left on trays and screens had dried very little since April 20. Humidity had been 80% or higher and more rain was in the forecast. I packed up and headed for El Paso. Collected 14 general samples on my return that included root of medicinal species such as Schaefferia frutescens, Porlieria angustifolia, Leucophyllum frutescens, Porophyllum scoparium, a new genus - Haploesthes and a new species - Condalia ericoides that I earlier had listed (memo, Feb. 3) as a new genus, Microrhammus.

Due to frequent rains, I was often shuffling samples between the top of the van (for quick drying) to the inside that was already overcrowded.

April 28 - 30 Contacted G. Horst at Texas A. & M. Research Foundation. Dr. Horst had earlier did a favor by checking on the condition of Erioneuron near El Paso (before I left Beltsville). I inquired about using their fenced compound as a drying area for Kalanchoe. General samples were dried elsewhere on their research center.

Kalanchoe tubiflora-was spread out on plastic and driven over many times with the Van. This was effective in drying 75% or more of the sample. About another four hours were required to peel off the wax-like seal on the remaining pieces still fresh.

By April 29 most samples were nearly dried but I had to ship some to Las Vegas.

NEVADA, CALIFORNIA AND OREGON: MAY 1 - 30

May 1-4 Drove more than 500 miles, from Las Vegas to Red Bluff, California. Red Bluff is where I intended to start reconnaissance for Claopodium crispifolium.

In Nevada along U.S. Highway 95, I searched for Erioneuron pulchellum, Gutierrezia microcephala and Abronia turbinata. The objective was to identify the best places to collect Erioneuron and Gutierrezia on my return trip. I sampled some Erioneuron at one location to get a feel on how much time it might require to obtain the weight still needed, and similarly for Gutierrezia, except that I started to collect Chrysothamnus nauseosus ssp. mohavensis by mistake. Both Gutierrezia and Chrysothamnus belong to the Asteraceae and the species in question was a subshrub. Remnants of last year's flowering heads were present, and along with the resinous linear leaves, this seemed convincingly Gutierrezia microcephala. On the other hand, the smell and general feel of the plant was more like rabbit brush (Chrysothamnus). For about an hour I went through this conflict, studying each plant

carefully before placing it in the sack. The conflict was resolved when I came across one shrub with the entire capitula preserved. What had happened was that most of the vertical-ranked phyllaries are deciduous, but not all, and what remains on the plant are capitula that resemble Gutierrezia microcephala. Besides possible confusion with Chrysothamnus, there is also Gutierrezia sarothrae which vegetatively resembles G. microcephala. These two species are distinguished by the number of flowers in each head but again these plants do not flower until August. Based on my experience, G. sarothrae is a common species of a weedy nature, especially along road margins in southern Nevada, and is rarely woody at the base, whereas G. microcephala is spotty in occurrence, favors limestone rocks and is limited to elevations above 3,000 feet or more often at 5,000-7,000 feet. I had anticipated a identification problem before I left Beltsville and prepared a reference sample but unfortunately left it on my desk. Later, I telephoned the office and asked Mae to mail this reference sample to me.

I was not successful in finding any Abronia turbinata at this time but collected four general samples, one of which was a new genus (Odontostomum) and also a new family (Tecophilaceae).

May 5 - 17 During my first two days of reconnaissance along U.S. Highway 36, Claopodium crispifolium was not seen. I had expected to find it in quantity based on information from Dan Norris.

When I arrived in Eureka, the GSA truck was 'missing' badly. I took the truck to E. W. Pierce Co. and had them check it out. Larry, who runs the company, did me a favor and replaced the spark plugs without charging labor. This saved telephone calls to Las Vegas and probably several days loss without a vehicle.

In the four days to follow, my search in California was not very productive. About 20 pounds were raked off large rocks of one north-facing ravine forest along Redwood Valley Road, north of Lord Ellis. Canon Creek, about 15 miles southeast of Arcata (Korbel - Maple Creek Road), had a fair amount on small stones but thick underbrush with larger rocks along the creek made collecting very difficult. Perhaps, following Canon Creek (by foot) upstream might be worthwhile since the map showed a hollow or bench area where three streams converged; however, even if Claopodium was abundant, it would take days to haul it out through the brush. Further north, the Smith River in Del Norte County was considered a good prospect but only small quantities were occasionally seen at scattered locations.

I had returned to last year's recollection site and stumbled onto a gold mining operation. In this situation one has to be careful because the last thing any miner will believe is collecting a moss for cancer research.

At another location along Maple Creek Road, a game warden expressed his curiosity, and fortunately, I was driving a Truck marked U.S. Government. The warden indicated that I was close to a marijuana garden that they had been watching. But, before I met the warden, I had met the gardeners who allowed me to trespass. As I recall, they were skeptical but accepted my sincerity in searching for Claopodium (probably would have been nervous had I known a garden was nearby).

The Cascades in Oregon was my next target area. As in California, I often encountered Claopodium where one might anticipate on finding it, but never in any reasonable quantity. On the evening of May 12, I arrived at Chuck Edson's residence

in Eugene. Just before I left Beltsville, Chuck reported finding Claopodium on rocks near Triangle Lake but was not sure of the abundance and was still awaiting confirmation from Dr. Wagner. I later telephoned Dr. Wagner who confirmed the samples I sent, and those Chuck found, as Claopodium crispifolium. He could not advise me on where to find lots of Claopodium except that he had occasionally seen good mats near the base of maple trees. He offered to collect Claopodium for us if he happened to come across any. He also felt that collecting 200 pounds would be a difficult task.

On May 13, I decided to make a cross section reconnaissance of the Coast Ranges of Oregon, almost my last hope for a Claopodium recollection. About 15 miles west of Eugene, my first stop was an old maple forest. It was on many trees here, often mixed with other bryophytes, but still not in collectable quantities. Nevertheless, its' frequency of occurrence here was encouraging. My next stop was Chuck's site near Triangle Lake, about 30 miles west of Eugene; it was rather scattered on small stones along Lake Creek and didn't look very promising. About a mile from Chuck's site, I stopped at a ravine and spotted my first reasonable find in days which yielded about 5 pounds. Another mile or so further I pulled off at Lake Creek Recreational Area; here it was abundant and 60 pounds were later peeled off stones with the assistance of Chuck, Molly K. Femming and Chuck's son Brooke. I continued west, with occasional stops, and as I approached the coast I saw less and less Claopodium. When I returned to Eugene, I concluded that searching within the longitude of Lake Creek Recreational Area had to be the answer to locating collectable quantities of this moss.

In the following days, Claopodium was frequently found in good abundance on maple root, bark of trees, logs and rocks along Clay, Whittaker and Lobster Creeks; all sites were within the general longitude or zone of the Lake Creek site.

About 135 pounds were eventually collected and we were short of our goal because of rain that began almost after my first good find. One has to work about ten times harder to collect wet moss that will yield the desired dry weight. Since Chuck felt confident in locating and identifying Claopodium, we agreed on \$6.00 per pound to fill the 200 pound order. He reports success by focusing on old maple forests. From my experience, it is not abundant everywhere but one can improve his skill in locating good sites that often yield 10 to 15 pounds from logs and base of maple trees. In this sense old maple forests are superior to rocky-forested benches along creeks as sites for procurement of Claopodium crispifolium.

May 8 - 22 Before leaving Eugene on May 18, I contacted my brother, Roger, who works for the USDA Forest Service in Recreational Planning in Lakeview. As a favor, Roger checked with forest service districts in eastern Oregon on Iris missouriensis and learned it was abundant in the Silver Lake District.

About 16 miles west of the town of Silver Lake, I found plenty of Iris in a marsh. The plant part needed was root, and in pulling up a few, I felt at least four days, with help, would be required to collect a reasonable amount. I visited the ranger station at Silver Lake and introduced myself to the head ranger, Charlie Plumb. He loaned me his botanical references to confirm the identity of the Iris (not in flower at this time). There are a number of similar Iris species, but on the basis of geographical distribution the only Iris east of the Cascades is the Rocky Mountain Iris, Iris missouriensis.

A secretary, Mrs. Loraine Sphar, claimed to have plenty of Iris on her ranch and offered to get her husband to dig up the plants with a caterpillar. She telephoned her husband and we tentatively agreed to meet at their ranch on May 20, noon.

In Lakeview on the morning of May 19, the weather outlook was unfavorable. I had intended to spread samples out to dry but had to leave the bags hanging in the barn. I decided to collect general samples in hope of better weather the next day. I visited the Bureau of Land Management and met Ginny Crosby (Botanist). Some locality data I had for new genera made reference to Oak Flat Ranger Station, the existence of which was not known. Ginny was very helpful in providing more accurate descriptions based on her memory and she also loaned me her BLM & Forest Service Maps. About 10 general samples were collected that included two new genera.

Roger's wife, Bev, was also helpful in arranging for what turned out to be two conscientious workers to assist in collecting and drying recollections of Iris and Claopodium, and general samples.

Digging up Iris missouriensis with a caterpillar took only a few minutes but many hours were required to separate the roots from the mud. Jim Sphar and his ranch hand, Jim, also helped on this dirty job. We then realized it would have been better to dig in drier margins, or as Chuck plans, let the Iris clods dry for a few days before shaking the dirt loose.

Unfortunately, I was running short of time. The Las Vegas motor pool stressed that I could not keep their vehicle past 30 days. Since May 30 fell on a Saturday, I was told that I could not keep the vehicle over the weekend and had to return it on May 29. Lakeview is about 700 miles from Las Vegas and I still had two recollections to obtain and lots of samples already on hand that needed drying. It had rained again on May 20 but a break finally came on May 21. By the afternoon of May 22, the threat of rain returned and remained with me through May 27. During the break, I managed to get most samples dried that were shipped from Reno on May 23.

May 23 - 30 After shipping Claopodium and Iris, I was left with about 20 general samples on top under cover. Enroute to Las Vegas on Highway 95, I finally located and collected Abronia turbinata. I also attempted to collect root of Hermidium (= Mirabilis) alipes because of its use in Indian medicine and also previously on our list as a special request because one of the uses was cancer. After some effort, I could only come up with 1/2 pound. The roots are large but the plants were very scattered and had to discontinue my search in favor of recollections.

Near Goldfield (May 25), I found good populations of Gutierrezia. It was raining all around but fortunately not where I was collecting. About the time rain did arrive, I was running out of space for samples. I estimated 100 pounds (dried) of Gutierrezia and still had room for 50 more except that we still needed more Erioneuron (a more difficult collection). On May 26 I stuffed the available

space in the truck with Erioneuron and then headed for Las Vegas.

COSTS

Costs for the entire package of general samples and recollections were:

Air Fare.....	\$ 768.00
Per Diem.....	\$1,985.90
Truck Rental (includes gas).....	\$1,369.34
Labor & Misc.....	\$ 962.55
TOTAL.....	<u>\$5,085.79</u>

As far as I know, the first two items count against out travel ceiling - \$2,753.90. Taxi fares and a few other items not sorted from the miscellaneous costs might also be charged to our travel ceiling which:

AMOUNT TO BE APPLIED TO TRAVEL CEILING ~ \$2,800.00

About two-thirds of my trip was devoted to recollections; thus, multiplying two-thirds by the total cost gives us the recollection cost of \$3,390.52 and leaves us \$1,695.26 spent on general samples:

RECOLLECTIONS

\$3,390.52/493.5 pounds = \$6.87 per pound

GENERAL SAMPLES

\$1,695.26/57 samples = \$29.74 per sample

Productivity, as measured on a point system, was 493.5 points for recollections, (one point for each pound) and 153 points for general samples for a total of 646.5 points. A breakdown of the scoring of general samples is:

Species - 50 (x 2).....	100 points
Additional Samples - 7 (x 1).....	7 points
New Species - 26 (x 1).....	26 points
New Genera - 8 (x 2).....	16 points
New Families - 1 (x 4).....	<u>4 points</u>
TOTAL.....	153 points

Other quality factors not included are seldom-screened genera, selected medicinal plants and emphasis on plant parts most likely to show activity. Therefore, the cost per point is actually much lower, or a minimum, of \$11.08 (\$1,695.26/153) for general samples.

As a basis for comparison, I used data gathered by Mae on 253 Peruvian samples accessioned between June 1980 and June 1981: 126 species and 127 additional samples (379 points) that include 68 new species (68 points), 9 new genera (18 points)

and 0 new families for a total of 465 points. The cost for Peruvian samples was \$13.60 per point (based on \$25.00 per sample); thus, this travel was a minimum 23% more effective than contracting (in this particular case). I believe Peruvian samples are fairly representative of what we get from other suppliers.

My projected cost for recollections was from \$5.00 to \$7.00 per pound "once in the field." The qualification was added because of possible new requests after leaving Beltsville. Subtracting air-fare, the cost for recollections was \$4.64 per pound.

COMMENTS

Rain was a major factor that affected both the weights of recollections and the numbers of general samples procured. I usually dry samples enroute between targeted areas for recollections. In practice, as the truck is filled with fresh samples, others dry and then are shipped by mail or by air-freight. Occasional rain is no problem, but with continuous rain I often become bogged down. This trip was a first, for example, in hiring labor just to assist in drying samples in desert regions. It probably rained, or threatened to rain, 75% or more of the time. I would expect rain in the Coast Ranges of Oregon but not in the deserts of Oregon, Nevada, and Texas. Despite the rainy handicap, costs for general samples and recollections were better or equal to what we get through contracting.

Much of the success can be attributed to people willing to do small favors. This is not uncommon. For example, last year Dr. Norris sent us a second and a third general sample of Claopodium (for reconfirmation) at no cost to us. He also assisted in the field to collect many bryophyte general samples and was paid a taken fee for his identifications. In the past, I have also done favors for Dan. People are also willing to help in the cause to fight cancer. It has been my experience that I get more favors through personal contact, especially when working in the field. When I am involved, others become involved and want to contribute to our common cause.

Arrangements have been made to complete the weight requirements for all species except Kalanchoe tubiflora. A Table enclosed shows the weights collected for each species. The outlook for a future supply of large samples is excellent for all species recollected this trip.

Claopodium was obviously the most expensive sample, but this can be expected for unusual assignments or novel plants of this nature. Unlike many higher plants, a moss like Claopodium crispifolium can rarely be seen from a road. Literature and herbaria data can not be applied in the same manner. Even contacts with local specialists, such as Dr. Norris in California and Dr. Wagner in Oregon, could not provide me with the kind of information I needed. Geographical parameters had to be refined and ecological parameters had to be learned through trial and error. Then, to decide when C. crispifolium, or any other plant, is reasonably abundant, or economically feasible for procurement, requires experience. The search for Claopodium crispifolium turned out to be one of my most interesting and challenging field projects.

SUMMARY OF RECOLLECTIONS

<u>Species</u>		<u>Weight Procured (pounds-dried)</u>	<u>(Requested)</u>	<u>Additional Weight From Other Sources</u>	<u>Expected Weight From Other Sources</u>
<u>Kalanchoe tubiflora</u> whole plant	(Crassulaceae)	92.0	(150)	0	0
<u>Erioneuron pulchellum</u> whole plant	(Poaceae)	94.5	(150)	3.25	55
<u>Iris missouriensis</u> root	(Iridaceae)	73.5	(150)	0	*125
<u>Gutierrezia microcephala</u> whole plant	(Asteraceae)	99.0	(150)	0	** 0
<u>Claopodium crispifolium</u> 'moss'	(Thuidiaceae)	135.0	(200)	69	0

TOTAL WEIGHT PROCURED.....493.5

*Arrangements have been made to complete the 150 pound order from the same location. An additional 50 pounds will also be procured from the original location in Nevada. The original sample was obtained in June 1980 because of its use in folk medicine and specifically targeted for as a result of research conducted in 1978.

**The weight procured for this species has been determined by NCI to be sufficient.

SUMMARY OF GENERAL SAMPLES

	Higher Plants			Lower Plants			
	Flowering Plants	Conifers	Ferns	Mosses	Liverworts	Hornworts	Lichens
Number of Samples	51	0	0	4	*1	0	1
Number of Species	45	-	-	4	1	-	1
New Families	1	-	-	0	0	-	0
New Genera	8	-	-	0	0	-	0
New Species	23	-	-	2	0	-	1

Medicinal Samples

<u>Schaefferia cuneifolia</u>	(Celastraceae)	Root	<u>Paeonia brownii</u>	(Paeoniaceae)	Root
<u>Leucophyllum frutescens</u>	(Scrophulariaceae)	Root	<u>Abronia turbinata</u>	(Nyctaginaceae)	Whole Plant
<u>Porophyllum scoparium</u>	(Asteraceae)	Root	** <u>Leucocrinum montanum</u>	(Liliaceae)	Whole Plant
<u>Porlieria angustifolia</u>	(Zygophyllaceae)	Root			

* A liverwort sample of Marchatia polymorpha was lost and not tabulated here

** Also a new genus