

REPORT OF EXPEDITION
TO COLLECT WILD SPECIES OF POTATO
IN CENTRAL PERU (DEPARTMENTS OF ANCASH, HUANCABELICA, LA LIBERTAD,
LIMA)

March 8 to April 25, 1999

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Report of 1999 expedition to collect wild species of potato in central Peru - 2

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Most germplasm of this expedition were made as vegetative material, mainly as plants in pots, and remain at CIP in Huancayo, Peru, for a germplasm increase. CIP will perform a germplasm increase, with the goal of intercrossing plants of the same accession and producing true seeds. If true seeds cannot be produced, collections will be placed in-vitro. These increased materials from all accessions will be sent to NRSP-6, IPK, and CGN for another germplasm increase. Herbarium specimens are deposited at the Herbario Weberbauer, Departamento de Biología, Sección Botánica, Universidad Nacional Agraria (MOL); the herbarium of NRSP-6 (PTIS); the herbarium of the International Potato Center (CIP); and the herbarium of the Department of Plant Taxonomy, Wageningen Agricultural University (WAG). This report was distributed to individuals listed in Appendix 4 on January 31, 2000.

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SUMMARY

This report details results of the second of a series of five planned collecting expeditions to Peru. The collections reported here were made in the central Peruvian Departments of Ancash, Huancavelica, La Libertad, and Lima, from March 8 to April 25, 1999. They follow collections made in 1998 in the southern Peruvian departments of Apurímac, Arequipa, Cusco, Moquegua, Puno, and Tacna. That report and a resulting publication in *American Journal of Potato Research* 76: 103-119, 1999, should be consulted for additional details not presented here regarding obtaining permission to collect, ecogeographic data, a list and map of Peruvian basionyms for all of Peru, and further details on taxonomy that relates to this report. Because of late rains in 1999, most of our collections were made only as plants in pots and are being increased at CIP in Huancayo, Peru. The goal is to produce true seeds or if not possible to place the plants in-vitro. We made 101 germplasm collections, including first germplasm collections of *S. amayanum*, *S. anamatophilum*, *S. arahuayum*, *S. augustii*, *S. bill-hookeri*, *S. cantense*, *S. chavinense*, *S. chomatophilum* var. *subnivale*, *S. chrysoflorum*, *S. gracilifrons*, *S. hapalosum*, *S. huarochiriense*, *S. hypacrarthrum*, *S. jalcae*, *S. moniliforme*, *S. multiinterruptum* f. *longipilosum*, *S. multiinterruptum* var. *machaytambinum*, *S. peloquinianum*, *S. rhombilanceolatum*, *S. simplicissimum*, *S. taulisense*, and *S. wittmackii*. In addition, new collections were made of the under-collected species *S. hastiforme* (three collections). Some of these names have been synonymized and other names have been newly described or ressurected from prior synonymy in a treatment of the potatoes of Peru by Carlos Ochoa in 1999. We discuss these changes below.

INTRODUCTION

Rationale for the 1999 collections.

One hundred and eleven taxa of wild potatoes were accepted for Peru prior to the monograph of wild potatoes of Peru by Ochoa published in 1999. We planned our expedition before Ochoa's monograph appeared, and documented 36 potato taxa in the targeted central Peruvian Departments of Ancash, Huancavelica, La Libertad, and Lima. A total of 24 of these taxa had no germplasm collections in any genebank worldwide (Appendix 3). This expedition, therefore, was designed to collect these species for genebanks of wild and cultivated potatoes.

The potato taxa reported in the targeted departments to collect are:

In the department of La Libertad: *S. chiquidenum* Ochoa, *S. chiquidenum* var. *cachicadense* Ochoa, *S. hastiforme* Correll, *S. jalcae* Ochoa, *S. mochiquense* Ochoa, *S. multiinterruptum* var. *machaytambinum* Ochoa, *S. sogarandinum* Ochoa, *S. taulisense* Ochoa, and *S. yamobambense* Ochoa.

In the department of Ancash: *S. anamatophilum* Ochoa, *S. augustii* Ochoa, *S. chavinense* Correll, *S. chomatophilum* Bitter, *S. chomatophilum* var. *subnivale* Ochoa, *S. dolichocremastrum* Bitter, *S. moniliforme* Correll, *S. multiinterruptum* f. *longipilosum* Correll, *S. orophilum* Correll, *S. rhombilanceolatum* Ochoa (as var. *ancophilum* Correll), and *S. peloquinianum* Ochoa.

In the department of Lima: *S. arahuayum* Ochoa, *S. cantense* Ochoa, *S. chancayense* Ochoa, *S. chrysoflorum* Ochoa, *S. hapalosum* Ochoa, *S. huarochiriense*, Ochoa, *S. hypacrarthrum* Bitter, *S. immite* Dunal, *S. chacoense* Bitter, *S. limense* Correll, *S. medians* Bitter, *S. medians* var. *autumnale* Correll, *S. multiinterruptum* Bitter, *S. neoweberbaueri* Wittm., *S. simplicissimum* Ochoa, and *S. wittmackii* Bitter.

In the department of Huancavelica: *S. amayanum* Ochoa, *S. bill-hookeri* Ochoa, and *S. gracilifrons* Bitter.

Personnel:

INIA representative

Rafael Vinci Torres Maita. He obtained his INIA position as a potato breeder two months before the expedition initiated. He is 35 years old. Before this job he worked for the Universidad Nacional del Centro del Peru in Huancayo for 10 years, as a professor of breeding and genetics. He taught breeding and genetics and worked on wheat and potato breeding. After this job he worked for one year at the Universidad Nacional de Huancavelica for one year, where he also taught breeding and genetics. He obtained his Ing. Agrónomo degree at Universidad Nacional del Centro del Peru.

CIP Coordinator

Zósimo Huamán. He is a Genetic Resources Specialist in the Department of Crop Improvement and Genetic Resources, CIP. He is 54 years old. He is the genebank manager at CIP and has been working on the rationalization of the size of the potato and sweet potato collections maintained at CIP and in the selection of core collections using morphological and molecular techniques. He is the CIP representative responsible for working with Peruvian authorities to gain permission to collect, and for coordinating activities of CIP personnel involved with the expedition.

Additional collectors

Alberto Salas. He is an Associate Taxonomist at the International Potato Center. He is 56 years old. He has a Master's Degree in Plant Breeding from the Graduate School of the Universidad Nacional La Molina. He began working as Carlos Ochoa's assistant in 1970 when Ochoa was a Professor in the Programa Investigacion de Papa at the Universidad Nacional La Molina, and continued during Ochoa's 1974-1976 part time and thereafter full time responsibilities at CIP. Salas began collecting potatoes in Peru in 1968, and has been collecting potatoes every year. He also collected wild potatoes in Venezuela, Ecuador, and Colombia in 1976; in Bolivia many times from 1976-1990; in the United States with John Bamberg and others in 1994; and in southern Peru in 1998 as part of this five-year plan of expeditions in Peru.

David Spooner. He is a Research Botanist for the United States Department of Agriculture, Agricultural Research Service, with an appointment as Professor, Department of Horticulture, University of Wisconsin-Madison. He is 50 years old. His duties are divided between collecting wild potatoes for the United States Germplasm System (stored at the National Research Support Program-6, NRSP-6), and research on the taxonomy of potatoes and close relatives including tomatoes, using morphological and molecular techniques. Since beginning this position he has collected in 1988, Mexico; 1989, Chile; 1990, Argentina and Chile; 1991, Ecuador; 1992, Colombia and Venezuela; 1993, Bolivia; 1994, Bolivia; 1995, Guatemala; 1996, Costa Rica; 1997, Mexico; 1998 and in southern Peru part of this five-year plan of expeditions in Peru.

Konrad Schüler. He is the curator of the German potato collection Groß Lüsewitz (GLKS). He is 60 years old. The former East German potato collection was initiated by Rudolf Schick after the foundation of the Institute for Plant Breeding (later called Institute for Potato Research) in Groß Lüsewitz in 1949. The first curator for the collection of wild and cultivated species was Dietrich Rothacker, followed by Edith Hinze. Konrad was responsible for the collection of cultivars since 1967. After the German reunification and as a result of the new organization of the science in Eastern Germany since 1992 the Potato Collection Groß Lüsewitz is part of the Institute of Plant Genetics and Crop Plant Research (IPK) Gatersleben.

Roel Hoekstra. He is the curator of the Dutch German potato collection that is part of the Centre for Genetic Resources in the Netherlands (CGN). He is 43 years old. This collection was a merger of the former Dutch WAC (Wageningse Aardappel Collectie [potato collection from Wageningen]) and the former West German Collection. The original WAC curator was Prof. Jan Hermesen. The original West German potato genebank curator was Prof. Hans Ross at the Max Planck Institute in Cologne, Germany. This former West German genebank was called the Erwin Baur Sortiment (EBS, or Erwin Baur Collection). The merger was made in 1974 and the first curator of the Dutch German collection was Wouter Lange, followed by Loek van Soest and then by Roel Hoekstra. The Dutch German potato collection moved from Braunschweig, former West Germany, to Wageningen, The Netherlands in 1995 under the auspices of the CGN. Roel Hoekstra remained the curator.

When the collection was in Germany, both Germany and The Netherlands paid for its maintenance, but since its move in 1995 The Netherlands pay all its costs. However Germany pays all funds for the Dutch German *Beta* and *Cichorium* collections that are maintained in the former West German Genebank in Braunschweig. Discussions are going on for the merger of the former East and West German genebanks (exclusive now of the Dutch German potato collection) to the East German location in Gatersleben.

Geographic Information Specialist

Robert J. Hijmans. He a Geographic Information Systems (GIS) Specialist with the International Potato Center, Lima. He is 36 years old. He is trained as an agronomist. His duties are to 1) apply GIS and simulation models for the impact assessments of various

agronomic practices, 2) to analyze land use problems in the Andes, 3) assist in the management and use of potato genetic resources.

Collecting Expedition drivers

Julio Mora, CIP driver for ten years. He is 39 years old. Drove from March 8 to April 4.

Mario Curasi, CIP driver for 16 years. He is 49 years old. Drove from April 6 to April 25

CONDUCTING THE EXPEDITION

Itinerary

Note on species names: This collecting mission was planned and executed before Ochoa's 1999 book on the wild potatoes of Peru was available. Changes of taxonomy in the potatoes of the departments of Ancash, Huancavelica, La Libertad, and Lima are outlined in Table 2. In some cases, this involved the synonymy of species that formed the goals of this expedition. In order to make the goals of our collecting mission clear, we maintain the old taxonomy in our itinerary below, but use Ochoa's new taxonomy in "New Collections in 1999" and in Tables 1 and 2.

March 1, 1999 (Monday)

Spooner arrives in Peru to work with Zósimo Huamán on a project funded by the USDA Foreign Agricultural Service, Scientific Cooperation Division, on morphological studies of species boundaries of the wild potato *Solanum brevicaulle* complex and species boundaries of the seven cultivated potato species. He will join the collecting project next Monday.

March 6, 1999

Schüler arrives in Lima in the evening.

March 8, 1999 (Monday)

Today we left Lima at about 9:30 A.M. and drove south on the Pan American Highway to San Vicente de Cañete and then drove northeast to Catahuasi, and then east to Villa Franca where the road ended because of road construction. Our goal was to collect *S. simplicissimum* at its type locality (Appendix 1). Because we had no time to walk to this locality today, we searched for potatoes about Villa Franca and found *Solanum medians* (7300, 7301) east of town. *Solanum medians* is characterized by its very rough hairy leaves. The population was in flower but not in fruit. According to Alberto Salas, this possibly was a triploid population. *Solanum medians* has both diploid and triploid populations. Triploid potatoes do not produce fruits. We collected tubers and plants in pots, and returned to Villa Franca. This is a very small village and there are no hotels, but we obtained beds in the municipal building where we spent the night.

March 9

Our goal today was to collect *S. simplicissimum* at its type locality. The night before we spoke to local residents who told us of potatoes in the hills to the west of Villa Franca as well as northeast of town where is the type locality of *S. simplicissimum*. We decided to split into two parties, with Spooner, Torres and Schüler to search for *S. simplicissimum* at its type locality, and Salas to search the hills west of town. In addition, we hired a person to search at another place west of town where he said he knew where potatoes grew.

The elevation of the type of *S. simplicissimum* is published as 2000 m, located between Cacara and Hongos (Appendix 1). Cacara is located a two hour walk uphill on a footpath from Villa Franca. Hongos is located another one hour walk further uphill from Cacara. Both are small villages accessible only by foot. Cacara is located at about 2880 m and because it is uphill from there to Hongos, either the elevation or locality data for *S. simplicissimum* is in error. We collected two more populations of *S. medians* in the area (7202, 7303) that like the day before were in full flower but without hint of any fruits, and may be sterile triploids. Salas also collected *S. medians* but without fruits (7303), as well as did the person who searched for us (7304). We drove to Zuñiga where we spent the night.

March 10

Our goal today was to search for *S. hapalosum* (7305) at its type locality. This is by Peroyda that is reached by going north of Yauyos to Alis (on department map, or Tinco de Alis as is called in town), and then departing northwest on the road to Vitis. We found *S. hapalosum* along the banks of Río Cañete where it was common. It lacked fruits but we collected tubers and plants in pots. It looked like *S. bukasovii*. We returned to Alis and then drove north to the town of Huancayo where we deposited our vegetative collections at the CIP station. We spent the night in Huancayo.

March 11

One next collecting goal was Huancavelica, for the species *Solanum amayanum*, *S. bill-hookeri*, and *S. gracilifrons*. We drove from Huancayo to Colcabamba where we spent the night.

March 12

We drove north to Santa Rosa de Matara where we collected *S. gracilifrons* (7306). This is at or near the type locality, as the type locality description indicates a place near Colcabamba (on this locality), but the other place on the description, Mantaca (Appendix 1) is unknown.

We then returned to Colcabamba to search for *S. bill-hookeri* at a local place called Caratuway'ko that is not on any map. By asking local residents we found that this place is located 2 km east of Colcabamba. We collected *S. bill-hookeri* in vegetative condition

(7307). We then searched for potatoes north of Colcabamba at a place called Ocoro but could find no potatoes. We drove to Colcabamba where we spent the night.

March 13

We drove from Colcabamba east and then southeast to search for *S. amayanum* at a place where Salas found the plant before. We collected *S. amayanum* as unflowering plants (7308) at Mal Paso. The type locality, Chihuanjaja, is unknown to us. We then drove back to the Huancayo-Churcampa road, and drove south on the road to Quichuas, where we collected *S. huancavelicae* in flower but no fruit (7309). We then returned to Huancayo where we spent the night.

March 14

We left Huancayo and drove west and south to Lima where we spent the night. Our sole goal today was to collect *S. medians* var. *autumnale* at its type locality in the valley of the Río Rímac. Salas knew where it grew and led us right to the type locality where we collected plants in pots (7310) as the plants were just forming flower buds. Our long drive to Lima this day was to put ourselves in position to drive main roads out of Lima to collect species accessible from there. Because we will be taking the Lima to Huancayo road again, we likely will be able to visit collection site 7310 again to search for mature fruits.

March 15 (Monday)

At 12:00 M. we traveled from La Molina to Cieneguilla, going through Antioquia and arrived in Langa at night.

March 16

We left Langa after a very rainy night. On the altiplano at a place called Pacomanta we collected plants just in bud of *S. huarochiriense* (7311). Not far from this place we found plants with violet rotate-pentagonal corollas without fruits of *S. multiinterruptum* (7312). Much lower on the Langa-Lima road at a place called Saklinta we collected plants with violet rotate-pentagonal corollas without fruits of *S. medians* (7313). At a place called Lacapucro 5 km east of the town of Río Seco we found plants with white corollas just in bud of *S. immitis* (7314). In the evening we drove back to Lima where we spent the night.

March 17

Because we were concerned about the dry conditions and lack of fruiting material in Lima and Huancavelica Departments we decided to change our original plans and drive to the northernmost department in our plan, La Libertad Department. We spent the day driving from Lima to Trujillo, where we spent the night.

March 18

Our goal today was to search for *Solanum yamobambense* at its type locality in Yamobamba, located on a road deviating just south of Otusco on the Trujillo-Otusco road, east to Yamobamba. On the road to Otusco we located *S. immite* (7315) in bud but not yet with fruits. Earlier in the day we reviewed the morphology of *S. yamobambense*, and it occurred to us that *S. immite* and *S. yamobambense* might be the same species. As far as we could tell from the descriptions, they differed by width of leaflets, and we documented by our herbarium collections much variation in leaflet width in our collection 7315. The chloroplast DNA data of Castillo (1977) partly supports this idea. Ochoa (1999) places *S. yamobambense* in series *Piurana* and *S. immite* in ser. *Tuberosa*. Castillo and Spooner (1997) did not have germplasm samples of *S. yamobambense* available for study, but did examine *S. immite* that is placed in ser. *Piurana*, not ser. *Tuberosa*.

We drove to Yamobamba. From about 2-3 km along the road to Yamobamba and beyond Yamobamba for some kilometers, the area is extremely cultivated. It appears as the whole area is converted to cultivated fields or is planted in *Eucalyptus* trees or is heavily grazed. In addition, much of the ground is covered with a dense grass *Pennisetum clandestinum*. The latter two introduced species out-compete wild potatoes. The type locality of *S. yamobambense* is inexact, just indicating a locality somewhere above Yamobamba. We searched in a small valley approaching Yamobamba from the west, in a valley just east of town, and in the valley south of this town that leads from the big waterfall as can be seen from town, and we could not find any potatoes. Because of the vagueness of the type locality, we could not tell if the species disappeared from the area or if it never was found in the areas we searched. We returned to Otusco where we spent the night.

March 19

Our goals today were to collect *S. jalcae* and *S. chiquidenum* along the road from Motil to Shoren. First we found very young plants of *S. jalcae* (7316), in the "jalcas" between Motil and Shoren below of Cerro Sanro. About 10 km distance also in the "jalcas" we found plants of *S. jalcae* (7317) beginning to form buds. At a place called El Torito (altitude 4020 m) behind Shoren on the road to Santiago de Chuco we collected plants with white corollas and young fruits of *S. albicans* (7318) and young plants without flowers (7319). Some kilometers more on the same road at the altitude of 4070 m we found *S. jalcae* (7320) again, with violet rotate-pentagonal flowers but without fruits. Then we drove to Santiago de Chuco where we spent the night.

March 20

Our goal today was to collect *S. chiquidenum* var. *cachicadense* at its type locality on Montaña La Botica, at the town of Cachicadán. We left Santiago de Chuco in the morning and expected about a one-hour drive to Cachicadán. However, the road was in extremely bad shape and was blocked by a landslide about five km before town. We got a ride on a truck to Cachicadán, and found the species (7321) after about an hour on the mid- to lower slopes of

Montaña La Botica, located behind the town. Cachicadán has hot springs and there is a hotel built about a spring, and we began to walk uphill from there. *Solanum chiquidenum* is an apparent member of *Solanum* series *Piurana*, with its shiny rubbery leaves. It was not in flower yet but we collected plants in pots. We returned to our truck and it was still stuck but eventually hired a big truck to pull us out of the mud. We returned to Santiago de Chuco where we spent the night.

March 21

We drove from Santiago de Chuco via Quiruvilca (mining town) to Huamachuco. At the Laguna de Toro (altitude 3975 m) we found young plants without flowers of *S. jalcae* (7322) and at the same locality under overhanging rocks plants of *S. jalcae* (7323). Both collections had dark leaves, green and purple below, corollas rotate-pentagonal, violet. Collection 7227 had one fruit, round ovoid, green speckled with purple. We continued driving, and at a place called Barro Negro near the Río Bado we collected young plants of *S. hastiforme* (7324). We spent the night in Huamachuco.

March 22

From Huamachuco we traveled to Tayabamba, and encountered a landslide about four km from Cuello Colorado, near River Marañón. We returned from Corrales to Molino Viejo and from here we went to Cashambol, at 3820 m, 07° 46' 40" S, 77° 46' 57" W. We found and collected *S. chomatophilum* (7325), then we returned to Molino Viejo.

March 23

From Molino Viejo we returned to Huamachuco. We collected *S. sogarandinum* (7326), *S. chomatophilum* (7327), and *S. sogarandinum* (7328) in Macullida 3870 m, 07° 46' 00" S, 77° 48' 50" W, passing Cashambol before the bypass to Pampa de Huaguil. We found *S. hastiforme* (7329) at San Juan at 3560 m, 07° 46' 49" S, 77° 50' 25" W, located at six km S of the bypass to the Pampa de Huaguil. We continued the trip to Huamachuco and tried to arrive at the ruins of Marcahuamachuco, but it was not possible.

March 24

From Huamachuco we returned to Julcán. At the place called Fraslón, at 3840 m, we collected *S. albicans* (7330). We arrived at Agallpampa and from there to Julcán. We found *S. chiquidenum* (7331) in Chorro Blanco at 3575 m, 08° 02' 26" S, 76° 28' 08" W, located east of Julcán.

March 25

From Julcán we traveled to the locality of Candual, 3145 m, and collected *S. sogarandinum* (7332) in the Ruinas de Paderón at 3005 m, 08° 07' 33" S, 78° 29' 20" W. We found *S. machaytambinum* (7333) at its type locality. We went back to Julcán, and then to Trujillo.

March 26

We drove from Trujillo via Casma to Huaraz, the capital of the Department of Ancash. Growing at a place called Tinco, above the road on a steep slope, 35 km before the town of Huaraz, we found plants with large rotate purple flowers but no fruits of *S. multiinterruptum* (7334). At 27 km before Huaraz on the road from Casma in the altiplano we collected one mature fruit of *S. sogarandinum* (7335). We spent the night in Huaraz.

March 27

We left Huaraz and drove north at the Río Santa and then northwest to the town of Sihuas. Growing at a local place called Tres Cruces, located 25 km N of Yuramarca, we found *S. peloquinianum* (7336), with corolla violet rotate-pentagonal and globose fruits. At a local place called Palillo, located 9.6 km NE of Tres Cruces, we collected *S. peloquinianum* (7337), fruits not present. Then we collected plants without flowers of *S. albicans* (7338), growing at a local place called Cahuacona, located 13 km NE of Tarica. We spent the night in Sihuas.

March 28

Our goal for this day was to reach the province Pataz, in La Libertad Departament, on the east side of Río Marañón. We drove from Sihuas along the Río Sihuas to the Río Marañón. Because the road bridge about the Río Marañón was destroyed we went by foot via a small pedestrian bridge on the east side of the river to hire a car to get to the town Huancaspata, in La Libertad. About 2 km before Huancaspata near Cruz Pata we found *S. blanco-galdosii* (7339), small plants with corolla violet rotate-pentagonal, no fruits. At Cerro Ganhuish, located 9 km N behind Huancaspata we collected *S. hastiforme* (7340), with flowers and fruits absent. On the altiplano near Punya, 30 and 31 km N behind Huacaspata in direction Tayabamba we found plants with corollas purple, rotate-pentagonal, and fruits conical of *S. chomatophyllum* (7341) and plants without flowers or fruits of *S. taulisense* (7342). Then we drove back downhill and at dark reached Puente Mamahuaje, where we spent the night at a small farm.

March 29

We drove back from Puente Mamahuaje to the Río Marañón bridge where our CIP driver Julio was waiting for us. We drove back to Sihuas and then to Huallanca. On the way near Huanchi, 10 km W of Sihuas, in slopes of Cerro Santa Rosa, we collected plants of *S. blanco-galdosii* (7343), with violet rotate-pentagonal corollas, no fruits. We spent the night in Huallanca.

March 30

Today our goal was to drive from Huallanca to Huaraz again. After two and one-half hours driving at the Río Loco we found the road to be destroyed. So we drove the longer but better way down in the Río Santa River valley to the coast, via Chimbote, Huarmey, Pativilca, and Recuay, on paved roads to Huaraz where we spent the night.

March 31

Our goal today was to collect *S. rhombilanceolatum* var. *ancophilum* in the province Yungay in Ancash. We drove north of Huaraz in the Río Santa valley to Yungay, then east up to the Parque Nacional Llanganuco in the Cordillera Blanca. One km behind the entrance to the Parque Nacional on the road to Laguna Llanganuco we found plants with purple rotate corollas, no fruits of *S. rhombilanceolatum* var. *ancophilum* (7344). The same species (7345) was found some kilometers more on the N side of Laguna Llanganuco, also with purple rotate corollas without fruits. Behind the second part of Laguna Llanganuco we collected *S. chomatophilum* var. *subnivale* (7346) at 4200 m altitude and somewhat higher (7347). These two localities are the type locality of var. *subnivale*. Both had purple rotate-pentagonal corollas, and collection 7346 had fruits maturing to mature, ovoid-conical, while collection 7347 had no fruits. Then we drove back to Yungay and north to Caraz. We searched near Santa Cruz without success *S. blanco-galdosii*. Then we drove back to Huaraz.

April 1

We left Huaraz and drove south to Carhuaz, then east in direction Chilla in the Cordillera Blanca. We made in this region two collections of *S. rhombilanceolatum* var. *ancophilum* (7348 and 7349), one collection of *S. chomatophilum* (7350) and one of *S. dolichocremastrum* (7351). All plants were flowering but had no fruits. Then we drove back via Huaraz, Recuay in the Cordillera Negra to Aija. East of the town descending the canyon San Juan, at a local place called Cuesta de Melliso we searched *S. augustii* without success but we found many plants of *S. multiinterruptum* (7352) with purple, pentagonal corollas but no fruits. However, we collected many fruits on April 24. We spent the night in Aija.

April 2

We drove from Aija via Recuay to Catac, then east again in the Cordillera Blanca to Chavin de Huanter, San Marcos, and Huanter. In the altiplano, seven km before reaching Paso Cahuich (the tunnel through the mountains) we collected *S. chavinense* (7353), with corollas purple, pentagonal, no fruits. We also found *S. chavinense* (7354) on the other side of the tunnel. West of Huanter, at a local place called Huahuachuranan, we collected among shrubs, *Agave* and *Rubus*, *S. orophilum* (7355) with violet, rotate-pentagonal corollas and globose green fruits. Then we drove back to Chavin de Huanter where we spent the night.

April 3

From Chavin de Huantar we drove back via Catac and a turn-off to Chiquián to Lima. On the way east of Conococha (at province Bolognesi) we made two collections of *S. multiinterruptum* f. *longipilosum* (7356, 7357). Collection 7356 was found at a local place called Huacacorrall, and collection 7357 at a place called Upayacu, both with violet rotate-pentagonal corollas, no fruits. Near Chiquián (also prov. Bolognesi) we collected plants without flowers and fruits of *S. multiinterruptum* (7358). On the road to Lima in the province Recuay we collected two accessions of *S. moniliforme* (7359, 7360). Collection 7359 was found 20 km north of Cajacay, and collection 7360 was found nine km north of Cajacay. Both collections had rotate, purple corollas, no fruits. We arrived in Lima late on the evening.

April 4 (Easter)

Rest

April 5

Roel Hoekstra arrives from The Netherlands.

April 6

Konrad Schüler returns to Germany. Hoekstra and Spooner go to CIP to attend to financial and administrative matters to continue the expedition. Collections will continue until April 22 (Wednesday), with two days left to extract seed, label and distribute herbarium specimens, finish writing the report, and plan collections for the rest of the expedition. These collections will be in the remaining (northern) half of Lima Department, more of Huancavelica Department, and a short return trip to southern Ancash Department to try again to collect *S. anamatophilum* and *S. augustii*. We gave Robert Hijmans our routes and collection points on our individual department maps for him to make a separate and single route and collection map (Fig. 1). The new driver for the remainder of the expedition is Mario Curasi.

We departed Lima by 1:00 P.M. and drove northeast to Canta where we later spent the night. Our goal is to collect *S. simplicissimum*, a species Salas had collected just a few kilometers southwest of Canta in April 1983. The road ascending the Andean Mountains along this road follows the sometimes deep and narrow valley of the Río Rímac. There are many landslides along this road and the sides of the valley are often very steep. Salas's records showed that he collected *S. simplicissimum* at km 79 on this road, but the road had been reconstructed and the kilometer markings had apparently changed. We searched unsuccessfully for potatoes along this road this day and planned to resume searching the next day.

April 7

We returned south of Canta and spent until 1:00 PM looking unsuccessfully for *S. simplicissimum* in four other localities, including about the town of Apan located at 1400 m, where the species was collected by Prof. Vilcapampa at the National Agrarian University (Molina, Peru) in 1994. We could find no trace of the species but did collect *S. medians* (7361). We then took the road to Huamantanga on the "Cuesta de Huamantanga" of some plant localities. The road to Huamantanga departs northwest from the main Canta to Lima road. We collected *S. medians* (7362), *S. wittmackii* (7363), *S. simplicissimum* (7364), *S. hypacrarthrum* (7365, 7366) along this road. The type localities of *S. wittmackii* and *S. hypacrarthrum* are on this road. We returned to Canta where we spent the night.

April 8

Our goal today was to collect *S. arahuayum* at its type locality at "Cruz Pallacusca". This place is located about a 4 km walk east of the town of Arahua on a footpath to Cerro Putaca. We reached Arahua by driving southwest of Canta to Santa Rosa de Quives and then driving northeast to Arahua where the road ends. There is a cross in a hill above this town. We did not find *S. arahuayum* there, but we did collect *S. hypacrarthrum* (7367), *S. cantense* (7368), and *S. medians* (7369). None of these were in fruit. We then walked five km northeast of town on the path to Antura and collected *S. cantense* (7370) and *S. medians* (7371). We returned to Canta where we spent the night.

April 9

Our first goal today was to collect *S. cantense* at its type locality in the hills just northeast of Canta. We easily found the plant (7372), as it was common on the steep slopes on this road. We then returned to Cuesta de Huamantanga on the road to Huamantanga (see April 7) to collect more potatoes because we did not finish collecting this road that day. We collected more *S. wittmackii* (7373), *S. multiinterruptum* (7374) *S. chrysoflorum* (7375). Along this road is the type locality of *S. multiinterruptum*. Collection 7374 had very light violet corollas, and collection 7375 had pure white corollas. We continued on the same road to just past the town of Quipán (the next town is Marco) and collected *S. chrysoflorum* at its type locality (7376). We are sure that this is the exact type locality because Salas originally collected it in 1982. *Solanum chrysoflorum* appears to us to be a synonym of *S. multiinterruptum*. The plants at this type locality population had a mixture of corolla colors from pure white to light lilac, suggesting that *S. multiinterruptum* is a species with wide variation in this trait. This was a very rainy day, and we almost got stuck in the mud a couple of times on the road to Quipán. We originally planned to drive to the next valley north to collect potatoes (the valley of Río Chancay) by driving back to Canta and taking the northern route to this valley. Because of our concern with getting stuck in the upland paramos with the heavy rains, we decided to take the safer but much longer route by going back to Lima and then driving north and then northeast to this valley. We spent the night in the valley of the Río Chancay in the town of Huaral.

April 10

From Huaral we drove in the direction of Acos to Pacaraos. Seven km after Acos we collected *S. immitis* (7377), growing in the shade of bushes. After 4 km we collected plants of *S. simplicissimum* (7378) and *S. medians* (7379). After another kilometer we collected five mature fruits from one plant of *S. wittmackii* (7380). There were also growing many *S. medians* plants here. We returned to Lima where Hoekstra spent the night. Spooner had to return home suddenly this evening because his wife became very seriously ill. He transferred to Hoekstra the computer files necessary to finish this report, and discussed financial accounting of this trip.

April 11

Hoekstra remains in Lima

April 12 (Monday).

Salas, Torres, Hoekstra and Curasi continue the expedition in the direction of Huancayo via San Pedro de Casca and Millo, a valley north of the highway Lima-Huancayo, with the goal to collect *S. medians*, *S. wittmackii* and *S. huarochiriense*. About 24 km east of Santa Eulalia we collected *S. wittmackii* (7381) at 2485 m and after another six km *S. cantense* (7382) at 3000 m. Here we also found one plant of *S. multiinterruptum* and some plants of *S. medians*, which we did not collect. After 2.5 km we collected *S. medians* (7383) and after another two km we found *S. hypocrarthrum* (7384), growing along the road as well as along a small wall bordering a cultivated potato field. After two kilometers we found *S. cantense* and *S. hypocrarthrum* growing side by side but did not collect. After another 3.5 km we collected *S. multiinterruptum* (7385) at an altitude of 3110 m. It had no fruits yet, but the plants had big tubers. After 21 km at an altitude of 3710 m we collected *S. sogarandinum* (7386, no fruits) and *S. multiinterruptum* (7387, with fruits), growing on a grassy hill with some low bushes. We also found plants with fruits of *S. acaule*, but did not collect this species. After seven km we collected *S. huarochiriense* (7388), growing next to big rocks at 3940 m in open puna. The plants were not in flower. Today's collecting of wild potato species was very rich. We found eight different species in this valley. We did not detect any signs of hybridization among species.

April 13

We left all collected plantlets, fruits, tubers and herbarium specimens at the CIP station in Huancayo. Observations were done on the status of the seed increase of last year's collections. We spent the night in Huancayo.

April 14

At dawn we left Huancayo and drove to the department Huancavelica to search for fruits of some previous collections and plants/fruits of *S. gracilifrons* (7306). We explored a relatively dry valley south of Colcabamba and the town Tablachaca but did not find any potatoes. We then drove to the collecting site of 7309 (March 13) to search for fruits. We found only very few plants, one flowering but without any fruits. We drove back to the locality of *S. gracilifrons* (7306, see March 12), near Colcabamba and collected seven tiny plants of *S. gracilifrons* (7306) on a very dry hill, in the shade of some trees. We met Marcelino, a farmer who knows a place for more plants. He was willing to collect plants for us and we arranged to meet him the next morning. We drove to the type locality of *S. bill-hookeri* (7307), which was collected 30 days ago, but in this visit we did not find a single potato plant. We spend the night in Colcabamba.

April 15

We drove to the house of Marcelino and his family. He found 12 more plants of *S. gracilifrons* (7306), including one fruit. We drove to the locality of *S. amayanum* (7308, see March 13) and found only small non-flowering plants. We drove in the direction of Acobamba and on the way we collected *S. bukasovii* (7389), six km northwest of Paucara. It was growing in a red soil, which according to Salas indicates an acid soil and therefore would not be suited for wild potatoes. At 3 P.M. we arrived in Acobamba. Raphael has worked as a teacher in this town and knows many people. We heard about two possible sites for wild potatoes. We drove east to Choclococha (12°51'03"S, 74°32'23"W) and met Rina Molina, who led us to a very dry wheat field, north of the village. We found small potato plants, which appeared to be cultivated material because of the tuber characteristics. We decided not to collect. We spent the night in Acobamba.

April 16

We drove to Choclococha again and meet Rina Molina and her friend Gloria Ruiz from Pomacocha (7 km SW of Choclococha). After another seven km we arrived at an *Opuntia* field, just before the bridge over the Urubamba River (12°53'54"S, 74°32'37"W, 2760 m). It is an extremely dry valley. Here and in the surrounding hills we could not find any potato plants. We then returned to Huancayo.

April 17

We went to the CIP station to deliver the new plants collected and got all herbarium specimens. We drove back to Lima where we spent the night.

April 18

We left Lima in the direction of Huanchay in the department Ancash. Mirjam Jacobs accompanied us. She was a student from Wageningen, the Netherlands, who was at CIP for

five months and was interested in getting some collecting experience. Our goal today was to collect *S. augustii* that was found near Pampas. At Culebras we took a sandy road northeast, parallel to the river Culebras. Six hours after leaving Lima we heard that the road was blocked by a huge landslide at seven km west of Huanchay. This would imply a five hour walk to reach Pampas and take eleven hours to get back to the car. We decided to drive to Chiquián (six hours), where we spent the night.

April 19 (Monday)

Our goal this day is to collect *S. anamatophilum* from its type locality, a site called Pourish at 2800 m, close to Río Pativilca. Salas searched for this species in the past on the east side of the river, but without success. From the town Chiquián (at 3300 m.) we hiked northeast with our guide Antonio. During this hike down we collected three fruits of *S. medians* (7390), which is common in these hills. At 11 A.M. our hike was blocked at a site called Conay by the Pativilca river, which completely washed away the path to the type locality. Pourish is located about 1.5 km southeast from that point (10°10'17"S, 77°07'20"W). So the type locality is estimated to be at about 10°10'55"S and 77°07'18"W. The river is too wild to walk through. We checked the area but did not find any *S. anamatophilum* plants. We meet Glicerio Gamarra Valladares from a small community called Qursipata. We heard that Pourish can only be reached using another path, taking about three additional hours of hiking. He knew the plants and was willing to collect them for us. We planned to meet him at the end of the day in Chiquián. We hiked back to the town Chiquián. Along the way Mirjam Jacobs was hardly able to walk because she was not yet adapted to the altitude. After arriving in Huaraz, we called the hotel in Chiquián and heard that Glicerio collected several plants of *S. anamatophilum* (7391). We then decided to return to Chiquián the following morning.

April 20

We returned to Chiquián where we met Glicerio. He collected the day before tubers and about 15 plants. He hiked two hours to get to the type locality and from there four hours back to Chiquián. He thought he collected all available plants. Glicerio confirmed that this species does not grow on the east side of the river. *Solanum anamatophilum* has a strong resemblance with *S. infundibuliforme*. We left towards Canta (Department Lima), where we arrived after almost six hours driving. Along the way we stopped close to the type locality of *S. moniliforme* (see April 4). In Canta Raphael Torres made a phone call to INIA and informed Hoekstra that a meeting with the director of INIA would take place on April 22 at 8.30 A.M. in Lima. We spent the night in Canta.

April 21

Our goal this day was again *S. arahuayum*. Salas had called the woman in Lima that collected it, to get exact information on the collecting site, because we were unable to find this species on April 8. The type locality is on the mountain southeast of the town and difficult to reach. On that mountain we already searched on April 8, but apparently did not reach the exact locality. Our guide told us that the mountain southwest of the town contains

wild potatoes too. He said he saw three different flower types. So we decided to search on the southwest side of the mountain. We collected fruits of three *S. wittmackii* collections (7392, 7393, 7395), and plants of *S. hypacrarthrum* (7394) and two plants of *S. arahuayum* (7396). We returned to Lima where we spent the night.

April 22

Hoekstra and Huamán went to INIA for the appointment with Dr. Manuel Arca (director of INIA) and Ing. Elsa Balladares (responsible for collecting activities). Raphael Torres has arranged this meeting. Unfortunately Dr. Arca had another meeting, but was replaced by Ing. Valeriano Huanco, the head of the national potato program. The discussion was in Spanish. Huamán elaborated the position of the University of Wisconsin, who only can accept an English speaking person from Peru for training and/or Ph.D. if funds become available. INIA had no such person available. Huamán received the new collecting proposal forms from INRENA, and Huamán will fill out those forms. Back at CIP, Hoekstra worked on the locality file and attempted to change the date of his flight back home.

April 23

Raphael Torres went back to Huancayo. Hoekstra bought maps of several departments at the Instituto Geográfico Nacional for CGN and Spooner. Huamán will take the maps to Spooner. Since Hoekstra could not change his return flight, we decided to continue collecting and make another attempt to collect *S. augustii* in the department of Ancash. Hoekstra also met Wanda Collins before leaving. She reported to him that the material collected in 1998 now has been designated to the FAO. Therefore it should be freely available, but the material from 1999 (for the moment) is not. At 2 P.M. Salas, Hoekstra and the driver Curasi are on the road to Huaraz again.

April 24

Our goal this day is *S. augustii* at its type locality near the town Aija. From Recuay to Aija the road reaches its highest point Huan Capeti at 4380 m. At Aija we met Felix Ferroneque again (see April 1). He led us to the area of *S. augustii*, where we collected it (7397) with fruits. We also collected many mature fruits of *S. multiinterruptum* (7352), which is a very abundant weed on that hill. Because there was no sufficient time left to visit another site, we drove back to Huaraz where we spent the night.

April 25

At 5 A.M. we left Huaraz and drove southwest in the direction of Pampas to collect *S. augustii* and possibly *S. multiinterruptum*, *S. medians*, *S. hypacrarthrum* and *S. immitis*. The bad condition of the road allowed a mean speed of only 20 km/hour. On the way we collected many mature fruits of *S. multiinterruptum* (7334, see March 26). We also collected one plant (7398; 2.2 km N of Yupash), of what might be a mutant of *S. multiinterruptum* with stellate flowers. All other plants around were *S. multiinterruptum* (7334). Just below Yupash the road

was blocked for the rest of the day, so again Pampas could not be reached (see April 18). We decided to spend the rest of the day in an unexplored valley to Huarmey. We drove back in the direction of Huaraz. We passed Lake Yanco and the mines of Huinac and collected *S. sogarandinum* (7399), growing together with *S. acaule* (not collected) at an altitude of 4020 m. The hills were grazed and the tiny plants were found growing near rocks. We were told that the road to Huarmey was passable but the estimated time to reach the coast increased the more we drove west. The road allowed a speed of 10-20 km/hour. Three km west of Coris we collected *S. multiinterruptum* (7400). There were only a very few. The valley was relatively dry. After seven more hours driving we were back in Lima.

April 26 (Monday)

Hoekstra finalized the locality file at CIP. After checking all the herbaria, Salas changed the taxonomic identification of four collections from April 21. Salas prepared the WAC and NRSP herbaria samples for transportation to the Netherlands. WAC will send the NRSP herbaria samples to the USA. In the evening Hoekstra took the plane back to the Netherlands.

April 27

Late in the afternoon Hoekstra arrived in Amsterdam, the Netherlands and returned home.

New Collections in 1999

Solanum medians Bitter

Peru. Lima, Province Yauyos: 1 km E of Villa Franca, located on the road from Catahuasi to Lincha. Growing on rocky slope on N side of road, ca. 150 m up the slope, 12.821°S, 75.796°W, 2200 m. Growing in sandy and rocky soil. Corolla purple, rotate, fruits absent. March 8, 1999.

Alberto Salas, David M. Spooner, Rafael Torres, & Konrad Schöler 7300

Solanum medians Bitter

Peru. Lima, Province Yauyos: growing at a local place called Arpayo, ca. 5 km walk from Villa Franca, which is located on the road from Catahuasi to Lincha, 12.821°S, 75.810°W, 2620 m. Growing in sandy and rocky soil. Corolla purple, rotate, fruits absent. March 9, 1999.

Alberto Salas, David M. Spooner, Rafael Torres, & Konrad Schöler 7301

Solanum medians Bitter

Peru. Lima, Province Yauyos: ca. 1 km NE of Caca on the footpath to Hongos. Growing along the slope along the side of the path, 12.867°S, 75.767°W, 2880 m. Growing in sandy and rocky soil. Corolla purple, rotate, fruits absent. March 9, 1999.

Alberto Salas, David M. Spooner, Rafael Torres, & Konrad Schöler 7302

Solanum medians Bitter

Peru. Lima, Province Yauyos: ca. 3 km NW of Hongos, ca. 1 km N (uphill) of path from Caca to Hongos, 12.883°S, 75.750°W, 3290 m. Growing in sandy soil in walled-in old corral. Corolla purple, rotate, fruits absent. March 9, 1999.

Alberto Salas, David M. Spooner, Rafael Torres, & Konrad Schöler 7303

Solanum medians Bitter

Peru. Lima, Province Yauyos: growing at a local place called Nuñe, ca. 2 km SW of San José, near Villa Franca, 12.883°S, 75.750°W, 3200 m. Growing in organic soil. Corolla purple, rotate, fruits absent. March 9, 1999.

Alberto Salas, David M. Spooner, Rafael Torres, & Konrad Schöler 7304

***Solanum bukasovii* Juz. (= *S. hapalosum* Ochoa, collected at its type locality)**

Peru. Lima, Province Yauyos: 2.0 km N of road junction at Alis (Tinco de Alis) on road to Vitis, on banks of Río Cañete, 12.278°S, 75.806°W, 3180 m. Growing on bank of Río Cañete. Corolla purple, rotate, fruits absent. March 10, 1999.

Alberto Salas, David M. Spooner, Rafael Torres, & Konrad Schüller 7305

***Solanum gracilifrons* Bitter**

Peru. Huancavelica, Province Tayacaja. Growing at a local place called Balconcaca, 8 km from road junction north of Colcabamba to Colcabamba and Santa Rosa de Matara, about a 1 km walk E of Santa Rosa de Matara. 12.380°S, 74.664°W, 2700 m. Growing on steep slope in organic soil, among *Opuntia*. Corolla white, stellate, fruits absent. March 12, 1999.

Alberto Salas, David M. Spooner, Rafael Torres, & Konrad Schüller 7306

***Solanum bill-hookeri* Ochoa**

Peru. Huancavelica, Province Tayacaja: growing at a local place called Caratowayco, located 2 km E of Colcabamba, 100 m above the road, 12.406°S, 74.662°W, 3300 m. Growing on steep slope in organic rocky soil, among *Opuntia* and other cacti and grasses and *Salvia* and *Begonia*. Corolla violet rotate, fruits absent. March 12, 1999.

Alberto Salas, David M. Spooner, Rafael Torres, & Konrad Schüller 7307

***Solanum amayanum* Ochoa**

Peru. Huancavelica, Province Tayacaja: growing at a local place called Mal Paso, at km 75 (from Huancayo) on the road from Pampas to Churcampa. Growing 100 m below the road, 12.488°S, 74.647°W, 4120 m. Growing on steep slope in organic soil, among *Opuntia* and *Stipa ichu*. Plants small, no flowers present. March 13, 1999.

Alberto Salas, David M. Spooner, Rafael Torres, & Konrad Schüller 7308

***Solanum huancavelicae* Ochoa**

Peru. Huancavelica, Province Tayacaja: growing at a local place called Luychucaca, located 8 km N of Quichuas, 100 m above the road, 12.445°S, 74.781°W, 3400 m. Growing on steep slope in organic soil, among *Opuntia* and shrubs. Corolla violet rotate, fruits absent. March 13, 1999.

Alberto Salas, David M. Spooner, Rafael Torres, & Konrad Schüller 7309

***Solanum medians* Bitter**

Peru. Lima, Province Huarochirí: growing in valley of Río Rímac, 5.0 km N of Matucana on road from Lima, at km 80, on E side of road, ca. 100 m up slope, 11.813°S, 76.354°W, 2550 m. Growing out of crevices of rocks on talus slope and out of rock walls. Plants just forming floral buds. March 14, 1999.

Alberto Salas, David M. Spooner, Rafael Torres, & Konrad Schöler 7310

***Solanum huarochiriense* Ochoa**

Peru. Lima, Province Huarochirí: growing at a local place called Pacomanta (on the department map but no one living here now), 8 km E of the small village of Izcomarca, 12.194°S, 76.300°W, 3820 m. Growing in rich organic soil among *Stipa ichu*. Plants just forming floral buds. March 16, 1999.

Alberto Salas, David M. Spooner, Rafael Torres, & Konrad Schöler 7311

Solanum multiinterruptum* Bitter var. *multiinterruptum

Peru. Lima, Province Huarochirí: growing at a local place called Millnihuaya, 1 km E of Pacomanta (on the department map but no one living here knows), 9 km E of the small village of Izcomarca, 12.193°S, 76.298°W, 3890 m. Growing in rich organic soil among *Stipa ichu* and shrubs. Plants with violet rotate-pentagonal corollas, fruits not yet present. March 16, 1999.

Alberto Salas, David M. Spooner, Rafael Torres, & Konrad Schöler 7312

***Solanum medians* Bitter**

Peru. Lima, Province Huarochirí: growing at a local place called Saklinta, located 4 km N of Langa-Lima road, on road to Canlle, ca. 10 m down slope of road, 12.107°S, 76.429°W, 2935 m. Growing in sandy soil among stones on steep slope, with grasses and *Oxalis* and *Opuntia*. Plants with violet rotate-pentagonal corollas, fruits not yet present. March 16, 1999.

Alberto Salas, David M. Spooner, Rafael Torres, & Konrad Schöler 7213

***Solanum immite* Bitter**

Peru. Lima, Province Huarochirí: growing at a local place called Lacapucro, located 5 km E of the town of Río Seco, 13.3 km E of Antioquia, 12.123°S, 76.450°W, 2310 m. Growing in sandy soil among stones on steep slope, under apple trees. Plants with white corollas just in bud, fruits not yet present. March 16, 1999.

Alberto Salas, David M. Spooner, Rafael Torres, & Konrad Schöler 7314

Solanum immite Bitter

Peru. La Libertad, Province Otusco: growing at a local place called La Cascada, located ca. 100 m down the road by the big waterfall, 3.1 km S of road from Trujillo to Otusco and the road to Yamobamba, 7.940°S, 78.600°W, 2380 m. Growing in sandy and rocky soil, among loose stones, on a steep slope down from the road. Plants with white corollas just in bud, fruits not yet present. March 18, 1999.

Alberto Salas, David M. Spooner, Rafael Torres, & Konrad Schüller 7315

Solanum jalcae Ochoa var. *jalcae*

Peru. La Libertad, Province Otusco: growing in the "jalcas" (paramo) 1 km W of town of Sango (below Mt. Sango), in between Motil and Shoren, 200-300 m S of road, among rocks, 7.996°S, 78.438°W, 3475 m. Growing in rich black soil in paramo, among large granite rocks. Plants young without any flower buds yet. March 18, 1999.

Alberto Salas, David M. Spooner, Rafael Torres, & Konrad Schüller 7316

Solanum jalcae Ochoa var. *jalcae*

Peru. La Libertad, Province Santiago de Chuco: growing in the "jalcas" (paramo) 9.8 km E of town of Sango (below Mt. Sango), in between Motil and Shoren, 200-300 m N of road, among rocks, 7.987°S, 78.364°W, 3520 m. Growing in rich black soil in paramo, among large granite rocks. Plants just were beginning to form floral buds. March 19, 1999.

Alberto Salas, David M. Spooner, Rafael Torres, & Konrad Schüller 7317

Solanum albicans (Ochoa) Ochoa

Peru. La Libertad, Province Santiago de Chuco: at a local place called El Torito, located 17.7 km from the police station in Shoren on the road to Santiago de Chuco, 8.114°S, 78.296°W, 4020 m. Growing in rich black soil in paramo. Plants with white corollas and young fruits. March 19, 1999.

Alberto Salas, David M. Spooner, Rafael Torres, & Konrad Schüller 7318

Solanum albicans (Ochoa) Ochoa

Peru. La Libertad, Province Santiago de Chuco: at a local place called El Torito, located 17.7 km from the police station in Shoren on the road to Santiago de Chuco, 8.114°S, 78.296°W, 4020 m. Plants growing in rich black soil in paramo, among large granite rocks; young plants without flowers. March 19, 1999.

Alberto Salas, David M. Spooner, Rafael Torres, & Konrad Schüller 7319

Solanum jalcae Ochoa var. *jalcae*

Peru. La Libertad, Province Santiago de Chuco: 22.5 km from the police station in Shoren on the road to Santiago de Chuco, 8.142°S, 78.270°W, 4070 m. Growing in rich black soil in paramo, among large granite rocks. Plants with rotate-pentagonal corollas, fruits not yet present. March 19, 1999.

Alberto Salas, David M. Spooner, Rafael Torres, & Konrad Schüler 7320

Solanum chiquidenum Ochoa var. *chiquidenum* (type locality of *S. chiquidenum* var. *cachicadense* Ochoa)

Peru. La Libertad, Province Santiago de Chuco: on Montaña La Botica, ca. 600 m uphill walk from the town of Cachicadán, beginning at the hotel with hot springs; 8.091°S, 78.144°W, 3040 m. Plants growing in organic soil, among moss, under forest; young plants without flowers. March 20, 1999.

Alberto Salas, David M. Spooner, Rafael Torres, & Konrad Schüler 7321

Solanum jalcae Ochoa var. *jalcae*

Peru. La Libertad, Province Santiago de Chuco: growing at Laguna de Toro, by roadside and away from road, 11 km E and N of Quiruvilca on the road to Huamachuco, 7.986°S, 78.249°W, 3975 m. Growing among rocks in organic soil; young plants without flowers. March 21, 1999.

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Solanum jalcae Ochoa var. *jalcae*

Peru. La Libertad, Province Santiago de Chuco: growing at Laguna de Toro, under the overhanging caves on N side of road, 11 km E and N of Quiruvilca on the road to Huamachuco, 7.986°S, 78.249°W, 3975 m. Growing in organic soil under large rock overhangs. Leaves dark green above, green and purple below, hairy, corollas rotate-pentagonal, violet, the one fruit found ovoid, green speckled with purple. March 21, 1999.

Alberto Salas, David M. Spooner, Rafael Torres, & Konrad Schüler 7323

***Solanum hastiforme* Correll**

Peru. La Libertad, Province Sanchez Carrión: growing at a local place called Barro Negro, about 400 m SE of road from Quiruvilca to Huamachuco, ca. 100 m NW of Río Bado and W of Huamachuco, 7.867°S, 78.109°W, 3220 m. Growing in organic soil among stones, among thorny bushes. Tubers moniliform, leaves hairy, small, entire when young, plants without flowers or fruits yet. March 21, 1999.

Alberto Salas, David M. Spooner, Rafael Torres, & Konrad Schüller 7324

***Solanum chomatophilum* Bitter**

Peru. La Libertad, Province Sanchez Carrión: growing at a local place called Casbambul, located 13 km S of Molino Viejo on the road to Huamachuco to Pataz, 7.778°S, 77.783°W, 3820 m. Growing among rocks among *Stipa ichu* and *Salvia*; rotate purple flowers present but no fruits present. March 22, 1999.

Alberto Salas, David M. Spooner, Rafael Torres, & Konrad Schüller 7325

***Solanum sogarandinum* Ochoa**

Peru. La Libertad, Province Sanchez Carrión: growing at a local place called Macullida, located 14 km S of Molina Viejo, on the road to Huamachuco to Pataz, 7.767°S, 77.814°W, 3870 m. Growing in the altiplano among *Stipa ichu*; pentagonal purple flowers present, no fruits collected. March 23, 1999.

Alberto Salas, David M. Spooner, Rafael Torres, & Konrad Schüller 7326

***Solanum chomatophilum* Bitter**

Peru. La Libertad, Province Sanchez Carrión: growing at a local place called Macullida, located 14 km S of Molina Viejo, on the road to Huamachuco to Pataz. 7.767°S, 77.814°W, 3865 m. Growing in the altiplano among *Stipa ichu*; rotate-pentagonal purple flowers present, no fruits collected. March 23, 1999.

Alberto Salas, David M. Spooner, Rafael Torres, & Konrad Schüller 7327

***Solanum sogarandinum* Ochoa**

Peru. La Libertad, Province Sanchez Carrión: growing at a local place called Macullada, located 16.3 km S of Molina Viejo, on the road to Huamachuco to Pataz. 7.767°S, 77.801°W, 3825 m. Growing in the altiplano among *Stipa ichu*, compositae, and *Ranunculus*, among rocks; pentagonal purple flowers present, no fruits collected. March 23, 1999.

Alberto Salas, David M. Spooner, Rafael Torres, & Konrad Schüller 7328

***Solanum hastiforme* Correll**

Peru. La Libertad, Province Sanchez Carrión: growing at a local place called San Juan, located 6 km S of Pampa de Huaguil. 7.780°S, 77.840°W, 3560 m. Growing in the altiplano among *Stipa ichu*, compositae, at the base of big rocks; pentagonal purple flowers present, no fruits present, leaves with a large terminal leaf and one small pair of lateral leaves, no fruits present. March 23, 1999.

Alberto Salas, David M. Spooner, Rafael Torres, & Konrad Schüller 7329

***Solanum albicans* (Ochoa) Ochoa**

Peru. La Libertad, Province Sanchez Carrión: growing at a local place called Frailón, located 16.8 km NW of Laguna de Toro, on the road from Huamachuco to Trujillo. 7.916°S, 78.169°W, 3840 m. Growing in the altiplano among *Stipa ichu*; no flowers or fruits present. March 24, 1999.

Alberto Salas, David M. Spooner, Rafael Torres, & Konrad Schüller 7330

Solanum chiquidenum* Ochoa var. *chiquidenum

Peru. La Libertad, Province Julcán: growing at a local place called Chorro Blanco, located 1 km E of community of Victor Julio Rosell, SW of Corrapaldi Chico. 8.041°S, 78.436°W, 3575 m. Growing about a *Polypeptis* tree, in stones of a rock wall; no flowers or fruits present. March 24, 1999.

Alberto Salas, David M. Spooner, Rafael Torres, & Konrad Schüller 7331

***Solanum sogarandinum* Ochoa**

Peru. La Libertad, Province Julcán: growing ca. 1 km NE of Canduall. 8.129°S, 78.492°W, 3145 m. Growing in clay and sandy soil, in a pea field; pentagonal purple flowers present, no fruits collected. March 25, 1999.

Alberto Salas, David M. Spooner, Rafael Torres, & Konrad Schüller 7332

Solanum multiinterruptum* Bitter var. *machaytambinum

Peru. La Libertad, Province Julcán: growing at a local place called Paderon, ca. 1 km SW of Canduall, 3 km NE of Machaytambo. 8.126°S, 78.489°W, 3005 m. Growing among a pre-Inca ruins in a woods with columnar cactus and *Opuntia* and other *Solanum* and *Salvia*, and compositae; no flowers or fruits present. March 25, 1999.

Alberto Salas, David M. Spooner, Rafael Torres, & Konrad Schüller 7333

Solanum multiinterruptum* Bitter var. *multiinterruptum

Peru. Ancash, Province Huaraz: growing at a local place called Tinco, just above the road on a steep slope, 35 km W of the town of Huaraz on the road to Casma. 9.552°S, 77.670°W, 3580 m. Growing on a steep slope among shrubs and small cacti; large rotate purple flowers present, but no fruits present, 25/04..mature fruits collected. March 26, 1999.

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***Solanum sogarandinum* Ochoa**

Peru. Ancash, Province Huaraz: growing 27 km W of the town of Huaraz on the road to Casma. 9.563°S, 77.610°W, 4060 m. Growing in the altiplano among *Stipa ichu*; one mature fruit collected. March 26, 1999.

Alberto Salas, David M. Spooner, Rafael Torres, & Konrad Schüler 7335

***Solanum peloquinianum* Ochoa**

Peru. Ancash, Province Corongo: growing at a local place called Tres Cruces, located 24.9 km N of Yuramarca, ca. 100 m below the road. 8.704°S, 77.909°W, 2285 m. Growing in dry area among *Schinus molle* trees. Corolla violet rotate pentagonal, fruits globose, mature. March 27, 1999.

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***Solanum peloquinianum* Ochoa**

Peru. Ancash, Province Corongo: growing at a local place called Palillo, located 9.6 km NE of Tres Cruces, ca. 100 m above the road. 8.646°S, 77.886°W, 2590 m. Growing among *Opuntia*, liliceous plants, compositae, and *Calceolaria*. Corolla violet rotate pentagonal, fruits not present. March 27, 1999.

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***Solanum albicans* (Ochoa) Ochoa**

Peru. Ancash, Province Corongo: growing at a local place called Cahuacana, located 13 km NE of Tarica. 8.576°S, 77.721°W, 3880 m. Growing among *Stipa ichu* in the altiplano. Corolla or fruits not present. March 27, 1999.

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***Solanum* × *blanco-galdosii* Ochoa**

Peru. La Libertad, Province Pataz: growing at a local place called Cruz Pata, located 2 km S of Huancaspata. 8.470°S, 77.286°W, 3215 m. Growing in an abandoned pea field. Corolla violet rotate-pentagonal, fruits not present. March 28, 1999.

Alberto Salas, David M. Spooner, Rafael Torres, & Konrad Schöler 7339

***Solanum hastiforme* Correll**

Peru. La Libertad, Province Pataz: growing at Cerro Ganhuish, located 9 km N of Huancaspata. 8.452°S, 77.312°W, 3620 m. Growing under trees, among *Rubus*; flowers and fruits absent. March 28, 1999.

Alberto Salas, David M. Spooner, Rafael Torres, & Konrad Schöler 7340

***Solanum chomatophilum* Bitter**

Peru. La Libertad, Province Pataz: growing at a local place called Puna, located ca. 30 km N of Huacaspata, near the road. 8.402°S, 77.306°W, 3875 m. Growing among *Stipa ichu* in the altiplano. Corolla purple, rotate pentagonal, fruits conical. March 28, 1999.

Alberto Salas, David M. Spooner, Rafael Torres, & Konrad Schöler 7341

***Solanum taulisense* Ochoa**

Peru. La Libertad, Province Pataz: growing at a local place called Puna, located ca. 31 km N of Huacaspata, near the road. 8.402°S, 77.305°W, 3890 m. Growing among *Stipa ichu* in the altiplano. Plants without corolla flowers or fruits. March 28, 1999.

Alberto Salas, David M. Spooner, Rafael Torres, & Konrad Schöler 7342

***Solanum* × *blanco-galdosii* Ochoa**

Peru. Ancash, Province Sihuas: growing at a local place called Huanchi, located 10 km W of Sihuas, lower slopes of Cerro Santa Rosa. 8.573°S, 77.626°W, 3095 m. Growing in a barley field in dry soil. Plants with violet rotate-pentagonal corollas, fruits not present. March 29, 1999.

Alberto Salas, David M. Spooner, Rafael Torres, & Konrad Schöler 7343

***Solanum ancophilum* (Correll) Ochoa**

Peru. Ancash, Province Yungay: 1 km E of entrance to Parque Nacional Llanganuco, on road to Laguna Llanganuco, 6 km NW of E end of this lake, on road from Yungay, 9.102°S, 77.677°W, 3425 m. Growing along road among shrubs, in sandy soil, near base of large rock fall under a large sheer cliff. Plants with purple rotate corollas, fruits not present. March 31, 1999.

Alberto Salas, David M. Spooner, Rafael Torres, & Konrad Schüler 7344

***Solanum ancophilum* (Correll) Ochoa** (type locality of *Solanum rhombilanceolatum* Ochoa var. *ancophilum* Correll)

Peru. Ancash, Province Yungay: on N side of Laguna Llanganuco, ca. 1 km E of beginning of lake on road from Yungay, in Parque Nacional Llanganuco, 9.073°S, 77.649°W, 3805 m. Growing on steep slope, road among shrubs, in sandy soil, near base of large rock fall under a large sheer cliff. Plants with purple rotate corollas, fruits not present. March 31, 1999.

Alberto Salas, David M. Spooner, Rafael Torres, & Konrad Schüler 7345

***Solanum chomatophilum* Bitter var. *subnivale* Ochoa** (type locality of this taxon)

Peru. Ancash, Province Yungay: at Yurac Corral (Huishca), 16.3 km E of park entrance into Parque Nacional Llanganuco, at km 35.5 by posted kilometer markings, 8.5 km NE of NE end of the 2nd part of Laguna Llanganuco on the road to Piscobamba, 9.058°S, 77.601°W, 4150 m. Growing among white boulders on a small valley crossing the road, on right hand side of road as ascending the road. Plants with purple rotate-pentagonal corollas, fruits maturing to mature, ovoid-conical. March 31, 1999.

Alberto Salas, David M. Spooner, Rafael Torres, & Konrad Schüler 7346

***Solanum chomatophilum* Bitter var. *subnivale* Ochoa** (type locality of this taxon)

Peru. Ancash, Province Yungay: at Yurac Corral (Huishca), 18.8 km E of park entrance into Parque Nacional Llanganuco, 11.0 km NE of NE end of the 2nd part of Laguna Llanganuco on the road to Piscobamba, 9.048°S, 77.594°W, 4280 m. Growing among white colored boulders by the road from Yungay. Plants with purple rotate-pentagonal corollas, fruits not yet present. March 31, 1999.

Alberto Salas, David M. Spooner, Rafael Torres, & Konrad Schüler 7347

***Solanum ancophilum* (Correll) Ochoa**

Peru. Ancash, Province Carhuaz: at a local place called Punco, located 13 NE of Shilla following the valley of Río Ulta, 9.177°S, 77.594°W, 3605 m. Growing among large rocks with *Rubus* in organic soil among shrubs. Plants with purple rotate-pentagonal corollas, fruits not present. April 1, 1999.

Alberto Salas, David M. Spooner, Rafael Torres, & Konrad Schüler 7348

***Solanum ancophilum* (Correll) Ochoa**

Peru. Ancash, Province Carhuaz: growing at a local place called Coralles, 15 km E of Chilla, 9.169°S, 77.584°W, 3635 m. Growing among *Polypeptis* trees, *Rubus*, *Stipa ichu*. Plants with violet rotate-pentagonal corollas, fruits not present. April 1, 1999.

Alberto Salas, David M. Spooner, Rafael Torres, & Konrad Schüler 7349

***Solanum chomatophilum* Bitter**

Peru. Ancash, Province Carhuaz: growing at a local place called Ulta, 25.2 km E of Chilla, 9.126°S, 77.531°W, 3985 m. Growing in moist organic soil near base of cliff under *Polypeptis* trees and among *Urtica*. Plants with rotate-pentagonal corollas, fruits not present. April 1, 1999.

Alberto Salas, David M. Spooner, Rafael Torres, & Konrad Schüler 7350

***Solanum dolichocremastrum* Bitter**

Peru. Ancash, Province Carhuaz: growing at a local place called Ulta, 25.2 km E of Chilla, 9.126°S, 77.531°W, 3985 m. Growing in moist organic soil near base of cliff under *Polypeptis* trees and among *Urtica*. Plants with purple pentagonal corollas, fruits not present. April 1, 1999.

Alberto Salas, David M. Spooner, Rafael Torres, & Konrad Schüler 7351

Solanum multiinterruptum* Bitter var. *multiinterruptum

Peru. Ancash, Province Aija: a 7 km walk E of the town of Aija, descending the canyon San Juan (containing Río San Juan), at a local place called Cuesta de Melliso, 9.787°S, 77.641°W, 2945 m. Growing on a rocky slope, with grasses, *Calceolaria*, *Tropaeolum*, *Jaltomata*, *Solanum hirsutum*. Corollas purple, pentagonal, fruits not present. (24/04 many mature fruits). April 1, 1999.

Alberto Salas, David M. Spooner, Rafael Torres, & Konrad Schüler 7352

***Solanum dolichocremastrum* Bitter** (at or near type locality of *Solanum chavinense* Correll)

Peru. Ancash, Province Recuay: 31.0 from the main Lima-Huaraz road at Catac, on the road to Chavin de Huantar, along the N side of the road, 6.8 km before reaching Paso Cahuich (at the tunnel through the mountains), 9.699°S, 77.276°W, 4150 m. Growing among boulders in rich soil in altiplano. Corollas purple, pentagonal, fruits not present. April 2, 1999.

Alberto Salas, David M. Spooner, Rafael Torres, & Konrad Schüler 7353

***Solanum dolichocremastrum* Bitter** (at or near type locality of *Solanum chavinense* Correll)

Peru. Ancash, Province Huari: 42.2 from the main Lima-Huaraz road at Catac, on the road to Chavin de Huantar, along the S side of the road ca. 100 m off road, 4.4 km after reaching Paso Cahuich (at the tunnel through the mountains), 9.691°S, 77.245°W, 4240 m. Growing among boulders in rich soil in altiplano under *Polypeptis* trees. Corollas purple, pentagonal, fruits not present. April 2, 1999.

Alberto Salas, David M. Spooner, Rafael Torres, & Konrad Schüler 7354

***Solanum orophilum* Ochoa**

Peru. Ancash, Province Huari: 3 km walk W of Huantar, at a local place called Huahuachuranán, 9.449°S, 77.180°W, 3450 m. Growing among shrubs, *Agave*, and *Rubus*. Corollas violet, rotate-pentagonal, fruits globose, green. April 2, 1999.

Alberto Salas, David M. Spooner, Rafael Torres, & Konrad Schüler 7355

Solanum multiinterruptum* Bitter var. *multiinterruptum (at or near type locality of *Solanum multiinterruptum* Bitter f. *longipilosum* Correll)

Peru. Ancash, Province Bolognesi: growing at a local place called Huaca Corral, above Chiquián, located 22.4 km E of Conococha, 10.125°S, 77.181°W, 3820 m. Growing among *Opuntia* in clay soil. Corollas rotate-pentagonal, fruits not present. April 3, 1999.

Alberto Salas, David M. Spooner, Rafael Torres, & Konrad Schüler 7356

Solanum multiinterruptum* Bitter var. *multiinterruptum (at or near type locality of *Solanum multiinterruptum* Bitter f. *longipilosum* Correll)

Peru. Ancash, Province Bolognesi: growing in a local place called Upayacu, above Chiquián, located 26.9 km E of Conococha, 10.135°S, 77.173°W, 3600 m. Growing in clay soil among *Rubus*. Corollas rotate-pentagonal, fruits not present. April 3, 1999.

Alberto Salas, David M. Spooner, Rafael Torres, & Konrad Schüler 7357

Solanum multiinterruptum* Bitter var. *multiinterruptum

Peru. Ancash, Province Bolognesi: growing at a local place called Macpun, located 2 km walk E of Chiquián, 10.153°S, 77.144°W, 3515 m. Growing in dry area in organic soil among *Opuntia*, *Salvia*, compositae. No flowers or fruits present. April 3, 1999.

Alberto Salas, David M. Spooner, Rafael Torres, & Konrad Schüller 7358

***Solanum multiinterruptum* Bitter var. *multiinterruptum* (at or near type locality of *Solanum moniliforme* Correll)**

Peru. Ancash, Province Recuay: located at a local place called Colquimarca, at km 110 on the road from Lima to Huaraz, a few km below Conococha, 19.7 km N of Cajacay, 10.164°S, 77.339°W, 3600 m. Growing among *Opuntia*, and shrubs and *Lupinus*. Corollas rotate, purple, no fruits present. April 3, 1999.

Alberto Salas, David M. Spooner, Rafael Torres, & Konrad Schüller 7359

***Solanum multiinterruptum* Bitter var. *multiinterruptum* (at or near type locality of *Solanum moniliforme* Correll)**

Peru. Ancash, Province Recuay: at km 100 on the road from Lima to Huaraz, 9.4 km N of Cajacay, near Conococha, 10.153°S, 77.384°W, 3055 m. Growing among shrubs near streamside. Corollas rotate pentagonal, purple, no fruits present. April 3, 1999.

Alberto Salas, David M. Spooner, Rafael Torres, & Konrad Schüller 7360

***Solanum medians* Bitter**

Peru. Lima, Province Canta: on the Lima to Canta road, on the other side of the road and ca. 200-300 m SW from the bridge called Puente Verde, located 9.2 km SW of the town of Canta, 11.497°S, 76.651°W, 2310 m. Growing among shrubs and cacti. Corollas rotate pentagonal, purple, no fruits present. April 7, 1999.

Alberto Salas, David M. Spooner, Rafael Torres, & Roel Hoekstra 7361

***Solanum medians* Bitter**

Peru. Lima, Province Canta: collected at Cuesta de Huamantanga, 8 km NW from the Lima to Canta road on the road to Huamantanga, 11.515°S, 76.694°W, 2645 m. Growing among shrubs. Corollas rotate, white, fruits not yet present. April 7, 1999.

Alberto Salas, David M. Spooner, Rafael Torres, & Roel Hoekstra 7362

***Solanum wittmackii* Bitter**

Peru. Lima, Province Canta: collected at Cuesta de Huamantanga 9.6 km NW from the Lima to Canta road on the road to Huamantanga, 11.523°S, 76.700°W, 2710 m. Growing among shrubs above road inaccessible to grazing animals. Corollas rotate, white, fruits not yet present. April 7, 1999.

Alberto Salas, David M. Spooner, Rafael Torres, & Roel Hoekstra 7363

***Solanum simplicissimum* Ochoa**

Peru. Lima, Province Canta: collected at Cuesta de Huamantanga 10.8 km NW from the Lima to Canta road on the road to Huamantanga, 11.522°S, 76.704°W, 2720 m. Growing among shrubs at edge of cliff by roadside. Corollas rotate, white, fruits not yet present. April 7, 1999.

Alberto Salas, David M. Spooner, Rafael Torres, & Roel Hoekstra 7364

***Solanum hypocrarthurum* Bitter**

Peru. Lima, Province Canta: collected at Cuesta de Huamantanga 10.2 km NW from the Lima to Canta road on the road to Huamantanga, 11.524°S, 76.705°W, 2800 m. Growing among shrubs at edge of cliff by roadside. Corollas rotate, white, fruits not yet present. April 7, 1999.

Alberto Salas, David M. Spooner, Rafael Torres, & Roel Hoekstra 7365

***Solanum hypocrarthurum* Bitter**

Peru. Lima, Province Canta: collected at Cuesta de Huamantanga 14.1 km NW from the Lima to Canta road on the road to Huamantanga, 11.506°S, 76.706°W, 2875 m. Growing among shrubs at edge of cliff by roadside. Corollas rotate, white, fruits not yet present. April 7, 1999.

Alberto Salas, David M. Spooner, Rafael Torres, & Roel Hoekstra 7366

***Solanum hypocrarthurum* Bitter**

Peru. Lima, Province Canta: growing at a local place named Pallacusco, located 3 km walk E of Arahuary on a footpath to Cerro Putaca, 11.626°S, 76.667°W, 2660 m. Growing along footpath among shrubs. Corollas rotate, white, fruits not yet present. April 8, 1999.

Alberto Salas, David M. Spooner, Rafael Torres, & Roel Hoekstra 7367

***Solanum cantense* Ochoa**

Peru. Lima, Province Canta: growing at a local place named Pallacusco, located 4 km walk E of Arahua on a footpath to Cerro Putaca, 11.623°S, 76.659°W, 2895 m. Growing along footpath among shrubs. Corollas rotate, white, fruits not yet present. April 8, 1999.

Alberto Salas, David M. Spooner, Rafael Torres, & Roel Hoekstra 7368

***Solanum medians* Bitter**

Peru. Lima, Province Canta: growing at a local place named Pallacusco, located 4 km walk E of Arahua on a footpath to Cerro Putaca, 11.623°S, 76.659°W, 2895 m. Growing along footpath among shrubs. Corollas purple, rotate pentagonal, fruits not present. April 8, 1999.

Alberto Salas, David M. Spooner, Rafael Torres, & Roel Hoekstra 7369

***Solanum cantense* Ochoa**

Peru. Lima, Province Canta: growing at Huaytana, located ac 5 km walk NE of town of Canta on the path to Antura, 11.608°S, 76.661°W, 2785 m. Growing among shrubs by path. Corollas white, rotate, flowers not present. April 8, 1999.

Alberto Salas, David M. Spooner, Rafael Torres, & Roel Hoekstra 7370

***Solanum medians* Bitter**

Peru. Lima, Province Canta: growing at Huaytana, located ac 5 km walk NE of town of Canta on the path to Antura, 11.608°S, 76.661°W, 2775 m. Growing among shrubs by path. Corollas purple, pentagonal rotate, fruits not present. April 8, 1999.

Alberto Salas, David M. Spooner, Rafael Torres, & Roel Hoekstra 7371

***Solanum cantense* Ochoa**

Peru. Lima, Province Canta: growing at a local place called Ugones, 4 km NE of town square of Canta on the road to Huaros, common on the slope above the road, 11.478°S, 76.622°W, 2975 m. Growing among grasses and small bushes in clay soil. Corolla white, rotate, fruits not present. April 9, 1999.

Alberto Salas, David M. Spooner, Rafael Torres, & Roel Hoekstra 7372

***Solanum wittmackii* Bitter**

Peru. Lima, Province Canta: growing at a local place called Marcomarco, on the Cuesta de Huamantanga, 15.0 km NW from the Lima to Canta road on the road to Huamantanga, 11.510°S, 76.714°W, 2885 m. Growing among loose stones of landslide by steep bank by road. Corollas violet, rotate, fruits not present although some plants mature and apparently dying. April 9, 1999.

Alberto Salas, David M. Spooner, Rafael Torres, & Roel Hoekstra 7373

Solanum multiinterruptum* Bitter var. *multiinterruptum

Peru. Lima, Province Canta: collected at a local place called Racsa, on both sides of road, 23.7 km NW from the main Lima to Canta road on the road to Huamantanga, 1.7 km SE of town square of Huamantanga (type locality of *S. multiinterruptum*), 11.507°S, 76.741°W, 3320 m. Growing among stones and grasses. Corollas light violet to almost white, rotate, fruits not present. April 9, 1999.

Alberto Salas, David M. Spooner, Rafael Torres, & Roel Hoekstra 7374

***Solanum multiinterruptum* Bitter var. *multiinterruptum* (type locality of *S. chrysoflorum* Ochoa)**

Peru. Lima, Province Canta: collected on the SW side of the road, 1.0 km NW of town square of Huamantanga, on the road to Quipán, 11.497°S, 76.754°W, 3370 m. Growing among stones and grasses. Corollas white, rotate, fruits not present. April 9, 1999.

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***Solanum multiinterruptum* Bitter var. *multiinterruptum* (type locality of *S. chrysoflorum* Ochoa)**

Peru. Lima, Province Canta: collected on the NE side of the road, 0.8 km NW of town square of Quipán, 10.8 km NE of town square of Huamantanga, on the road to Marco (type locality of *S. chrysoflorum*), 11.470°S, 76.775°W, 3425 m. Growing among grasses and small bushes and compositae in clay soil. Corollas white, rotate, fruits not present. April 9, 1999.

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***Solanum immite* Bitter**

Peru. Lima, Province Huaral: collected on the SE side of the road, 7 km NE of Acos, on the road to Pacaraos, 11.262°S, 76.768°W, 1840 m. Growing among rocks by roadside. Corollas white, pentagonal, fruits young and just forming. April 10, 1999.

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***Solanum simplicissimum* Ochoa**

Peru. Lima, Province Huaral: collected on the NW side of the road, 11.4 km NE of Acos, on the road to Pacaraos, about 50 m NE of the small bridge crossing over the road of Río Chancay, 11.260°S, 76.737°W, 2075 m. Growing among rocks by roadside. Corollas white, rotate, fruits just forming. April 10, 1999.

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***Solanum medians* Bitter**

Peru. Lima, Province Huaral: collected on the NW side of the road, 11.4 km NE of Acos, on the road to Pacaraos, about 50 m NE of the small bridge crossing over the road of Río Chancay, 11.260°S, 76.737°W, 2075 m. Growing among rocks by roadside. Corollas purple, rotate-pentagonal, one young young-ovoid fruit found. April 10, 1999.

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***Solanum wittmackii* Bitter**

Peru. Lima, Province Huaral: collected on the SE side of the road, 14.0 km NE of Acos, on the road to Pacaraos, 11.254°S, 76.724°W, 2230 m. Growing among rocks by roadside. Corollas violet, rotate, mature ovoid fruits collected. April 10, 1999.

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***Solanum wittmackii* Bitter**

Peru. Lima, Province Huarochirí: collected on roadside, 24 km NE of Santa Eulalia, on the road to Millo, 11.746°S, 76.608°W, 2485 m. Growing among rocks on steep roadside. Some small fruits collected. April 12, 1999.

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***Solanum cantense* Ochoa**

Peru. Lima, Province Huarochirí: collected on roadside, 30 km NE of Santa Eulalia (close to San Pedro de Casta), on the road to Millo, 11.746°S, 76.608°W, 3000 m. Growing among rocks on steep roadside. Corollas white. April 12, 1999.

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***Solanum medians* Bitter**

Peru. Lima, Province Huarochirí: collected on roadside, 32.3 km NE of Santa Eulalia, on the road to Millo, 11.743°S, 76.598°W, 3065 m. Growing among rocks on steep roadside. April 12, 1999.

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***Solanum hypacrarthrum* Bitter**

Peru. Lima, Province Huarochirí: collected on roadside, 34.2 km NE of Santa Eulalia, on the road to Millo, 11.742°S, 76.591°W, 3075 m. Growing among rocks on steep roadside and along wall aside cultivated field. Corollas white. April 12, 1999.

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Solanum multiinterruptum* Bitter var. *multiinterruptum

Peru. Lima, Province Huarochirí: collected on roadside, 39.9 km NE of Santa Eulalia, on the road to Millo, 11.705°S, 76.569°W, 3110 m. Growing among rocks on steep roadside. April 12, 1999.

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***Solanum sogarandinum* Ochoa**

Peru. Lima, Province Huarochirí: collected on roadside, 61.3 km NE of Santa Eulalia, on the road to Millo, 11.633°S, 76.452°W, 3710 m. Growing on roadside in the puna, together with *S. multiinterruptum* and *S. acaule*. April 12, 1999.

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Solanum multiinterruptum* Bitter var. *multiinterruptum

Peru. Lima, Province Huarochirí: collected on roadside, 61.3 km NE of Santa Eulalia, on the road to Millo, 11.633°S, 76.452°W, 3710 m. Growing on roadside in the puna, together with *S. sogarandinum* and *S. acaule*. Fruits collected. April 12, 1999.

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***Solanum huarochiriense* Ochoa**

Peru. Lima, Province Huarochirí: collected on road side, 67.6 km NE of Santa Eulalia, NE of Millo, on the road to Huancayo via Millo, 11.605°S, 76.395°W, 3940 m. Growing among rocks on roadside in the puna. Not flowering. April 12, 1999.

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***Solanum bukasovii* Juz.**

Peru. Huancavelica, Province Acobamba: collected on roadside, 6 km NW of Paucara, on the road from Mariscal Caceres to Acobamba, 12.686°S, 74.701°W, 3865 m. Growing among rocks on roadside in the puna. Not flowering. April 15, 1999.

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***Solanum medians* Bitter**

Peru. Ancash, Province Bolognesi: collected on mountainside 5 km S of Chiquián at a site called Conoy, 10.170°S, 77.119°W, 2900 m. Growing among bushes. Fruits collected. April 19, 1999.

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***Solanum anamatophilum* Ochoa**

Peru. Ancash, Province Bolognesi: collected W side of river, 6 km S of Chiquián, 5 km SE of Conoy, at a site called Gantopunto, between Chichoj and Purich, 10.171°S, 77.122°W, 2800 m. Not flowering. April 19, 1999.

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***Solanum wittmackii* Bitter**

Peru. Lima, Province Canta: on steep mountain side, 1 km SW of Arahua, 11.626°S, 76.673°W, 2710 m. Growing among rocks. Several fruits from two plants collected. April 21, 1999.

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***Solanum wittmackii* Bitter**

Peru. Lima, Province Canta: on steep mountain side, 2 km SSW of Arahua, 11.626°S, 76.669°W, 2750 m. Growing among rocks. Some immature fruits collected. April 21, 1999.

Alberto Salas, Rafael Torres, & Roel Hoekstra 7393

***Solanum hypacrarthrum* Bitter**

Peru. Lima, Province Canta: on top of mountain valley, 1.3 km SW of Arahuary, 11.624°S, 76.671°W, 2975 m. Growing among bushes. Corollas white. April 21, 1999.

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***Solanum wittmackii* Bitter**

Peru. Lima, Province Canta: on top of mountain valley, 3 km SW of Arahuary, 11.591°S, 76.671°W, 3000 m. Growing among rocks and bushes; fruits collected. April 21, 1999.

Alberto Salas, Rafael Torres, & Roel Hoekstra 7395

***Solanum arahuayum* Ochoa**

Peru. Lima, Province Canta: on steep mountain side, 1 km SW of Arahuary, 11.625°S, 76.669°W, 2820 m. Growing among rocks. Corolla white, two plants only. April 21, 1999.

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***Solanum augustii* Ochoa**

Peru. Ancash, Province Aija: on mountain side, 2.5 km W of Aija. 9.780°S, 77.631°W, 3370 m. Growing among rocks. Corolla lilac, fruits collected. April 24, 1999.

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Solanum multiinterruptum* Bitter var. *multiinterruptum

Peru. Ancash, Province Huaraz: road side on mountain side, 2.2 km N of Yupash, at merge of two streams, 450 m N of bridge Tingo, along road from Huaraz to Pampas, 9.551°S, 77.671°W, 3500 m. One plant only, two immature fruits. Corolla lilac, stellate. April 25, 1999.

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***Solanum sogarandinum* Ochoa**

Peru. Ancash, Province Aija: on mountainside, 36.2 km E of division from road Huaraz-Pampas to Huarmey, 200 m W of four houses. 9.725°S, 77.717°W, 4020 m. Growing among rocks. Not flowering. April 25, 1999.

Alberto Salas, Rafael Torres, & Roel Hoekstra 7399

Solanum multiinterruptum Bitter var. *multiinterruptum*

Peru. Ancash, Province Aija: on mountainside, 3 km S of Coris along road Huaraz-Huarmey, at km 62. 9.824°S, 77.703°W, 2965 m. Growing among rocks; not flowering. April 25, 1999.

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Table 1. List of wild potato (*Solanum sect. Petota*) germplasm collections made on the 1999 potato collecting expedition to Peru, and generalized map localities as illustrated on Fig. 1.

Coll. No.	Map local.	<i>Solanum</i> species	Germplasm				Herbarium distribution
			No. stem cuttings for later planting	No. tubers collected	No. fruits mature / possibly immature	No. of seeds	
7300	34	<i>S. medians</i>	5	0	0	0	PTIS, CIP
7301	34	<i>S. medians</i>	15	0	0	0	MOL, PTIS, CIP, WAG
7302	35	<i>S. medians</i>	5	0	0	0	MOL, PTIS, CIP, WAG
7303	35	<i>S. medians</i>	7	0	0	0	MOL, PTIS, CIP, WAG
7304	35	<i>S. medians</i>	15	0	0	0	MOL, PTIS, CIP, WAG
7305	29	<i>S. bukasovii</i>	15	0	0	0	MOL, PTIS, CIP, WAG
7306	30	<i>S. gracilifrons</i>	10	15	0/1	35	MOL, PTIS, CIP
7307	30	<i>S. bill-hookerii</i>	18	2	0/1	30	MOL, PTIS, CIP, WAG
7308	32	<i>S. amayanum</i>	14	0	0	0	
7309	31	<i>S. huancavelicae</i>	11	0	0	0	MOL, PTIS, CIP, WAG
7310	26	<i>S. medians</i>	15	0	0	0	
7311	28	<i>S. huarochiriense</i>	14	10	0	0	MOL, PTIS, CIP, WAG
7312	28	<i>S. multiinterruptum</i> var. <i>multiinterruptum</i>	14	0	0	0	MOL, PTIS, CIP, WAG
7313	27	<i>S. medians</i>	8	2	0	0	MOL, PTIS, CIP, WAG
7314	27	<i>S. immite</i>	14	0	0	0	MOL, PTIS, CIP, WAG
7315	4	<i>S. immite</i>	25	0	0	0	MOL, PTIS, CIP, WAG
7316	3	<i>S. jalcae</i> var. <i>jalcae</i>	10	0	0	0	MOL, PTIS, CIP, WAG
7317	3	<i>S. jalcae</i> var. <i>jalcae</i>	20	0	0	0	

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7318	6	<i>S. albicans</i>	14	0	0/4	400	
7319	6	<i>S. albicans</i>	4	0	0	0	
7320	6	<i>S. jalcae</i> var. <i>jalcae</i>	18	0	0	0	MOL, PTIS, CIP, WAG
7321	7	<i>S. chiquidenum</i> var. <i>chiquidenum</i>	27	0	0	0	MOL, PTIS, CIP
7322	2	<i>S. jalcae</i> var. <i>jalcae</i>	14	4	0/1	14	
7323	2	<i>S. jalcae</i> var. <i>jalcae</i>	12	0	0	0	MOL, PTIS, CIP
7324	2	<i>S. hastiforme</i>	16	0	0	0	
7325	1	<i>S. chomatophilum</i>	7	0	0	0	MOL, PTIS, CIP, WAG
7326	1	<i>S. sogarandinum</i>	27	0	0	0	MOL, PTIS, CIP, WAG
7327	1	<i>S. chomatophilum</i>	7	0	0	0	MOL, PTIS, CIP, WAG
7328	1	<i>S. sogarandinum</i>	5	1	0	0	MOL, PTIS, CIP, WAG
7329	1	<i>S. hastiforme</i>	11	1	0	0	MOL, PTIS, CIP, WAG
7330	2	<i>S. albicans</i>	14	6	0	0	
7331	5	<i>S. chiquidenum</i> var. <i>chiquidenum</i>	20	7	0	0	
7332	5	<i>S. sogarandinum</i>	13	9	0	0	MOL, PTIS, CIP
7333	5	<i>S. multiinterruptum</i> var. <i>machaytambinum</i>	12	0	0	0	
7334	14	<i>S. multiinterruptum</i> var. <i>multiinterruptum</i>	4	3	52	2000	MOL, PTIS, CIP, WAG
7335	14	<i>S. sogarandinum</i>	7	0	0	0	
7336	10	<i>S. peloquinianum</i>	6	1	9	1000	MOL, PTIS, CIP, WAG
7337	10	<i>S. peloquinianum</i>	13	3	0	0	MOL, PTIS, CIP, WAG
7338	9	<i>S. albicans</i>	10	0	0	0	
7339	8	<i>S. x blanco-galdosii</i>	17	4	0	0	MOL, PTIS, CIP, WAG
7340	8	<i>S. hastiforme</i>	6	0	0	0	
7341	8	<i>S. chomatophilum</i>	14	0	6	300	MOL, PTIS, CIP, WAG

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7342	10	<i>S. taulisense</i>	10	0	0	0	PTIS, CIP
7343	9	<i>S. x blanco-galdosii</i>	7	10	0	0	PTIS, CIP
7344	11	<i>S. ancophilum</i>	9	3	0	0	MOL, PTIS, CIP
7345	11	<i>S. ancophilum</i>	28	15	0	0	MOL, PTIS, CIP, WAG
7346	11	<i>S. chomatophilum</i> var. <i>subnivale</i>	0	0	10	400	MOL, PTIS, CIP, WAG
7347	11	<i>S. chomatophilum</i> var. <i>subnivale</i>	16	0	0	0	MOL, PTIS, CIP
7348	12	<i>S. ancophilum</i>	12	2	0	0	MOL, PTIS, CIP
7349	12	<i>S. ancophilum</i>	5	4	0	0	MOL, PTIS, CIP, WAG
7350	12	<i>S. chomatophilum</i>	13	0	0	0	MOL, PTIS, CIP, WAG
7351	12	<i>S. dolichocremastrum</i>	10	5	0	0	MOL, PTIS, CIP, WAG
7352	16	<i>S. multiinterruptum</i> var. <i>multiinterruptum</i>	14	6	33	3800	MOL, PTIS, CIP
7353	17	<i>S. dolichocremastrum</i>	19	15	0	0	MOL, PTIS, CIP, WAG
7354	17	<i>S. dolichocremastrum</i>	22	0	0	0	MOL, PTIS, CIP
7355	13	<i>S. orophilum</i>	5	1	2	100	MOL, PTIS, CIP, WAG
7356	19	<i>S. multiinterruptum</i> var. <i>multiinterruptum</i>	11	6	0	0	MOL, PTIS, CIP, WAG
7357	19	<i>S. multiinterruptum</i> var. <i>multiinterruptum</i>	19	0	0	0	MOL, PTIS, CIP, WAG
7358	19	<i>S. multiinterruptum</i> var. <i>multiinterruptum</i>	15	0	0	0	MOL, PTIS, CIP, WAG
7359	18	<i>S. multiinterruptum</i> var. <i>multiinterruptum</i>	11	2	0	0	MOL, PTIS, CIP, WAG
7360	18	<i>S. multiinterruptum</i> var. <i>multiinterruptum</i>	8	4	0	0	MOL, PTIS, CIP, WAG
7361	22	<i>S. medians</i>	10	0	0	0	MOL, PTIS, CIP, WAG
7362	22	<i>S. medians</i>	8	0	1	85	MOL, PTIS, CIP, WAG

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7363	21	<i>S. wittmackii</i>	16	20	0	0	MOL, PTIS, CIP, WAG
7364	21	<i>S. simplicissimum</i>	5	0	0	0	MOL, PTIS, CIP, WAG
7365	21	<i>S. hypacrarthrum</i>	10	0	0	0	MOL, PTIS, CIP, WAG
7366	21	<i>S. hypacrarthrum</i>	14	0	0	0	MOL, PTIS, CIP, WAG
7367	23	<i>S. hypacrarthrum</i>	24	0	0	0	MOL, PTIS, CIP, WAG
7368	23	<i>S. cantense</i>	15	0	0	0	MOL, PTIS, CIP, WAG
7369	23	<i>S. medians</i>	7	0	0	0	MOL, PTIS, CIP, WAG
7370	23	<i>S. cantense</i>	14	0	0	0	MOL, PTIS, CIP, WAG
7371	23	<i>S. medians</i>	7	0	0	0	MOL, PTIS, CIP, WAG
7372	22	<i>S. cantense</i>	8	2	0	0	MOL, PTIS, CIP, WAG
7373	21	<i>S. wittmackii</i>	34	0	10/3	34	MOL, PTIS, CIP, WAG
7374	21	<i>S. multiinterruptum</i> var. <i>multiinterruptum</i>	21	8	0	0	MOL, PTIS, CIP, WAG
7375	21	<i>S. multiinterruptum</i> var. <i>multiinterruptum</i>	14	8	0	0	MOL, PTIS, CIP, WAG
7376	21	<i>S. multiinterruptum</i> var. <i>multiinterruptum</i>	13	0	0	0	MOL, PTIS, CIP, WAG
7377	20	<i>S. immite</i>	10	18	0	0	MOL, PTIS, CIP, WAG
7378	20	<i>S. simplicissimum</i>	11	8	0	0	MOL, PTIS, CIP
7379	20	<i>S. medians</i>	8	0	2	100	MOL, PTIS, CIP, WAG
7380	20	<i>S. wittmackii</i>	0	0	5	300	MOL, PTIS, CIP, WAG
7381	25	<i>S. wittmackii</i>	4	0	4	0	MOL, PTIS, CIP, WAG
7382	25	<i>S. cantense</i>	16	6	0	0	MOL, PTIS, CIP, WAG
7383	25	<i>S. medians</i>	6	0	0	0	MOL, PTIS, CIP, WAG
7384	25	<i>S. hypacrarthrum</i>	14	0	0	0	MOL, PTIS, CIP, WAG
7385	25	<i>S. multiinterruptum</i> var. <i>multiinterruptum</i>	13	0	0	0	MOL, PTIS, CIP, WAG
7386	24	<i>S. sogarandinum</i>	17	15	0	0	MOL, PTIS, CIP, WAG

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7387	24	<i>S. multiinterruptum</i> var. <i>multiinterruptum</i>	13	0	7	0	MOL, PTIS, CIP, WAG
7388	24	<i>S. huarochiriense</i>	13	0	0	0	MOL, PTIS, CIP, WAG
7389	33	<i>S. bukasovii</i>	10	2	0	0	
7390	19	<i>S. medians</i>	0	0	3	40	
7391	19	<i>S. anamatophilum</i>	5	25	0	0	MOL, PTIS, CIP, WAG
7392	23	<i>S. wittmackii</i>	0	8	7/8	600	MOL, PTIS, CIP, WAG
7393	23	<i>S. wittmackii</i>	8	20	3	30	MOL, PTIS, CIP, WAG
7394	23	<i>S. hypacrarthrum</i>	8	0	1	6	MOL, PTIS, CIP, WAG
7395	23	<i>S. wittmackii</i>	8	0	3/8	600	MOL, PTIS, CIP, WAG
7396	23	<i>S. arahuayum</i>	2	0	0	0	CIP
7397	16	<i>S. augustii</i>	27	19	8/5	500	MOL, PTIS, CIP, WAG
7398	14	<i>S. multiinterruptum</i> var. <i>multiinterruptum</i>	7	0	2	2	MOL, PTIS, CIP, WAG
7399	15	<i>S. sogarandinum</i>	20	5	0	0	
7400	15	<i>S. multii.</i> var. <i>multii.</i>	4	0	0	0	

Table 2.— Prior germplasm collections at NRSP-6 and new germplasm collections made on the 1999 expedition in central Peru. The taxonomy of this list differs that in the report of the 1998 expedition (Table 2 of Spooner et al., 1999) by the incorporation of taxonomic changes of Ochoa (1999). We additionally delete *S. limense*, shown by Ochoa (1962, pg. 297) to be a synonym of *S. chacoense*.

Department	Taxon	Prior germplasm collections from Peru at NRSP-6	New germplasm collections in 1999.
Ancash	<i>S. albicans</i> (Ochoa) Ochoa	19	1
	<i>S. anamatophilum</i> Ochoa	0	1
	<i>S. ancophilum</i> Correll ¹	0	4
	<i>S. augustii</i> Ochoa	0	1
	<i>S. × blanco-galdosii</i> Ochoa ²	4	1
	<i>S. chomatophilum</i> Bitter	18	1
	<i>S. chomatophilum</i> var. <i>subnivale</i> Ochoa ³	0	2
	<i>S. dolichocremastrum</i> Bitter ⁴	4 (ANC)	3
	<i>S. medians</i> Bitter ⁵	9	2
	<i>S. multiinterruptum</i> var. <i>multiinterruptum</i> ⁶	0	9
	<i>S. orophilum</i> Correll	1 (ANC)	1
	<i>S. peloquinianum</i> Ochoa	0	2
	<i>S. sogarandinum</i> Ochoa	2	2
Huancavelica	<i>S. amayanum</i> Ochoa	0	1
	<i>S. bill-hookeri</i> Ochoa	0	1
	<i>S. bukasovii</i> Juz. ⁷	168	1
	<i>S. gracilifrons</i> Bitter	0	1

	<u>S. huancavelicae</u> Ochoa ⁸	0	1
La Libertad	<u>S. albicans</u> (Ochoa) Ochoa	see Ancash	3
	<u>S. × blanco-galdosii</u> Ochoa ²	see Ancash	1
	<u>S. chiquidenum</u> Ochoa var. <u>chiquidenum</u> ⁹	5	2
	<u>S. chomatophilum</u>	see Ancash	2
	<u>S. hastiforme</u> Correll	1	3
	<u>S. immite</u> Dunal	4	1
	<u>S. jalcae</u> Ochoa var. <u>jalcae</u> ¹⁰	0	5
	<u>S. mochiquense</u> Ochoa (lomas species)	4	0
	<u>S. multiinterruptum</u> var. <u>machaytambinum</u> Ochoa ⁶	0	1
	<u>S. sogarandinum</u> Ochoa	2 (ANC, LL)	3
	<u>S. taulisense</u> Ochoa	0	1 (identity in question)
	<u>S. yamobambense</u> Ochoa	0	0
Lima	<u>S. × arahuayum</u> Ochoa ¹¹	0	1
	<u>S. bukasovii</u> Juz. ⁷	168	1
	<u>S. cantense</u> Ochoa	0	4
	<u>S. chancayense</u> Ochoa (lomas species not sought)	2 (LIM)	0
	<u>S. huarochiriense</u> Ochoa	0	2
	<u>S. hypacrarthrum</u> Bitter	0	5
	<u>S. immite</u> Dunal	4	2

<u>S. medians</u> Bitter ⁵	9	12
<u>S. multiinterruptum</u> Bitter var. <u>multiinterruptum</u> ⁶	9	6
<u>S. neoweberbaueri</u> Wittm. (lomas species not sought) ¹²	0	0
<u>S. simplicissimum</u> Ochoa	0	2
<u>S. sogarandinum</u> Ochoa	see Ancash	1
<u>S. wittmackii</u> Bitter	0	7

¹Ochoa (1999) recognized S. rhomboideilanceolatum var. ancophilum as S. ancophilum (Correll) Ochoa. Our collection in area 11 represents the type locality of S. ancophilum. Ochoa (1999) changed the spelling of S. rhomboideilanceolatum from his original spelling for its description in 1952 to S. rhomilanceolatum, apparently to correct an orthographic error according to article 60 of the International Code of Botanical Nomenclature.

²Ochoa (1999) designated S. × blanco-galdosii as a hybrid between S. anamatophilum and S. peloquinianum.

³Ochoa (1999) recognized two varieties in S. chomatophilum, var. chomatophilum and var. subnivale. We made two collections of S. chomatophilum at its type locality (7346, 7347) and label them as this variety. We are unsure of the varietal identification of our other collections of S. chomatophilum and leave them undesignated to variety.

⁴Ochoa (1999) made S. chavinense a synonym of S. dolichocremastrum. Our collection at locality 17 was at the type locality of S. chavinense.

⁵Ochoa (1999) recognized two varieties of S. medians: var. autumnale and var. medians, and synonymized S. weberbaueri (type from Department of Tacna) in the former variety. Distinction of these varieties rests on morphological and ploidy characters (var. autumnale diploid, var. medians triploid) and we do not yet identify any of our collections to variety. Our collection in area 26 is at the type locality of var. autumnale.

⁶Ochoa (1999) made S. chrysoflorum, S. moniliforme, and S. multiinterruptum f. longipilosum synonyms of S. multiinterruptum var. multiinterruptum; our collections at area 21 are at the type locality of S. chrysoflorum, at 18 of S. moniliforme, and at 19 are of multiinterruptum f. longipilosum. He also recognized var. machaytambinum, and we collected this variety at the type locality at area 5 (La Libertad Department).

⁷Ochoa (1999) placed S. hapalosum in synonymy with S. bukasovii Juz. Our collection in Lima Department is at the type locality of S. hapalosum. The 168 collections listed here and in Spooner et al. (1999) assume the broad synonymy of this species listed there.

⁸Ochoa (1999) described this new species.

⁹Our collection of S. chiquidenum var. chiquidenum at locality 7 is at the type locality of var. cachicadense (placed by Ochoa, 1999, as a synonym of var. chiquidenum).

¹⁰Ochoa (1999) recognized S. jalcae var. pubescens (Correll), creating the autonym var. jalcae.

¹¹Ochoa (1999) designated S. × arahuayum as a hybrid between S. medians Bitter and S. wittmackii Bitter.

¹²Ochoa (1999) designated S. × neoweberbaueri as a hybrid between S. medians and S. chancayense.

Fig.1. Route of the 1999 expedition to southern Peru, with generalized collecting areas corresponding to Table 1

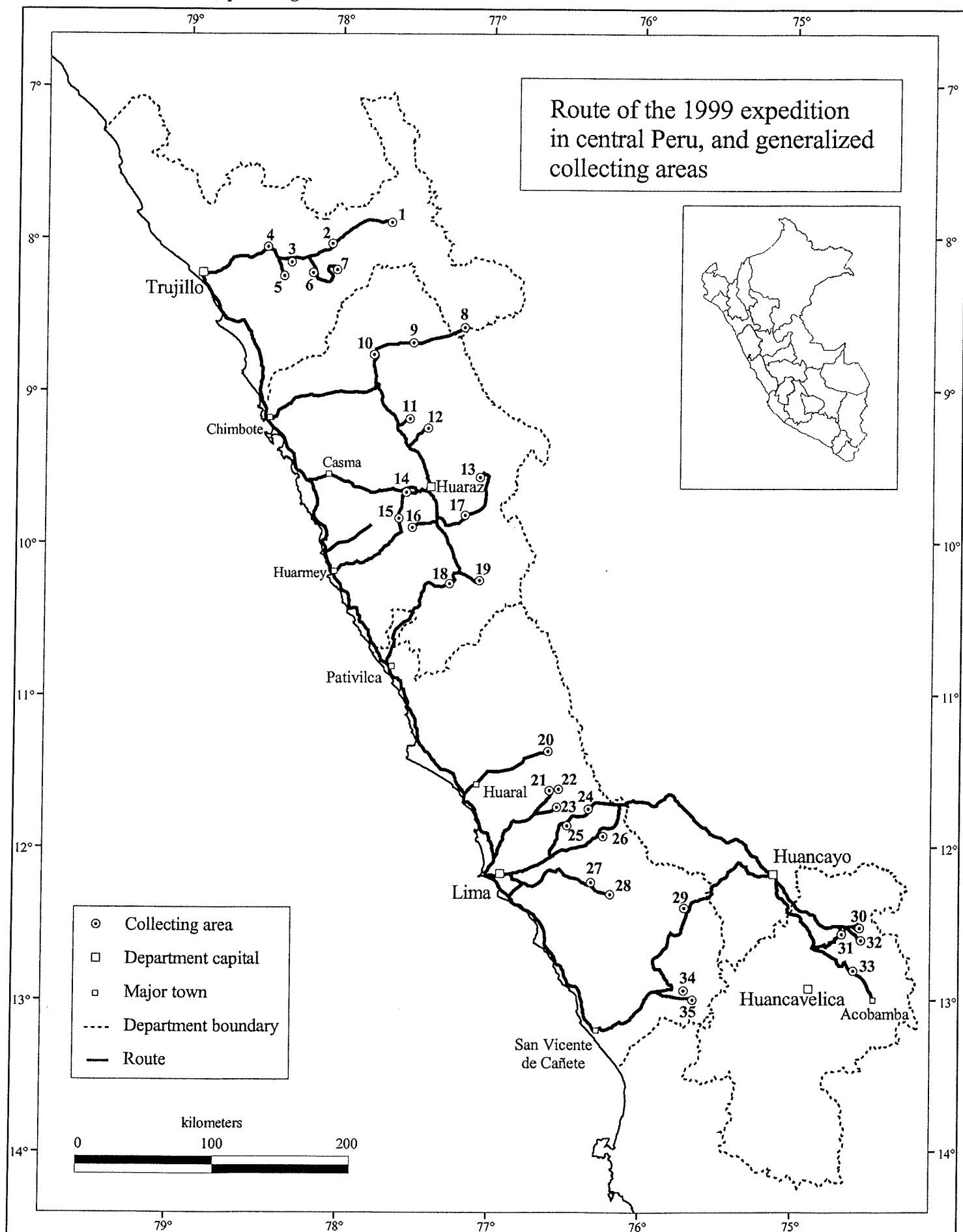
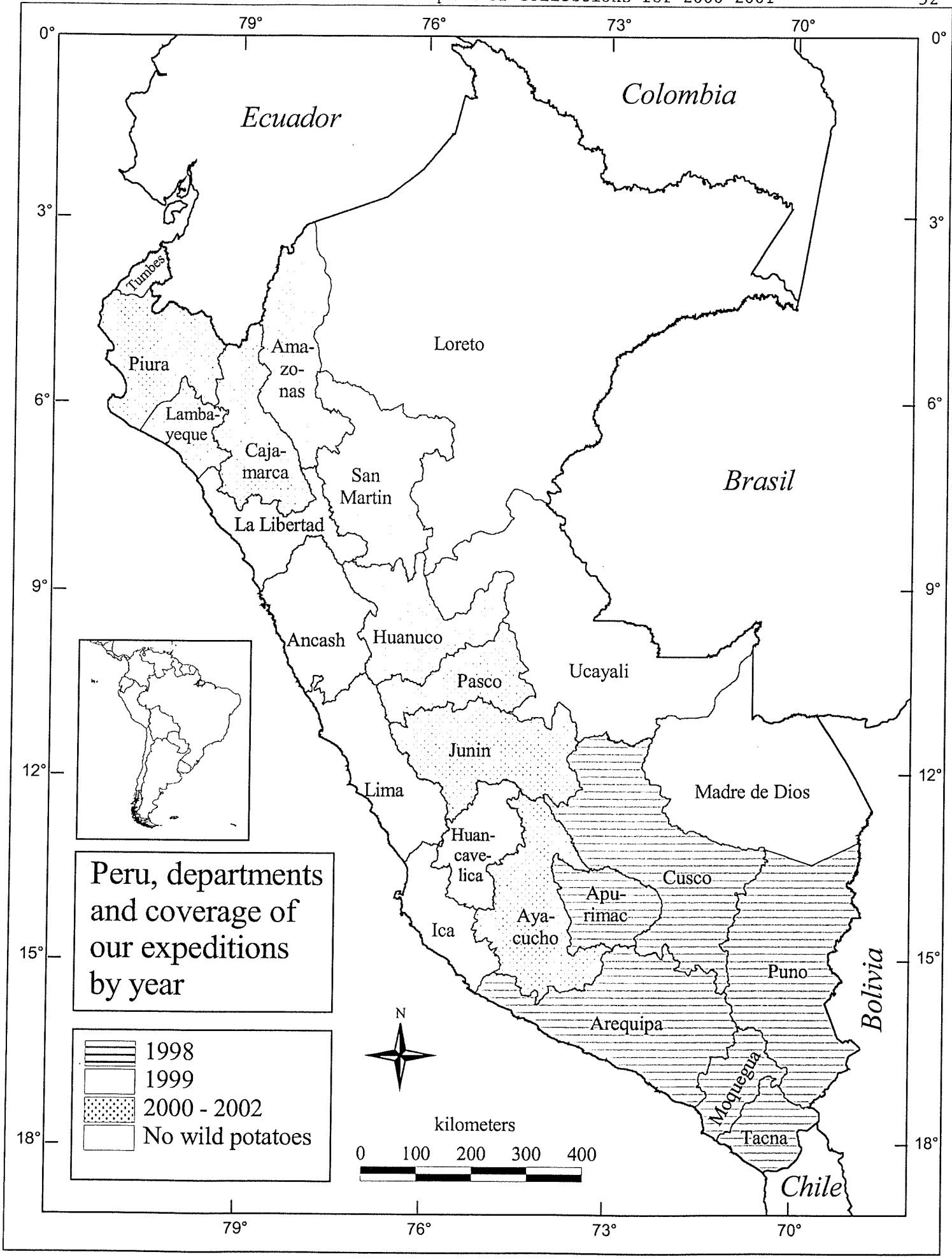


Fig.2. Collections in 1998 and 1999 and plan of collections for 2000-2001



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Appendix 1. Taxonomic basionyms for the Peruvian wild potato species and their currently accepted names according to Hawkes (1990), and names published after 1990, for the central Peruvian departments of the Departments of Ancash, Huancavelica, La Libertad, and Lima. Taxa are ordered alphabetically by their accepted name prior to Ochoa's potato flora of Peru.

Original description: *Solanum amayanum* Ochoa. Amer. Potato J. 66: 1. 1989.

Currently recognized: *Solanum amayanum* Ochoa. Type: *Ochoa 04299*

Type locality: Peru. Dept. Huancavelica, Prov. Tayacaga, in rocky steep rugged hills of Chihuanjaja, ca. 3550 m, Mar 1973.

Original description: *Solanum anamatophilum* Ochoa. Anales Ci. 11: 391. 1964.

Currently recognized: *Solanum anamatophilum* Ochoa. Type: *Ochoa 2490*

Type locality: Peru. Dept. Ancash, Prov. Bolognesi, prope Chichoj, 2700 m, Apr 14, 1963.

Original description: *Solanum arahuayum* Ochoa. Phytologia 77: 96. 1994

Currently recognized: *Solanum arahuayum* Ochoa. Type: *Vilcapoma 208*

Type locality: Peru. Dept. Lima, Prov. Canta, Cruz Pallaschuscha, 3100-3200 m, Mar 28, 1972

Original description: *Solanum augustii* Ochoa. Bol. Soc. Peruana Bot. 7: 12. 1974.

Currently recognized: *Solanum augustii* Ochoa. Type: *Ochoa 3317*

Type locality: Peru. Dept. Ancash, near Melliso, in itinere Huayán-Aija, 3000-3200 m, May 1972.

Original description: *Solanum bill-hookeri* Ochoa. Amer. Potato J. 65: 737. 1988.

Currently recognized: *Solanum bill-hookeri* Ochoa. Type: *Ochoa 4295*

Type locality: Peru. Dept. Huancavelica, Prov. Tayacaja, Kkaratuway'ko, ca. 2900 m, Mar 1973.

Original description: *Solanum cantense* Ochoa. Agronomía (Lima) 26: 217. 1959.

Currently recognized: *Solanum cantense* Ochoa. Type: *Ochoa 1154*

Type locality: Peru. Dept. Lima, Prov. Canta, Capra Marca, near Canta, 2800 m, Mar 24, 1951.

Original description: *Solanum limense* Correll. Wrightia 2: 188. 1961.

Currently recognized: *Solanum chacoense* Bitter. Type: *Soukup 3555*

Type locality: Peru. Dept. Lima, Lima, Jan 1948.

Original description: *Solanum chancayense* Ochoa. Agronomía (Lima) 26: 316. 1959.

Currently recognized: *Solanum chancayense* Ochoa. Type: *Ochoa 1804*

Type locality: Peru. Dept. Lima, Prov. Chancay, Lomas Chancay, near Latiillo, 150 m, Aug 25, 1952.

Original description: *Solanum chavinense* Correll. Wrightia 2: 185. 1961.

Currently recognized: *Solanum chavinense* Correll. Type: *Correll & Smith P973*

Type locality: Peru. Dept. Ancash, among boulders and trees near pass between Recuay and Chavín 4200 m, Mar 30, 1960.

Original description: *Solanum chiquidenum* var. *cachicadense* Ochoa. Agronomía (Lima) 26: 318. 1959.

Currently recognized: *Solanum chiquidenum* Ochoa. Type: *Ochoa 1469*

Type locality: Peru. Dept. La Libertad, Prov. Santiago de Chuco, near Cachicadán, Cerro Botica, or Cerro de Oro, 3020 m, May 13, 1952.

Original description: *Solanum chomatophilum* Bitter. Abh. Naturwiss. Vereine Bremen 25: 246. 1924.

Currently recognized: *Solanum chomatophilum* Bitter. Type: *Weberbauer 7201*

Type locality: Peru. Dept. Ancash, Prov. Pallasca, below the mine of Huaura, 3950 m, Apr 23, 1960.

Original description: *Solanum chomatophilum* var. *subnivale* Ochoa. Phytologia 77: 390. 1994.

Currently recognized: *Solanum chomatophilum* var. *subnivale* Ochoa. Type: *Ochoa 12084*

Type locality: Peru. Dept. Ancash, Prov. Yungay, supra Huishca, 4300 m, circa conterminus nivis pepetuu, Apr 17, 1978

Original description: *Solanum chrysoflorum* Ochoa. Hickenia 1: 317. 1982.

Currently recognized: *Solanum chrysoflorum* Ochoa. Type: *Ochoa & Salas 14716*

Type locality: Peru. Dept. Lima, Prov. Canta, entre Quipán y Marco, 3400 m, en quebrada húmeda y fría entre matorrales arbustivos, May 1982.

Original description: *Solanum dolichocremastrum* Bitter. Feddes Repert. Spec. Nov. Regni Veg. 12: 3. 1913.

Currently recognized: *Solanum dolichocremastrum* Bitter. Type: *Dombey s.n.*

Type locality: Peru. Dept. Ancash (or Huánuco), Undefined locality.

Original description: *Solanum gracilifrons* Bitter. Bot. Jahrb. Syst. 54 (Suppl. 119): 6. 1916.

Currently recognized: *Solanum gracilifrons* Bitter. Type: *Weberbauer 6472*

Type locality: Peru. Dept. Huancavelica, Prov. Tayacaja, along stream, Mantaca to Colcabamba, 1900-2000 m, Mar 11, 1913.

Original description: *Solanum hapalosum* Ochoa. Bol. Soc. Argent. Bot. 22: 297. 1983.

Currently recognized: *Solanum hapalosum* Ochoa. Type: *Ochoa 3891*

Type locality: Peru. Dept. Lima, Prov. Yauyos, en una quebrada pequeña y estrecha entre Peroyda y la margen derecha del Río Pacayachy, 3340 m, Mar 1973.

Original description: *Solanum hastiforme* Correll. Wrightia 2: 187. 1961.

Currently recognized: *Solanum hastiforme* Correll. Type: *Correll & Smith P930*

Type locality: Peru. Dept. La Libertad, along bushy rocky stream ca. 3 km W of Huamacucho, 3200 m, Mar 27, 1960.

Original description: *Solanum huarochiriense* Ochoa. Los *Solanum* Tuberíferos Silvestres del Perú (Secc. Tuberarium, Sub-secc. Hyperbaranthrum), Privately published, Lima, Peru 215. 1962.

Currently recognized: *Solanum huarochiriense* Ochoa. Type: Ochoa 2308

Type locality: Peru. Dept. Lima, Prov. Huarochirí, Pachacosa, cerca de Aguacha, ruta Lima-Huarochirí, Apr 1960.

Original description: *Solanum hypocrarthrum* Bitter. Feddes Repert. Spec. Nov. Regni Veg. 11: 367. 1912.

Currently recognized: *Solanum hypocrarthrum* Bitter. Type: Mathews 772

Type locality: Peru. Dept. Lima, Cuesta of Puruchuca, Apr 1832.

Original description: *Solanum tuberosum* var. *puberulum* Hook. f. Fl. antarct. 2: 330. 1846.

Currently recognized: *Solanum hypocrarthrum* Bitter. Type: Mathews 722

Type locality: Peru. Dept. Lima, Puruchuca.

Original description: *Solanum immite* Dunal. Prodr. 13(1): 32. 1852.

Currently recognized: *Solanum immite* Dunal. Type: Ruiz & Pavon 8/90

Type locality: Peru. Dept. Lima, Hab. in Collibus Chancay (label of Madrid sheet).

Original description: *Solanum immite* var. *vernale* Correll. Wrightia 2: 181. 1961.

Currently recognized: *Solanum immite* Dunal. Type: Saunders S.C.E.. 185

Type locality: Peru. Dept. Lima, rocky valley, about 8 km east of San Bartolo, about 120[0] m, Aug 2, 1953.

Original description: *Solanum mathewsii* Bitter. Feddes Repert. Spec. Nov. Regni Veg. 12: 53. 1913.

Currently recognized: *Solanum immite* Dunal. Type: Mathews 771 p.p.

Type locality: Peru. Dept. Lima, Cuesta of Puruchuca, Apr 1832.

Original description: *Solanum tuberosum* var. *multijugum* Hook. f. Fl. antarct. 2: 330. 1846.

Currently recognized: *Solanum immite* Dunal. Type: Mathews 771 p.p.

Type locality: Peru. Dept. Lima, Puruchuca.

Original description: *Solanum jalcae* Ochoa. Agronomía (Lima) 19: 167. 1954.

Currently recognized: *Solanum jalcae* Ochoa. Type: Ochoa 1433

Type locality: Peru. Dept. La Libertad, ascending from Hacienda Motil hacia las jalcas, 3100-3300 m, May 12, 1952.

Original description: *Solanum medians* Bitter. Feddes Repert. Spec. Nov. Regni Veg. 11: 366. 1912.

Currently recognized: *Solanum medians* Bitter. Type: Seler 260 .Weberbauer 5683.

Type locality: Peru. Dept. Lima, prope Lima, in declivibus petrosis, Cerro de Amancaes, Jul, 1910.

Original description: *Solanum medians* var. *angustifolium* Ochoa. Los *Solanum* Tuberíferos Silvestres del Perú (Secc. Tuberarium, Sub-secc. Hyperbararthurum), Privately published, Lima, Peru 242. 1962.

Currently recognized: *Solanum medians* Bitter. Type: *Ochoa 2352*

Type locality: Peru. Dept. Lima, Prov. Cajatambo, San José, vicinity of Churín, 2700 m, Apr 6, 1961.

Original description: *Solanum medians* var. *autumnale* Correll. Wrightia 2: 190. 1961.

Currently recognized: *Solanum medians* Bitter. Type: *Goodspeed T.H. 33116*

Type locality: Peru. Dept. Lima, Prov. Huarochirí, valley of Río Rímac, in moist crevices of rock walls, at km 70, E of Lima on highway to La Oroya, 1850 m, Apr 21-26, 1942.

Original description: *Solanum mochiquense* Ochoa. Agronomía (Lima) 26: 111. 1959.

Currently recognized: *Solanum mochiquense* Ochoa. Type: *Ochoa 1822*

Type locality: Peru. Dept. La Libertad, Prov. Trujillo, Cerro Campana, near Trujillo, 400 m, Sep 10, 1952.

Original description: *Solanum moniliforme* Correll. Wrightia 2: 182. 1961.

Currently recognized: *Solanum moniliforme* Correll. Type: *Correll & Smith P974*

Type locality: Peru. Dept. Ancash, among boulders at km 311, a few km below Conococha, on road to the coast 3900 m, Mar 31, 1960.

Original description: *Solanum multiinterruptum* Bitter. Feddes Repert. Spec. Nov. Regni Veg. 12: 56. 1913.

Currently recognized: *Solanum multiinterruptum* Bitter. Type: *McLean J.. s.n.*

Type locality: Peru. Dept. Lima, Huamantanga, 3345 m.

Original description: *Solanum multiinterruptum* f. *longipilosum* Correll. Wrightia 2: 192. 1961.

Currently recognized: *Solanum multiinterruptum* f. *longipilosum* Correll. Type: *Ferreyra & Cerrate 12131*

Type locality: Peru. Dept. Ancash, Prov. Bolnesi, above Chiquián, on hill on edge of farm, 3500-3600 m, Mar 31, 1957.

Original description: *Solanum multiinterruptum* var. *machaytambinum* Ochoa. Agronomía (Lima) 27: 244. 1960.

Currently recognized: *Solanum multiinterruptum* var. *machaytambinum* Ochoa. Type: *Ochoa 2164*

Type locality: Peru. Dept. La Libertad, Prov. Otuzco, entre Julcán y Machaytambo, 3000 m, Apr 15, 1959.

Original description: *Solanum neoweberbaueri* Wittm. Bot. Jahrb. Syst. 50 (Suppl.): 540. 1914.

Currently recognized: *Solanum neoweberbaueri* Wittm. Type: *Weberbauer 5689*

Type locality: Peru. Dept. Lima, Morro Solar, near Chorillos, loma formation, 250 m, Aug 21, 1910.

Original description: *Solanum orophilum* Correll. Wrightia 2: 192. 1961.

Currently recognized: *Solanum orophilum* Correll. Type: *Correll & Smith P971*

Type locality: Peru. Dept. Ancash, on rocky brushy slope, several km above Chavín, 3500 m, Mar 30, 1960.

Original description: *Solanum peloquinianum* Ochoa. Amer. Potato J. 57: 33. 1980.

Currently recognized: *Solanum peloquinianum* Ochoa. Type: *Ochoa 13322*

Type locality: Peru. Dept. Ancash, Prov. Corongo, steep slopes of Chuirajra Mount, 1712 m, Mar 1979.

Original description: *Solanum rhomboideilanceolatum* var. *ancophilum* Correll. Wrightia 2: 195. 1961.

Currently recognized: *Solanum rhomboideilanceolatum* Ochoa. Type: *Correll & Smith P957*

Type locality: Peru. Dept. Ancash, among large boulders in gorge of glacial valley, on NW slope of Nevada de Huascarán, below Llanganuco, 3500 m, Mar 29, 1960.

Original description: *Solanum sogarandinum* Ochoa. Agronomía (Lima) 19: 168. 1954.

Currently recognized: *Solanum sogarandinum* Ochoa. Type: *Ochoa 1440*

Type locality: Peru. Dept. La Libertad, Sogaranda, near Santiago de Chuco, May 12, 1952.

Original description: *Solanum taulisense* Ochoa. Lorentzia 4: 13. 1981.

Currently recognized: *Solanum taulisense* Ochoa. Type: *Ochoa 2654*

Type locality: Peru. Dept. La Libertad, Prov. Pataz, Comunidad de La Victoria, Jalcas del Tauli, 3700-3800 m, May 5, 1967; entre pajanoles de *Stipa ichu* o entre pequeños relictos arbóreos y arbustivos muy húmedos compuestos principalmente por *Polylepis*. (& others).

Original description: *Solanum wittmackii* Bitter. Feddes Repert. Spec. Nov. Regni Veg. 12: 54. 1913.

Currently recognized: *Solanum wittmackii* Bitter. Type: *Mathews 847 p.p.*

Type locality: Peru. Dept. Lima, Lomas of Amancaes, amongst rocks, Jul 1833.

Original description: *Solanum tuberosum* var. *macranthum* Hook. f. Fl. antarct. 2: 330. 1847.

Currently recognized: *Solanum wittmackii* Bitter. Type: *Mathews 847 p.p.*

Type locality: Peru. Dept. Lima, Serras [lomas] of Amancaes.

Original description: *Solanum vavilovii* Juz. & Bukasov. Izv. Akad. Nauk SSSR, Ser. Biol. 2: 302. 1937.

Currently recognized: *Solanum wittmackii* Bitter. Type: *Vavilov & Weberbauer s.n.*

Type locality: Peru. Dept. Lima, tubers collected in loma region near Chorillos (specimen obtained from plants grown near Leningrad), Oct 28, 1932.

Original description: *Solanum wittmackii* var. *glauciviride* Bitter. Feddes Repert. Spec. Nov. Regni Veg. 12: 56. 1913.

Currently recognized: *Solanum wittmackii* Bitter. Type: *André. E. 4114*

Type locality: Peru. Dept. Lima, western base of mountains, Amancaes near Lima, ca. 30 m, Jul 21, 1876.

Original description: *Solanum yamobambense* Ochoa. Agronomía (Lima) 27: 367. 1960.

Currently recognized: *Solanum yamobambense* Ochoa. Type: *Ochoa 1431*

Type locality: Peru. Dept. La Libertad, Otuzco, near Yamobamba, 3160 m, May 12, 1952.

Appendix 2. Status of seed increase project at CIP for collections made in 1998, based on data from January, 2000. Collections highlighted are those not brought back to NRSP-6 in 1998 and with a portion of the increase to be given to NRSP-6 with this increase. Further seed increases started again in October, 1999 and are in progress.

Coll. no.	Species	Germplasm status	Observations
7201	<i>Solanum tuberosum</i>	New tubers already produced	
7202	<i>S. acaule</i>	More than 5,000 seeds produced	Good identification (ID)
7203	<i>S. suaveolens</i>	About 1,500 seeds available	Good ID
7204	<i>S. yungasense</i>	No seeds; only tubers produced	Good ID
7205	<i>S. limbanense</i>	About 1,800 seeds produced	Good ID
7206	<i>S. megistacrolobum</i> subsp. <i>toralapanum</i>	Abundant seeds produced	Good ID
7207	<i>S. raphanifolium</i>	About 4,500 seeds produced	Good ID
7208	<i>S. raphanifolium</i>	More than 5,000 seeds produced	Good ID
7209	<i>S. marinasense</i>	More than 5,000 seeds produced	Good ID
7210	<i>S. raphanifolium</i>	Only collected as herbarium in 1998. No seeds	
7211	<i>S. lignicaule</i>	Only about 100 seeds produced	Good ID
7212	<i>S. brevicaule</i>	About 5,000 seeds produced	<i>S. bukasovii</i>

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7213	<i>S. brevicaule</i>	No seeds; only tubers produced	<i>S. sparsipilum</i>
7214	<i>S. tarapatanum</i>	Only about 200 seeds produced	Good ID, fruits spherical
7215	<i>S. lignicaule</i>	Only about 200 seeds produced	Misidentified, = <i>S. tarapatanum</i>
7216	<i>S. tarapatanum</i>	About 1,500 seeds produced	
7217	<i>S. urubambae</i>	Only about 150 seeds produced	Good ID
7218	<i>S. laxissimum</i>	No seeds, only 7 tubers produced	Salas thinks introgression with <i>S. urubambae</i>
7219	<i>S. brevicaule</i>	More than 5,000 seeds produced	<i>S. bukasovii</i>
7220	<i>S. pillahuatense</i>	About 5,000 seeds produced	Good ID
7220a	<i>S. pillahuatense??</i>	No seeds, only 7 tubers produced	
7221	<i>S. brevicaule</i>	About 2,500 seeds produced	Wide-leaved <i>S. sparsipilum</i> morphotype
7222	<i>S. lignicaule</i>	About 3,000 seeds produced	Good ID
7223	<i>S. tuberosum</i>	About 1,400 seeds and some tubers produced	subsp. <i>andigena</i>
7224	<i>S. lignicaule</i>	Few seeds and 15 tubers produced	Good ID
7225	<i>S. multiflorum</i>	About 900 seeds produced	Good ID, corollas white
7226	<i>S. multiflorum</i>	Plants died	

7227	<i>S. santolallae</i>	Planted seeds did not germinate, 165 original seeds remain -- will be crossed with <i>S. santolallae</i> 7237	
7228	<i>S. santolallae</i>	About 5,000 seeds produced	Good ID
7229	<i>S. buesii</i>	Only 200 seeds produced	Good ID
7230	<i>S. buesii</i>	Seeds did not germinate	
7231	<i>S. villuspetalum</i>	Plants died	
7232	<i>S. buesii</i>	About 100 seeds produced	
7233	<i>S. buesii</i>	Seeds failed to germinate, about 30 seeds remain	
7234	<i>S. raphanifolium</i> (<i>S. incasicum</i>)	More than 5,000 seeds produced	Leaves pointed, not rounded at end as more typical for <i>S. raphanifolium</i>
7235	<i>S. buesii</i>	About 3,000 seeds produced	Good ID
7236	<i>S. sawyeri</i>	Tubers (2n=48) produced.	<i>S. phureja</i>
7237	<i>S. santolallae</i>	About 2,000 seeds produced	Good ID
7238	<i>S. sawyeri</i>	Tubers (2n=48) produced	<i>S. phureja</i> ; white flowers, red tubers
7239	<i>S. chillonanum</i>	More than 5,000 seeds produced	Rosette-like habit (hybrid of <i>S. acaule</i> and <i>S. bukasovii</i> ?)
7240	<i>S. velardei</i>	More than 5,000 seeds produced	Looks like <i>S. sparsipilum</i>
7241	<i>S. abancayense</i>	No seeds, tubers produced	

7242	<i>S. marinasense</i>	No seeds, tubers produced	Leaf resembles 7256
7243	<i>S. acroscopicum</i>	About 800 seeds produced	
7244	<i>S. lycopersicoides</i>	About 1,600 seeds available	Good ID
7245	<i>S. acaule</i>	More than 5,000 seeds produced	Good ID
7246	<i>S. tacnaense</i>	No seeds, only tubers produced	Different from <i>S. sandemannii</i> 7250
7247	<i>S. sp.</i>	About 250 seeds produced	Same species as 7249
7248	<i>S. sp.</i>	About 4,000 seeds available	
7249	<i>S. sp.</i>	About 1800 seeds produced	Same species as 7247; looks like 7213
7250	<i>S. sandemanii</i>	More than 5,000 seeds produced	Distinctive hairy leaves with decurrence; looks like <i>S. tacnaense</i>
7251	<i>S. sandemanii</i>	Only 100 seeds available	Good ID
7252	<i>S. sandemanii</i>	More than 5,000 seeds produced	Distinctive hairy leaves with decurrence
7253	<i>S. acaule</i>	Few seeds produced	Good ID
7254	<i>S. megistacrolobum</i> subsp. <i>megistacrolobum</i> f. <i>purpureum</i>	Only 55 seeds available	Good ID
7255	<i>S. longiusculus</i>	Only 60 original seeds available	Leaves coriaceous, hairy, leaves united
7256	<i>S. sp.</i>	About 3,000 seeds produced	<i>S. ayamaracense</i>
7257	<i>S. ayamaracense</i>	Only 200 seeds available	Good <i>S. ayamaracense</i>

Appendix 7. Distribution of report.

Latin American Distribution

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