

PLANT EXPLORATION IN THE REPUBLIC OF GEORGIA TO COLLECT
GERMPLASM FOR CROP IMPROVEMENT
August 26- September 14, 2007



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(From Left – Marina Mosulishvili, Sandro Okropiridze, Joe-Ann McCoy, Barbara Hellier, Ana Gulbani below Mt. Kazbegi)

Acknowledgements:

- The expedition was funded by the USDA/ARS Plant Exchange Office, Beltsville, Maryland
- Representatives from the Georgia National Museum and the Georgian Plant Genetic Resources Center planned the itinerary and made all transportation, lodging and guide arrangements
- Special thanks to Ned Garvey and Karen Williams of the National Germplasm Resources Laboratory in Beltsville, Maryland
- The grant proposal and report were written by Joe-Ann McCoy

TABLE OF CONTENTS:

Participants	1
Expedition Summary	4
Map of Collection Sites and Regional Provinces	5
Itinerary and Collection Activities	6
Contact and Cooperators	15
References Consulted	16
Appendix 1 – Georgia Samples Collected by Site	17
Appendix 2 – Passport Data	
Appendix 2 – Material Transfer Agreement between Georgia and the United States	
Appendix 3 – Import Permits	

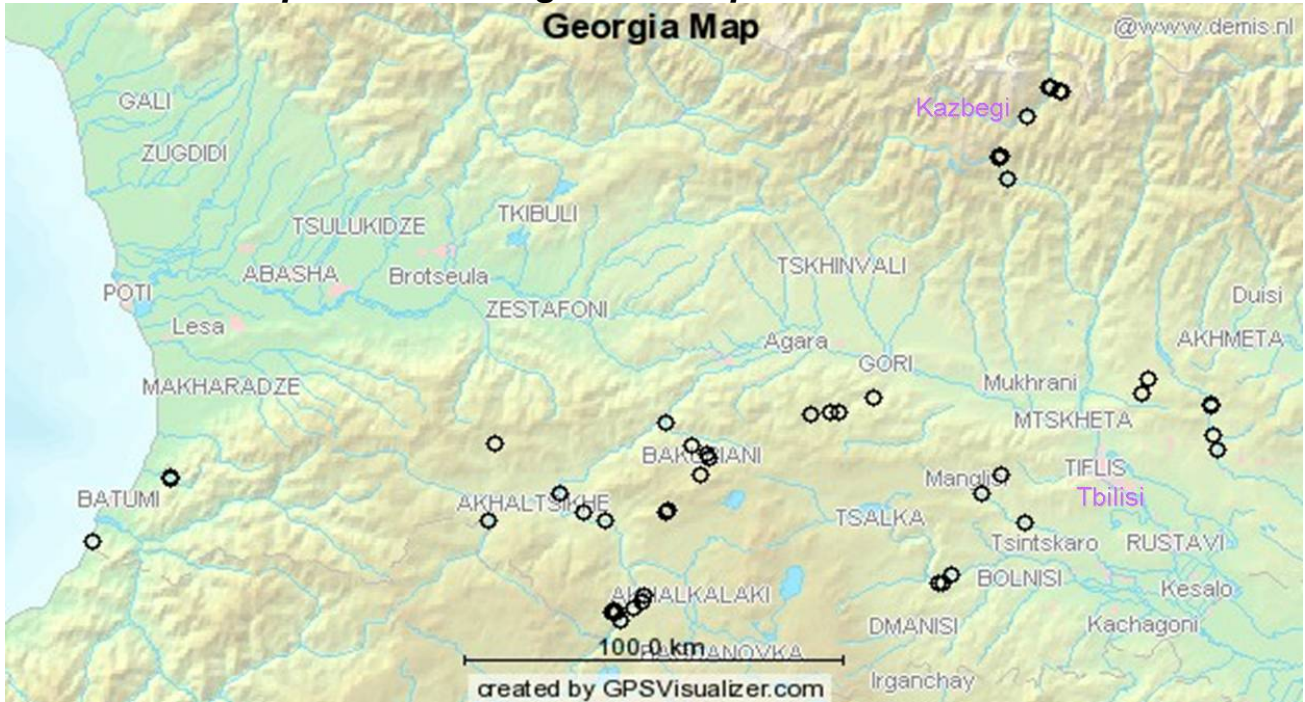
Expedition Summary

Two USDA curators (Joe-Ann McCoy, Medicinal Plants, NCRPIS, IA and Barbara Hellier, Horticultural Crops, Pullman, WA) in collaboration with two Georgian participants (Marina Mosulishvili, Ana Gulbani) met in Tbilisi, Georgia on August 27, 2007 to begin an 18 day plant exploration trip to collect medicinal genera. One hundred and fifteen accessions were collected between August 28 and September 13 representing an estimated 53 species. The trip covered a variety of habitats ranging from 40 - 2,336 meters in elevation and extending from the coastal range of the Black Sea to the Caucasus Mountains.

The first portion of the trip was focused around the capital city of Tbilisi and consisted of day-trips to surrounding sites representing diverse habitats. The collection team then headed north toward Mount Kazbegi (5,033 m) located in the Caucasus range for two days to collect in higher elevations habitats. After Kazbegi, the team headed west toward the Black Sea collecting along the way among diverse habitats including dry scrub forests, semi-arid shrublands, alpine meadows, and mesic montane forests. The group traveled through Borjomi, Bakuriani, Akhaltsikhe and Batumi where the unique Colchis forest habitats are located before returning to Tbilisi on September 12 to prepare seed and voucher samples for phytosanitary processing.

The primary objective of the collection trip was to acquire medicinal plant germplasm for inclusion in the U.S. National Plant Germplasm System from the Republic of Georgia. Specifically, Georgia's diverse habitats support a large number of medicinal taxa which will add to the genetic diversity of our current collection.

Republic of Georgia – Sample Collection Sites



Republic of Georgia – Regional Provinces

Itinerary and Collection Activities – Republic of Georgia

Sunday, August 26 – Monday, August 27, 2007

Traveled from U.S. to The Republic of Georgia via Atlanta and Paris; arrived in Tbilisi at 5:50 PM

Monday 8/27. Marina and Sandro picked us up from the airport and took us to a guest house owned by David “Dato” Nikoleishvili which would be our Tbilisi residence. Our luggage was lost in Paris, and took three days to reach Tbilisi. We reviewed the trip outline and Marina discussed a former medicinal plant project she had collaborated with fellow Georgian botanists and supplied the resulting publication entitled, “Conservation and Sustainable Utilization of the Endangered Medicinal Plants in Samtskhe-Javakheti”.

August 28- August 31 – Day trips from Tbilisi to surrounding areas - lodging in Tbilisi

Tuesday 9/28

We traveled SW from Tbilisi toward Mt. Didgori stopping to collect *Prunella*, *Phedimus*, *Thymus*, *Stachys*, *Scabrosa*, *Hypericum*, and *Allium* at a secondary subalpine meadow between Orbeti and Nichbisi. The majority of roads were dirt and there were many grazing sheep, cows, and goats in the beautiful subalpine meadows which could potentially affect our seed harvesting efforts adversely. We also drove through a broadleaf forested area and collected *Matricaria*, *Valeriana*, *Cyzerbata* and *Urtica* before heading back to Tbilisi to our guest house.



Wednesday 8/29

From Tbilisi we headed NW to the beautiful Tana River Valley along dirt roads collecting *Hypericum*, *Prunella*, *Allium*, *Artemisia*, *Matricaria*, *Achillea*, and *Sedum* in the River Tana Gorge and along the Tana river. We stopped at a very interesting rock outcrop and collected *Hypericum organifolium* and a *Nepeta* sp..It rained periodically throughout the day.



Thursday 8/30

We headed W from Tbilisi to Manglisi and collected a *Matricaria* accession along the roadside in a mountain meadow beside a pasture at 1,470 m. It rained most of the day but we managed to collect between showers. Proceeding on toward Manglisi we collected *Astragalus*, *Lactuca*, and *Taraxacum* in the Algeti river valley. As we headed back to Tbilisi in the rain, we stopped at a very interesting rock face habitat and collected *Hypericum* and *Allium*. We received good news about our luggage and picked it up from the airport upon our return to Tbilisi.



Friday 8/31

Heading NE from Tbilisi toward Gombori we stopped at a hardwood forest riverside site and collected *Glycyrrhiza*, *Paeonia*, *Convularia*, and *Prunella*. Continuing on we stopped beside the Iori river to have lunch and collected *Hypericum* and *Crataegus*. Next we stopped near Gulalebe village and collected *Lactuca* roadside. The last stop of the day was in the Sabaduri Beech forest where we collected *Prunella* and *Taraxacum* before heading back to Tbilisi.



September 1 – September 2 – Day trips around Kazbegi, lodging at the Stepantsminda Hotel

Saturday 9/1

We headed N toward Kazbegi along the Georgia Military Highway stopping to eat lunch at a traditional Georgian restaurant. Along the way we collected *Hypericum perforatum* from a rock face habitat. We also collected *Hypericum*, *Prunella*, *Taraxacum*, *Anthyllis*, *Matricaria*, *Papaver*, and *Epilobium* on the drive to Kazbegi from rocky alpine meadow habitats. We continued driving and reached Kazbegi in the Gorgeti village where we would stay at the Stepantsminda Hotel for the next 2 nights while exploring the surrounding areas below Mt. Kazbegi.



Sunday 9/2

We woke up with a view of Mt. Kazbegi from our rooms and headed up a steep dirt road to the mountain. Along the way we collected *Tanacetum*, *Scabiosa*, and *Thymus*. We stopped in at the beautiful Gorgeti church where a traditional Georgian Orthodox mass was underway. We also passed the Georgian Military doing training exercises at the high elevation site. Next we drove to the Institute of Botany Ecological Field Station to explore areas behind the station and collected *Hypericum*, and *Epilobium* in an alpine meadow. We ended the day with an excellent traditional Georgian dinner at the hotel.



September 3-September 4 – Day trips in and around Bakuriani - Lodging at the Institute of Botany's Bakuriani Field Station

Monday 9/3

We headed south back toward Tbilisi on the Georgian Military Highway and drove most of the day only stopping twice to collect in alpine meadows. We also stopped to explore a *Rhododendron caucasicum* habitat but did not collect; *R. caucasicum* is used in a local tea. We stopped and had a traditional Georgian lunch just outside of Tbilisi then stopped in Tbilisi to check email as it had not been available in our lodging facilities before proceeding on to Bakuriani. We arrived to the Institute of Botany's Bakuriani Field Station in the dark and were welcomed warmly by the staff who promptly fed us an excellent meal before heading to our guest rooms.



Tuesday 9/4

We drove to Tetrobi Mountain (2,281 m) where we collected *Hypericum*, *Epilobium*, *Scarzonera*, *Papaver*, *Onobrychus*, and *Astragalus*. We passed through an Armenian village where Ana collected *Triticum* accessions for the Georgian gene bank wheat collection. On the way home, Marina remembered a population of *Matricaria* that she had seen in Bakuriani Village almost ten years ago, so we stopped and found it growing beside a garden and added

it to our collection. We stayed at the Institute of Botany's Bakuriani Field Station for a second night and utilized their excellent facilities for seed cleaning and organization of vouchers and samples. While staying at the facilities we met another guest, Vanessa Bertenshaw, who worked for Kew Botanical garden and was collecting seed for the Millennium Seed Bank project.



September 5-September 7 – Day trips in and around Akhaltsikadzia - Lodging at the Hotel Prestig

Wednesday 9/5

We left the Bakuriani Field Station and stopped at the associated Bakuriana Alpine Botanical Garden where we obtained permission to collect *Hypericum ptarmicifolium*. We then headed toward Akhaltsikadzia and stopped by the roadside to have a traditional Georgian picnic lunch where we collected *Prunella* and *Astragalus*. We stopped at the fenced Borjomi City Park, where grazing animals are excluded, and found an interesting mesic cove hardwood habitat. We located a *Scutellaria* population with very few seed and collected a voucher specimen. *Scutellaria* was high on our priority list and this was the first population encountered. We arrived in Akhaltsikadzia and checked into our hotel, The Hotel Prestig.



Thursday 9/6

We collected *Lactuca*, *Glycyrrhiza*, *Artemisia*, *Teucrium*, *Glaucium*, and *Hypericum* in various locations along the road from Akhaltsikadzia to Vardzia. Then collected *Trifolium*, *Astragalus*, *Onobrychus*, *Gentiana*, and *Taraxacum* along the road to Niala Mtn. We stopped at the Vardzia Caves, a former Georgian city carved into the side of a mountain, and walked through the beautiful caves. We met a young intern from a local college who was spending his summer in the monastery associated with the caves who showed us the apothecary where former residents stored and sold medicinal plants. One *Allium* accession was collected at this site. On the road back to Akhalta we passed the beautiful Khertvisi Castle. Next we headed toward the Elkana projects' Tsnisi Field and Demonstration Station, where manager Mr. Murad Gogoladze, gave us a tour of the station which is part of a sustainable agriculture project selling seeds from organically produced Georgian heirloom crops. Accessions representing *Lens*, *Vicia*, *Cicer*, *Lathyrus*, *Secales*, *Vigna*, *Hordeum*, *Linum*, *Millet*, *Triticum*, and *Lactuca* were collected from the site. While there, we toured solar drying facilities, seed packaging machinery and storage facilities. We met the staff and observed their seed cleaning techniques which were very labor intensive but excellent.



(Left) Vardzi Caves; (right) The apothecary in Vardzia caves used to store and dispense medicinal plants



Elkana project Tsnisi Field and Demonstration Station where heirloom Georgian varieties are organically regenerated and distributed

Friday 9/7

The group traveled toward the Turkish Border outside of Borjomi and collected *Marubium*, *Hypericum*, *Gentiana*, and *Valeriana* in and around Kharagauli National Park.



September 8-September 11 – Day trips in and around Borjomi - Lodging at the Hotel

Boni

Saturday 9/8

We drove from Akhalsitke to Borjomi to collect in coastal habitats near the Black Sea. We stopped at the Borjomi City Park again in an attempt to collect more *Scutellaria* seed and were successful. We arrived in Batumi and checked in to the Hotel Boni where we spent the rest of the evening cleaning seed.



Sunday 9/9

Due to car trouble and rain our field work was cancelled for the day, so we spent the morning cleaning seed and organizing vouchers. We met Dr. Zurab Manvelidze –Department Head of Batumi Botanical Garden for lunch then utilized the remainder of the day cleaning seed and organizing vouchers.

Monday 9/10

Due to continued car trouble, Dr. Zuri graciously picked us up from our hotel and took us collecting. He took us to a Colchis forest habitat in the Mtrila National Forest located in the Chakvistiskali River Valley Gorge where we collected three species of *Hypericum*. We then met up with Sandro who had repaired the car and he took us to another Boxwood forest

habitat overlooking the Black Sea within sight of the Turkish border where we collected *Hypericum tetrapterum*. We walked along the rocky coast as the sun was setting then headed back to the hotel to prepare for the journey back to Tbilisi.



Tuesday 9/11

We packed the car and left Batumi for the 8 hour drive back to Tbilisi. We stopped on the outskirts of Tbilisi to visit the Georgia Plant Genetic Resource Centers' Gene Bank where Ana Gulbani serves as station manager. She manages/curates over 1500 ex-situ seed collections of cereals, maize, vegetables, medicinals and legumes. We toured the station and met the curators and staff.



Wednesday 9/12 - Friday 9/14 – Preparation of seeds and vouchers for Phytosanitary permits- Lodging in Tbilisi

Wednesday 9/12

We prepared our collected seed and vouchers for inspection at the Georgian phytosanitary office and delivered them to the Tbilisi office. We visited the Institute of Botany where we printed copies of our voucher and species lists. We also visited the Elkana offices in Tbilisi

where we were graciously invited to check our email and have tea with the staff. Elkana supports the reintroduction and sustainable utilization of traditional Georgian species. We later met for our last Georgian dinner together at a traditional Georgian restaurant and had an excellent meal overlooking the river in Tbilisi.

Thursday 9/13 – We returned to the phytosanitary office to pick up the seeds and vouchers along with our phytosanitary certificate. We located a copy machine to make copies of our passport data and packed all seeds and vouchers for travel. We spent the remainder of the day touring the beautiful city of Tbilisi.

Friday 9/14 – We left Tbilisi at 2:30AM for our flight to Paris then Atlanta and home to Des Moines and Washington. All seeds and vouchers were hand carried as baggage from The Republic of Georgia to the port of entry in Atlanta Georgia. Seed were then transferred to the Plant Germplasm Quarantine Center in Beltsville, Maryland for inspection. After inspection the Beltsville Center returned the seed to NCRPIS and WRPIS for storage, regeneration and distribution.

Contacts and Cooperators:

GEORGIA:

Marine Mosulishvili, Ph.D., Georgian National Museum, 3, Rustaveli Ave., Tbilisi 0105 GEORGIA. Phone: 895 32 29 4492 Email: mailnla@yahoo.com, mosulish@posta.ge. Dr. Mosulishvili has over 25 years of botanical experience in Georgia and has led numerous collection trips across the country including collaborative USDA trips. She will be our primary host, guide, translator, and advisor.

Ana Gulbani - Genebank manager - Georgian Plant Genetic Resource Centre, Research Institute of Farming - Tserovani, Mtskheta, 3300 Georgia. www.cac-biodiversity.org Phone: 995 99 96 7071 Email: agulbani@yahoo.com

Murad Gogoladze – Site Coordinator- Biological Farming Association, Agrobiodiversity Program, Elkana. Shalva Akhaltsikhe St. #9, o800 Akhaltsikhe, Georgia Phone: 995 32 50 67 76 Email: farezi@elkana.org.ge www.elkana.org

Zurab Manvelidze –Department Head at Batumi Botanical Garden, Batumi Botanical Gardens of the Georgian Academy of Sciences, 384533, Makhinjauri Phone: 888 222 2 14 78 Email: zurab58@yahoo.com

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UNITED STATES:

Ned Garvey, and Karen Williams, USDA-ARS Plant Exchange Office, BARC-West, Beltsville, Maryland 20705. (phone: Ned-301-504-7511; Karen-301: 504-5421; Fax: 301-504-6305) Email: ngarvey@ars-grin.gov; kwilliams@ars-grin.gov Dr. Garvey and Williams have established a cooperative agreement 58-1275-3-F159: Plant Exploration and Exchange in the Republic of Georgia

James S. Miller. Dean and Vice President for Science, New York Botanical Garden. Phone: 718-817-8632 Email: jmiller@nybg.org James has served as an advisor in reference to medicinal plants of Georgia. He has worked extensively with Georgian rare, threatened, and medicinal plants and has published a book on Endemic Medicinal Plants of Georgia (Caucasus).

Boyce Tankersley, Manager of Living Plant Documentation, Chicago Botanic Garden, 1000 Lake Cook Road , Glencoe, IL 60022 (phone: 847-835-6841, fax: 847-835-1635) Email: btankers@chicagobotanic.org . Boyce served as an advisor to the project as he has traveled extensively in Georgia on plant collection trips. He has also supplied GIS map layers.

Tatyana Shulkina, Missouri Botanical Garden , Works with Rare, Endangered and Vulnerable Plants of the Republic of Georgia. P.O. Box 299, St. Louis, Missouri, 63166, USA , email: tatyana.shulkina@mobot.org

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Currency/exchange rates (August 2007):

1 US dollar = 1.65 Lari / 1 Lari = 0.60 US Dollar

Appendix 1 – Georgia Samples Collected by Site

Site number	Accession number		Genus	species	Voucher	Propagule collected
1	JM2007	08001	<i>Prunella</i>	<i>vulgaris</i>	X	seed
1	JM2007	08002	<i>Sedum</i>	<i>oppositifolium</i>	X	seed
1	BH2007	08003	<i>Thymus</i>	<i>sp.</i>	X	seed
1	BH2007	08004	<i>Stachys</i>	<i>macranthera</i>		seed
2	BH2007	08005	<i>Scabiosa</i>	<i>caucasica</i>		seed
2	JM2007	08006	<i>Hypericum</i>	<i>sp.</i>	X	seed
2	JM2007	08007	<i>Hypericum</i>	<i>perforatum</i>	X	seed
2	BH2007	08008	<i>Allium</i>	<i>sp.</i>	X	bulbs
3	JM2007	08009	<i>Matricaria</i>	<i>recutita</i>	X	seed
3	BH2007	08010	<i>Valeriana</i>	<i>tiliafolia</i>		seed
3	BH2007	08011	<i>Cicerbita</i>	<i>prenanthoides</i>		seed
3	JM2007	08012	<i>Urtica</i>	<i>dioica</i>		seed
4	JM2007	08013	<i>Hypericum</i>	<i>perforatum</i>		seed
4	JM2007	08014	<i>Prunella</i>	<i>vulgaris</i>	X	seed
4	BH2007	08015	<i>Allium</i>	<i>sp.</i>	X	bulbs
5	BH2007	08016	<i>Artemisia</i>	<i>vulgaris</i>	X	seed
6	JM2007	08017	<i>Prunella</i>	<i>vulgaris</i>	X	seed
6	JM2007	08018	<i>Hypericum</i>	<i>hirsutum</i>	X	seed
6	JM2007	08019	<i>Matricaria</i>	<i>sp.</i>	X	seed
6	JM2007	08020	<i>Hypericum</i>	<i>perforatum</i>	X	seed
6	JM2007	08021	<i>Hypericum</i>	<i>sp.</i>	X	Voucher only
6	BH2007	08022	<i>Achillea</i>	<i>millifolium</i>		seed
7	JM2007	08023	<i>Sedum</i>	<i>caucasicum</i>	X	seed
7	JM2007	08024	<i>Hypericum</i>	<i>origanifolium</i>	X	seed
7	BH2007	08025	<i>Nepeta</i>	<i>sp.</i>	X	seed
8	JM2007	08026	<i>Matricaria</i>	<i>recutita</i>	X	seed
9	BH2007	08027	<i>Astragalus</i>	<i>sp.</i>		seed
9	BH2007	08028	<i>Lactuca</i>	<i>serriola</i>		seed
9	BH2007	08029	<i>Taraxacum</i>	<i>sp.</i>	X	seed
10	JM2007	08030	<i>Hypericum</i>	<i>sp.</i>	X	seed
10	BH2007	08031	<i>Allium</i>	<i>sp.</i>	X	bulbs
11	BH2007	08032	<i>Glycyrrhiza</i>	<i>glabra</i>	X	seed
12	JM2007	08033	<i>Paeonia</i>	<i>caucasica</i>		seed
12	JM2007	08034	<i>Convularia</i>	<i>transcaucasicum</i>		seed
12	JM2007	08035	<i>Prunella</i>	<i>vulgaris</i>		seed
13	JM2007	08036	<i>Urtica</i>	<i>dioica</i>	X	seed
14	JM2007	08037	<i>Hypericum</i>	<i>perforatum</i>	X	seed
14	JM2007	08038	<i>Crataegus</i>	<i>krystostyla</i>	X	seed
15	BH2007	08039	<i>Lactuca</i>	<i>serriola</i>		seed
16	JM2007	08040	<i>Prunella</i>	<i>vulgaris</i>	X	seed
16	BH2007	08041	<i>Taraxacum</i>	<i>sp.</i>		seed
17	JM2007	08042	<i>Hypericum</i>	<i>perforatum</i>	X	seed
18	JM2007	08043	<i>Hypericum</i>	<i>caucasicum</i>	X	seed
18	JM2007	09044	<i>Prunella</i>	<i>vulgaris</i>	X	seed

18	BH2007	09045	<i>Taraxacum</i>	<i>sp.</i>	X	seed
18	BH2007	09046	<i>Anthyllus</i>	<i>sp.</i>		seed
19	JM2007	09047	<i>Matricaria</i>	<i>sp.</i>		seed
19	BH2007	09048	<i>Papaver</i>	<i>sp.</i>		seed
19	BH2007	09049	<i>Epilobium</i>	<i>sp.</i>	X	seed
20	JM2007	09050	<i>Tanacetum</i>	<i>vulgare</i>	X	seed
20	BH2007	09051	<i>Scabiosa</i>	<i>caucasica</i>		seed
21	JM2007	09052	<i>Hypericum</i>	<i>polygonifolium</i>	X	seed
21	BH2007	09053	<i>Scabiosa</i>	<i>caucasica</i>		seed
21	BH2007	09054	<i>Thymus</i>	<i>causicus</i>	X	seed
22	JM2007	09055	<i>Hypericum</i>	<i>sp.</i>	X	seed
23	BH2007	09056	<i>Epilobium</i>	<i>arundinaceum</i>		seed
24	BH2007	09057	<i>Taraxacum</i>	<i>sp.</i>	X	seed
24	BH2007	09058	<i>Taraxacum</i>	<i>sp.</i>	X	seed
25	JM2007	09059	<i>Anthemis</i>	<i>sp.</i>	X	seed
25	JM2007	09060	<i>Hypericum</i>	<i>causicum</i>	X	seed
25	JM2007	09061	<i>Tanacetum</i>	<i>sp.</i>	X	seed
26	JM2007	09062	<i>Hypericum</i>	<i>sp.</i>	X	seed
26	BH2007	09063	<i>Epilobium</i>	<i>sp.</i>		seed
27	BH2007	09064	<i>Scorzonera</i>	<i>sp.</i>	X	seed
26	JM2007	09065	<i>Hypericum</i>	<i>hyssopifolium</i>	X	seed
28	BH2007	09066	<i>Papaver</i>	<i>orientalis</i>		seed
28	BH2007	09067	<i>Onobrychus</i>	<i>sp.</i>		seed
28	BH2007	09068	<i>Astragalus</i>	<i>sp.</i>		seed
29	JM2007	09069	<i>Hypericum</i>	<i>perforatum</i>	X	seed
29	JM2007	09070	<i>Hypericum</i>	<i>sp.</i>	X	seed
30	JM2007	09071	<i>Matricaria</i>	<i>recutita</i>	X	seed
31	JM2007	09072	<i>Hypericum</i>	<i>ptarmicifolium</i>	X	seed
32	JM2007	09073	<i>Prunella</i>	<i>vulgaris</i>	X	seed
32	BH2007	09074	<i>Astragalus</i>	<i>sp.</i>		seed
33	JM2007	09075	<i>Scutellaria</i>	<i>sp.</i>	X	seed
34	BH2007	09076	<i>Lactuca</i>	<i>sp.</i>	no sample	seed
35	BH2007	09077	<i>Glycyrrhiza</i>	<i>aspera</i>	X	seed
36	BH2007	09078	<i>Artemisia</i>	<i>absinthium</i>	X	seed
36	BH2007	09079	<i>Teucrium</i>	<i>sp.</i>	X	seed
36	BH2007	09080	<i>Glaucium</i>	<i>sp.</i>		seed
37	JM2007	09081	<i>Hypericum</i>	<i>sp.</i>	X	seed
37	JM2007	09082	<i>Hypericum</i>	<i>sp.</i>	X	seed
38	BH2007	09083	<i>Trifolium</i>	<i>sp.</i>		seed
39	BH2007	09084	<i>Astragalus</i>	<i>cicer</i>		seed
39	BH2007	09085	<i>Onobrychus</i>	<i>sp.</i>		seed
39	BH2007	09086	<i>Astragalus</i>	<i>sp.</i>		seed
40	JM2007	09087	<i>Gentiana</i>	<i>gelida</i>		seed
40	BH2007	09088	<i>Taraxacum</i>	<i>sp.</i>	X	seed
41	BH2007	09089	<i>Astragalus</i>	<i>sp.</i>		seed
42	BH2007	09090	<i>Allium</i>	<i>sp.</i>		seed
43	BH2007	09091	<i>Lactuca</i>	<i>serriola</i>		seed

43	GA2007	09092	<i>Lens</i>	<i>culinaris</i>		seed
43	GA2007	09093	<i>Vicia</i>	<i>faba</i>		seed
43	GA2007	09094	<i>Vicia</i>	<i>faba</i>		seed
43	GA2007	09095	<i>Vicia</i>	<i>faba</i>		seed
43	GA2007	09096	<i>Cicer</i>	<i>arietinum</i>		seed
43	GA2007	09097	<i>Lathyrus</i>	<i>sativa</i>		seed
43	GA2007	09098	<i>Secale</i>	<i>sp.</i>		seed
43	GA2007	09099	<i>Vigna</i>	<i>sp.</i>		seed
43	GA2007	09100	<i>Hordeum</i>	<i>sp.</i>		seed
43	GA2007	09101	<i>Linum</i>	<i>sp.</i>		seed
43	GA2007	09102	<i>Triticum</i>	<i>sp.</i>		seed
43	GA2007	09103	<i>Triticum</i>	<i>sp.</i>		seed
43	GA2007	09104	<i>Triticum</i>	<i>sp.</i>		seed
43	GA2007	09105	<i>Triticum</i>	<i>sp.</i>		seed
44	BH2007	09106	<i>Marubium</i>	<i>sp.</i>	X	seed
45	JM2007	09107	<i>Hypericum</i>	<i>sp.</i>		seed
45	JM2007	09108	<i>Gentiana</i>	<i>gelida</i>		seed
45	BH2007	09109	<i>Valeriana</i>	<i>tiliafolia</i>		seed
46	BH2007	09110	<i>Artemisia</i>	<i>absinthium</i>		seed
47	JM2007	09111	<i>Hypericum</i>	<i>androsaemum</i>	X	seed
47	JM2007	09112	<i>Hypericum</i>	<i>perforatum</i>	X	seed
47	JM2007	09113	<i>Hypericum</i>	<i>inodorum</i>	X	seed
48	JM2007	09114	<i>Prunella</i>	<i>vulgaris</i>	X	seed
49	JM2007	09115	<i>Hypericum</i>	<i>tetrapterum</i>	X	seed