THE 2004 BUREAU OF LAND MANAGEMENT ANNUAL REPORT:
WEST EUGENE WETLANDS

CORVALLIS PLANT MATERIALS CENTER
NATURAL RESOURCES CONSERVATION SERVICE
CORVALLIS, 0REGON
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I. Brief background of Project

The Corvallis Plant Materials Center (PMC) entered into a new agreement in the spring of 2002 with the Bureau of Land Management (BLM) to perform seed germination trials and seed increase of native wetland and wet prairie species. The West Eugene Wetlands program has been collecting wild seed and sowing it in wetland restoration projects. Some species have been difficult to establish or have very high labor costs associated with hand collection. The PMC agreed to research and document propagation techniques from seed for these species and to evaluate their potential for agronomic seed increase.

In 2004, this agreement was renewed and five species were added for germination research and seed increase. Germination research continued on eight of the species from 2003 that did not germinate or germination protocol was questionable. Seed increase was extended on 25 of the species from the 2003 contract. This agreement will be amended and renewed through 2005. Activities in 2004 included cleaning seed provided by BLM, germination trials, establishing seed increase plantings in tubs, maintaining field plantings, seed harvesting and seed cleaning. Seeds per pound weights were also calculated for species upon request.

Figure 1. *Cardamine penduflora* growing in a seed increase tub at the Corvallis Plant Materials Center, April 15 2004.

II. Accessions Included in Current Agreement/2004 Activities (Table 1).

SCIENTIFIC NAME	COMMON NAME	SYMBOL	ACCESSION #	ACTIVITY IN 2004*
Calochortus uniflorus	Monterey mariposa lily	CAUN	9079313	germ
Cardamine penduliflora	Willamette Valley bittercress	CAPE2	9079245	sd inc
Carex aurea	golden sedge	CAAU3	9079290	germ
Carex feta	greensheath sedge	CAFE4	9079315	germ, sd inc
Carex lanuginosa	woolyfruit sedge	CALAA3	9079304	germ
Carex tumulicola	splitawn sedge	CATU3	9079291	germ, sd inc
Carex vesicaria	blister sedge	CAVE6	9079316	germ, sd inc
Castilleja tenuis	hairy owl's clover	CATE26	9079254	sd inc
Cicendia quadrangularis	Oregon timwort	CIQU3	9079312	germ, sd inc
Clarkia amoena	farewell to spring	CLAM	9079300	sd inc
Collomia grandiflora	grand collomia	COGR4	9079247	sd inc
Eleocahris acicularis	needle spikerush	ELAC	9079292	germ, sd inc
Galium trifidum	threepedal bedstraw	GATR2	9079317	germ, sd inc
Gentiana sceptrum	king's scepter gentian	GESC	9079311	germ, sd inc
Juncus nevadensis	Sierra rush	JUNE	9079248	sd inc
Lasthenia glaberrima	smooth goldfields	LAGL3	9079293	sd inc
Linanthus bicolor	true babystars	LIBI	9079319	germ, sd inc
Lotus formosissimus	seaside birds-foot trefoil	LOFO2	9079294	sd inc
Ludwigia palustris	marsh seedbox	LUPA	9079297	sd inc
Lupinus affinis	showy lupine	LUAF	9079301	sd inc
Lupinus bicolor	miniture lupine	LUBI	9079250	sd inc
Luzula campestris	field woodrush	LUCA2	9079251	sd inc
Microsteris gracilis	slender phlox	MIGR	9079299	sd inc
Montia linearis	narrowleaf minerslettuce	MOLI4	9079295	germ, sd inc
Myosotis laxa	small flowered forget-me-not	MYLA	9079253	sd inc
Panicum occidentalis	western panicgrass	PAOC	9079303	germ, sd inc
Perideridia gairdneri	Gardners's yampah	PEGA3	9079255	sd inc
Perideridia oregana	squaw potato	PEOR6	9079256	sd inc
Rorippa curvisiliqua	curvepod yellowcress	ROCU	9079257	sd inc
Saxifraga oregana	Oregon saxifrage	SAOR2	9079296	germ, sd inc
Sidalcea virgata	showy wild hollyhock	SIVI	9079305	sd inc
Thalictrum fenderli	Fendler's meadow-rue	THFE	9079298	germ

*germ=germination trials, sd inc=seed increase

III. Germination Trials

BLM staff provided seed of 15 species to PMC staff on December 15, 2003. Most seeds lots were cleaned using an air screen machine to increase purity. Species that were selected for non-replicated germination trials were sown directly into stubby cone-tainers of moistened Sunshine #1 (a peat-based, soil-less media) amended with micronutrients and a slow-release fertilizer. Three flats (294 cones) of each species were sown. One flat was placed in a warm greenhouse (70˚F day/ 55˚F night), one flat was placed in an

outdoor shadehouse to be exposed to winter temperatures, and the remaining flat was covered with a polyethylene bag and placed in a walk-in cooler (34-38°F) for cold-moist stratification.

Table 2. Optimal Germination Treatment per Species From Trials Conducted at Corvallis Plant Materials Center in 2003 and 2004.

Species	Optimal treatment	Percent germination	Remarks
CAUN	90 days cold moist stratification	60	
CAFE4	no treatment needed	80	Emerges after four weeks
CAPE2	no treatment needed	90	Will flower after vernalization
CAAU3	unknown		Seed quality was questionable
CALA	90 days cold moist stratification		Needs light and alternating temperatures
CATU3	90 days cold moist stratification	60	Needs light and alternating temperatures
CATE26	90 days cold moist stratification	50	Prefers having a host
CAVE6	no treatment needed	35	Emerges after four weeks
CIQU3	no treatment needed	90	
CLAM	no treatment needed	95	Will flower after vernalization
COGR4	4 weeks cold moist stratification	95	
GATR2	no treatment needed	70	Comes up after four weeks
GESC	90 days cold moist stratification	55	Needs light and alternating temperatures
ELAC	90 days cold moist stratification	50	Needs light and alternating temperatures
JUNE	90 days cold moist stratification	60	Needs light and alternating temperatures
LAGL3	no treatment needed	70	
LOFO2	90 days cold moist stratification	30	Seeds were also scarified
LUPA	no treatment needed	95	Will flower after vernalization
LUAF	no treatment needed	50	Seeds were scarified
LUBI	no treatment needed	90	
LUCA2	2 weeks cold moist stratification	75	Will flower after vernalization
MAEL	no treatment needed	75	
MIGR	2 weeks cold moist stratification	85	
MOLI4	2 weeks cold moist stratification	60	Will flower after vernalization
MYLA	no treatment needed	100	
PAOC	no treatment needed	30	
PEGA3	90 days cold moist stratification	90	Flowers during second year
PEOR6	90 days cold moist stratification	90	Flowers during second year
PLCO4	no treatment needed	60	Performs best when fall sown
ROCU	no treatment needed	80	
SAOR2	2 weeks cold moist stratification	75	Very slow growing
SICA2	no treatment needed	60	
SIVI	no treatment needed	60	
SIID	90 days cold moist stratification	40	May need alternating temperatures
THFE	90 days cold moist stratification	30	Needs 24-hour hot water soak prior to sowing

CIQU3, LIBI, GATR2, CAFE4, CAVE6-
These species germinated without any treatment. CIQU3 and LIBI emerged within two weeks of sowing and exhibited excellent germ (86-90%). CIQU seedlings are tiny and should only be watered with a fine mist nozzle. GATR2, CAFE4 and CAVE seedlings were slow to emerge (2-4 weeks). GATR and CAFÉ had good germ (70-80%) and uniform emergence. CAVE did not emerge evenly and had low germ (30-40%). Further trials will hopefully determine optimal germination protocol and typical germination rates.

CAUN-
Less than ten good seeds were provided, so seeds were placed on moist germination paper in a germination box. The box was kept in a cooler for 90 days, then moved to a greenhouse. Germination (34-36%) was noted after two weeks and only six of the seeds germinated (60%). These seedlings were kept on the germ paper until cotyledons were formed, then planted into 3.5in pots of peat-based soilless media. Four weeks after transplanting, seedlings went dormant and pots were watered very sparingly throughout the growing season. It is anticipated that the seedlings will re-emerge in the late winter.

CATU3, THFE, ELAC-
These species were included in germ trials in the 2003 agreements and all trials were unsuccessful. The trial flats were left outside through the winter to experience natural stratification and were monitored weekly. Emergence was observed in these species in early March. ELAC and CATU3 had good germ (70%). THFE had poor germ (10%). It is not known if germination requirements are still satisfied or if this species typically has low germination rates due to poor seed fill or incomplete maturation, rather than a physical or physiological dormancy. More trials are needed.

GESC- No emergence was noted in cones that were left in the warm greenhouse, seedlings in the outdoor tray began to emerge in late March (approx. 90 days after seeding). The tray in the cooler was removed after 90 days and placed in a warm greenhouse: after four weeks no emergence was observed, after six weeks, 5% of seedlings had germinated. This species may require light and alternating temperatures to fully break seed dormancy or initiate germination.

IV. Field Plantings

A *Sidalcea virgata* field planting was established in late spring of 2003. In 2004, the plants grew vigorously and flowered in June. No weevils were detected on any of the seedheads. Plants did not seem affected by changes in soil environment due to the plastic woven weed barrier.

Seed was collected weekly from June 15 to July 25 by hand-stripping mature seeds, and also by sweeping shattered seed off the ground cover. Collections were efficient and relatively little seed was lost. SIVI racemes are less upright than other sidalceas which caused the seed to fall directly on the ground cover instead of on the crown of the plant.

The ground cover is a considerable aid in seed collection for the species and does not seem to be detrimental to plant growth or development.

Harvested seed was collected in bags and dried in an open greenhouse. It was then placed in a small brush machine containing a scarifier (sandpaper) drum. Seed was further cleaned using an air screen machine.

V. Seed Increase Tubs

Seed increase was the main goal for all species included in the 2004 agreement. Once a species was successfully propagated it was then transplanted into an appropriately sized tub. Hard plastic children's pools were purchased in various sizes and placed in a shadehouse on plastic pallets. Holes were drilled in the bottom to provide drainage and the pools were filled with 6-8" of Sunshine #1 (a peat-based, soil-less media) amended with micronutrients (MicroMax) and a slow-release fertilizer (Osmocote 14-14-14). Plants were monitored daily for disease and pests as well as seed maturity. Plantings were watered overhead as needed. Time spent harvesting seed and cleaning seed was noted and is summarized in Table 3.

***Cardamine penduliflora* (CAPE2)**- This tub was established in the summer of 2002. Plants soon went summer dormant after flowering in 2003, but re-emerged in late fall. Most of the plants flowered in early April, seed collection occurred from April 25 through May 30. Monitoring mature seed pods was difficult. Pods shattered quickly after becoming mature and green pods contained immature seed that did not mature after being harvested. Some inflorescences were "bagged" with nylon and twist-ties. Rain is still a very common occurrence when this species flowers, which kept the seedheads and nylons damp. Seeds were not able to mature and dry properly inside of the nylon bags. This species requires constant, careful monitoring and hand collection.

***Carex feta* (CAFÉ4)**-This tub was established with spring 2004 sown-seedlings. About 1 percent of plants flowered during in 2004, they were harvested on August 20. Seed heads were clipped just as they turned from green to yellow. Seeds shatter when they still look green and immature.

***Carex tumulticola* (CATU3)**-This tub was established from cone-tainers seeded in 2003 that didn't germinate until spring of 2004. No plants flowered in the summer of 2004.

***Carex vesicaria* (CAVE6)**-Seedlings that were sown in the spring of 2004 were used to establish this tub**.** No flowering occurred in the summer of 2004.

***Castilleja tenuis* (CATE26)** –Seeds were sown into 1ftX1ftX4in trays and left in a shadehouse over winter. Seedlings emerged in late spring and flowered in the summer. Seed collection occurred from June 17 through July 20. Entire plants were harvested when the top seed capsule began to split. All seeds and plant material were placed in paper bags and moved into a greenhouse to dry. After drying, plants were hand threshed,

knocking the seed from the capsules. Seed was cleaned using an air screen machine. Seed is easy to collect and clean. They are tiny and many plants are needed to produce a sizeable quantity.

***Clarkia amoena* (CLAM)-**
A tub was established in 2003, using spring 2003 sown-seedlings. Plants grew vigorously, but did not flower. The annual plants survived throughout the winter and flowered in summer of 2004. Seeds were collected from August 8 through October 11. Seed pods were clipped from plants as they began to split. Pods were placed in paper bags to dry. Seed was cleaned using a hammer to break up pods, then an air-screen machine was used.

***Collomia grandiflora* (COGR4)**– Seeds expelled from last year's pods were used to reseed existing tubs. These germinated in the fall and the plants were left to grow and produce seeds. When the top seeds were mature the entire plant was cut at the base and placed in large plastic tub with a screen covering. Seeds are expelled from the plant and were collected in the plastic tub. Seed is easily cleaned using an air-screen machine.

***Eleocahris acicularis* (ELAC)**– Seeds were sown into1ftX1ftX4in trays and placed in a walk-in cooler for 90 days. Seeds did not germinate. Trays were left outside during the winter of 2003, and seedlings emerged in the spring of 2004. No plants flowered in the summer of 2004.

***Cicendia quadrangularis* (CIQU3)-** These tiny plants grew and flowered well in the cone-tainers. Plants sown in mid-December in a warm greenhouse flowered in March and seed collection began in mid-April. Capsules turn bright orange when mature and split slowly from the top, releasing tiny, grey seeds. Mature capsules were cut and placed in seed collection envelopes to dry. Seeds are tiny enough to slip out of paper bags. Capsules can be separated from the seed using handscreens. Due to the size of this plant and its seed, it would be a poor candidate for field plantings or any type of large-scale agronomic seed increase. In all likelihood, it will be limited to containerized production and hand collection procedures described here.

Figure1. *Cicendia quadrangularis* plantsflowering in a cone-tainer, May 5, 2004.

***Galium trifidum* (GATR2)-** Tub was established from seedling sown in the spring of 2004. Plants quickly grew and covered the entire tub. Plants flowered throughout the spring and summer. Seed collection was very difficult due to the density and prostrate nature of the plants. Seeds are mature when they turn grey or black and they easily fall from the plant. To maximize yields, entire sections of plants in the tub were clipped at ground level, carefully rolled up, and placed in paper bags to dry. Plants recovered after clipping and flowered again. Tubs need to be monitored to determine optimum "harvest time." Once seeds are ripe, they are difficult to see. Cutting entire sections of the tub reduces the amount of good seed produced, but it is the most efficeint way to capture the seed.

***Gentiana sceptrum* (GESC)** – This tub was established from seedling sown in winter of 2003. Plants were transplanted into the tub in late summer. No plants flowered in 2004. Approximately 10 plants were also transplanted out into a field covered with plastic woven weed barrier. The plants in the tub and in the field will be compared for vigor and seed yield.

***Juncus nevadensis* (JUNE)-**Plants that were produced by the PMC and the BLM in 2003 were combined and transplanted into a large 5' x 6' tub on April 2, 2004. The plants grew vigorously, but no flowering occurred.

***Lasthenia glaberrima* (LAGL3)**– Seedlings grew quickly and were transplanted into a pool in late May. Plants flowered readily and seed collection was performed from June 17- August 24. The tiny "cups" of seeds were picked when the they turned slightly brown. Seeds fell out of the cup when dried and seed was cleaned using and air screen machine. This species was very successful in this type of planting. Mature seeds stay in the cups, extending the collection time and maximizing yields.

Figure 3. *Lasthenia glaberrima* seed increase tub at Corvallis Plant Material Center, June 26, 2004.

***Linanthus bicolor* (LIBI)-** A tub of plants was established from spring 2004 sown-seedlings, which flowered in April and May. Tiny capsules were picked individually from seedheads when tan. Variable maturity of capsules on the inflorescence cause collections to be quite inefficient and time consuming.

***Lotus formosissimus* (LOFO2)-** A tub of plants was established in 2003. It flowered well in early spring and produced abundant pods. They were hand collected when they turned tan and felt leathery. Collections began on June 26 and were finished on September 10. Pods were placed in paper bags to shatter and dry. Seed was easily cleaned using an air screen machine.

***Ludwigia palustris* (LUPA)-** Plants in the tub that were established in 2003 did not survive the winter.

Table 3. Recorded Collection and Cleaning Times for Seed Increase Tubs.

Symbol	Harvest time	Cleaning time	Amt produced
CAPE2	30 minutes	15 minutes	2g
CAFÉ4	15 minutes	30 minutes	1g
CATE26	30 minutes	15 minutes	2g
CIQU3	2 hrs	15 minutes	6g
CLAM	2 hrs	30 minutes	30g
COGR4	30 minutes	15 minutes	24g
GATR2	30 minutes	15 minutes	50g
LAGL3	3 hrs	15 minutes	22g
LIBI	6 hrs	15 minutes	10g
LOFO2	3 hrs	30 minutes	82g
LUAF	1 hr	15 minutes	43g
LUBI	1 hr	15 minutes	144g
LUCA2	1 hr	15 minutes	42g
MIGR	3 hrs	15 minutes	302g
MOLI4	1 hr	15 minutes	18g
MYLA	3 hrs	30 minutes	48g
PAOC	3 hrs	30 minutes	50g
PEGA3	30 minutes	30 minutes	21g
PEOR6	30 minutes	30 minutes	6g
ROCU	30 minutes	15 minutes	7g
SIVI	2 hrs	30 minutes	253g
		Total:	1163g

***Lupinus affinis* (LUAF)-**
Seeds were sown into 5' pots in mid Feb. Plants were moved outside in early May and flowered in late June. Seed production was fair and lasted from July 10 until September 12. Pods were clipped from plants when they turned tan and placed in paper bags to dry. An aphid infestation occurred, but was controlled with a foliar spray of soap and oil.

***Lupinus bicolor* (LUBI)** – Last year's tubs re-seeded themselves at a successful rate and seeds germinated in the fall. The plants grew slowly all winter and were quite large in April when they began to flower. Seeds were collected from May 20 until June 26. Fall sowing of this species seems to increase seed yields. Seed pods were collected just as they turned from yellow to brown and were placed in cloth sacs in a greenhouse. The seed was further cleaned with an air screen machine.

***Microsteris gracillis* (MIGR)-** Seeds were sown into cone-tainers and placed in a walk-in cooler for four weeks, then moved to a warm greenhouse in March. Seedlings were transplanted into 5in square pots and moved out to a shadehouse in April. Pots were watered with a drip irrigation system on 9ftX3ft plastic pallets. Using 2inX8in boards, frames were built around the pallets. Full-sized linen sheets were stapled to the frame and laid over the plants. Small slits were cut in the sheet and plants were pulled through the slit, leaving the pots underneath. Plants grew well and flowered in late May, as seed capsules matured, they shattered and seeds fell onto the sheet. Sheets were vacuumed weekly from June 2 through August 30 with a hand-held vacuum. Seeds were collected in the filter in the vacuum and emptied into collection bags. When flowering had subsided, seed was cleaned with an air-screen machine. This seed collection technique was very effective and efficient. Compared to last year's hand collection, 2004 yields were 400 percent higher and time spent collecting was cut in half.

Figure 4. *Luzula campestris* flowering in a seed increase tub at the Corvallis Plant Materials Center,March 20, 2004.

***Luzula campestris* (LUCA2)**- This tub was established in 2003. Some mortality was observed over winter, but overall survival was high. Flowering began in February and seed was collected when capsules turned from green to brown (April10- May 30). These plants grew vigorously and even flowered again in late August. All seed was collected in cloth bags and placed in a greenhouse to dry. It was further cleaned with an air screen machine.

***Montia linearis* (MOLI4)-** Seeds were sown into cone-tainers in mid–December and placed outside in a shadehouse. They germinated outside within four weeks of sowing and grew slowly throughout the winter. They were brought inside a warm greenhouse in March when they began to flower. Seeds were collected by hand (May 2 through May 30) when capsules turned a pale yellow, and cleaned using an air-screen machine.

***Myosotis laxa* (MYLA)-** Seeds were sown into cone-tainers in March and grown in a warm greenhouse. Seedlings were transplanted into 5in square pots and moved out to a

shadehouse in late April. Pots were watered with a drip irrigation system on 9'X3' plastic pallets. Using 2"X8" boards, frames were built around the pallets. Full-sized linen sheets were stapled to the frame and laid over the plants. Small slits were cut in the sheet and plants were pulled through the slit, leaving the pots underneath. Plants grew well and flowered, as seeds matured, they fell onto the sheet. Sheets were vacuumed weekly from June 2 through August 30 with a hand-held vacuum. Seeds were collected in the filter in the vacuum and emptied into collection bags. When flowering had subsided, seed was cleaned with an air-screen machine. This seed collection technique was very effective and efficient. Slugs became a pest in the pots. Slug bait was sprinkled in the pots to deter the slugs from feeding on the plants.

***Panicum occidentalis* (PAOC)-** A tub of plants was established in 2003. It flowered well in the summer of 2004. Seeds were collected by hand. Very light colored seeds are usually empty and filled seeds seem to fall off the seedheads when ripe. This plant needs constant, careful seed collection and has low yields of quality seed. In addition to the tub, 48 seedlings were transplanted into 5in pots and were moved out to a shadehouse. Pots were watered with a drip irrigation system on 9ftX3ft plastic pallets. Using 2inX8in boards, frames were built around the pallets. Full-sized linen sheets were stapled to the frame and laid over the plants. Small slits were cut in the sheet and plants were pulled through the slit, leaving the pots underneath. Plants grew well and flowered, as seeds matured, they fell onto the sheet. Sheets were vacuumed weekly from July 17 through August 30 with a hand-held vacuum. Seeds were collected in the filter in the vacuum and emptied into collection bags. When flowering had subsided, seed was cleaned with an air-screen machine. Plants were only three months old and did not flower well. This seed collection technique will be better evaluated next year.

***Perideridia gairdneri* (PEGA3)-** This tub of plants was established in 2003 from plants that were grown in 2002. Plants flowered for the first time in early July 2004. Entire umbels were cut from the stems when seeds turned gray-ish brown and felt dry and crumbly. Seed were left in an open greenhouse to dry, then rubbed in a rubbing trough to break up seeds and stems. Seed was cleaned using an air-screen machine.

***Perideridia oregana* (PEOR6)-** This tub was established in 2003 from plants that were grown in 2002. Plants flowered for the first time in late July 2004. Entire umbels were cut from the stems when seeds turned gray-ish brown and felt dry and crumbly. Seed were left in an open greenhouse to dry, then rubbed in a rubbing trough to break up seeds and stems. Seed was cleaned using an air-screen machine.

***Rorippa curvisiliqua* (ROCU)-** Seeds were sown into cone-tainers in March and grown in a warm greenhouse. Seedlings were transplanted into 5in square pots and moved out to a shadehouse in April. Pots were watered with a drip irrigation system on 9ftXft' plastic pallets. Using 2inX8in boards, frames were built around the pallets. Full-sized linen sheets were stapled to the frame and laid over the plants. Small slits were cut in the sheet and plants were pulled through the slit, leaving the pots underneath. Plants grew well and flowered and, as seeds matured, they fell onto the sheet. Sheets were vacuumed weekly from July 2 through August 30 with a hand-held vacuum. Seeds were collected in the

filter in the vacuum and emptied into collection bags. When flowering had subsided, seed was cleaned with an air-screen machine. Slugs became a major pest in the pots. Slug bait was sprinkled in the pots to deter the slugs from feeding on the plants, but slug control was limited. Plants were heavily damaged before adequate suppression was achieved which severely set back seed production.

VI. Plant Materials Delivery

Seed was requested for delivery in late August in order to be available for fall sowing on restoration sites. Some plantings were still producing seed at this time. Seeds from plantings that had completed seed production for the season were delivered to the Eugene BLM office on August 28, 2004. All other seed produced in 2004 will be held in the PMC seed storage facilities until requested by the BLM.

Table 4. Seed Produced By PMC Delivered to Eugene BLM on August 27, 2004.

Scientific name	Symbol	Accession #	Seed lot	Amt delivered
Carex feta	CAFE4	9079315	SCO-04-EB315	1g
Cicendia quadrangularis	CIQU3	9079312	SCO-04-EB312	6g
Galium trifidum	GATR2	9079317	SCO-04-EB317	50g
Lasthenia glaberrima	LAGL3	9079293	SCO-04-EB293	22g
Lotus formosissimus	LOFO2	9079294	SCO-04-EB294	82g
Lupinus affinis	LUAF	9079301	SCO-04-EB301	43g
Lupinus bicolor	LUBI	9079250	SCO-04-EB250	144g
Luzula campestris	LUCA2	9079251	SCO-04-EB251	42g
Microsteris gracilis	MIGR	9079299	SCO-04-EB299	302g
Montia linearis	MOLI4	9079295	SCO-04-EB295	18g
Myosotis laxa	MYLA	9079253	SCO-04-EB253	48g
Perideridia gairdneri	PEGA3	9079255	SCO-04-EB255	3g
Rorippa curvisiliqua	ROCU	9079257	SCO-04-EB257	7g
Sidalcea virgata	SIVI	9079305	SCO-04-EB305	253g
			Total:	1021g