



Plant Collecting Expedition in Japan for Temperate Fruits September 7 – 25, 2009

Executive Summary

From 7 to 25 September 2009, U.S. and Japanese scientists collaborated on an expedition to collect genetic resources of temperate fruit genera throughout Hokkaido and Northern Honshu, Japan. An agreement between the National Institute of Agrobiological Sciences (NIAS) and the USDA Agricultural Research Service specified the terms of exchange of the germplasm that was collected.

This expedition was a collaboration among the United States Department of Agriculture/Agricultural Research Service the Japanese Ministry of Forestry and Fisheries/National Institute of Agrobiological Sciences, and Akita Agricultural University, Japan. Additional assistance was provided by the Hokkaido Governmental Plant Genetic Resources Center, Forest and Forest Product Research Institute of Hokkaido, Hokkaido Agricultural Research Center, and private botanists. Plant and seed materials that were collected were shared between the scientists of both countries.

The expedition toured many localities in Hokkaido and northern Honshu. Collection localities included the following in Hokkaido: Sapporo City, Tomakomai, Kucchan Town, Niseiko, Konbu-dake, Kurukawa, Infurebetsu River, Shinsen numa, Rankoshi Town, Bibai, Nanporo National Forest, Okishima numa, Mombetsu Town, Kamiyubetsu Town, Lake Saroma, Iwanai River, Obihiro City, Taiki, Toyokoro Town, Hiro-o Town; and the Aomori, Iwate, and Aikita Prefectures of Northern Honshu, Japan.

Different ecosystems were visited, including upland forest, coastal marshes, upland bogs, and dense forests. The expedition obtained 147 seed and plant samples from Hokkaido and Northern Honshu representing 20 genera and 53 species. The temperate fruit, nut and specialty crop genera collected include: *Actinidia*, *Chaenomeles*, *Corylus*, *Crataegus*, *Empetrum*, *Gaultheria*, *Humulus*, *Fragaria*, *Lonicera*, *Lycium*, *Malus*, *Mentha*, *Humulus*, *Prunella*, *Potentilla*, *Pyrus*, *Ribes*, *Rubus*, *Sorbus*, *Vaccinium* and *Vitis*. Plant and seed accessions from this trip will be preserved at and distributed from the USDA ARS National Clonal Germplasm Repository in Corvallis, Oregon and other active collections in the US National Plant Germplasm System. Morphological and molecular evaluation of this germplasm will be conducted at the

USDA ARS Corvallis Repository and the Japanese Ministry of Forestry and Fisheries, National Institute of Fruit Tree Science, Tsukuba, Japan.

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Fig. 1 (L-R) Hiroyuki Imanishi, Hiroyuki Iketani, Joseph Postman and Kim Hummer.



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Fig. 2a. (L-R) Dr. Iketani, Dr. Ikeda, Dr. Hummer, P. Nathawet and Dr. Imanishi.

Fig. 2b. P. Nathawet and J. Postman in Niseko Mountains.

Introduction

Temperate fruit and nut species are highly diverse in Asia. Many species have surprising similarities, yet unusual differences across locations in the Pacific Rim countries. Western botanists and horticulturists have had limited opportunity to examine some Asian species. Additional samples of Asian species of fruit and nut trees, shrubs, vines, and herbs could provide answers concerning plant phylogenetic relationships as well as increase genetic diversity available to plant breeders. Disease resistant and cold hardy plants could provide useful genes for cultivated plant improvement. This plant collecting expedition to Hokkaido and Northern Honshu was undertaken because accessions of *Actinidia*, *Corylus*, *Fragaria*, *Lonicera*, *Malus*, *Pyrus*, *Ribes*, *Rubus*, *Sorbus*, and *Vaccinium* were under-represented in the US National Plant Germplasm System from this region. These species are not specifically preserved or available from Japanese genebanks on an exchange basis. Japanese botanists know of these species so agreement was made, working through the Japanese genebank to obtain these plants through expedition.

Procedure

Dr. Kim Hummer and Joseph Postman (Fig. 1, 2a, 2b, 3, and 4) submitted a USDA plant exploration proposal to the Plant Exchange Office of the National Germplasm Resources Laboratory in summer 2008. The proposal was supported by The Small Fruit, Pyrus, Malus, Woody Landscape Plant, and Specialty Nuts (hazelnut, pistachio, and chestnut) Crop Germplasm Committees. The proposal was approved for funding. Dr. Hummer contacted Dr. Hiroyuki Iketani and Dr. Hiroyuki Imanishi, (Fig. 1, 2a) both of whom participated in the 2004 Hokkaido plant collecting expedition. The dates of travel were agreed to be 7-25 September 2009, to correspond with seed-maturity dates for a number of fruit and nut species. The target plant list was discussed by the participants. Because fruits for a number of berry species ripen before September, Dr. Iketani contacted botanists and collaborators who were willing to collect these fruits and extract seeds prior to the September arrival. Dr. Iketani planned the itinerary and identified collection localities likely to contain target species (Table 1, Fig. 5, 6, 7, and 8).

The US participants thank Dr. Iketani and the collaborators for the detailed planning, advance plant collecting and transportation and lodging arrangements. We highly commend the Japanese participants on the thoroughness of their efforts towards the success of this expedition.

Agreement on Access to Germplasm

Prior to the expedition, a bilateral agreement (Appendix 1) to specify the terms of access to germplasm was negotiated between the Plant Exchange Office (PEO) of the USDA ARS National Germplasm Resources Laboratory and Technology Transfer Office and the Ministry of Agriculture Forestry and Fisheries/National Institute of Agrobiological Sciences (NIAS), Genebank of Japan. While the NIAS requested a memorandum of understanding (MOU), ARS regulations required use of a “Non-funded Cooperative Agreement.” Therefore this agreement was established as ARS agreement number 58-1275-9-226FN. The flexibility of NIAS in accepting the ARS format of the agreement is greatly appreciated.

In addition to the agreement described above, the NIAS required the acceptance of a Material Transfer Agreement that they use for all transfers of germplasm to third parties. Some of the

terms of the NIAS MTA were judged by the ARS Office of Technology Transfer to be inappropriate for the exchange. Dr. Tomotaro Nishikawa of NIAS was very helpful in working with Karen Williams of ARS to revise the MTA (Appendix 2) so that it was acceptable to both parties. All germplasm deposited in the NPGS is covered by the terms of this MTA.

Travel to Japan

Hummer and Postman flew to Sapporo (Chitose Airport) and met Iketani and Imanishi on 8 September 2009. Preeda Nathawet, graduate student from Kagawa University, also joined the team during the Hokkaido portion of the trip. The itinerary is presented below.

Importation Permits

Kim Hummer was granted a Post-Entry Permit for restricted items and a Departmental Permit for strawberry plant importation by the USDA Animal and Plant Health Inspection Service (APHIS). Seeds can enter the U.S. without an import permit. No prohibited scionwood of pome or stone fruits was obtained.

Phytosanitary Certification and Inspection

Japanese phytosanitary certificates for all collected material were obtained at the Narita Airport plant inspection facility on the morning of departure (28 September 2009). Inspection went smoothly and required about 2 hours. After the inspection, Hummer and Postman carefully packaged the plants in seed in separate sealed containers according to categories required by APHIS and conditions described in Title 7 Agriculture, Plant Protection and Quarantine Regulations CFR 319.37.

The seedlots had been previously cleaned of fruit flesh or debris and air dried. Each seedlot was weighed and placed in a labeled paper envelope that was then sealed into a small plastic zip bag. Seedlots were grouped by genus, and packaged in several labeled hard-plastic containers.

Plants and cuttings were cut into pieces no longer than 20 cm. Mature leaves had been previously removed and roots were washed to remove any soil and other contaminants. Each plant or cutting accession was sealed in a labeled plastic bag and bags grouped by genus. Genera were grouped according to quarantine requirement with a separate plastic container for each: Post-entry, Departmental Permit strawberries, no-quarantine requirement.

Plant and seed containers were either packed in a plastic cooler that was checked with luggage, or placed in a carry-on bag. At the port of entry Agricultural Inspection in the Portland, Oregon Airport, all plant materials, seeds, import permits and phytosanitary certificates were given to the APHIS agricultural inspector. The plant material was then shipped to USDA APHIS, Building 580 in Beltsville, Maryland. The Maryland APHIS inspectors contacted Hummer and Postman regarding the disposition of the germplasm. Disease spores were observed on one accession of *Rubus* and one of *Vaccinium*. No treatments were listed for these diseases so the only option was for these plant materials to be destroyed. The remainder of the samples were sent by Federal Express to Corvallis for post-entry quarantine where required, and for immediate addition to NPGS collections. *Malus* and *Vitis* samples were shipped to the NPGS genebank in

Geneva, New York, and *Prunella* and *Potentilla* samples were shipped to the North Central Regional Plant Introduction Station in Ames, Iowa.

Funding Arrangements

The USDA Plant Exploration Grant 2009 provided \$19,000 for the trip (Table 2). This grant provided for transportation, lodging, and per diem expenses for Hummer, Postman and Imanishi. MAFF provided the travel costs for Iketani. USDA paid for 2 rental cars: one in Hokkaido and one in Northern Honshu as well as for tolls and gasoline. At various points along the route, other Japanese collaborators temporarily joined the expedition, but their travel costs were borne individually or by their sponsoring institution. Comment: costs for this expedition were about US \$6,000 more than the cost of the Hokkaido 2004 Plant Expedition, though the trips were of equivalent length. Since 2004, the price of plane tickets, rental cars, gasoline, and tolls increased significantly due in part to the weak value of the US dollar compared to the Japanese yen.

Results

The expedition obtained 150 samples (Tables 3a, 3b, 4a, 4b, and 5). The samples included 20 genera, 53 species, 29 plant accessions, 124 seed accessions, and 20 herbarium samples. About 1,000 images were taken of plants and habitats during the expedition. Several other Hokkaido expeditions have taken place. In 1982, Makoto Kawase, visiting scientist at Iowa State University, took an exploration to Hokkaido and Aomori and collected 352 accessions of woody ornamentals. A few of the same species as ours were collected including some *Vaccinium praestans* and *Vaccinium smallii*, however, most of the species collected for that trip did not overlap. We also visited areas, such as the Niseko Mountain area, that was not visited by Kawase.

Because some small fruit species had ripened fruits before the expedition, arrangements were made with local botanists to obtain ripe fruit and extract seed of *Lonicera caerulea* and *Rubus mesogaeus* in July and August. For *Ribes japonicus*, *Rubus chamaemorus* and *Rubus pseudo-japonicus*, plant material was collected and processed through post-entry quarantine because no fruits were present. In some localities, *Fragaria iinumae* and *F. nipponica* were collected as plants for the same reason. Vegetative samples of *Mentha japonica* and *Humulus lupulus* var. *cordifolius* were also obtained.

Actinidia

Two species of *Actinidia* were observed and open-pollinated fruit was collected in the wild and from botanical collections. *Actinidia arguta* was the most common and was frequently seen in wooded areas growing on many tree species in higher elevations in Hokkaido. This perennial vine could grow up tall trees usually growing 10 to 20 m, depending on the tree it on which it was growing. We saw it growing on *Acer*, *Betula*, *Salix*, and *Alnus* to name a few. In some locations the fruits were very prolific. *Actinidia polygama* was recognized by an elongated fruit with a pointed calyx end, rather than the blunt round end of *A. arguta*. At the beginning of the trip some of the *Actinidia* fruits that were collected were green and hard. A banana, quince or apple (for ethylene) was placed in the bag with some fruit samples to hasten ripening, and, after several days, the fruits had matured and softened enough so that seeds could be easily extracted.

Corylus

Two species of *Corylus*, *C. heterophylla* and *C. sieboldiana* occur in Japan. No Japanese accessions of the former are present in the US NPGS, and the latter is very poorly represented. We were able to collect two seed samples of *C. sieboldiana* in Hokkaido and one in northern Honshu. A single sample of *C. heterophylla* was collected near Morioka in the Iwate Prefecture of Honshu, and a second sample collected nearby had nuts typical of *C. heterophylla*, but the foliage suggested that it may be a hybrid between the two species.

Crataegus

Crataegus chlorosarca is an unusual hawthorn species known only from northern Japan and the Russian Far East. There are no accessions of this species in the NPGS. We were able to collect from two arboretum locations and one wild population. Although trees were observed in a number of locations during this expedition, many trees were without fruit or the fruits were too immature to collect. In the Nanporo National Forest, however, we found trees with abundant fruits and a range in the stage of maturity so that we were able to find many ripe fruits with mature seeds.

Chaenomeles

We only had an opportunity to collect a single fruit sample of *Chaenomeles* which contained a small number of seeds from an arboretum in southern Hokkaido. While many cultivars and selections of *Chaenomeles* from Japan are grown in the U.S. for their early spring flower display, very few fruiting selections are available. Germplasm with superior fruit qualities remains lacking in the U.S.

Empetrum

Empetrum nigrum var. *japonicum* was observed at high elevation in the Niseko Mountains. This species was growing near a road cutting between two mountain peaks. It was growing sympatrically with many berry species including three species of *Vaccinium* and *Gaultheria*.

Fragaria

We collected three species: *F. iinumae*, *F. nipponica*, and *F. vesca*. At Kombu-dake (Latitude = 42.73721, Longitude = 140.65747, elevation = 494 m) we observed what seemed to be hybrids between *F. iinumae* and *F. vesca*. Each of the botanists we visited with agreed that *F. vesca* is an introduced species and not originally found in Hokkaido (or Japan). *Fragaria iinumae* and *F. nipponica* are native Japanese diploids. In the wild, we found only a few fruits of *F. iinumae* and *F. vesca* at a few locations. Fruit was not present at most of the strawberry sites. We found fruit of *F. iinumae* in Niseko Mountains. Maybe these plants have an everbearing trait. In most cases we collected plants that were put into quarantine according to Kim Hummer's APHIS Departmental permit.

Gaultheria

Gaultheria miqueliana (synonym = *G. pyroloides* Hook. f. & Thomson ex Miq.) a species with pure white fruit was collected. The species was reminiscent of wintergreen (*G. procumbens*) of the Eastern United States, but the fruit was white. This species was observed at high elevation in the Niseko Mountains. The crushed fruit had the aroma of wintergreen.

Humulus

Humulus lupulus var. *cordifolia* was common at lower latitudes in southeastern Hokkaido. This vining species grew on the edges of dark forests where light could penetrate. The humidity of the area promoted a number of foliar diseases on hop plants. Powdery mildew was present in most populations observed. We also observed *Humulus japonicum* growing commonly in Honshu, but we did not collect this species.

Lycium

Lycium barbarum was introduced into Hokkaido from China. Besides plant samples in cultivated collections at botanical gardens, we found plants with flowers and no fruit growing near the Sea of Japan at Rankoshi Town (3 m elevation). We collected fruit and extracted seed from a specimen in the demonstration gardens at the Hokkaido Forestry Research Institute in Bibai.

Lonicera

We were very grateful to Dr. Y. Ito, Small Fruit Breeder at National Agricultural Research Center for Hokkaido Region, for collecting seed samples of wild blue honeysuckle (or haskap) *Lonicera caerulea* in July and August before our arrival. While small-fruit growers are cultivating this plant, the acreage seems to be declining in Hokkaido, over the past 5 years. Finding the labor for harvesting is a challenge. Dr. Ito is continuing with his blue honeysuckle breeding program. We saw bushes of his advanced selections, although we were not provided any cultivated plant material. We obtained some cuttings of wild *Lonicera* from the Hokkaido University Botanical Garden and from the Hokkaido Forestry Research Institute in Bibai.

Malus

Two wild apple species, *M. baccata* and *M. toringo*, are relatively common in northern Japan. *Malus toringo* occurs in riparian habitats as well as in close proximity to the sea. *Malus baccata* generally occurs at higher elevations and further inland. We saw many trees of both species, but, at the time of our visit in early September, the fruits were often too immature to find good seeds. We were able to collect 1 mature sample of each species on Hokkaido, and in northern Honshu we brought back 3 samples of *M. toringo* and 1 of *M. baccata* for the NPGS apple genebank in Geneva.

Mentha

We found *Mentha japonica* growing by the Pacific Ocean east of Taiki. This species has been found in two locations on Hokkaido. The mint was intermixed with grasses, sedges, and

Rubus parvifolius growing within 50 m of the Pacific Ocean. The mint was about 12 – 15 cm tall, about half of the size of the grass and sedges.

Prunella

Prunella vulgaris was a common herb growing at almost every location where we collected plant material. We collected seed of this species at two locations in Hokkaido and one location in Honshu at the request of colleagues in Ames, Iowa.

Pyrus

Pyrus was collected from a single region outside of Morioka in Iwate Prefecture. Our colleague and host Dr. Iketani has surveyed wild pear populations in Japan, and his molecular-marker data suggest that most Japanese pears contain DNA that likely came from a center of origin on mainland China. Two isolated Japanese populations of *P. ussuriensis*, however, show almost no introgression of genes from *P. ussuriensis*, *P. pyrifolia*, or other species likely to have originated in China in ancient times. These trees are possibly descended from a refugia of pears entirely native to Japan. The three *Pyrus* seed samples we collected are from these rare populations presently included in the taxon *P. ussuriensis*, but possibly deserving of a new species or sub-species designation. The ancient Japanese pear genotype ‘Sotoorihime’, thought to be an ancient ancestor of many edible Japanese pear cultivars, also groups with these pears in molecular studies.

Ribes

We obtained cuttings of wild *Ribes japonicum* from the Infurebetsu River in Hokkaido. This plant was reminiscent of *Ribes bracteosum* in North America. It grew in riparian settings along stream beds in between boulders. We obtained fruit of *Ribes ambiguum*, *Ribes latifolium*, and *Ribes sakhalinensis* from cultivated plants at the Hokkaido Agricultural Research Center, and the Hokkaido Forest Research Institute in Bibai. We observed white pine blister rust caused by *Cronartium ribicola* on *Ribes nigrum* and *Ribes japonicum* at the Hokkaido Forest Research Institute in Bibai.

Rubus

This genus was the second most diverse that we collected. We obtained nine species including: *Rubus chamaemorus*, *Rubus crataegifolius*, *R. ikenoensis*, *R. mesogaeus*, *R. palmatus*, *R. pseudo-japonicus*, *R. parvifolius*, *Rubus sakhalinensis* (syn. = *R. idaeus* var. *aculeatissimus*), and *Rubus vernus*, and we observed hybrid of *R. parvifolius* and *sachalinensis*. We were too late to observe fruits of *R. chamaemorus*, *R. mesogaeus*, *R. palmatus*, and *R. pseudo-japonicus*. Only the high-elevation populations of *Rubus vernus* in Northern Honshu were fruiting. Those at lower elevations were past the fruiting stage. A study should be done comparing *R. mesogaeus* to *R. occidentalis* and *R. leucodermis*, and another study should compare *R. vernus* of Japan and *R. spectabilis* of North America.

Sorbus

Nine accessions of *Sorbus* were brought back to the U.S. although more were collected. The fruits of some samples were not ripe enough to obtain seeds and had to be discarded. Seed

samples of *Sorbus commixta*, *S. matsumurana*, and *S. sambucifolia* were collected, as well as cuttings from a hybrid species, *Sorbus* × *kawashiroi*, known only from Japan.

Vaccinium

This genus was the most diverse that we collected. We obtained 11 species including: *Vaccinium hirtum*, *V. japonicum* (= *V. erythrocarpum* Michx. subsp. *japonicum* (Miq.) Vander Kloet), *V. oldhamii*, *V. ovalifolium*, *V. oxycoccos*, *V. praestans*, *V. smallii*, *V. uliginosum* var. *alpinum*, *V. vitis-idaea*, *V. yakushinensis* (= *V. myrtillus* L.), and *V. yatabei* Makino (destroyed at the Beltsville, MD Quarantine Center).

Vaccinium hirtum and *V. japonicum* were, in some localities, growing sympatrically. These species have red fruit but can be distinguished by leaf shape. *Vaccinium hirtum* has lanceolate leaves; *V. japonicum* has obovate leaves. *Vaccinium smallii* was found frequently with *V. hirtum* and *V. japonicum*. From the mid-summer on, *V. smallii* leaves are in the process of turning red; leaf shape is lanceolate, but fruit skin color is dark purple – black.

The *V. oxycoccos* that we observed seemed more like wild *V. macrocarpon* of the northeastern United States. The leaves were a similar diameter, and the fruits slightly smaller. In Hokkaido, *V. microphylla* grows in alpine sites and seems to be described to be more like *V. oxycoccos* of North America. A study should be done including each of the cranberry species of Hokkaido and East Asia and North America to examine ploidy and examine systematic relationships through molecular markers. The cranberries that we saw on Hokkaido were similar to those of Primorye and Sakhalin Island.

Vitis

Vitis coignetiae vines were common throughout Hokkaido and northern Honshu. Four seed samples of this species from diverse localities were collected. The fruits were very sour but the seeds were easily separated and cleaned from pulp by soaking with pectinase overnight.

Conclusions

Judging from the July 2004 and the September 2009 collection trips, the most appropriate time to collect seed of small fruit genera in Hokkaido would be August. Many species were not yet ripe in July, but were long past or eaten by local fauna by September. Although unripe fruit were collected in July 2004, the extracted seeds from those fruits were immature and not viable. In September, some of the plants had persistent dried fruits that, after cleaning, produced viable seed. The September 2009 trip benefited by botanists who collected berry seed when fruits were ripe before the planned collecting expedition.

The September 2009 expedition planned to collect species of 20 genera, and successfully collected representatives of each of them. A few alpine, high-elevation species were unavailable because permits were not granted to collect in those regions.

The use of pectinase to extract seed from fruit pulp was highly effective and produced clean viable seed. This was a more efficient way to produce clean seed than the “squash and dry on paper” method that did not use pectinase.

The images taken of the plant samples will be loaded as voucher records on GRIN. The voucher specimens were sent to the Herbarium of the National Arboretum in Washington, D.C.

Acknowledgements

The cooperation of the team of Japanese Plant Inspectors at the Narita Airport in Tokyo on 25 September 2009 was greatly appreciated. They were extremely proficient and inspected our plant material thoroughly and efficiently.

The cooperation of the USDA APHIS inspectors in Portland, Oregon (port of entry) and at Beltsville, Maryland, specifically Paul Ijams, was greatly appreciated.

The cooperation of Dr. Kawase, Director of the Japanese genebank and the USDA team at the Plant Exploration office, including Karen Williams, Ned Garvey, and Gary Kinard, to prepare the Non-funded Cooperative Agreement was greatly appreciated.

Fig. 3. Joseph Postman with luggage and plant collections at the Tokyo bus station near the end of the expedition.



Table 1. Itinerary for US-Japan plant collecting expedition 2009. (Note: the latitude, longitude, and elevation for the collection sites are provided in Table 5.)

Date	City/town/locality	Province
Pre-collection	Japanese Botanists	
7/21/2009	Tomakomai City	Hokkaido
8/21/2009	Sapporo City, south ward	Hokkaido
Main Collection	US-Japan Team	
9/9/2009	Hokkaido University Botanical Garden, Sapporo	Hokkaido
9/9/2009	Hokkaido Agricultural Research Center, Sapporo	Hokkaido
9/10/2009	Tomakomi Research Forest of Hokkaido University	Hokkaido
9/11/2009	Niseko	Hokkaido
9/11/2009	Kucchan	Hokkaido
9/11/2009	near Kucchan waisu (town)	Hokkaido
9/11/2009	near Niseko ski area	Hokkaido
9/12/2009	Kanbu dake	Hokkaido
9/12/2009	Kurukawa	Hokkaido
9/12/2009	Infurebetsu River	Hokkaido
9/13/2009	near Kyowa and Ronkoshi town borders	Hokkaido
9/13/2009	Rankoshi town	Hokkaido
9/13/2009	near Niseko mountains	Hokkaido
9/13/2009	Kucchan fujimi (town)	Hokkaido
9/14/2009	Sapporo City, nishi (west) ward	Hokkaido
9/14/2009	Forest & Forest Products Research Inst.	Hokkaido
9/14/2009	Bibai, Hokkaido Forestry Research Institute	Hokkaido
9/15/2009	Bibai, Hokkaido Forestry Research Institute	Hokkaido
9/15/2009	Nanporo National Forest	Hokkaido
9/15/2009	Okishima Bog	Hokkaido
9/16/2009	out of Mombetsu, near Shimalalagi River	Hokkaido
9/17/2009	out of Mombetsu, near Shimalalagi River	Hokkaido
9/17/2009	Kamiyubetsu town	Hokkaido
9/17/2009	Kamiyubetsu town, Lake Saroma	Hokkaido
9/17/2009	Out of Obihiro City, near Iwanai river	Hokkaido
9/18/2009	Taiki, by ocean	Hokkaido
9/19/2009	Aomori City	Aomori
9/20/2009	Toyokoro Town, by Yudonumoa bog	Iwate
9/20/2009	Hiro-o town	Iwate
9/20/2009	Hadoka Mountain, by Komagome River	Iwate
9/20/2009	Toshichi-onsen (spa)	Iwate
9/20/2009	Horai-numa	Iwate
9/21/2009	Horai-numa	Iwate
9/21/2009	Aomori hachimantai-shi, near Onuma (pond)	Iwate
9/21/2009	Kuroachi, Towada-Hachimantai National Park	Iwate
9/21/2009	Hachimontai-shi bog	Iwate
9/22/2009	Hachimontai-shi (shi = city)	Iwate
9/22/2009	near Morioka City	Iwate
9/22/2009	Hayasaka Kogen (high plateau) near Morioka	Iwate
9/23/2009	Karumatsuzawa (upper stream) near Morioka	Akita
9/23/2009	Haraigawa ugo honjoo-shi (city)	Akita

Table 2. Expedition Costs

Hummer		
Airfare	\$1,980.22	
Train/subway	\$161.48	
Taxi	\$144.67	
Bus/shuttle	\$60.88	
car rental*	\$2,297.01	
Gasoline	\$321.23	
Tolls	\$167.80	
Parking	\$25.66	
Subtotal Travel		\$5,158.95
Subtotal Hotels		\$1,258.96
Miscellaneous		1,148.57
per diem		2,000.00
Postman		
Airfare	\$1,980.22	
Train/subway	\$161.48	
Bus/shuttle	\$60.88	
taxi	39.00	
Subtotal travel		\$2,241.58
Subtotal Hotels		\$1,258.96
Miscellaneous		1,148.57
		2,000.00
Hiroyuki Imanishi Translation/services		\$2,500.00
Total Cost		\$18,715.58

*Car Rental : 1,793 km driven in Hokkaido + 931 km driven in Honshu = 2,724 total km = 1,693 miles (about \$1.66/mile for total car costs.)

Table 3a. Number of living samples by species collected for the USDA ARS National Plant Germplasm System during US-Japan plant expedition, September 2009.

<i>Actinidia arguta</i> (Siebold & Zucc.) Planch. ex Miq.	5
<i>Actinidia polygama</i> (Siebold & Zucc.) Maxim.	2
<i>Chaenomeles speciosa</i> (Sweet) Nakai	1
<i>Corylus heterophylla</i> Besser	1
<i>Corylus heterophylla</i> hybrid	1
<i>Corylus sieboldiana</i> Bunge	3
<i>Crataegus chlorosarca</i> Maxim.	3
<i>Empetrum nigrum</i> L.	1
<i>Fragaria iinumae</i> Makino	7
<i>Fragaria</i> hybrid (<i>iinumae</i> × <i>vesca</i> ?)	2
<i>Fragaria nipponica</i> Makino	2
<i>Fragaria vesca</i> L.	1
<i>Fragaria vesca</i> f. <i>alba</i> (Ehrh.) Staudt	1
<i>Gaultheria miqueliana</i> Takeda (= <i>Gaultheria pyroloides</i> Hook. f. & Thomson ex Miq.)	1
<i>Humulus lupulus</i> var. <i>cordifolius</i> (Miq.) Maxim.	4
<i>Lonicera caerulea</i> L.	10
<i>Lonicera caerulea</i> var. <i>edulis</i> Turcz. ex Herder	1
<i>Lonicera caerulea</i> var. <i>emphyllocalyx</i> (Maxim.) Nakai	12
<i>Lycium barbarum</i> L.	2
<i>Malus baccata</i> (L.) Borkh.	2
<i>Malus toringo</i> (Siebold) de Vriese	4
<i>Mentha japonica</i> (Miq.) Makino	1
<i>Potentilla fragarioides</i> L.	1
<i>Potentilla fragarioides</i> var. <i>major</i> J.P.G.	1
<i>Prunella vulgaris</i> L. subsp. <i>asiatica</i> (Nakai) H. Hara	3
<i>Pyrus ussuriensis</i> Maxim.	3
<i>Ribes ambiguum</i> Maxim.	1
<i>Ribes japonicum</i> Maxim.	1
<i>Ribes latifolium</i> Jancz.	1
<i>Ribes sachalinense</i> (F. Schmidt) Nakai	1
<i>Rubus chamaemorus</i> L.	1
<i>Rubus crataegifolius</i> Bunge	2
<i>Rubus</i> hybrid? <i>parvifolius</i> × <i>sachalinensis</i> ?	1
<i>Rubus ikenoensis</i> H. Lev. & Vaniot	1
<i>Rubus mesogeus</i> Focke.	3
<i>Rubus palmatus</i> Thunberg	1
<i>Rubus parvifolius</i> L.	5

<i>Rubus pseudojaponicus</i> Koidz.	1
<i>Rubus sachalinense</i> H. Lev. (= <i>R. idaeus</i> L. var. <i>aculeatissimus</i> Regel & Tiling)	3
<i>Rubus vernus</i> Focke	3
<i>Sorbus commixta</i> Hedl.	3
<i>Sorbus matsumurana</i> (Makino) Koehne	2
<i>Sorbus sambucifolia</i> (Cham. Et Schl.) Roemer	2
<i>Sorbus sambucifolia</i> var. <i>pseudogracilis</i> C. K. Schneid.	1
<i>Sorbus</i> × <i>kawashiroi</i> Ko. Ito	1
<i>Vaccinium hirtum</i> Thunb.	5
<i>Vaccinium japonicum</i> Miq. (= <i>V. erythrocarpum</i> Michx. subsp. <i>japonicum</i> (Miq.) Vander Kloet)	2
<i>Vaccinium oldhamii</i> Miq.	2
<i>Vaccinium ovalifolium</i> Sm.	1
<i>Vaccinium ovalifolium</i> Sm. (? <i>Vaccinium coriaceum</i> Hook. f.)	3
<i>Vaccinium oxycoccos</i> L.	4
<i>Vaccinium praestans</i> Lambert	3
<i>Vaccinium smallii</i> A. Gray	9
<i>Vaccinium uliginosum</i> var. <i>alpinum</i>	1
<i>Vaccinium vitis-idaeae</i> L.	3
<i>Vaccinium yakushimense</i> Makino (= <i>V. myrtillus</i> L.)	1
<i>Vaccinium yatabei</i> Makino (destroyed at US quarantine center)	0
<i>Vitis coignetiae</i> Pulliat ex Planch.	4
TOTAL	147

Table 3b. Number of living samples by genus collected during US-Japan expedition, September 2009.

genus	samples
<i>Actinidia</i>	7
<i>Chaenomeles</i> (Introduced)	1
<i>Corylus</i>	5
<i>Crataegus</i>	3
<i>Empetrum</i>	1
<i>Fragaria</i>	13
<i>Gaultheria</i>	1
<i>Humulus</i>	4
<i>Lonicera</i>	23
<i>Lycium</i> (Introduced)	2
<i>Malus</i>	6
<i>Mentha</i>	1
<i>Potentilla</i>	2
<i>Prunella</i>	3
<i>Pyrus</i>	3
<i>Ribes</i>	4
<i>Rubus</i>	21
<i>Sorbus</i>	9
<i>Vaccinium</i>	34
<i>Vitis</i>	4
total	147



Fig. 4. Kim Hummer is inspired by native fauna.

Table 4a. Collection list by collection number

Collection Number	Corvallis Number	Taxon
JPN-2009-001	CLON 0060	<i>Lonicera caerulea</i> var. <i>emphylocalyx</i> (Maxim.) Nakai
JPN-2009-002	CCRA 0210	<i>Crataegus chlorosarca</i> Maxim.
JPN-2009-003	CVAC 1836	<i>Vaccinium japonicum</i> Miq. (= <i>Vaccinium erythrocarpum</i> Michx. subsp. <i>japonicum</i> (Miq.) Vander Kloet)
JPN-2009-004	CVAC 1837	<i>Vaccinium smallii</i> A. Gray
JPN-2009-005	CVAC 1838	<i>Vaccinium oldhamii</i> Miq.
JPN-2009-006	CSOR 0303	<i>Sorbus</i> × <i>kawashiroi</i>
JPN-2009-007	CHUM 1593	<i>Humulus lupulus</i> var. <i>cordifolius</i> (Miq.) Maxim.
JPN-2009-008	CFRA 2015	<i>Fragaria vesca</i> f. <i>alba</i> (Ehrh.) Staudt
JPN-2009-009	X	<i>Prunella vulgaris</i> subsp. <i>asiatica</i> (Nakai) H. Hara (discarded - no seed)
JPN-2009-010	CPOT 0017	<i>Potentilla fragarioides</i> var. <i>major</i>
JPN-2009-011	CSOR 0304	<i>Sorbus matsumurana</i> (Makino) Koehne
JPN-2009-012	CVAC 1839	<i>Vaccinium ovalifolium</i> var. <i>ovalifolium</i>
JPN-2009-013	CSOR 0305	<i>Sorbus sambucifolia</i> (Cham. et Schl.) Roemer
JPN-2009-014	CVAC 1840	<i>Vaccinium oldhamii</i> Miq.
JPN-2009-015	CVAC 1841	<i>Vaccinium hirtum</i> Thunb.
JPN-2009-016	CVAC 1842	<i>Vaccinium japonicum</i> Miq. (= <i>Vaccinium erythrocarpum</i> Michx. subsp. <i>japonicum</i> (Miq.) Vander Kloet)
JPN-2009-017	CVAC 1843	<i>Vaccinium yakushinensis</i>
JPN-2009-018	CRIB 1619	<i>Ribes ambiguum</i>
JPN-2009-019	CRUB 2549	<i>Rubus crataegifolius</i> Bunge
JPN-2009-020	CACT 0276	<i>Actinidia arguta</i> (Siebold & Zucc.) Planch. ex Miq.
JPN-2009-021	CACT 0277	<i>Actinidia polygama</i> (Siebold & Zucc.) Maxim.
JPN-2009-022	CPOT0018	<i>Potentilla fragarioides</i> L.
JPN-2009-023	CRUB 2550	<i>Rubus crataegifolius</i> Bunge
JPN-2009-024	CRUB 2551	<i>Rubus parvifolius</i> L.
JPN-2009-025	CRUB 2552	<i>Rubus</i> hybrid? <i>parvifolius</i> × <i>sachalinense</i> ?
JPN-2009-026	CRUB 2553	<i>Rubus sachalinense</i> H. Lév. (syn. = <i>Rubus idaeus</i> var. <i>aculeatissimus</i> Regel & Tiling)
JPN-2009-027	X	<i>Malus toringo</i> (Siebold) de Vriese (discarded)
JPN-2009-028	CRUB 2554	<i>Rubus mesogeus</i> Focke.
JPN-2009-029	CRUB 2555	<i>Rubus mesogeus</i> Focke.
JPN-2009-030	CLON 0061	<i>Lonicera caerulea</i> L.
JPN-2009-031	CLON 0062	<i>Lonicera caerulea</i> L.
JPN-2009-032	CLON 0063	<i>Lonicera caerulea</i> L.
JPN-2009-033	CLON 0064	<i>Lonicera caerulea</i> L.

JPN-2009-034	CLON 0065	<i>Lonicera caerulea</i> L.
JPN-2009-035	CLON 0066	<i>Lonicera caerulea</i> L.
JPN-2009-036	CLON 0067	<i>Lonicera caerulea</i> L.
JPN-2009-037	CLON 0068	<i>Lonicera caerulea</i> L.
JPN-2009-038	CLON 0069	<i>Lonicera caerulea</i> L.
JPN-2009-039	CLON 0070	<i>Lonicera caerulea</i> L.
JPN-2009-040	CLON 0071	<i>Lonicera caerulea</i> var. <i>emphyllocalyx</i> (Maxim.) Nakai
JPN-2009-041	CLON 0072	<i>Lonicera caerulea</i> var. <i>emphyllocalyx</i> (Maxim.) Nakai
JPN-2009-042	CLON 0073	<i>Lonicera caerulea</i> var. <i>emphyllocalyx</i> (Maxim.) Nakai
JPN-2009-043	CLON 0074	<i>Lonicera caerulea</i> var. <i>emphyllocalyx</i> (Maxim.) Nakai
JPN-2009-044	CLON 0075	<i>Lonicera caerulea</i> var. <i>emphyllocalyx</i> (Maxim.) Nakai
JPN-2009-045	CLON 0076	<i>Lonicera caerulea</i> var. <i>emphyllocalyx</i> (Maxim.) Nakai
JPN-2009-046	CLON 0077	<i>Lonicera caerulea</i> var. <i>emphyllocalyx</i> (Maxim.) Nakai
JPN-2009-047	CLON 0078	<i>Lonicera caerulea</i> var. <i>emphyllocalyx</i> (Maxim.) Nakai
JPN-2009-048	CLON 0079	<i>Lonicera caerulea</i> var. <i>emphyllocalyx</i> (Maxim.) Nakai
JPN-2009-049	CLON 0080	<i>Lonicera caerulea</i> var. <i>emphyllocalyx</i> (Maxim.) Nakai
JPN-2009-050	CSOR 0306	<i>Sorbus commixta</i> Hedl.
JPN-2009-051	CVAC 1844	<i>Vaccinium smallii</i> A. Gray
JPN-2009-052	CVAC 1845	<i>Vaccinium oxycoccos</i> L.
JPN-2009-053	CRUB 2556	<i>Rubus chamaemorus</i> L.
JPN-2009-054	CPRN 0001	<i>Prunella vulgaris</i> subsp. <i>asiatica</i> (Nakai) H. Hara
JPN-2009-055	CFRA 2016	<i>Fragaria iinumae</i> Makino
JPN-2009-056	CEMP 0009	<i>Empetrum nigrum</i> L.
JPN-2009-057	CVAC 1846	<i>Vaccinium hirtum</i> Thunb.
JPN-2009-058	CGAU 0040	<i>Gaultheria miqueliana</i> Takeda (= <i>Gaultheria pyroloides</i> Hook. f. & Thomson ex Miq.)
JPN-2009-059	CFRA 2017	<i>Fragaria iinumae</i> Makino
JPN-2009-060	CRUB 2557	<i>Rubus sachalinense</i> H. Lév. (syn. = <i>Rubus idaeus</i> var. <i>aculeatissimus</i> Regel & Tiling)
JPN-2009-061	X	<i>Sorbus alnifolia</i> (Siebold & Zucc.) K. Koch
JPN-2009-062	CFRA 2018	<i>Fragaria iinumae</i> Makino
JPN-2009-063	CFRA 2019	<i>Fragaria vesca</i> L.
JPN-2009-064	CFRA 2020	<i>Fragaria hybrid</i> (<i>iinumae</i> × <i>vesca</i> ?)
JPN-2009-065	CFRA 2021	<i>Fragaria hybrid</i> (<i>iinumae</i> × <i>vesca</i> ?)
JPN-2009-066	CACT 0278	<i>Actinidia arguta</i> (Siebold & Zucc.) Planch. ex Miq.
JPN-2009-067	CRUB 2558	<i>Rubus sachalinense</i> H. Lév. (syn. = <i>Rubus idaeus</i> var. <i>aculeatissimus</i> Regel & Tiling)
JPN-2009-068	CRUB 2559	<i>Rubus pseudojaponicus</i> Koidz.
JPN-2009-069	CRIB 1620	<i>Ribes japonicum</i> Maxim.
JPN-2009-070	CVIT 0011	<i>Vitis coignetiae</i> Pulliat ex Planch.
JPN-2009-071	CVAC 1847	<i>Vaccinium hirtum</i> Thunb.

JPN-2009-072	CSOR 0307	<i>Sorbus commixta</i> Hedl.
JPN-2009-073	CCOR 0922	<i>Corylus sieboldiana</i> Bunge
JPN-2009-074	CFRA 2022	<i>Fragaria iinumae</i> Makino
JPN-2009-075	CVAC 1848	<i>Vaccinium smallii</i> A. Gray
JPN-2009-076	CRUB 2560	<i>Rubus vernus</i> Focke
JPN-2009-077	CLYC 0003	<i>Lycium barbarum</i> L.
JPN-2009-078	CFRA 2023	<i>Fragaria iinumae</i> Makino
JPN-2009-079	CVAC 1849	<i>Vaccinium praestans</i> Lambert
JPN-2009-080	CVAC 1850	<i>Vaccinium praestans</i> Lambert
JPN-2009-081	CVAC 1851	<i>Vaccinium uliginosum</i> L.
JPN-2009-082	CVAC 1852	<i>Vaccinium vitis-idaea</i> L.
JPN-2009-083	CVAC 1853	<i>Vaccinium oxycoccos</i> L.
JPN-2009-084	CSOR 0308	<i>Sorbus sambucifolia</i> (Cham. et Schl.) Roemer
JPN-2009-085	CRUB 2561	<i>Rubus parvifolius</i> L.
JPN-2009-086	CVIT 0012	<i>Vitis coignetiae</i> Pulliat ex Planch.
JPN-2009-087	CLON 0081	<i>Lonicera caerulea</i> var. <i>edulis</i> Turcz. ex Herder
JPN-2009-088	CRIB 1621	<i>Ribes sachalinense</i> (F. Schmidt) Nakai
JPN-2009-089	CCRA 0211	<i>Crataegus chlorosarca</i> Maxim.
JPN-2009-090	x	<i>Malus</i> (probably <i>toringo</i> , labeled <i>baccata</i>) (discarded)
JPN-2009-091	CCHA 0024	<i>Chaenomeles speciosa</i> (Sweet) Nakai
JPN-2009-092	CACT 0279	<i>Actinidia polygama</i> (Siebold & Zucc.) Maxim.
JPN-2009-093	CVAC 1854	<i>Vaccinium smallii</i> A. Gray
JPN-2009-094	CVAC 1855	<i>Vaccinium vitis-idaea</i> L.
JPN-2009-095	CSOR 0309	<i>Sorbus sambucifolia</i> var. <i>pseudogracilis</i> C. K. Schneid.
JPN-2009-096	CRIB 1622	<i>Ribes latifolium</i> Jancz.
JPN-2009-097	CRUB 2562	<i>Rubus mesogeus</i> Focke
JPN-2009-098	CCOR 0923	<i>Corylus sieboldiana</i> Bunge
JPN-2009-099	CLYC 0003	<i>Lycium barbarum</i> L.
JPN-2009-100	CACT 0280	<i>Actinidia arguta</i> (Siebold & Zucc.) Planch. ex Miq.
JPN-2009-101	CCRA 0212	<i>Crataegus chlorosarca</i> Maxim.
JPN-2009-102	CHUM 1594	<i>Humulus lupulus</i> var. <i>cordifolius</i> (Miq.) Maxim.
JPN-2009-103	CMAL 0147	<i>Malus toringo</i> (Siebold) de Vriese
JPN-2009-104	CVIT 0013	<i>Vitis coignetiae</i> Pulliat ex Planch.
JPN-2009-105	CVAC 1856	<i>Vaccinium praestans</i> Lambert
JPN-2009-106	CVAC 1857	<i>Vaccinium oxycoccos</i> L.
JPN-2009-107	CVAC 1858	<i>Vaccinium hirtum</i> Thunb.
JPN-2009-108	CVAC 1859	<i>Vaccinium ovalifolium</i> Sm.
JPN-2009-109	CVAC 1860	<i>Vaccinium smallii</i> A. Gray
JPN-2009-110	CVAC 1861	<i>Vaccinium smallii</i> A. Gray
JPN-2009-111	CVAC 1862	<i>Vaccinium vitis-idaea</i> L.
JPN-2009-112	CVAC 1863	<i>Vaccinium smallii</i> A. Gray

JPN-2009-113	CVAC 1864	<i>Vaccinium ovalifolium</i> Sm.
JPN-2009-114	CVAC 1865	<i>Vaccinium hirtum</i> Thunb.
JPN-2009-115	X	<i>Malus toringo</i> (Siebold) de Vriese (discarded no seed)
JPN-2009-116	CHUM 1595	<i>Humulus lupulus</i> var. <i>cordifolius</i> (Miq.) Maxim.
JPN-2009-117	CMAL 0148	<i>Malus baccata</i> (L.) Borkh.
JPN-2009-118	CHUM 1596	<i>Humulus lupulus</i> var. <i>cordifolius</i> (Miq.) Maxim.
JPN-2009-119	CRUB 2563	<i>Rubus parvifolius</i> L.
JPN-2009-120	CMEN 0719	<i>Mentha japonica</i> (Miq.) Makino
JPN-2009-121	CACT 0281	<i>Actinidia arguta</i> (Siebold & Zucc.) Planch. ex Miq.
JPN-2009-122	CFRA 2024	<i>Fragaria nipponica</i> Makino
JPN-2009-123	X	<i>Humulus lupulus</i> var. <i>cordifolius</i> (Miq.) Maxim. (dis.)
JPN-2009-124	CRUB 2564	<i>Rubus parvifolius</i> L.
JPN-2009-125	CVIT 0014	<i>Vitis coignetiae</i> Pulliat ex Planch.
JPN-2009-126	CMAL 149	<i>Malus toringo</i> (Siebold) de Vriese
JPN-2009-127	X	<i>Sorbus alnifolia</i> (Siebold & Zucc.) K. Koch (discard)
JPN-2009-128	CPRN 0003	<i>Prunella vulgaris</i> subsp. <i>asiatica</i> (Nakai) H. Hara
JPN-2009-129	CVAC 1866	<i>Vaccinium smallii</i> A. Gray
JPN-2009-130	CSOR 0310	<i>Sorbus commixta</i> Hedl.
JPN-2009-131	CFRA 2025	<i>Fragaria iinumae</i> Makino
JPN-2009-132	CRUB 2565	<i>Rubus vernus</i> Focke
JPN-2009-133	CVAC 1867	<i>Vaccinium smallii</i> A. Gray
JPN-2009-134	CRUB 2566	<i>Rubus ikenoensis</i> H. Lev. & Vaniot
JPN-2009-135	CVAC 1868	<i>Vaccinium yatabei</i> Makino (= <i>Vaccinium myrtillus</i> L.)
JPN-2009-136	CMAL 0150	<i>Malus toringo</i> (Siebold) de Vriese
JPN-2009-137	CSOR 0311	<i>Sorbus matsumurana</i> (Makino) Koehne
JPN-2009-138	CMAL 0151	<i>Malus toringo</i> (Siebold) de Vriese
JPN-2009-139	CFRA 2026	<i>Fragaria nipponica</i> Makino
JPN-2009-140	CVAC 1869	<i>Vaccinium oxycoccos</i> L.
JPN-2009-141	CACT 0282	<i>Actinidia arguta</i> (Siebold & Zucc.) Planch. ex Miq.
JPN-2009-142	CCOR 0924	<i>Corylus heterophylla</i> (possible hybrid with <i>C. sieboldiana</i>)
JPN-2009-143	CCOR 0925	<i>Corylus heterophylla</i> Besser
JPN-2009-144	CCOR 0926	<i>Corylus sieboldiana</i> Bunge
JPN-2009-145	CPYR 2937	<i>Pyrus ussuriensis</i> Maxim.
JPN-2009-146	CRUB 2567	<i>Rubus parvifolius</i> L.
JPN-2009-147	CRUB 2568	<i>Rubus palmatus</i> Thunberg
JPN-2009-148	CPYR 2938	<i>Pyrus ussuriensis</i> Maxim.
JPN-2009-149	CPYR 2939	<i>Pyrus ussuriensis</i> Maxim.
JPN-2009-150	CMAL 0152	<i>Malus baccata</i> (L.) Borkh.
JPN-2009-151	CFRA 2027	<i>Fragaria iinumae</i> Makino
JPN-2009-152	CVAC 1870	<i>Vaccinium ovalifolium</i> Sm.
JPN-2009-153	CRUB 2569	<i>Rubus vernus</i> Focke

Table 4b. Collection list alphabetically by species name

Collection Number	Corvallis Number	Taxon
JPN-2009-020	CACT 0276	<i>Actinidia arguta</i> (Siebold & Zucc.) Planch. ex Miq.
JPN-2009-066	CACT 0278	<i>Actinidia arguta</i> (Siebold & Zucc.) Planch. ex Miq.
JPN-2009-100	CACT 0280	<i>Actinidia arguta</i> (Siebold & Zucc.) Planch. ex Miq.
JPN-2009-121	CACT 0281	<i>Actinidia arguta</i> (Siebold & Zucc.) Planch. ex Miq.
JPN-2009-141	CACT 0282	<i>Actinidia arguta</i> (Siebold & Zucc.) Planch. ex Miq.
JPN-2009-021	CACT 0277	<i>Actinidia polygama</i> (Siebold & Zucc.) Maxim.
JPN-2009-092	CACT 0279	<i>Actinidia polygama</i> (Siebold & Zucc.) Maxim.
JPN-2009-091	CCHA 0024	<i>Chaenomeles speciosa</i> (Sweet) Nakai
JPN-2009-142	CCOR 0924	<i>Corylus heterophylla</i> (possible hybrid with <i>C. sieboldiana</i>)
JPN-2009-143	CCOR 0925	<i>Corylus heterophylla</i> Besser
JPN-2009-073	CCOR 0922	<i>Corylus sieboldiana</i> Bunge
JPN-2009-098	CCOR 0923	<i>Corylus sieboldiana</i> Bunge
JPN-2009-144	CCOR 0926	<i>Corylus sieboldiana</i> Bunge
JPN-2009-002	CCRA 0210	<i>Crataegus chlorosarca</i> Maxim.
JPN-2009-089	CCRA 0211	<i>Crataegus chlorosarca</i> Maxim.
JPN-2009-101	CCRA 0212	<i>Crataegus chlorosarca</i> Maxim.
JPN-2009-056	CEMP 0009	<i>Empetrum nigrum</i> L.
JPN-2009-055	CFRA 2016	<i>Fragaria iinumae</i> Makino
JPN-2009-059	CFRA 2017	<i>Fragaria iinumae</i> Makino
JPN-2009-062	CFRA 2018	<i>Fragaria iinumae</i> Makino
JPN-2009-074	CFRA 2022	<i>Fragaria iinumae</i> Makino
JPN-2009-078	CFRA 2023	<i>Fragaria iinumae</i> Makino
JPN-2009-131	CFRA 2025	<i>Fragaria iinumae</i> Makino
JPN-2009-151	CFRA 2027	<i>Fragaria iinumae</i> Makino
JPN-2009-122	CFRA 2024	<i>Fragaria nipponica</i> Makino
JPN-2009-139	CFRA 2026	<i>Fragaria nipponica</i> Makino
JPN-2009-008	CFRA 2015	<i>Fragaria vesca</i> f. <i>alba</i> (Ehrh.) Staudt
JPN-2009-063	CFRA 2019	<i>Fragaria vesca</i> L.
JPN-2009-064	CFRA 2020	<i>Fragaria</i> hybrid (<i>iinumae</i> × <i>vesca</i> ?)
JPN-2009-065	CFRA 2021	<i>Fragaria</i> hybrid (<i>iinumae</i> × <i>vesca</i> ?)
JPN-2009-058	CGAU 0040	<i>Gaultheria miqueliana</i> Takeda (= <i>Gaultheria pyroloides</i> Hook. f. & Thomson ex Miq.)
JPN-2009-007	CHUM 1593	<i>Humulus lupulus</i> var. <i>cordifolius</i> (Miq.) Maxim.
JPN-2009-102	CHUM 1594	<i>Humulus lupulus</i> var. <i>cordifolius</i> (Miq.) Maxim.

JPN-2009-116	CHUM 1595	<i>Humulus lupulus</i> var. <i>cordifolius</i> (Miq.) Maxim.
JPN-2009-118	CHUM 1596	<i>Humulus lupulus</i> var. <i>cordifolius</i> (Miq.) Maxim.
JPN-2009-123	X	<i>Humulus lupulus</i> var. <i>cordifolius</i> (Miq.) Maxim. (discarded - no seed)
JPN-2009-030	CLON 0061	<i>Lonicera caerulea</i> L.
JPN-2009-031	CLON 0062	<i>Lonicera caerulea</i> L.
JPN-2009-032	CLON 0063	<i>Lonicera caerulea</i> L.
JPN-2009-033	CLON 0064	<i>Lonicera caerulea</i> L.
JPN-2009-034	CLON 0065	<i>Lonicera caerulea</i> L.
JPN-2009-035	CLON 0066	<i>Lonicera caerulea</i> L.
JPN-2009-036	CLON 0067	<i>Lonicera caerulea</i> L.
JPN-2009-037	CLON 0068	<i>Lonicera caerulea</i> L.
JPN-2009-038	CLON 0069	<i>Lonicera caerulea</i> L.
JPN-2009-039	CLON 0070	<i>Lonicera caerulea</i> L.
JPN-2009-087	CLON 0081	<i>Lonicera caerulea</i> var. <i>edulis</i> Turcz. ex Herder
JPN-2009-001	CLON 0060	<i>Lonicera caerulea</i> var. <i>emphyllocalyx</i> (Maxim.) Nakai
JPN-2009-040	CLON 0071	<i>Lonicera caerulea</i> var. <i>emphyllocalyx</i> (Maxim.) Nakai
JPN-2009-041	CLON 0072	<i>Lonicera caerulea</i> var. <i>emphyllocalyx</i> (Maxim.) Nakai
JPN-2009-042	CLON 0073	<i>Lonicera caerulea</i> var. <i>emphyllocalyx</i> (Maxim.) Nakai
JPN-2009-043	CLON 0074	<i>Lonicera caerulea</i> var. <i>emphyllocalyx</i> (Maxim.) Nakai
JPN-2009-044	CLON 0075	<i>Lonicera caerulea</i> var. <i>emphyllocalyx</i> (Maxim.) Nakai
JPN-2009-045	CLON 0076	<i>Lonicera caerulea</i> var. <i>emphyllocalyx</i> (Maxim.) Nakai
JPN-2009-046	CLON 0077	<i>Lonicera caerulea</i> var. <i>emphyllocalyx</i> (Maxim.) Nakai
JPN-2009-047	CLON 0078	<i>Lonicera caerulea</i> var. <i>emphyllocalyx</i> (Maxim.) Nakai
JPN-2009-048	CLON 0079	<i>Lonicera caerulea</i> var. <i>emphyllocalyx</i> (Maxim.) Nakai
JPN-2009-049	CLON 0080	<i>Lonicera caerulea</i> var. <i>emphyllocalyx</i> (Maxim.) Nakai
JPN-2009-077	CLYC 0002	<i>Lycium barbarum</i> L.
JPN-2009-099	CLYC 0003	<i>Lycium barbarum</i> L.
JPN-2009-090	X	<i>Malus</i> (probably <i>toringo</i> , labeled <i>baccata</i>) (dis.)
JPN-2009-117	CMAL 0148	<i>Malus baccata</i> (L.) Borkh.
JPN-2009-150	CMAL 0152	<i>Malus baccata</i> (L.) Borkh.
JPN-2009-103	CMAL 0147	<i>Malus toringo</i> (Siebold) de Vriese
JPN-2009-115	X	<i>Malus toringo</i> (Siebold) de Vriese (discarded)
JPN-2009-126	CMAL 0149	<i>Malus toringo</i> (Siebold) de Vriese

JPN-2009-136	CMAL 0150	<i>Malus toringo</i> (Siebold) de Vriese
JPN-2009-138	CMAL 0151	<i>Malus toringo</i> (Siebold) de Vriese
JPN-2009-027	X	<i>Malus toringo</i> (Siebold) de Vriese (discarded)
JPN-2009-120	CMEN 0719	<i>Mentha japonica</i> (Miq.) Makino
JPN-2009-010	CPOT 0017	<i>Potentilla fragarioides</i> L. var. <i>major</i>
JPN-2009-022	CPOT 0018	<i>Potentilla fragarioides</i> L.
JPN-2009-054	CPRN 0002	<i>Prunella vulgaris subsp. asiatica</i> (Nakai) H. Hara
JPN-2009-128	CPRN 0003	<i>Prunella vulgaris subsp. asiatica</i> (Nakai) H. Hara
JPN-2009-009	X	<i>Prunella vulgaris subsp. asiatica</i> (Nakai) H. Hara (discarded - no seed)
JPN-2009-145	CPYR 2937	<i>Pyrus ussuriensis</i> Maxim.
JPN-2009-148	CPYR 2938	<i>Pyrus ussuriensis</i> Maxim.
JPN-2009-149	CPYR 2939	<i>Pyrus ussuriensis</i> Maxim.
JPN-2009-018	CRIB 1619	<i>Ribes ambiguum</i>
JPN-2009-069	CRIB 1620	<i>Ribes japonicum</i> Maxim.
JPN-2009-096	CRIB 1622	<i>Ribes latifolium</i> Jancz.
JPN-2009-088	CRIB 1621	<i>Ribes sachalinense</i> (F. Schmidt) Nakai
JPN-2009-053	CRUB 2556	<i>Rubus chamaemorus</i> L.
JPN-2009-019	CRUB 2549	<i>Rubus crataegifolius</i> Bunge
JPN-2009-023	CRUB 2550	<i>Rubus crataegifolius</i> Bunge
JPN-2009-025	CRUB 2552	<i>Rubus</i> hybrid? <i>parvifolius</i> × <i>sachalinense</i> ?
JPN-2009-134	CRUB 2566	<i>Rubus ikenoensis</i> H. Lev. & Vaniot
JPN-2009-097	CRUB 2562	<i>Rubus mesogeus</i> Focke
JPN-2009-028	CRUB 2554	<i>Rubus mesogeus</i> Focke.
JPN-2009-029	CRUB 2555	<i>Rubus mesogeus</i> Focke.
JPN-2009-147	CRUB 2568	<i>Rubus palmatus</i> Thunberg
JPN-2009-024	CRUB 2551	<i>Rubus parvifolius</i> L.
JPN-2009-085	CRUB 2561	<i>Rubus parvifolius</i> L.
JPN-2009-119	CRUB 2563	<i>Rubus parvifolius</i> L.
JPN-2009-124	CRUB 2564	<i>Rubus parvifolius</i> L.
JPN-2009-146	CRUB 2567	<i>Rubus parvifolius</i> L.
JPN-2009-068	CRUB 2559	<i>Rubus pseudojaponicus</i> Koidz.
JPN-2009-026	CRUB 2553	<i>Rubus sachalinense</i> H. Lév. (syn. = <i>Rubus idaeus</i> var. <i>aculeatissimus</i> Regel & Tiling)
JPN-2009-060	CRUB 2557	<i>Rubus sachalinense</i> H. Lév. (syn. = <i>Rubus idaeus</i> var. <i>aculeatissimus</i> Regel & Tiling)
JPN-2009-067	CRUB 2558	<i>Rubus sachalinense</i> H. Lév. (syn. = <i>Rubus idaeus</i> var. <i>aculeatissimus</i> Regel & Tiling)
JPN-2009-076	CRUB 2560	<i>Rubus vernus</i> Focke
JPN-2009-132	CRUB 2565	<i>Rubus vernus</i> Focke
JPN-2009-153	CRUB 2569	<i>Rubus vernus</i> Focke

JPN-2009-061	X	<i>Sorbus alnifolia</i> (Siebold & Zucc.) K. Koch (Discarded - no seed)
JPN-2009-127	X	<i>Sorbus alnifolia</i> (Siebold & Zucc.) K. Koch (discarded no seed)
JPN-2009-050	CSOR 0306	<i>Sorbus commixta</i> Hedl.
JPN-2009-072	CSOR 0307	<i>Sorbus commixta</i> Hedl.
JPN-2009-130	CSOR 0310	<i>Sorbus commixta</i> Hedl.
JPN-2009-011	CSOR 0304	<i>Sorbus matsumurana</i> (Makino) Koehne
JPN-2009-137	CSOR 0311	<i>Sorbus matsumurana</i> (Makino) Koehne
JPN-2009-013	CSOR 0305	<i>Sorbus sambucifolia</i> (Cham. Et Schl.) Roemer
JPN-2009-084	CSOR 0308	<i>Sorbus sambucifolia</i> (Cham. Et Schl.) Roemer
JPN-2009-095	CSOR 0309	<i>Sorbus sambucifolia</i> var. <i>pseudogracilis</i> C. K. Schneid.
JPN-2009-006	CSOR 0303	<i>Sorbus</i> × <i>kawashiroi</i>
JPN-2009-015	CVAC 1841	<i>Vaccinium hirtum</i> Thunb.
JPN-2009-057	CVAC 1846	<i>Vaccinium hirtum</i> Thunb.
JPN-2009-071	CVAC 1847	<i>Vaccinium hirtum</i> Thunb.
JPN-2009-107	CVAC 1858	<i>Vaccinium hirtum</i> Thunb.
JPN-2009-114	CVAC 1865	<i>Vaccinium hirtum</i> Thunb.
JPN-2009-003	CVAC 1836	<i>Vaccinium japonicum</i> Miq. (= <i>Vaccinium</i> <i>erythrocarpum</i> Michx. subsp. <i>japonicum</i> (Miq.) Vander Kloet)
JPN-2009-016	CVAC 1842	<i>Vaccinium japonicum</i> Miq. (= <i>Vaccinium</i> <i>erythrocarpum</i> Michx. subsp. <i>japonicum</i> (Miq.) Vander Kloet)
JPN-2009-005	CVAC 1838	<i>Vaccinium oldhamii</i> Miq.
JPN-2009-014	CVAC 1840	<i>Vaccinium oldhamii</i> Miq.
JPN-2009-108	CVAC 1859	<i>Vaccinium ovalifolium</i> Sm.
JPN-2009-113	CVAC 1864	<i>Vaccinium ovalifolium</i> Sm.
JPN-2009-152	CVAC 1870	<i>Vaccinium ovalifolium</i> Sm.
JPN-2009-012	CVAC 1839	<i>Vaccinium ovalifolium</i> var. <i>ovalifolium</i>
JPN-2009-052	CVAC 1845	<i>Vaccinium oxycoccos</i> L.
JPN-2009-083	CVAC 1853	<i>Vaccinium oxycoccos</i> L.
JPN-2009-106	CVAC 1857	<i>Vaccinium oxycoccos</i> L.
JPN-2009-140	CVAC 1869	<i>Vaccinium oxycoccos</i> L.
JPN-2009-079	CVAC 1849	<i>Vaccinium praestans</i> Lambert
JPN-2009-080	CVAC 1850	<i>Vaccinium praestans</i> Lambert
JPN-2009-105	CVAC 1856	<i>Vaccinium praestans</i> Lambert
JPN-2009-004	CVAC 1837	<i>Vaccinium smallii</i> A. Gray
JPN-2009-051	CVAC 1844	<i>Vaccinium smallii</i> A. Gray
JPN-2009-075	CVAC 1848	<i>Vaccinium smallii</i> A. Gray
JPN-2009-093	CVAC 1854	<i>Vaccinium smallii</i> A. Gray
JPN-2009-109	CVAC 1860	<i>Vaccinium smallii</i> A. Gray

JPN-2009-110	CVAC 1861	<i>Vaccinium smallii</i> A. Gray
JPN-2009-112	CVAC 1863	<i>Vaccinium smallii</i> A. Gray
JPN-2009-129	CVAC 1866	<i>Vaccinium smallii</i> A. Gray
JPN-2009-133	CVAC 1867	<i>Vaccinium smallii</i> A. Gray
JPN-2009-081	CVAC 1851	<i>Vaccinium uliginosum</i> L.
JPN-2009-082	CVAC 1852	<i>Vaccinium vitis-idaea</i> L.
JPN-2009-094	CVAC 1855	<i>Vaccinium vitis-idaea</i> L.
JPN-2009-111	CVAC 1862	<i>Vaccinium vitis-idaea</i> L.
JPN-2009-017	CVAC 1843	<i>Vaccinium yakushinensis</i>
JPN-2009-135	CVAC 1868	<i>Vaccinium yatabei</i> Makino (= <i>Vaccinium myrtillus</i> L.)
JPN-2009-070	CVIT 0011	<i>Vitis coignetiae</i> Pulliat ex Planch.
JPN-2009-086	CVIT 0012	<i>Vitis coignetiae</i> Pulliat ex Planch.
JPN-2009-104	CVIT 0013	<i>Vitis coignetiae</i> Pulliat ex Planch.
JPN-2009-125	CVIT 0014	<i>Vitis coignetiae</i> Pulliat ex Planch.

Table 5. Detailed sample information for seeds and plants collected in Japan, September 2009 (sorted by taxon).

sample #	collection date	Sample Type			Plant Name Information		Collection Site					Plant Description		Disposition	
		seed plant	quantity	origin: cult wild	taxon	cultivar or local name	latitude	longitude	elev. (m)	province	city/town/locality	habitat	plant habit	plant/fruit notes	germplasm recipients
JPN-2009-020	9/10/2009	sd	3.72 g.	w	<i>Actinidia arguta</i> (Siebold & Zucc.) Planch. ex Miq.	sarunashi	42.71355	141.56964	30	Hokkaido	Tomakomi Research Forest of Hokkaido University	climbing perennial vine growing on forest trees; associated with Ulmus and Styrax.		fruits green; some soft and some ripe, about 2.5 cm long x 2 cm wide; many fruit collected from single vine, a few fruit from a second plant 0.5 km away.	Corvallis
JPN-2009-066	9/12/2009	sd	0.13 g.	w	<i>Actinidia arguta</i> (Siebold & Zucc.) Planch. ex Miq.	sarunashi	42.73550	140.65874	514	Hokkaido	Kombu-Dake	growing in shade at edge of road with Dryopteris, Juglans, Akonita	climbing vine	fruit green and hard, softened in bag during following week.	Corvallis
JPN-2009-100	9/14/2009	sd	6.05 g.	cwo	<i>Actinidia arguta</i> (Siebold & Zucc.) Planch. ex Miq.	sarunashi	43.29106	141.85473	56	Hokkaido	Bibai, Hokkaido Forestry Research Institute	cultivated plants in demonstration garden, originally collected from the wild in Hokkaido	climbing vines on arbor	fruit green, ripening to red-brown with red stems; many ripe fruit collected from 2-3 plants	Corvallis
JPN-2009-121	9/17/2009	sd	0.24 g.	w	<i>Actinidia arguta</i> (Siebold & Zucc.) Planch. ex Miq.	sarunashi	42.53416	143.48608	3	Hokkaido	Taiki, by ocean	in vegetation zone about 100 m. from Pacific Ocean growing with Alnus, Rubus parvifolius	vine growing on Alnus	green fruit, not yet mature; collected about 6 fruits	Corvallis
JPN-2009-141	9/21/2009	sd	4.61 g.	w	<i>Actinidia arguta</i> (Siebold & Zucc.) Planch. ex Miq.	sarunashi	39.91986	140.97450	475	Iwate	Hachimontai-shi (shi=city)	market at festival; paid 300 yen for about 1 kg of fruit that had been collected from the wild in the region		fruit green, to 2 cm long, range of fruit sizes, mostly ripe and softening	Corvallis
JPN-2009-021	9/10/2009	sd	3.01 g.	w	<i>Actinidia polygama</i> (Siebold & Zucc.) Maxim.	matatabi	42.71355	141.56964	30	Hokkaido	Tomakomi Research Forest of Hokkaido University	by stream next to road, associated with nettles, Acer, Ulmus and Vitis.	perennial climbing vine, (originally collected as <i>A. kolomikta</i> , but this is definitely <i>A. polygama</i>).	Green fruit, wedge to tear-drop shaped, mostly hard and not ripe. Unripe fruit collected and stored for more than a week in closed bag with a quince fruit to help ripen.	Corvallis
JPN-2009-092	9/14/2009	sd	2.82 g.	w	<i>Actinidia polygama</i> (Siebold & Zucc.) Maxim.	matatabi (=re	43.29106	141.85473	56	Hokkaido	Bibai, Hokkaido Forestry Research Institute	cultivated plants in demonstration garden, originally collected from the wild in Hokkaido.	climbing vine, on trellis	Fruit wedge or tear-drop shaped, ripens later than the adjacent <i>A. arguta</i> ; most fruit green-yellow, a few have ripened to orange, not as tasty as <i>A. arguta</i> .	Corvallis
JPN-2009-091	9/14/2009	sd	0.35 g.	cwo	<i>Chaenomeles speciosa</i> (Sweet) Nakai	boke	42.99782	141.39194	135	Hokkaido	Forest & Forest Products Research Inst.	cultivated arboretum	shrub to 2 m tall, spreading to 2 m wide, with healthy looking, dark green leaves. Not native to Japan, introduced from China about 100 years ago.	fruit green-yellow, not quite ripe. Several fruit collected.	Corvallis

sample #	collection date	seed plant	quantity	origin: cult wild	taxon	cultivar or local name	latitude	longitude	elev. (m)	province	city/town/locality	habitat	plant habit	plant/fruit notes	germplasm recipients
JPN-2009-142	9/21/2009	sd	95.7 g.	w	<i>Corylus heterophylla</i> (possible hybrid with <i>C. sieboldiana</i>)	oomordi	39.74382	141.15778	210	Iwate	near Morioka City	at edge of dense forest where some light filters through, growing with <i>Euonymoun</i> , <i>Morus</i> , <i>Quercus</i> , <i>Rubus palmatum</i> , <i>Castanea mollisima</i> .	multistem tree ~ 5 m tall and < 10 years old	small number of nuts collected from single tree; husk partially covers nut like <i>C. heterophylla</i> , but leaf shape mostly with acute tip like <i>C. sieboldiana</i> . Both species found nearby, so this may be hybrid.	Corvallis
JPN-2009-143	9/21/2009	sd	5.4 g.	w	<i>Corylus heterophylla</i> Besser	hashibami	39.74382	141.15778	210	Iwate	near Morioka City	In young regrowth area by open meadow, about 200 m away from woods, growing with fern, birch, mulberry, sasa bamboo	multistem, small tree < 10 years old	leaf shape typical of <i>C. heterophylla</i> , flat top with peaked apex; husks slightly clasping nuts, with end of nut exposed as in JPN-142.	Corvallis
JPN-2009-073	9/12/2009	sd	3.5 g.	w	<i>Corylus sieboldiana</i> Bunge	tsunohashiba	42.90668	140.59001	766	Hokkaido	Shinsen numa (marsh) near Kyowa town	dry upland site near board walk, mostly sunny; growing with <i>Quercus cuspidata</i> , <i>Abies</i> , <i>Ligustrum vulgare</i> , <i>Viburnum</i> , <i>Acer palmatum</i> , 2 bamboo species.	small tree/large multi-stem shrub to 3-4 m tall; dark green, healthy foliage	beaked fruit ~ 1.2 cm long, new buds set in leaf axis, nuts collected from about 6 scattered trees along trail.	Corvallis
JPN-2009-098	9/14/2009	sd	55.6 g.	cwo	<i>Corylus sieboldiana</i> Bunge	tsunohashiba	43.29106	141.85473	56	Hokkaido	Bibai, Hokkaido Forestry Research Institute	cultivated plants in demonstration garden, originally collected from the wild in Hokkaido	multi-stem tree ~ 4 m tall with several suckers at base	beaked hazelnuts with rough, velvety green husks; small green catkins ~1.2 cm long; leaves 9.5 cm long x 6.5 cm wide	Corvallis
JPN-2009-144	9/21/2009	sd	75.19 g.	w	<i>Corylus sieboldiana</i> Bunge	tsuno hashiba	39.74382	141.15778	210	Iwate	near Morioka City	In young regrowth area by open meadow, about 200 m away from woods, growing under <i>Pinus</i> and <i>Prunus</i> with fern, <i>Salix</i> , <i>Castanea mollisima</i>	multisetm small tree < 10 years old	nut completely covered by beaked husk with 4-5 nuts in a cluster; prickles on husk; green catkins ~1 cm long; nuts collected from several nearby trees.	Corvallis
JPN-2009-002	9/9/2009	sd pl	0.44 g. seed, 3 cuttings	cwo	<i>Crataegus chlorosarca</i> Maxim.	kuromisanzas	43.06530	141.34409	25	Hokkaido	Hokkaido University Botanical Garden, Sapporo	in garden collection	tree ~ 3.5 m tall x 4 m	collected fruit & budwood from single tree; black fruit, seeds large, white.	National Arboretum (sample fumigated at USDA-APHIS)
JPN-2009-089	9/14/2009	sd	3.43 g.	cwo	<i>Crataegus chlorosarca</i> Maxim.	kuromisanzas	42.99782	141.39194	135	Hokkaido	Forest & Forest Products Research Inst.	cultivated arboretum	tree ~ 5 m tall	black, globose fruit 0.3 - 0.5 cm long collected from 2 trees	National Arboretum
JPN-2009-101	9/15/2009	sd	11.61 g.	w	<i>Crataegus chlorosarca</i> Maxim.	kuromisanzas	43.05490	141.62123	19	Hokkaido	Nanporo National Forest	Dark, wet, humid forest growing with <i>Fraxinus</i> . This small forest area acts as a wind break for adjacent farmland. Only a few small forested areas remain in this region of good agricultural land, and this is a refuge for <i>C. chlorosarca</i> .	tree to 4 m., common in this forest	black fruit	National Arboretum
JPN-2009-056	9/11/2009	sd	2.63 g.	w	<i>Empetrum nigrum</i> L.		42.87764	140.64254	796	Hokkaido	near Niseko waisu (town)	sub alpine area between 2 high mountains, open, lots of sun.	perennial shrub to 1.5 m. (?)	black fruit	Corvallis

sample #	collection date	seed plant	quantity	origin: cult wild	cultivar or local name		latitude	longitude	elev. (m)	province	city/town/locality	habitat	plant habit	plant/fruit notes	germplasm recipients
					taxon										
JPN-2009-055	9/11/2009	pl	9 plants	w	<i>Fragaria iinumae</i> Makino	nogo ichigo	42.87764	140.64254	796	Hokkaido	near Niseko waisu (town)	growing in gravel along edge of road near Niseko annupuri	plant very prostrate here	no fruit present	Corvallis
JPN-2009-059	9/11/2009	sd	0.21 g.	w	<i>Fragaria iinumae</i> Makino	nogo ichigo	42.85212	140.64064	450	Hokkaido	near Niseko ski area	trail at ski area, growing in gravel path with moss and yellow composites.	prostrate to ground, colony about 4 m long	plants with flowers, immature fruit and older dry fruit; flower has 7 petals; dried fruit and fresh fruit collected.	Corvallis
JPN-2009-062	9/12/2009	pl	3 plants	w	<i>Fragaria iinumae</i> Makino	nogo ichigo	42.73721	140.65747	494	Hokkaido	Kombu-Dake	edge of trail in open woods, growing in gravel, lots of light, growing with <i>Fragaria vesca</i> , <i>Prunella vulgaris</i> , <i>Potentilla fragarioides</i> , broad leaf plantain, <i>Dryopteris</i> .	monopodial runnering, terminal leaf tooth inset.	no fruit or flowers present	Corvallis
JPN-2009-074	9/12/2009	pl	2 plants	w	<i>Fragaria iinumae</i> Makino	nogo ichigo	42.90194	141.58859	773	Hokkaido	Shinsen numa (marsh) near Kyowa town	sunny trail side, growing with <i>Dryopteris</i> , <i>Pinus pumilla</i> , sasa bamboo, <i>Ligustrum vulgare</i> , <i>Viburnum</i>	monopodial runnering, inset terminal tooth, leaves larger in shade	no fruit present	Corvallis
JPN-2009-078	8/26/2009	sd	0.09 g.	w	<i>Fragaria iinumae</i> Makino	nogo ichigo	42.89568	140.74895	940	Hokkaido	near Niseko mountain, Kucchan town	collected by Mr. Ikura Ikeda		Fruit red, only a few (4) were collected from limited area.	Corvallis
JPN-2009-131	9/20/2009	pl	5 plants	w	<i>Fragaria iinumae</i> Makino	nogo ichigo	39.94160	140.85818	1413	Iwate	Toshichi-onsen (spa)	open field next to road, growing in brown clay, by sulfur springs	low growing perennial herb to 1 cm tall; runners were small & delicate, no flowers or fruit present; monopodial runnering habit	5 plants collected, representing at least 2 clones	Corvallis
JPN-2009-151	9/23/2009	pl	10 plants	w	<i>Fragaria iinumae</i> Makino	nogo ichigo	39.13140	140.06873	1170	Akita	Haraigawa ugo honjoo-shi (city)	growing by edge of parking lot and along trail up mountain	perennial herb, intergrowing with a <i>Potentilla</i> sp. (<i>fragariodes</i> ?) that closeley resembled strawberry	no fruits or flowers present; runners red, monopodial, terminal tooth of terminal leaf was inset, short spreading hairs on short petioles.	Corvallis
JPN-2009-122	9/17/2009	pl	5 plants	w	<i>Fragaria nipponica</i> Makino	mori-ichigo	42.61425	143.54434	3	Hokkaido	Toyokoro Town, by Yudonumoa bog	growing in grass; open area along side of road, near bay		bright green foliage with prominent veins and spreading hairs on petioles, 1 flower present, 5 white petals, no fruit; 3 plants collected	Corvallis
JPN-2009-139	9/21/2009	pl	9 plants	w	<i>Fragaria nipponica</i> Makino	shirobananot	39.94821	140.94180	899	Iwate	Hachimontai-shi bog	growing along boardwalk to bog, in shaded, part sun under alder, sasa bamboo, asters.	sympodial runnering, vigorous plants, leaves beginning to turn red	no flowers or fruit present; pediole length 15-20 cm, spreading hairs on petiole, protruding terminal tooth of terminal leaflet,	Corvallis
JPN-2009-008	9/9/2009	sd	0.52 g	cwo	<i>Fragaria vesca</i> f. <i>alba</i> (Ehrh.) Staudt	ichigo	43.06530	141.34409	25	Hokkaido	Hokkaido University Botanical Garden, Sapporo	in garden collection	low growing perennial herb, not native, does not produce many runners.	white fruit with white achenes, about 1 cm long, conic shape.	Corvallis

sample #	collection date	seed plant	quantity	origin: cult wild									plant habit	plant/fruit notes	germplasm recipients
					taxon	cultivar or local name	latitude	longitude	elev. (m)	province	city/town/locality	habitat			
JPN-2009-063	9/12/2009	sd pl	0.05 g. seeds, 6 plants	w	<i>Fragaria vesca</i> L.	ichigo	42.73721	140.65747	494	Hokkaido	Kombu-Dake	edge of trail in open woods, growing in gravel, lots of light, growing with <i>Fragaria iinumae</i> , <i>Prunella vulgaris</i> , <i>Potentilla fragarioides</i> , broad leaf plantain, <i>Dryopteris</i> .	sympodial runnering, terminal tooth protruding	few flowers and ripe fruit present; fruit red, conic, 1.3 cm long x 1.0 cm wide; flower pedicels larger than foliage	Corvallis
JPN-2009-064	9/12/2009	pl	4 plants	w	<i>Fragaris hybrid (iinumae x vesca?)</i>	ichigo	42.73721	140.65747	494	Hokkaido	Kombu-Dake	open, in middle of trail, growing with <i>Prunella</i> , <i>Polygonium</i>	sympodial runnering, but leaf shape like <i>F. iinumae</i>	no fruit or flowers present	Corvallis
JPN-2009-065	9/12/2009	pl	2 plants	w	<i>Fragaris hybrid (iinumae x vesca?)</i>	ichigo	42.73721	140.65747	494	Hokkaido	Kombu-Dake	open, in middle of trail, growing with <i>Prunella</i> , <i>Polygonium</i>	sympodial runnering	no fruit or flowers present	Corvallis
JPN-2009-058	9/11/2009	sd	0.65 g.	w	<i>Gaultheria miqueliana</i> Takeda (= <i>Gaultheria pyroloides</i> Hook. f. & Thomson ex Miq.)		42.87764	140.64254	796	Hokkaido	near Niseko waisu (town)	sub alpine area between 2 high mountains, open, lots of sun. Associated plants: <i>Pinus pumila</i> , <i>Empetrum nigrum</i> , <i>Vaccinium hirtum</i> .	short shrub, 10-15 cm tall, shiny coriaceous leaves.	fruit pure white, round, about 0.3 - 0.5 cm diam; synonym of <i>Gaultheria pyroloides</i> - Hook.&Thoms. ex Miq.	Corvallis
JPN-2009-007	9/9/2009	pl	4 cuttings	cwo	<i>Humulus lupulus</i> var. <i>cordifolius</i> (Miq.) Maxim.	karahanaso	43.06530	141.34409	25	Hokkaido	Hokkaido University Botanical Garden, Sapporo	in garden collection	female plant in herbaceous perennial collection; dark leaves with yellow virus-like symptoms.	lupulin visible in cones, but no seeds present (no male plant nearby?)	Corvallis
JPN-2009-102	9/15/2009	sd pl	3.15 g.	w	<i>Humulus lupulus</i> var. <i>cordifolius</i> (Miq.) Maxim.	karahanaso	43.05490	141.62123	19	Hokkaido	Nanporo National Forest	Growing on trees at edge of dark forest, where light could penetrate; where light was present in this forest, there were hops; associated with <i>Fraxinus</i> , <i>sasa bamboo</i> , <i>Crataegus</i> , <i>Malus</i> .	Climbing vine. Many foliar diseases apparent, including powdery mildew.	cones light green, not as strong aroma as other hops, many cones collected	Corvallis
JPN-2009-116	9/16/2009	sd	0.75 g.	w	<i>Humulus lupulus</i> var. <i>cordifolius</i> (Miq.) Maxim.	karahanaso	44.19310	143.61345	19	Hokkaido	Kamiyubetsu town	in hedgerow near <i>Malus toringo</i> JPN-115.	climbing vine	leaves covered with powdery mildew and other foliar diseases; cones collected from several vines	Corvallis
JPN-2009-118	9/17/2009	sd	7.0 g.	w	<i>Humulus lupulus</i> var. <i>cordifolius</i> (Miq.) Maxim.	karahanaso	42.65862	143.00070	279	Hokkaido	Out of Obihiro City, near Iwanai river	growing on <i>Polygonium</i> on side of road along with <i>Soledago</i> , under spruce and alder	climbing vine	prolific producer, cones 2-3 cm long, seeds dropped out as cones were separated from vines.	Corvallis
JPN-2009-123	9/18/2009	-	0	w	<i>Humulus lupulus</i> var. <i>cordifolius</i> (Miq.) Maxim. (discarded)	karahanaso	42.36347	143.34523	32	Hokkaido	Hiro-o town	in open sun, on side of road, about 2 km from ocean, growing on <i>Alnus</i> , intertwining with vining <i>Celastris</i> , with <i>sasa bamboo</i> , <i>Reynoutria sachalinensis</i> , <i>sumac</i> , under and at edge of planted <i>Larix</i> forest.	climbing	small cones about 1 cm long were collected from 1-2 vines; discarded 9/22/09 - cones had no seeds.	discarded in Japan
JPN-2009-030	7/21/2009	sd	0.04 g.	w	<i>Lonicera caerulea</i> L.	Keyonomi-1 (haskap)				Hokkaido	Tomakomai City	seed collected by Dr. Yuji Ito in marshy area with <i>Oenothera biennis</i>	spreading hairs on stem on upper portion	fruit about 1 cm long, torpedo shaped, blue with bloom; collected from one plant	Corvallis

sample #	collection date	seed plant	quantity	origin: cult wild	taxon	cultivar or local name	latitude	longitude	elev. (m)	province	city/town/locality	habitat	plant habit	plant/fruit notes	germplasm recipients
JPN-2009-031	7/21/2009	sd	0.08 g.	w	<i>Lonicera caerulea</i> L.	Keyonomi-2 (haskap)				Hokkaido	Tomakomai City	seed collected by Dr. Yuji Ito in marshy area	perennial shrub blooms in April, fruits in July	fruit about 0.8 cm long, oblate, blue with bloom; fruit collected from one plant	Corvallis
JPN-2009-032	7/21/2009	sd	0.10 g.	w	<i>Lonicera caerulea</i> L.	Keyonomi-3 (haskap)				Hokkaido	Tomakomai City	seed collected by Dr. Yuji Ito in marshy area	reddish brown stem with spreading hairs	fruit oblate, about 0.8 cm long, blue with bloom; fruit collected from one plant	Corvallis
JPN-2009-033	7/21/2009	sd	0.10 g.	w	<i>Lonicera caerulea</i> L.	Keyonomi-4 (haskap)				Hokkaido	Tomakomai City	seed collected by Dr. Yuji Ito in marshy area	new growth red-brown, stem not as hairy as others	fruit long oblate shape, blue with bloom; fruit collected from one plant	Corvallis
JPN-2009-034	7/21/2009	sd	0.07 g.	w	<i>Lonicera caerulea</i> L.	Keyonomi-5 (haskap)				Hokkaido	Tomakomai City	seed collected by Dr. Yuji Ito in marshy area		fruit oblate, 0.6 - 0.8 cm long with koi mouth tip, blue with white bloom	Corvallis
JPN-2009-035	7/21/2009	sd	0.10 g.	w	<i>Lonicera caerulea</i> L.	Keyonomi-6 (haskap)				Hokkaido	Tomakomai City	seed collected by Dr. Yuji Ito in marshy area	young stems red-brownish with small hairs	fruit ~ 1 cm long, oblate regular, dark purple-blue with white bloom	Corvallis
JPN-2009-036	7/21/2009	sd	0.07 g.	w	<i>Lonicera caerulea</i> L.	Keyonomi-7 (haskap)				Hokkaido	Tomakomai City	seed collected by Dr. Yuji Ito in marshy area		fruit ~ 1 cm long, oblate, slightly irregular tip, blue with bloom	Corvallis
JPN-2009-037	7/21/2009	sd	0.12 g.	w	<i>Lonicera caerulea</i> L.	Keyonomi-8 (haskap)				Hokkaido	Tomakomai City	seed collected by Dr. Yuji Ito in marshy area		fruit ~ 1 cm long, regular shape, blue with bloom	Corvallis
JPN-2009-038	7/21/2009	sd	0.09 g.	w	<i>Lonicera caerulea</i> L.	Keyonomi-9 (haskap)				Hokkaido	Tomakomai City	seed collected by Dr. Yuji Ito in marshy area	young stems red-brownish with small scattered hairs	fruit long-oblate with koi mouth at tip, blue with bloom	Corvallis
JPN-2009-039	7/21/2009	sd	0.14 g.	w	<i>Lonicera caerulea</i> L.	Keyonomi-10 (haskap)				Hokkaido	Tomakomai City	seed collected by Dr. Yuji Ito in marshy area	young stems reddish, no hairs	fruit oblate, 0.6 - 0.8 cm long, blue with bloom	Corvallis
JPN-2009-087	9/14/2009	pl	4 cuttings	cwo	<i>Lonicera caerulea</i> var. <i>edulis</i> Turcz. ex Herder	keyonomi	42.99782	141.39194	135	Hokkaido	Forest & Forest Products Research Inst.	cultivated arboretum	perennial shrub 1.5 m. tall	no fruit or flowers present	Corvallis (sample fumigated at USDA-APHIS)
JPN-2009-001	9/9/2009	pl	3 cuttings	cwo	<i>Lonicera caerulea</i> var. <i>emphyllocalyx</i> (Maxim.) Nakai	haskap	43.06530	141.34409	25	Hokkaido	Hokkaido University Botanical Garden, Sapporo	in garden collection	perennial shrub, plant height 1.5 m.	collected cuttings from single plant; opposite leaves, black fungal disease on leaves, no fruit or flowers (fruiting season is in July).	Corvallis (sample fumigated at USDA-APHIS)
JPN-2009-040	7/21/2009	sd	0.15 g.	w	<i>Lonicera caerulea</i> var. <i>emphyllocalyx</i> (Maxim.) Nakai	kurominoug u isukagura-1 (haskap)				Hokkaido	Tomakomai City	seed collected by Dr. Yuji Ito in marshy area	young stems brown, no hairs	fruits torpedo-oblate shape, blue with bloom	Corvallis
JPN-2009-041	7/21/2009	sd	0.06 g.	w	<i>Lonicera caerulea</i> var. <i>emphyllocalyx</i> (Maxim.) Nakai	kurominoug u isukagura-2 (haskap)				Hokkaido	Tomakomai City	seed collected by Dr. Yuji Ito in marshy area	young stems brown	fruit globose-oblate shape, 0.6 -0.8 cm long, blue with bloom	Corvallis
JPN-2009-042	7/21/2009	sd	0.09 g.	w	<i>Lonicera caerulea</i> var. <i>emphyllocalyx</i> (Maxim.) Nakai	kurominoug u isukagura-3 (haskap)				Hokkaido	Tomakomai City	seed collected by Dr. Yuji Ito in marshy area		fruit globose-oblate shape, 0.6 -0.8 cm long, blue with bloom	Corvallis
JPN-2009-043	7/21/2009	sd	0.13 g.	w	<i>Lonicera caerulea</i> var. <i>emphyllocalyx</i> (Maxim.) Nakai	kurominoug u isukagura-4 (haskap)				Hokkaido	Tomakomai City	seed collected by Dr. Yuji Ito in marshy area	young stems reddish, no hairs	fruit oblate shape with slight koi mouth, blue with bloom	Corvallis
JPN-2009-044	7/21/2009	sd	0.06 g.	w	<i>Lonicera caerulea</i> var. <i>emphyllocalyx</i> (Maxim.) Nakai	kurominoug u isukagura-5 (haskap)				Hokkaido	Tomakomai City	seed collected by Dr. Yuji Ito in marshy area		fruit oblate shape, somewhat irregular at end, blue with bloom	Corvallis
JPN-2009-045	7/21/2009	sd	0.07 g.	w	<i>Lonicera caerulea</i> var. <i>emphyllocalyx</i> (Maxim.) Nakai	kurominoug u isukagura-6 (haskap)				Hokkaido	Tomakomai City	seed collected by Dr. Yuji Ito in marshy area	stem reddish brown with few hairs	fruit oblate shape, with disease or damage, purple with bloom	Corvallis

sample #	collection date	seed plant	quantity	origin: cult wild	cultivar or local name		latitude	longitude	elev. (m)	province	city/town/locality	habitat	plant habit	plant/fruit notes	germplasm recipients
					taxon										
JPN-2009-046	7/21/2009	sd	0.04 g.	w	<i>Lonicera caerulea</i> var. <i>emphyllocalyx</i> (Maxim.) Nakai	kurominoug u isukagura-7 (haskap)				Hokkaido	Tomakomai City	seed collected by Dr. Yuji Ito in marshy area	young stems brown	fruit oblate, slightly irregular, dark blue with some white bloom	Corvallis
JPN-2009-047	7/21/2009	sd	0.08 g.	w	<i>Lonicera caerulea</i> var. <i>emphyllocalyx</i> (Maxim.) Nakai	kurominoug u isukagura-8 (haskap)				Hokkaido	Tomakomai City	seed collected by Dr. Yuji Ito in marshy area	stems reddish brown, no hairs	fruit oblate shape, regular, purple-blue with bloom	Corvallis
JPN-2009-048	7/21/2009	sd	0.22 g.	w	<i>Lonicera caerulea</i> var. <i>emphyllocalyx</i> (Maxim.) Nakai	kurominoug u isukagura-9 (haskap)				Hokkaido	Tomakomai City	seed collected by Dr. Yuji Ito in marshy area	young stems reddish	fruit long-oblate, regular, blue with bloom	Corvallis
JPN-2009-049	7/21/2009	sd	0.12 g.	w	<i>Lonicera caerulea</i> var. <i>emphyllocalyx</i> (Maxim.) Nakai	kurominoug u isukagura-10 (haskap)				Hokkaido	Tomakomai City	seed collected by Dr. Yuji Ito in marshy area with <i>Hydrangea paniculata</i>	young stems red brown	fruit regular, globose-oblate shape, blue with white bloom	Corvallis
JPN-2009-077	9/12/2009	pl	6 cuttings	w	<i>Lycium barbarum</i> L.	keyonomi (C)	42.87980	140.36601	3	Hokkaido	Rankoshi town	by seashore in gravel next to road, growing with Rosa, clover, Phragmites, ragweed, grape, miscanthusa, grass species	This species is considered a weed in Japan, introduced from China.	Purple flowers with cream colored anthers, fruit not present, cuttings collected from 2-3 plants	Corvallis
JPN-2009-099	9/14/2009	sd	1.50 g.	cwo	<i>Lycium barbarum</i> L.	kiko	43.29106	141.85473	56	Hokkaido	Bibai, Hokkaido Forestry Research Institute	cultivated plants in demonstration garden, originally collected from the wild in Hokkaido	multi-stem, herbaceous perennial shrub; thorns at apex of spurs	flowers purple with protruding anthers; fruit orange-red, 1.0 cm long x 0.6 cm wide. Many ripe fruit on plant	Corvallis
JPN-2009-090	9/14/2009	-	0	cwo	<i>Malus</i> (probably <i>toringo</i> , labeled <i>bacatta</i>)	zumi	42.99782	141.39194	135	Hokkaido	Forest & Forest Products Research Inst.	cultivated arboretum, labeled <i>M. bacatta</i> but probably is <i>M. toringo</i>	small tree	Red globose fruit, 0.7 to 1.5 cm diam, large due to cultivated situation; discarded 9/23/09, no seeds in fruit	discarded in Japan
JPN-2009-117	9/16/2009	sd	0.94 g.	w	<i>Malus baccata</i> (L.) Borkh.	ezonoko ring	44.11510	143.96786	5	Hokkaido	Kamiyubetsu town, Lake Saroma	growing along road by lake (bay) shore with oak, sasa bamboo, Sorbus, Rosa, Rubus parvifolius, Polygonium and many mosquitos	Small multi-stem tree to 5 m tall.	Fruit red and mostly mature, about 1.2 cm diam, collected from several trees. Normally <i>M. toringo</i> occurs near the sea and <i>M. baccata</i> occurs inland. This is an unusual population of <i>M. baccata</i> at low elevation and next to the sea, and also the most northern site we will visit on this trip.	Geneva
JPN-2009-150	9/22/2009	sd	0.13 g.	w	<i>Malus baccata</i> (L.) Borkh.	ezonoko ring	39.82817	141.42627	685	Iwate	Karumatsuzawa (upper stream) near Morioka	Native forest with some planted Larix nearby	multistem tree ~ 5-6 m tall growing with ferns, Pinus densiflora, birch.	Fruit small, round, orange-red; leaves turning brown; exfoliating bark on trunks; fruit collected from single tree.	Geneva
JPN-2009-103	9/15/2009	sd	1.33 g.	w	<i>Malus toringo</i> (Siebold) de Vriese	zumi	43.05490	141.62123	19	Hokkaido	Nanporo National Forest	This <i>Malus</i> sp. was scattered throughout this forest, but more fruits were present and the fruits were more ripe at the edges where there was more light.	Tree to 4.5 m., common in this small forest area.	fruit 0.8 - 1.5 cm long x 1.0 cm wide, ripening to red-orange. More fruit, and more ripe fruit where exposed to the sun.	Geneva

sample #	collection date	seed plant	quantity	origin: cult wild	taxon	cultivar or local name	latitude	longitude	elev. (m)	province	city/town/locality	habitat	plant habit	plant/fruit notes	germplasm recipients
JPN-2009-115	9/16/2009	herb	-	w	<i>Malus toringo</i> (Siebold) de Vriese	zumi	44.19310	143.61345	19	Hokkaido	Kamiyubetsu town	growing in hedgerow of property between yard and field, growing with Picea, Polygonum, bigleaf	small tree to 5 m, lobed leaves and long shoots.	fruit not mature, only voucher specimen collected	Geneva
JPN-2009-126	9/20/2009	sd	1.50 g.	w	<i>Malus toringo</i> (Siebold) de Vriese	zumi	40.70201	140.92496	540	Iwate	Hadoka Mountain, by Komagome River	edge of road in semi-dense deciduous woods; near Salix, Quercus, Reynoutria sachalinensis, sasa bamboo, Perisites japonicum	small tree to 4 m.	bright red fruits, 0.6 to 0.8 cm diam, fruit collected from 1 tree	Geneva
JPN-2009-136	9/20/2009	sd	0.60 g.	w	<i>Malus toringo</i> (Siebold) de Vriese	zumi	39.92483	140.96475	632	Iwate	Aomori hachimantai-shi, near Onuma (pond)	edge of road, in sun; growing with Reynoutria sachalinensis (Polygonium like plant), sasa, acer	multi-stem tree	dark red fruit, 0.8 to 1.0 cm, globose; many fruits, just reaching full maturity	Geneva
JPN-2009-138	9/21/2009	sd	0.10 g.	w	<i>Malus toringo</i> (Siebold) de Vriese	zumi	39.94706	140.94353	902	Iwate	Hachimontai-shi bog	in open sun along path to bog, winter is tough at this location; growing near Phragmites, sasa bamboo.	tree to 1.75 m tall	fruit red, collected from ~ 12 trees along 0.5 km path	Geneva
JPN-2009-027	9/10/2009	-	0	w	<i>Malus toringo</i> (Siebold) de Vriese (discarded)	zumi	42.68299	141.59149	38	Hokkaido	Tomakomi Research Forest of Hokkaido University	edge of road 138/139, associated with Akebia	tree, similar to Malus fusca in habitat, tree habit, and fruit characters	Fruit ~ 0.5 cm x 0.5 cm, yellow with red tinge, pedicel ~ 1 cm, most fruit green and under ripe; discarded 9/21/09 , fruit too immature to extract seed	discarded in Japan
JPN-2009-120	9/17/2009	pl	9 cuttings	w	<i>Mentha japonica</i> (Miq.) Makino		42.53416	143.48608	3	Hokkaido	Taiki, by ocean	in vegetation zone about 100 m. from Pacific Ocean, open light exposure, growing with Rosa, geranium, aster, chrysanthemum, pearly everlasting, sasa bamboo, fern, Potentilla fragarioides	perennial herb with purple flowers about 12-15 cm tall	rare endemic species of Japan; only 2 local sites known	Corvallis
JPN-2009-010	9/9/2009	pl	2 plants	cwo	<i>Potentilla fragarioides</i> var. <i>major</i>	kijimushiro	43.06530	141.34409	25	Hokkaido	Hokkaido University Botanical Garden, Sapporo	growing in Japanese rock garden		tri & penta foliate	Corvallis, Ames?
JPN-2009-022	9/10/2009	pl	3 plants	w	<i>Potentilla fragarioides</i> L.	kijimushiro	42.71368	141.57195	30	Hokkaido	Tomakomi Research Forest of Hokkaido University	Growing along middle strip of gravel road and at edge of woods where it was open with more sun exposure; associated with nettles, ferns, geum, sasa bamboo, polygonum, Magnolia obovata.	Looks like Fragaria, with mostly 3 leaflets, but the runners are not like those of strawberry.	No flowers present, dry capsule fruit; leaf with serrations too rhombic to be strawberry.	Corvallis, Ames?
JPN-2009-009	9/9/2009	sd	0.32 g.	cwo	<i>Prunella vulgaris</i> subsp. <i>asiatica</i> (Nakai) H. Hara	tateyama utsubosusa	43.06530	141.34409	25	Hokkaido	Hokkaido University Botanical Garden, Sapporo	in garden collection	short, about 6 cm tall;	may be subspecies vulgaris; flowers done, dried cones collected.	Ames
JPN-2009-054	9/11/2009	sd	0.22 g.	w	<i>Prunella vulgaris</i> subsp. <i>asiatica</i> (Nakai) H. Hara	utsubogusa	42.89457	140.66899	579	Hokkaido	near Niseko waisu (town)	open edge of road in drainage ditch	low growing perennial herb	some with purple flower, some with dry inflorescences ~ 2-3 cm long; collected several dried inflorescences.	Ames

sample #	collection date	seed plant	quantity	origin: cult wild	taxon		latitude	longitude	elev. (m)	province	city/town/locality	habitat	plant habit	plant/fruit notes	germplasm recipients
					taxon	cultivar or local name									
JPN-2009-128	9/20/2009	sd	0.17 g.	w	<i>Prunella vulgaris subsp. asiatica</i> (Nakai) H. Hara		39.94160	140.85818	1413	Iwate	Toshichi-onsen (spa)	sub-alpine area, near sulfur springs; open sunny gravel path along road, growing with <i>Reynoutria sachalinensis</i> , <i>Soledago</i> , <i>Gaultheria miquellii</i> and <i>sasa bamboo</i> .	short herbaceous perennial, with upright inflorescences, past full bloom	purple flowers	Ames
JPN-2009-145	9/22/2009	sd	3.67 g.	w	<i>Pyrus ussuriensis</i> Maxim.		39.84314	141.51410	936	Iwate	Hayasaka Kogen (high plateau) near Morioka	open field along road, several scattered pear trees present	broad, spreading tree, fruit collected primarily from 1 large tree, with a few smaller fruit from 2 other trees, but the smaller fruit had few to no seeds	Fruit round to v. slightly pyriform, ~ 2 cm diam. With large russet dots on skin, many stone cells, calyx mostly persistent, 5 locules	Corvallis
JPN-2009-148	9/22/2009	sd	1.99 g.	w	<i>Pyrus ussuriensis</i> Maxim.		39.84436	141.52312	970	Iwate	Hayasaka Kogen (high plateau) near Morioka	by edge of forest near road	broad open tall tree, to 8-10 m. Single pear tree about .4 km away from previous sample (JPN-145). From population where molecular marker data shows almost no introgression of genes from <i>P. ussuriensis</i> or <i>P. pyrifolia</i> species likely to have originated in China. This is likely a refugia of native Japanese pears that may justify a new taxon.	Fruit green, ripening to yellow, slightly wider than long, ~ 2 cm long x 2.5 cm wide; stems 3 cm long, slightly swollen at base; calyx mostly persistent but some deciduous; many fruit on tree - see photo of Iketani & Postman under tree.	Corvallis
JPN-2009-149	9/22/2009	sd	0.61 g.	w	<i>Pyrus ussuriensis</i> Maxim.		39.81135	141.41896	728	Iwate	Karumatsuzawa (upper stream) near Morioka	Dark humid, temperate forest; pear tree on edge of woods growing with <i>Aesculus</i> , <i>Ulmus daviana</i> , <i>Viburnum</i> , <i>Acer palmatum</i> , <i>Perasites</i> ; This site is much higher elevation than Reimer visited in 1917-18, and this is a unique population that was not sampled by Reimer a century earlier.	Tree to 15 m.	Fruit green and mature; most fruit had fallen and sample was collected from the ground.	Corvallis
JPN-2009-018	9/9/2009	sd	0.08 g.	cwo	<i>Ribes ambiguum</i>	yashabishaku	43.00692	141.42769	140	Hokkaido	Sapporo, Hokkaido Agricultural Research Center	small plant in 1 gal. plastic pot at research center	perennial shrub	single green fruit, 1 x 1 cm with bristles on fruit; one fruit collected.	Corvallis
JPN-2009-069	9/12/2009	pl	7 cuttings	w	<i>Ribes japonicum</i> Maxim.	komogatake	42.73697	140.62431	352	Hokkaido	Infurebetsu River	wet swampy area near river, partial sun, rocky depression	plants to 4 m growing with nettles, <i>Vitis</i> , <i>Actinidia</i> , <i>sasa bamboo</i> , <i>Dryopteris umbrella leaf</i>	no fruit present, fruit said to be black	Corvallis
JPN-2009-096	9/14/2009	sd	1.54 g.	cwo	<i>Ribes latifolium</i> Jancz.	ezo suguri	43.29106	141.85473	56	Hokkaido	Bibai, Hokkaido Forestry Research Institute	cultivated plants in demonstration garden, originally collected from the wild in Hokkaido	multi-stem shrub, about 2.4 m tall	fruit red, globose, 0.8 cm long	Corvallis

sample #	collection date	seed plant	quantity	origin: cult wild	cultivar or local name		latitude	longitude	elev. (m)	province	city/town/locality	habitat	plant habit	plant/fruit notes	germplasm recipients
					taxon										
JPN-2009-088	9/14/2009	sd	1.49 g.	c	<i>Ribes sachalinense</i> (F. Schmidt) Nakai	togasuguri	42.99782	141.39194	135	Hokkaido	Forest & Forest Products Research Inst.	cultivated arboretum; mislabeled as <i>Ribes triste</i>	woody shrub to 2 m tall x 1 m wide; exfoliating bark on older stems	red fruit, globose, 0.3 - 0.5 cm long	Corvallis
JPN-2009-053	9/11/2009	pl	7 plants	w	<i>Rubus chamaemorus</i> L.	horomu ichigo	42.89457	140.66899	579	Hokkaido	near Niseko waisu (town)	sub-alpine open bog, around edge, 50 m from perimeter birch trees; associated vegetation: sedges, ferns, grass, <i>Vaccinium oxycoccos</i> , <i>Ledum</i> , <i>Parnassia pulustrus</i> , <i>Hosta</i> , sphagnum, Malaca, <i>Juncus</i> , <i>Dryopteris</i>	perennial herbaceous plant	no fruit, couldn't tell if male or female plant	Corvallis
JPN-2009-019	9/9/2009	sd	0.16 g.	cwo	<i>Rubus crataegifolius</i> Bunge	kumaichigo	43.06530	141.34409	24	Hokkaido	Sapporo, Hokkaido Agricultural Research Center	growing in garden collection		most fruit were long past; 1 stem with small dried o.p. fruit was collected.	Corvallis
JPN-2009-023	9/10/2009	sd pl	3.52 g. seed, 4 plants	w	<i>Rubus crataegifolius</i> Bunge	kuma ichigo	42.68534	141.55652	81	Hokkaido	Tomakomi Research Forest of Hokkaido University	Open edge of road, "wants" light.	canes 1.5 m high, not much higher.	Some leaves with fungal leaf spots; dried fruits collected.	Corvallis
JPN-2009-025	9/10/2009	sd	0.59 g.	w	<i>Rubus hybrid?</i> <i>parvifolius</i> x <i>sachalinense?</i>		42.68887	141.58919	59	Hokkaido	Tomakomi Research Forest of Hokkaido University	open edge of road, <i>Quercus cuspidata</i> overstory	1.5 m tall; single plant, no others present nearby.	red fruit like <i>R. parvifolius</i> , bright orange receptacles; prickles & bristles on stem like <i>R. sachalinense</i> , trifoliate leaf (few with 5 leaflets), prickles on underside of leaves.	Corvallis
JPN-2009-134	9/20/2009	sd pl	0.06 g. seed, 2 plants (seeds only - plants destroyed)	w	<i>Rubus ikenoensis</i> H. Lev. & Vaniot	goyo-ichigo	39.94045	140.86731	1317	Iwate	Horai-numa	all along path to Horai-numa; open woods under sasa bamboo and spruce, where some light filters down; with <i>Viburnum</i> , <i>Rubus vernus</i> , <i>Acer palmatum</i>	pentafoliate, palmate leaves; rhizomatous plant; grows in the habit of <i>Rubus pseudo-japonicus</i> of Hokkaido	red fruits, only a few left, mostly past.	Corvallis (seed only - plants destroyed by APHIS)
JPN-2009-097	9/14/2009	sd	2.63 g.	cwo	<i>Rubus mesogeus</i> Focke	kuro ichigo	43.29106	141.85473	56	Hokkaido	Bibai, Hokkaido Forestry Research Institute	cultivated plants in demonstration garden, originally collected from the wild in Hokkaido	all plants were tri-foliate, stem has "felty-velvet" covering, branches reddening in sunlight	internodal prickles; also abaxial side of main leaf vein has prickles; terminal leaflet has acute tip	Corvallis
JPN-2009-028	8/21/2009	sd	0.09 g.	w	<i>Rubus mesogeus</i> Focke.	kuro ichigo-1				Hokkaido	Sapporo City, south ward	seed collected by Dr. Yuji Ito in open upland forest	open upland forest	leaves trifoliate, light green-white; receptacle cream colored, conic shape; fruit color red to blue-black upon ripening; 10-12 fruits clustered on 1 raceme, 40-50 drupelets per fruit.	Corvallis
JPN-2009-029	8/21/2009	sd	0.07 g	w	<i>Rubus mesogeus</i> Focke.	kuro ichigo-2				Hokkaido	Sapporo City, south ward	seed collected by Dr. Yuji Ito in open upland forest	trifoliate	fruit dark blue-black, cluster of 7-10 fruits on 1 raceme, white bloom on some drupelets, not all fruit set on a given raceme, ~35-40 drupelets per fruit.	Corvallis

sample #	collection date	seed plant	quantity	origin: cult wild	cultivar or local name		latitude	longitude	elev. (m)	province	city/town/locality	habitat	plant habit	plant/fruit notes	germplasm recipients
					taxon										
JPN-2009-147	9/22/2009	pl	11 cuttings	w	<i>Rubus palmatus</i> Thunberg	momiji ichigo	39.84314	141.51410	936	Iwate	Hayasaka Kogen (high plateau) near Morioka	on drainage ditch on side of road in open sunlight under <i>Pinus densiflora</i> , growing with <i>Rosa</i> , <i>Rubus palmatus</i> , <i>Vitis coignetiae</i> , <i>Potentilla</i>	canes ~ 1.5 m tall, dark green, palmately veined leaves with bright red stems where exposed to sun.	no fruit or flowers present; leaves with sharply serrate margins, red prickles on main vein, back of leaf recurved with prickles on stem & petiole	Corvallis
JPN-2009-024	9/10/2009	sd	5.44 g.	w	<i>Rubus parvifolius</i> L.	nawashiro ichigo	42.68534	141.55652	81	Hokkaido	Tomakomi Research Forest of Hokkaido University	open sunny glade near road	many fruits collected from many plants near gate	red fruit, orange-red receptacles, somewhat sour, not too sweet, bitter aftertaste; stems not bristled, few prickles.	Corvallis
JPN-2009-085	9/13/2009	sd	0.60 g.	w	<i>Rubus parvifolius</i> L.	nawashiro ichigo	43.05003	141.21996	255	Hokkaido	Sapporo City, nishi (west) ward	on edge of hiking trail growing intermingled with grass, nettles, solidago, braken fern, <i>Dryopteris</i> , grapes, jewel weed	trifoliolate	orange-red fruit collected from several plants	Corvallis
JPN-2009-119	9/17/2009	sd	0.69 g.	w	<i>Rubus parvifolius</i> L.	nawashiro ichigo	42.53416	143.48608	3	Hokkaido	Taiki, by ocean	in vegetation zone about 100 m. from Pacific Ocean, open light exposure, growing with <i>Rosa</i> , geranium, aster, chrysanthemum, pearly everlasting, sasa bamboo, fern, <i>Potentilla fragarioides</i>	common throughout undergrowth	fruit red, tasty, mostly past ripe, about 10 drupelets per fruit	Corvallis
JPN-2009-124	9/18/2009	sd	2.96 g.	w	<i>Rubus parvifolius</i> L.	nawashiro ichigo	42.38935	143.37033	13	Hokkaido	Hiro-o town	open, all along trail by beach	shrub to 1 m; with aster, sasa bamboo, red clover, thistle, alder	fruit tastes a little sweet, some taste bad, orange-red, drupelets generally less than 10 per aggregate fruit, some to 15; fruit collected from about 10 plants	Corvallis
JPN-2009-146	9/22/2009	sd	3.97 g.	w	<i>Rubus parvifolius</i> L.	nawashiro ichigo	39.84314	141.51410	936	Iwate	Hayasaka Kogen (high plateau) near Morioka	on drainage ditch on side of road in open sunlight under <i>Pinus densiflora</i> , growing with <i>Rosa</i> , <i>Rubus palmatus</i> , <i>Vitis coignetiae</i> , <i>Potentilla</i>	low growing biennial	sub-sessile, subterminal leaflets, small prickles on petioles, red stipules; fruit red, dried fruits collected along with a few ripe fruit	Corvallis
JPN-2009-068	9/12/2009	pl	1 plant + 2 cuttings	w	<i>Rubus pseudojaponicus</i> Koidz.	himegoyo ichigo	42.72153	140.65356	582	Hokkaido	Kurukawa	Kombudake (west side) Misunashi gawa (river), open edge of trail but under shady overstory	runnering, low growing <i>Rubus</i> with 5 palmately arranged leaflets	no fruit present, fruit would have been ripe in July; one plant dug	Corvallis
JPN-2009-026	9/10/2009	sd	2.38 g.	w	<i>Rubus sachalinense</i> H. Lévl. (syn. = <i>Rubus idaeus</i> var. <i>aculeatissimus</i> Regel & Tiling	ezo ichigo	42.68299	141.59149	38	Hokkaido	Tomakomi Research Forest of Hokkaido University	open area with lots of light near road	biennial caneberry, with Solidago	red-pink drupelets in cup-shaped aggregate fruit	Corvallis
JPN-2009-060	9/11/2009	sd	2.38 g.	w	<i>Rubus sachalinense</i> H. Lévl. (syn. = <i>Rubus idaeus</i> var. <i>aculeatissimus</i> Regel & Tiling	ezo ichigo	42.85207	140.64062	450	Hokkaido	near Niseko ski area	side of path, open space near edge of woods near ski area	plant to 1 m tall, growing with <i>Petasitis japonicus</i> ssp. <i>giganteus</i> , Akitabuki, sasa bamboo, <i>Aradia cordata</i> .	fruit red, some ripe and many immature.	Corvallis

sample #	collection date	seed plant	quantity	origin: cult wild	taxon	cultivar or local name	latitude	longitude	elev. (m)	province	city/town/locality	habitat	plant habit	plant/fruit notes	germplasm recipients
JPN-2009-137	9/21/2009	sd	0.12 g.	w	<i>Sorbus matsumarana</i> (Makino) Koehne	urajiro nanai	39.95403	140.88594	1442	Iwate	Kuroachi, Towada-Hachimantai National Park	open sun near spruce and sasa bamboo, birch; moist wet depression near by just off road	multi-stem tree to 3.5 m. pinnately compound leaves turning orangd-brown, very flexible branches, cluster of about 20 trees.	fruits red-orange and ripe, some turning brown and dropping. <i>S. matsumarana</i> is distinguished from <i>S. commixta</i> by having 5 styles instead of 3-4 in commixta, and leaf serrations of matsumarana are only on distal half of leaf.	Corvallis, National Arboretum?
JPN-2009-013	9/9/2009	sd	0.72 g.	cwo	<i>Sorbus sambucifolia</i> (Cham. Et Schl.) Roemer	takenena nakamado	43.06530	141.34409	25	Hokkaido	Hokkaido University Botanical Garden, Sapporo	in garden collection	low growing, multi-stem small tree ~ 1.3 m tall	orange fruit; ripe, o.p. fruit collected from single plant	Corvallis, National Arboretum?
JPN-2009-084	9/13/2009	sd	0.98 g.	cwo	<i>Sorbus sambucifolia</i> (Cham. Et Schl.) Roemer	takenenana k	42.87986	140.77756	216	Hokkaido	Kucchan fujimi (town)	wild collected in Hokkaido and growing in the garden of Mr. Ushijima	multi-stem small tree, 1.4 m. tall	fruits orange and ripe, some falling to ground. Fruit collected from single tree.	Corvallis, National Arboretum?
JPN-2009-095	9/14/2009	sd	2.40 g.	cwo	<i>Sorbus sambucifolia</i> var. <i>pseudogracilis</i> C. K. Schneid.	takenenanaka	43.29106	141.85473	56	Hokkaido	Bibai, Hokkaido Forestry Research Institute	cultivated plants in demonstration garden, originally collected from the wild in Hokkaido	small, multi-stem tree ~ 1.2 m high, kept pruned back	fruit orange-red, ~1 cm long, fruits collected from single specimen tree	Corvallis, National Arboretum?
JPN-2009-006	9/9/2009	pl	10 cuttings	cwo	<i>Sorbus x kawashiroi</i>	kawashiro nanakamado (intergeneric maloideae hybrid)	43.06530	141.34409	25	Hokkaido	Hokkaido University Botanical Garden, Sapporo	in garden collection; Mr. Kawashiro found this hybrid on property and donated it to the botanical garden.	tree, 10 m tall x 3 m wide; seed not filled, budwood collected from single tree.	unusual leaf, pinnately compound at base, entire at end; fruit ripening to purple, ripe fruit is popular with the birds.	Corvallis, National Arboretum?
JPN-2009-015	9/9/2009	sd	0.2 g.	w	<i>Vaccinium hirtum</i> Thunb.	usunoki	43.00692	141.42769	140	Hokkaido	Sapporo, Hokkaido Agricultural Research Center	growing in dense second-growth forest by research station.	shrub ~ 0.5 m tall, lanceolate leaf, red fruit.	Both <i>V. hirtum</i> and <i>V. japonicum</i> have red fruit. Check leaf base for identity check, <i>V. hirtum</i> leaf is lanceolate, <i>V. japonicum</i> is sympatric.	Corvallis
JPN-2009-057	9/11/2009	sd	0.58 g.	w	<i>Vaccinium hirtum</i> Thunb.	usunoki	42.87764	140.64254	796	Hokkaido	near Niseko waisu (town)	sub alpine area between 2 high mountains, open, lots of sun. Associated plants: <i>Pinus pumila</i> , <i>Empetrum nigrum</i> , <i>Gaultheria miqueliana</i> .	perennia shrub	Fruit bright red, polygonal in cross section; fruit borne under leaves.	Corvallis
JPN-2009-071	9/12/2009	sd	0.08 g.	w	<i>Vaccinium hirtum</i> Thunb.	usunoki	42.90668	140.59001	766	Hokkaido	Shinsen numa (marsh) near Kyowa town	along edge of wooden walkway through marsh	lanceolate leaves	red, ripe fruit	Corvallis
JPN-2009-107	9/15/2009	sd	0.02 g.	w	<i>Vaccinium hirtum</i> Thunb.	usunoki	43.93212	142.96494	872	Hokkaido	Okishima Bog	Open bog, near spruce tree & boardwalk, growing with <i>Ilex</i> , <i>Ledum</i> , bog grasses, purple <i>Vaccinium oxycoccos</i> .	Short statured perennial shrub; leaves bright red.	Fruit red, collected from several plants.	Corvallis
JPN-2009-114	9/16/2009	sd	0.01 g.	w	<i>Vaccinium hirtum</i> Thunb.		44.22310	143.38434	105	Hokkaido	out of Mombetsu, near Shimalalag River	by stream	perennial shrub	fruit red, elongated, 0.8 cm long with pointy calyx end; fruit collected from single plant	Corvallis

sample #	collection date	seed plant	quantity	origin: cult wild	cultivar or		latitude	longitude	elev. (m)	province	city/town/locality	habitat	plant habit	plant/fruit notes	germplasm recipients
					taxon	local name									
JPN-2009-003	9/9/2009	sd	0.46 g.	cwo	<i>Vaccinium japonicum</i> Miq. (= <i>Vaccinium erythrocarpum</i> Michx. subsp. japonicum (Miq.) Vander Kloet)	akushiba	43.06530	141.34409	25	Hokkaido	Hokkaido University Botanical Garden, Sapporo	in garden collection	perennial shrub ~ 1 m tall; leaning strongly, possibly from winter snow load	fruit collected from single plant; red fruit ~ 1.2 cm long, some leaves have flat leaf base, which is different than the lanceolate leaf of <i>V. hirtum</i> (which also has red fruit).	Corvallis
JPN-2009-016	9/9/2009	sd	0.08 g.	cwo	<i>Vaccinium japonicum</i> Miq. (= <i>Vaccinium erythrocarpum</i> Michx. subsp. japonicum (Miq.) Vander Kloet)	akushiba	43.00692	141.42769	140	Hokkaido	Sapporo, Hokkaido Agricultural Research Center	growing with <i>Acer japonicum</i> , <i>Actinidia</i> .	perennial shrub	single red fruit	Corvallis
JPN-2009-005	9/9/2009	sd	0.46 g.	cwo	<i>Vaccinium oldhamii</i> Miq.	natsuhaze	43.06530	141.34409	25	Hokkaido	Hokkaido University Botanical Garden, Sapporo	in garden collection	perennial shrub, 2.0 -2.5 m tall, dark green lanceolate leaves, with acute apex.	o.p. fruit collected from 1 plant; black, fleshy fruit; racemose ripening so many newer fruit were green and not yet ripe.	Corvallis
JPN-2009-014	9/9/2009	sd	0.6 g.	w	<i>Vaccinium oldhamii</i> Miq.	natsuhaze	43.00692	141.42769	140	Hokkaido	Sapporo, Hokkaido Agricultural Research Center	growing in dense, deciduous forest in association with <i>Acer</i> , <i>Quercus cuspidata</i> .	open population sample, also collected from a cultivated plant.	dark purple fruit, very few fruits present in dark forest, only some were ripe.	Corvallis
JPN-2009-108	9/15/2009	sd	0.01 g.	w	<i>Vaccinium ovalifolium</i> Sm.	kuro-usugo	43.93212	142.96494	872	Hokkaido	Okishima Bog	Open bog, under spruce tree growing with <i>Cornus</i> (canadensis?), <i>Ilex</i> , cinnamon fern, sasa bamboo, purple monks hood.	Short understory shrub.	Black fruit collected from single plant.	Corvallis
JPN-2009-113	9/16/2009	sd	0.01g.	w	<i>Vaccinium ovalifolium</i> Sm.		44.22310	143.38434	105	Hokkaido	out of Mombetsu, near Shimalalag River	growing at edge of forest where light can penetrate into lower understory	perennial shrub to 1.5 m., leaf shape broad ovate at base.	black, globose fruit ; fruit collected from single plant.	Corvallis
JPN-2009-152	9/23/2009	sd	2.16 g.	w	<i>Vaccinium ovalifolium</i> Sm.		39.12851	140.12851	1192	Akita	Haraigawa ugo honjoo-shi (city)	along rocky mountain trail growing with <i>Rubus vernus</i>	perennial shrub to 1.5 m	leaves turning yellow-brown; some fruit remaining; collected from dozens of scattered plants; saw some red leaved <i>V. smallii</i> nearby but no fruits.	Corvallis
JPN-2009-012	9/9/2009	sd	0.14 g.	cwo	<i>Vaccinium ovalifolium</i> var. <i>ovalifolium</i>	kurousugo	43.06530	141.34409	25	Hokkaido	Hokkaido University Botanical Garden, Sapporo	in garden collection, Japanese garden!	perennial shrub	fruit dark purple-black; only a few persistent, dried fruit remained, collected from single plant.	Corvallis
JPN-2009-052	9/11/2009	sd pl	0.71 g. seed, 11 cuttings	w	<i>Vaccinium oxycoccos</i> L.	tsuru-kokem	42.89457	140.66899	579	Hokkaido	near Kucchan waisu (town)	sub-alpine open bog, around edge, 50 m from perimeter birch trees; associated vegetation: sedges, ferns, grass, <i>Rubus chamaemorus</i> , <i>Ledum</i> , <i>Parnassia pulustrus</i> , <i>Hosta</i> , sphagnum, <i>Malaca</i> , <i>Juncus</i> , <i>Dryopteris</i>	perennial bog plant	fruit not completely ripe - white to half red	Corvallis

sample #	collection date	seed plant	quantity	origin: cult wild	taxon		latitude	longitude	elev. (m)	province	city/town/locality	habitat	plant habit	plant/fruit notes	germplasm recipients
					taxon	cultivar or local name									
JPN-2009-083	9/13/2009	sd	0.32 g.	cwo	<i>Vaccinium oxycoccos</i> L.	tsuru-kokem	42.87986	140.77756	216	Hokkaido	Kucchan fujimi (town)	wild collected in Hokkaido and growing in the garden of Mr. Ushijima	low growing vine with uprights	most fruits were yellow-red and not quite ripe, some fruits were the size of <i>V. macrocarpon</i>	Corvallis
JPN-2009-106	9/15/2009	sd	0.82 g.	w	<i>Vaccinium oxycoccos</i> L.	tsuru-kokem	43.93212	142.96494	872	Hokkaido	Okishima Bog	Open bog. <i>V. oxycoccos</i> growing throughout bog, mixed with sphagnum.	Leaves about the size of <i>V. macrocarpon</i> , seeds large. <i>V. microphyllum</i> is reported from alpine bogs in this region but we did not see this form.	Fruit red, somewhat smaller than <i>V. macrocarpon</i> .	Corvallis
JPN-2009-140	9/21/2009	sd	0.85 g.	w	<i>Vaccinium oxycoccos</i> L.	tsuru-kokem	39.94821	140.94180	899	Iwate	Hachimontai-shi bog	in moist area under ilex, <i>Malus toringo</i> , sasa bamboo	prostrate vine with uprights that bear fruit, plants common along path to bog, growing under <i>Malus</i> with sphagnum, azalea, <i>Ledum</i>	fruit red, globose	Corvallis
JPN-2009-079	8/26/2009	sd	1.45 g.	w	<i>Vaccinium praestans</i> Lambert	iwatsu tsuji	42.89568	140.74895	940	Hokkaido	near Niseko mountain, Kucchan town	collected by Mr. Ikura Ikeda		Fruit red, only a few berries were collected, this species did not produce much fruit this year.	Corvallis
JPN-2009-080	9/13/2009	sd	0.66 g.	cwo	<i>Vaccinium praestans</i> Lambert	iwatsu tsuji	42.87986	140.77756	216	Hokkaido	Kucchan fujimi (town)	wild collected in Hokkaido and growing in the garden of Mr. Ushijima	perennial woody plant, very small stature, leaves red - deciduous	fruit bright red ~ 0.5 cm long	Corvallis
JPN-2009-105	9/15/2009	sd	2.54 g.	w	<i>Vaccinium praestans</i> Lambert	iwatsutsuji	43.92965	142.97719	829	Hokkaido	Okishima Bog	Fruit collected from many plants along 1 km trail; associated with <i>Juncus</i> , sasa bamboo, <i>Acer palmatum</i> , <i>Dryopteris</i> , <i>Lycopodium</i> , <i>Rubus sachalinense</i> , <i>Picea overstory</i> .	4-6 cm tall plants growing in colonies.	The "skunk" blueberry. Fruits bright red, globose, 0.7 to 1.2 cm diam, very aromatic (stinky), and "prune" ripe.	Corvallis
JPN-2009-004	9/9/2009	sd	0.35 g.	cwo	<i>Vaccinium smallii</i> A. Gray	sunoki	43.06530	141.34409	25	Hokkaido	Hokkaido University Botanical Garden, Sapporo	in garden collection	shrub ~ 2 m tall x 2 m wide; leaves turning red for autumn; only a few persistent blue-black fruits present, most were dry & shriveled because fruit season was past	dried fruits collected from single plant; fruit season was past, leaves turning red for autumn	Corvallis
JPN-2009-051	9/11/2009	sd	0.21 g.	w	<i>Vaccinium smallii</i> A. Gray	sunoki	42.89456	140.66731	615	Hokkaido	Kucchan waisu (town)	open aspen forest; growing out of stump, associated vegetation: <i>Sorbus</i> , <i>Viburnum</i> , dwarf bamboo, false lily of the valley		black fruit; fruit collected from single plant	Corvallis
JPN-2009-075	9/12/2009	sd	0.41 g.	w	<i>Vaccinium smallii</i> A. Gray	sunoki	42.90194	141.58859	773	Hokkaido	Shinsen numa (marsh) near Kyowa town	trail side, leaves turning red for fall	perennial woody shrub to 1.5 m.	black fruit o.p. sample collected from a few plants	Corvallis
JPN-2009-093	9/14/2009	sd	1.46 g.	cwo	<i>Vaccinium smallii</i> A. Gray	sunoki	43.29106	141.85473	56	Hokkaido	Bibai, Hokkaido Forestry Research Institute	cultivated plants in demonstration garden, originally collected from the wild in Hokkaido	foliage red for autumn	fruit black when ripe, fruit collected from 2 plants.	Corvallis

sample #	collection date	seed plant	quantity	origin: cult wild	taxon		latitude	longitude	elev. (m)	province	city/town/locality	habitat	plant habit	plant/fruit notes	germplasm recipients
						cultivar or local name									
JPN-2009-109	9/15/2009	sd	0.21 g.	w	<i>Vaccinium smallii</i> A. Gray	oba-sunoki	43.93212	142.96494	872	Hokkaido	Okishima Bog	along wooden walkway over bog, occurs at base of spruce trees	Short statured perennial shrub; leaves bright red.	Fruit black, collected from multiple plants along 2 km walkway.	Corvallis
JPN-2009-110	9/15/2009	sd	0.16 g.	w	<i>Vaccinium smallii</i> A. Gray	oba-sunoki	43.93212	142.96494	872	Hokkaido	Okishima Bog	in small hummock under spruce trees near bog	single plant larger than others; tetraploid?	red foliage; very large black fruit, larger leaves than other <i>V. smallii</i> , fruit combined with JPN-2009-109	Corvallis
JPN-2009-112	9/16/2009	sd	0.04 g.	w	<i>Vaccinium smallii</i> A. Gray	oba-sunoki	44.22310	143.38434	105	Hokkaido	out of Mombetsu, near Shimalalag River	growing at edge of forest where light can penetrate into lower understory	perennial shrub with red foliage, lanceolate shaped leaves	black globose fruit; multiple plants sampled	Corvallis
JPN-2009-129	9/20/2009	sd	1.18 g.	w	<i>Vaccinium smallii</i> A. Gray	sunoki	39.94160	140.85818	1413	Iwate	Toshichi-onsen (spa)	open cliff face, facing south-west; near sulfur springs, growing with sasa bamboo, pearly everlasting, Sorbus comixta	shrub to 1.5 m; bright red-purple leaves	black fruit, 0.6 cm diam, large, sour (but not as sour as the local <i>Vitis coignetiae</i>)	Corvallis
JPN-2009-133	9/20/2009	sd	0.10 g.	w	<i>Vaccinium smallii</i> A. Gray	sunoki	39.94045	140.86731	1317	Iwate	Horai-numa	semi-light in forest under Picea, Viburnum, Acer palmatum, with ferns, sasa bamboo	shrub to 1.5 m; leaves not as red as previous sample	black fruit; in this vicinity there seems to be 2 types of <i>V. smallii</i> , a large leaf, large fruit type, and a small regular size type.	Corvallis
JPN-2009-081	9/13/2009	sd pl	0.49 g. seed, 3 cuttings	cwo	<i>Vaccinium uliginosum</i> L.	kuromamino	42.87986	140.77756	216	Hokkaido	Kucchan fujimi (town)	wild collected in Hokkaido and growing in the garden of Mr. Ushijima	plant ~ 1.0 m tall, 2.5 m wide	fruit blue, globose, ~ 1 cm long	Corvallis
JPN-2009-082	9/13/2009	sd	1.44 g.	cwo	<i>Vaccinium vitis-idaea</i> L.	kokemomo	42.87986	140.77756	216	Hokkaido	Kucchan fujimi (town)	wild collected in Hokkaido and growing in the garden of Mr. Ushijima	plant 12-15 cm tall with bright green, shiny healthy foliage	fruit dark red-maroon when ripe, unripe fruit yellow-red	Corvallis
JPN-2009-094	9/14/2009	sd	1.91 g.	cwo	<i>Vaccinium vitis-idaea</i> L.	kokemomo	43.29106	141.85473	56	Hokkaido	Bibai, Hokkaido Forestry Research Institute	cultivated plants in demonstration garden, originally collected from the wild in Hokkaido	dark green, shiny foliage	fruits deep dark red, up to 1.5 cm long, fruit collected from 1.0 x 0.4 m patch	Corvallis
JPN-2009-111	9/16/2009	sd	0.04 g.	w	<i>Vaccinium vitis-idaea</i> L.	kokemomo	44.22310	143.38434	105	Hokkaido	out of Mombetsu, near Shimalalag River	growing at edge of forest on top of small cliff	low growing perennial shrub to 15 cm tall	red fruit; ripe fruit collected from multiple plants growing in an area about 30 m long at top of cliff face.	Corvallis
JPN-2009-017	9/9/2009	sd	0.01 g.	cwo	<i>Vaccinium yakushinensis</i>		43.00692	141.42769	140	Hokkaido	Sapporo, Hokkaido Agricultural Research Center	seedling growing in pot at research center, originally from Dr. Yaku.	perennial shrub	dark red-black fruit, 2 fruits collected from single plant	Corvallis
JPN-2009-135	9/20/2009	pl	6 cuttings (destroyed)	w	<i>Vaccinium yatabei</i> Makino (= <i>Vaccinium myrtillus</i> L.)	aojiku-sunok	39.94045	140.86731	1317	Iwate	Horai-numa	open woods along trail to lake	short shrub to 1.5 m; green foliage reminiscent of <i>V. parvifolium</i>	red fruit was not present	Destroyed by APHIS
JPN-2009-070	9/12/2009	sd	9.95 g.	w	<i>Vitis coignetiae</i> Pulliat ex Planch.	yama-budo	42.73697	140.62431	352	Hokkaido	Infurebetsu River	near river at edge of road, growing on Reynoutria sachalinensis (listed as Polygonum in previous sample notes)	climbing vine	fruit globe-shaped, green ripening to purple	Geneva
JPN-2009-086	9/13/2009	sd	10.21 g.	w	<i>Vitis coignetiae</i> Pulliat ex Planch.	yama-budo (rat grape)	41.21996		255	Hokkaido	Sapporo City, nishi (west) ward	near dam (weir) on Miagesawa stream	climbing vine growing on Juglans	purple fruit with white bloom, open clusters, sour "good" acid flavor.	Geneva

sample #	collection date	seed plant	quantity	origin: cult wild	taxon		latitude	longitude	elev. (m)	province	city/town/locality	habitat	plant habit	plant/fruit notes	germplasm recipients
						cultivar or local name									

JPN-2009-067	9/12/2009	sd	0.40 g.	w	<i>Rubus sachalinense</i> H. Lévl. (syn. = <i>Rubus idaeus</i> var. <i>aculeatissimus</i> Regel & Tiling	ezo ichigo	42.72153	140.65356	582	Hokkaido	Kurukawa	edge of road in open sun	bristles and prickles on stems, 3-5 leaflets	red fruit, several collected from one plant	Corvallis
JPN-2009-076	9/12/2009	pl	6 cuttings	w	<i>Rubus vernus</i> Focke	benibana ichi	42.89704	140.54848	739	Hokkaido	near Kyowa and Ronkoshi town borders	in drainage ditch beside road, under sasa bamboo, growing with <i>Ligustrum vulgare</i>	1.5 m tall, biennial (?)	no fruit present, this is the northern limit of this species natural range	Corvallis
JPN-2009-132	9/20/2009	sd	0.37 g.	w	<i>Rubus vernus</i> Focke	benibana ichi	39.94045	140.86731	1317	Iwate	Horai-numa	open forest, at edge of path, common along path to pond	shrub to 1.5 m; trifoliolate; growing under <i>Acer palmatum</i>	red fruit; drupelets up to 15 per aggregate fruit, mostly past, only a few fruit collected from about 10 plants	Corvallis
JPN-2009-153	9/23/2009	sd	15.5 g.	w	<i>Rubus vernus</i> Focke	benibana ichi	39.12851	140.12851	1192	Akita	Haraigawa ugo honjoo-shi (city)	dense and widespread stand of <i>Rubus</i> plants growing in a moist depression between rock outcroppings and for about 100 meters along rocky trail leading up mountain, with <i>Vaccinium ovalifolium</i> . Snow was said to be present nearby in August when these plants were in bloom.	fruit orange-red, drupelets were not consistently set, receptacle very short and flat, persistent pistil on each drupelet, flavor bland, seed large; fruit collected from many plants	Corvallis	
JPN-2009-061	9/11/2009	-	0	w	<i>Sorbus alnifolia</i> (Siebold & Zucc.) K. Koch	azukinashi	42.85207	140.64062	450	Hokkaido	near Niseko ski area	grove of 5 planted trees, but trees are native to Hokkaido	Narrow upright trees to 6 m tall; branches upright; dark green foliage, many leaves with aphids and fungal leaf spots.	Many fruit green and immature, discarded 9/22/09, no seeds in fruit	discarded in Japan
JPN-2009-127	9/20/2009	-	0	w	<i>Sorbus alnifolia</i> (Siebold & Zucc.) K. Koch (discarded)	azukinashi	40.70201	140.92496	540	Iwate	Hadoka Mountain, by Komagome River	edge of road in semi-dense deciduous woods; near <i>Salix</i> , <i>Quercus</i> , <i>Reynoutria sachalinensis</i> , sasa bamboo, <i>Perisites japonicum</i>	multi-stem tree to 4 m, commonly found	mostly green fruits, some turning red; sample discarded 9/21/09, fruits too immature to extract seed.	discarded in Japan
JPN-2009-050	9/11/2009	sd	0.14 g.	w	<i>Sorbus commixta</i> Hedl.		42.84760	140.64397	405	Hokkaido	Niseko	gravel soil in open field, south facing slope near Niseko Mt. ski area	tree, 5 m tall with pinnately compound leaves	orange fruit; fruit from single tree	Corvallis, National Arboretum?
JPN-2009-072	9/12/2009	sd	0.07 g.	w	<i>Sorbus commixta</i> Hedl.		42.90668	140.59001	766	Hokkaido	Shinsen numa (marsh) near Kyowa town	dry upland site near board walk, mostly sunny	multi-stem small trees to 3 m tall;	orange fruit, collected from about a dozen trees along 0.5 km trail	Corvallis, National Arboretum?
JPN-2009-130	9/20/2009	sd	0.11 g.	w	<i>Sorbus commixta</i> Hedl.		39.94160	140.85818	1413	Iwate	Toshichi-onsen (spa)	open cliff face, facing south-west; near sulfur springs	multi-stem small tree to 2 m tall;	leaves compound, turning red, some green tinges left; bright red fruit; fruit from 1 tree	Corvallis, National Arboretum?
JPN-2009-011	9/9/2009	sd	0.11 g.	cwo	<i>Sorbus matsumurana</i> (Makino) Koehne	urajiro nanakamado	43.06530	141.34409	25	Hokkaido	Hokkaido University Botanical Garden, Sapporo	in garden collection	small, multi-stem tree	orange fruit; open pollinated fruit collected from single plant	Corvallis, National Arboretum?

JPN-2009-104	9/15/2009	sd	7.72 g.	w	<i>Vitis coignetiae</i> Pulliat ex Planch.	yama-budo (t)	43.05490	141.62123	19	Hokkaido	Nanporo National Forest	Dark, wet, humid forest growing with <i>Fraxinus</i> . This small forest area acts as a wind break for adjacent farmland. Only a few small forested areas remain.	Climbing vine very prevalent on trees in both dark and light parts of forest. Fruit was only present where there was ample light.	Large orbiculate leaves, fruit dark purple-black upon ripening.	Geneva
JPN-2009-125	9/19/2009	sd	6.50 g.	w	<i>Vitis coignetiae</i> Pulliat ex Planch.	yama-budo (t)	40.68999	140.83281	682	Aomori		edge of forest path, in sun for half day, growing with <i>Magnolia</i> , <i>Rubus palmatus</i> , <i>Viburnum</i> , <i>Hydrangea</i> , <i>Perisites japonicum</i>	climbing vine, growing on <i>Magnolia</i>	black fruit, sour, about 20 fruits per inflorescence	Geneva

Fig. 5. Sample collection sites in Hokkaido with GIS elevation, road and water layers.

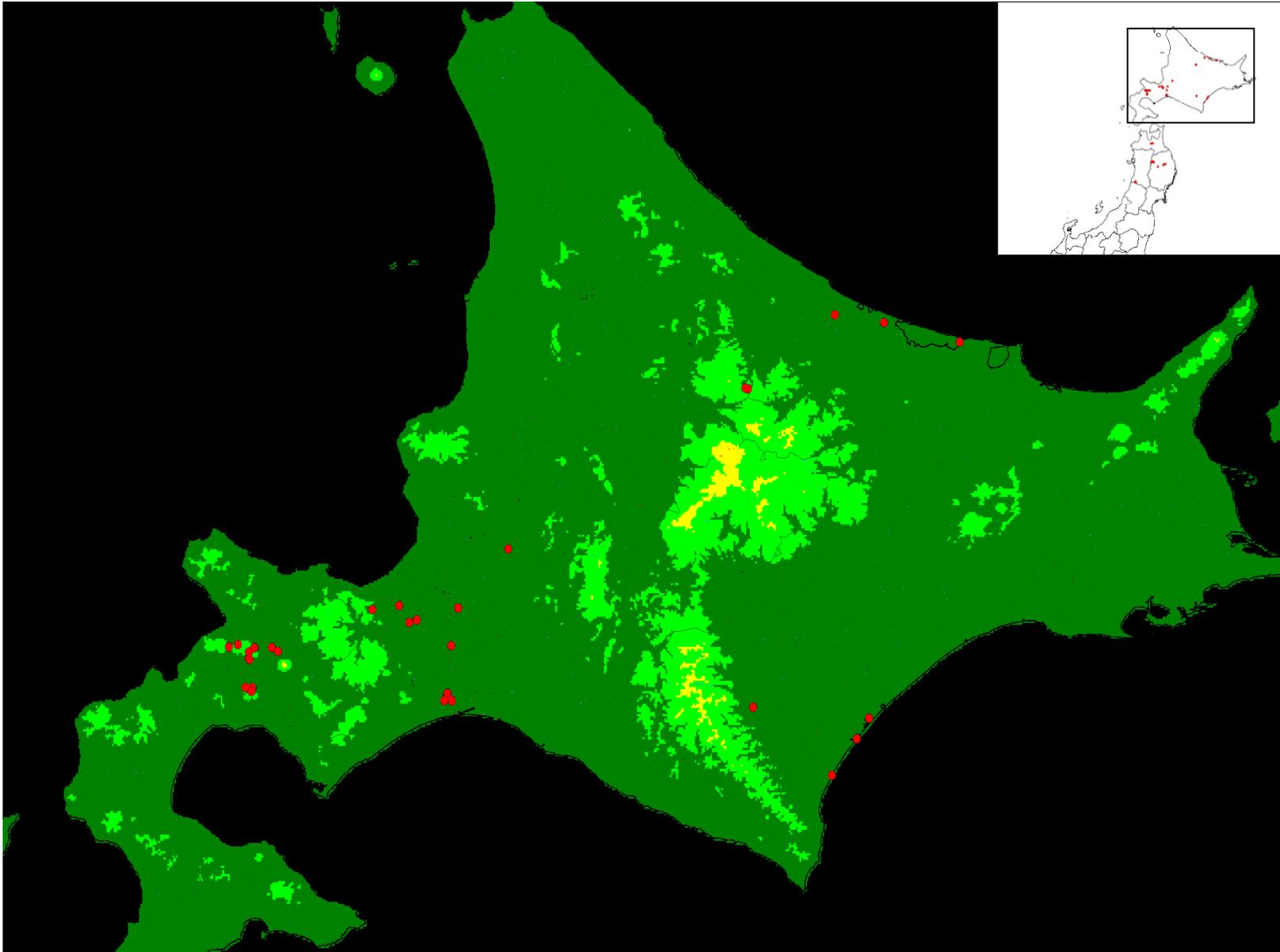


Fig. 6. Sample collection sites in northern Honshu with GIS elevation, road and water layers.

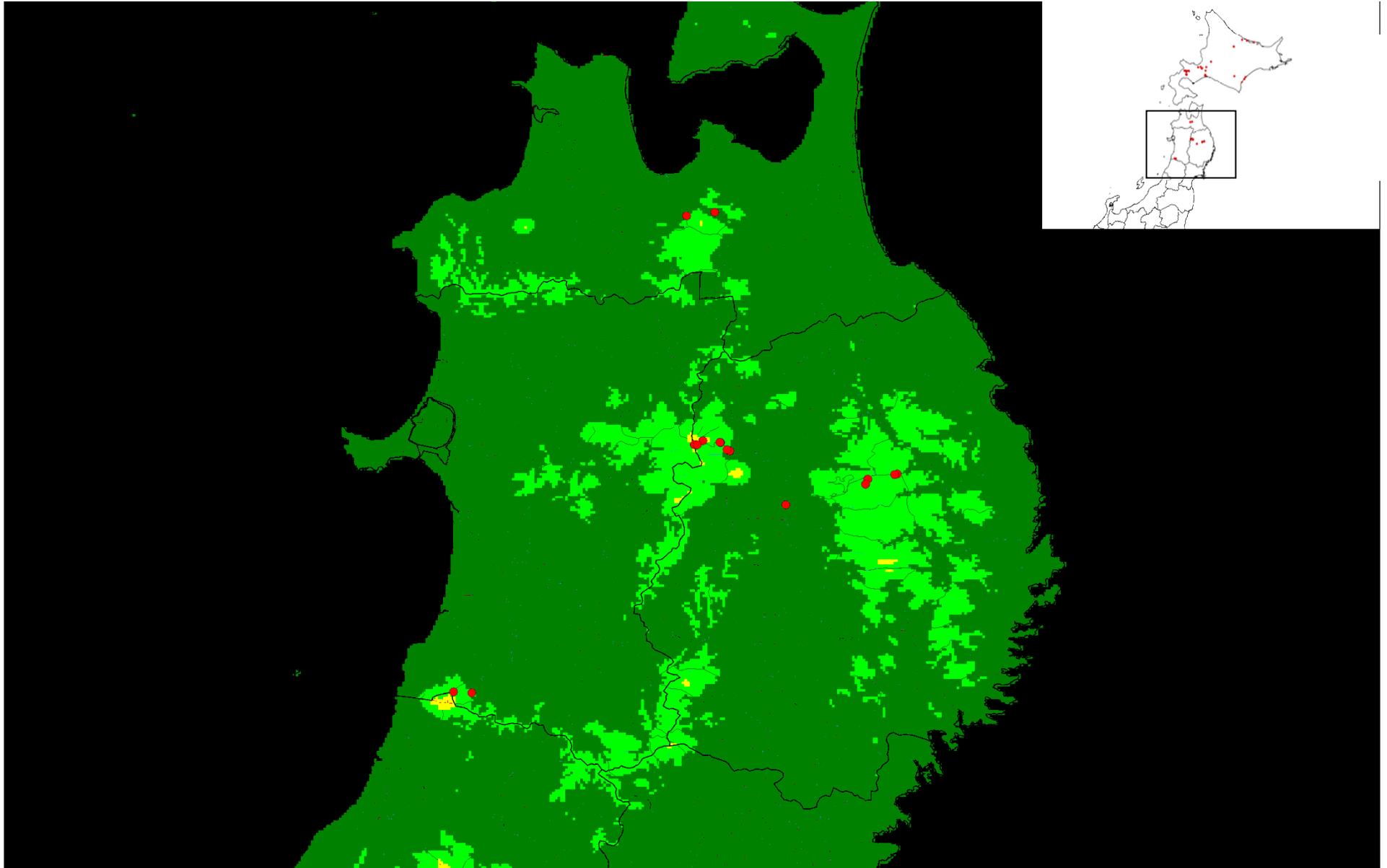


Fig. 7. Driving routes during the expedition - Hokkaido

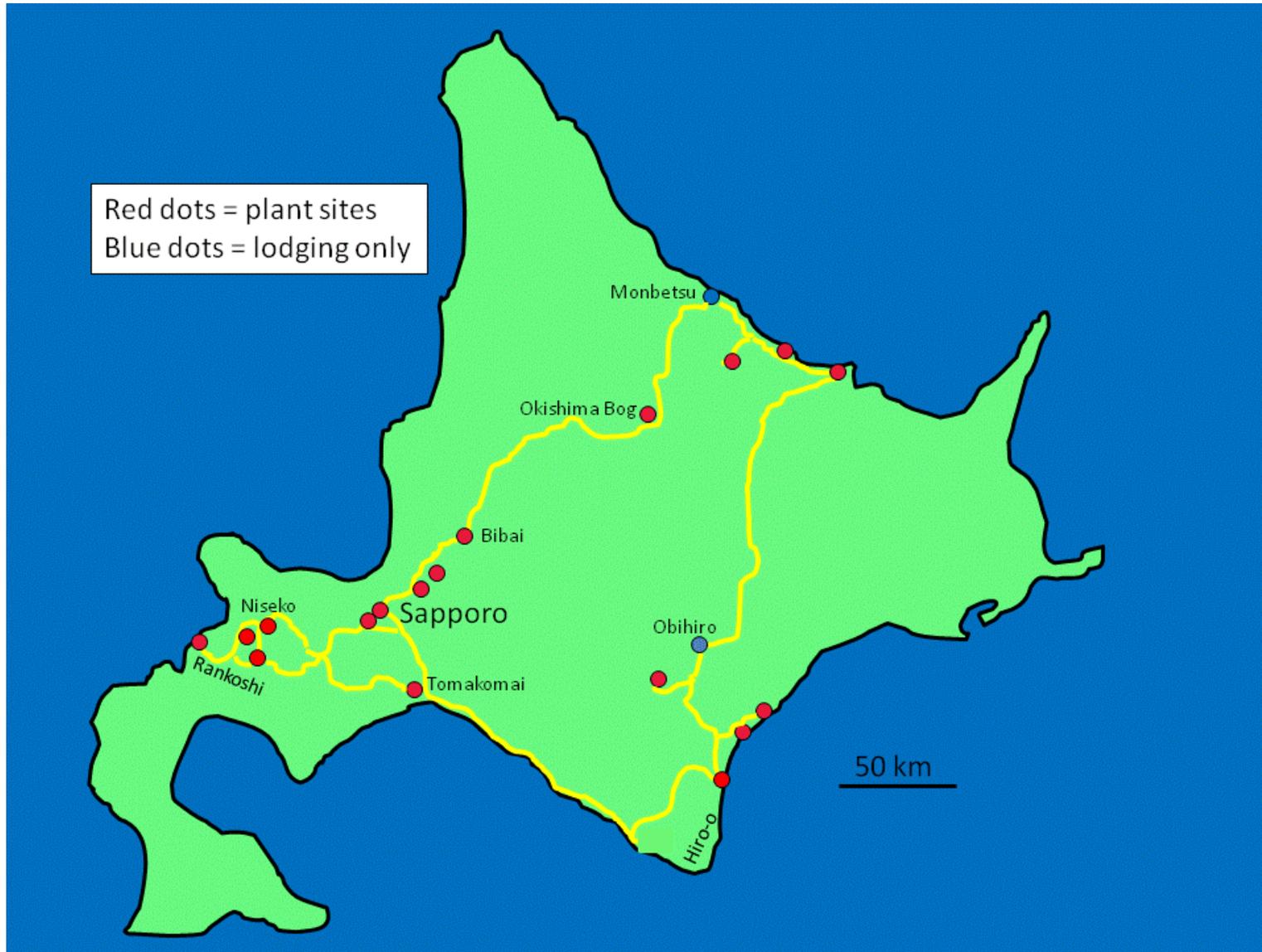


Fig. 8. Driving routes during the expedition - Northern Honshu

