



Preliminary analysis of the literature on the distribution of wild *Musa* species using MGIS and DIVA-GIS.

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INTRODUCTION

The vast majority of cultivated bananas originate from two wild species, *Musa acuminata* and *Musa balbisiana*, either directly or in various hybrid combinations (Simmonds 1995). While farmers domesticated bananas by selecting plants that were sterile and seedless, the fertile ones continued propagating, hybridizing amongst themselves and consequently creating further diversity. These wild relatives are found primarily in tropical regions, from India to Polynesia. The center of diversity is thought to be either Malaysia or Indonesia (Daniells *et al.* 2001). Unfortunately, there is little information about the accurate geographic distribution of each *Musa* section (Australimusa, Callimusa, Eumusa and Rhodochlamys). The traditionally accepted boundaries of each *Musa* section established by Champion (1967) (Figure 1) will have to be revised due to the presence of Callimusa in China (Liu *et al.* 2002) and of Australimusa in Borneo (Hotta 1967).



Figure 1. Distribution of *Musa* sections (Champion 1967, adapted by Guinard 2003).

Many researchers around the world, especially in Asia, have assembled germplasm collections. These can be found in field collections and consist mainly of cultivars from within the country, and to a lesser extent, of indigenous wild species. Wild species are underrepresented in collections for several reasons. Some missions did not collect any plants and only made observations (Argent 1976). Others brought back vegetal material that eventually withered away. For example, the suckers of *Musa ingens* and *Musa boman* collected at the end of the 80s in Papua New Guinea did not adapt to the place where they had been transplanted (S. Sharrock personal communication). Fortunately, the people in charge of collecting missions wrote reports that were sometimes published in scientific journals.

The purpose of this work was to initiate a bibliography on wild *Musa* species and analyse the information (new species, distribution, ecogeographic data, etc.) related to them for integration into the *Musa* Germplasm Information System (MGIS). This database already contains over 5000 records of accessions held in 16 collections throughout the world. It contains passport data and complementary information such as photographs, morphological characteristics, geographical information. Since data from the literature have not been included in the MGIS database, this report will give a number of recommendations regarding the future entry of this kind of data and its transfer to DIVA-GIS. This software produces maps and can be used to show the geographical distribution of *Musaceae* in a country, a province and even a region, thus helping researchers decide where to organize future collecting missions. Finally the report will try to identify sources of interesting metadata (cultivation intensity, deforestation, soil degradation, etc.) that can be downloaded for the use with DIVA-GIS.

METHODS

The first step was to build a bibliographic database (see Appendix C) using *Musalit*, *Agricola*, CAB-abstracts, Current Contents[®] and Internet websites. All the documents and articles discussing the distribution of wild *Musa* species in Southeast Asia were consulted as potential sources of information. Unfortunately some of the documents and articles ordered through documentation services were not received. In the end, only the articles published after the original grouping of the *Musa* genus into four sections by Cheesman (1947) and those that listed exact geographical data, like longitude and latitude, or a precise description of the site (village, valley, national park etc.), were selected. Only fifteen articles (see Appendix B) were retained for incorporation into the MGIS database (version 2.1). All the site coordinates were validated by a query in the GEOnet Names Server (GNS) (<http://gnswww.nima.mil/geonames/GNS/index.jsp>). Since this is a pilot project, all data were recorded on a single machine, not on the network, to avoid any corruption or loss of entries in the original MGIS database.

Since it was originally conceived to hold only the data given by curators of germplasm collections, and not data from the scientific literature, the MGIS software had to be adapted for this new purpose. First, the wild species and their specific locations listed in the literature were entered in a newly created a file named <LITERATURE>. Each of them was given an accession number that consisted of the code of the collection (LIT) followed by a four-digit serial number starting at 0001 to allow wild species to be treated in the same way as an accession in a collection. To record them, we used the “New accession” function in the “Accession” menu. This opened the “Passport data” window in which information like the scientific name and the status of the plants was entered (Table 1).

Table 1. MGIS data entry fields used under < New Accession >

Field	Description
Accession code	Unique code identifying the accession. Generated automatically. Three-letter code (LIT) followed by a four-digit serial number.
Name of species	Scientific name of the accession.
International code	A three-digit number that refers to the international classification at five levels (genus, section, species, sub-species, type or form). If a level is unknown, the number will be 500 and above.
Status of the plant	Type of plant. For this report, it will always indicate "wild".
Acquisition	It is mandatory to enter the previous location: Collecting mission.
Books	Bibliographical references about the articles.
Notes	Notes about the species (synonym, typical or atypical species, etc.)

The geographical data about collecting sites, like country, altitude and longitude, (Table 2), were logged in MGIS using "Collecting sites" in the "Accession" menu. When the "Find Collecting Sites" window was displayed, < LIT > was selected in the collection field. We clicked on the button "Creation" to make the "Collecting sites" window appear. A new code (LTx-xx) was assigned in the "Collecting number" field. The letters LT specify that the data come from the literature. They were followed by a number to identify the article and by the number attributed to each wild species mentioned in the scientific article. Other information can be recorded in the "Collecting sites" window (Table 2).

Table 2. MGIS data entry fields in "Collecting sites"

Field	Description
Collecting number	Code attributed to the wild species in the article or document
Province	Province of the collecting or observation site
Department	Department of the collecting or observation site
Location of the collecting site	Village, river, valley near the collecting or observation site
Location	Geographical situation. This specifies: Country of the collecting or observation site. Latitude and longitude of the site in DDMMC. Altitude in meters.
Destination	Specify the place where the sample was sent after having being collected.
Notes about the collecting site	Additional notes concerning the collecting site (agricultural area, allopathic or sympatric population etc.)

The "Passport Data" and "Collecting Site" fields from the accessions in the < LIT > collection were extracted from MGIS using a SQL query. The new file generated a dBase-IV file (.DBF) compatible with DIVA-GIS. Data from some collections were also extracted from MGIS: Queensland Department of Primary Industries of South Johnstone in Australia (SJR), Indonesian Research Institute for Fruits (RIF), South China University (SCU) and Vietnamese Pho Ho Fruit Crop Research Center (PHU). These collections were chosen because they contain a significative number of wild species as well as accurate coordinates of the collecting sites. The DBF file served in DIVA-GIS to

draw maps (Table 3). The ability of this software to serve this function was demonstrated in a previous report (Guinard *et al.* 2002b).

To visualize the extracted data in DIVA-GIS (version 2.5), a new Diva file was started from “New” in the “File” menu. The DBF file was converted into a shapefile (.SHP) using “Point to Shapefile” in the “Data” menu. The points obtained were superimposed over a map of Asia and also over maps of various Asian countries. Unless otherwise noted, each point represents a plant collected or observed. This map, as well as the administrative boundaries of 15 Asian countries (Bangladesh, Brunei, Bhutan, Burma (Myanmar), Cambodia, China, India, Indonesia, Japan, Laos, Nepal, Philippines, Papua New Guinea, Thailand and Viet-Nam), were downloaded from the DIVA-GIS website (<http://www.diva-gis.org/data/DataServer.htm>). The maps of Australia, Samoa and Sri Lanka are from ESRI website (<http://www.esri.com/data/download/basemap/index.html>).

For each map containing accessions, the command “Select records” with the variable “Section” under the “Theme” menu was used to distinguish each section of the *Musaceae*. The selected points were separated in a new shapefile using the “Selection to Shapefile” function under the “Data” menu. Wild species were represented as follows: a red cross for *Australimusa*, a pale blue square for *Callimusa*, a yellow circle for *Eumusa*, a green triangle for *Rhodochlamys*, a black circle for *Ingentimusa* or unclassified species, and a combination of forms for an hybrid (i.e. a yellow triangle for *Eumusa* x *Rhodochlamys* hybrid) using the function “Symbol” in the “Theme” menu. The location of each point was verified against the data in XXX_ADM2.SHP (XXX is the three letters code identifying a country) using “Check Coordinates” in the “Data” menu.

Table 3. Type of information entered in DIVA-GIS.

Column title	MGIS field	Column title	MGIS field
IDNUM	Internal code	SIT_LAT	Latitude
GENUS	-----	SIT_LGT	Longitude
SECTION	-----	SIT_ALT	Elevation
NAME	Scientific names	PVC_STAT	Province
ITNCOD	International code	DEP_CTRY	Department
TYPE	Status of plant	LOCATION	Location of the collecting site
ACC_NOTE	Notes about species	SIT_NOTE	Notes about the collecting site
COL_NUMB	Collecting number	DEST	Where the plants have been sent
COL_CTRY	Country	BIBLIO	Bibliography

RESULTS

The DBF file created contains 363 lines that correspond to 291 accessions that come from <LIT> and the rest from the germplasm collections mentioned above. The *Ensete* genus is present in the MGIS database but was not included for visualization with DIVA-GIS. Appendix D contains an edited DBF files of all the accessions. Unfortunately not every country situated in the traditionally accepted boundaries of the *Musaceae* distribution has data about of the wild species. The name of all the *Musaceae* listed in this report are in Appendix A.

Australia

Two varieties of wild bananas are native to Australia; both grow in the northern part of Queensland. The most common is *M. acuminata* ssp. *banksii* (Eumusa), which is found from Ingham to the tip of Cape York (Daniels 1991). The second, *Musa jackeyi* (Australimusa), has been reported only by Bellenden Ker and Cooktown (Daniels 1991) and the World Conservation Monitoring Center (WCMC) (<http://www.unep-wcmc.org/index.html>) considers it rare. Argent (1976) writes that this species most likely belongs within the *Musa maclayi* complex (Australimusa). The Flora of Australia (1987) mentions a third species: *Musa fitzalanii* (Australimusa) but specifies that it is known only from a type sampled in the 19th century near the Daintree River and being kept in a herbarium in Queensland.

However, we chose a single collecting mission by Simmonds (1956b) because he was the only one to give a precise description of the observation sites (Figure 2). His banana expedition reported five areas of *M. acuminata* ssp. *banksii* on the coast of Queensland, which is the wettest part of Australia (Simmonds 1956a). With his team, Simmonds searched in vain for *M. fitzalanii* along the Daintree River. He suggests that this species may well be extinct. On its website, the WCMC draws the same conclusion about *M. fitzalanii*.



Figure 2. Distribution of *Musa* sections in Australia (data from Simmonds 1956b).

Bangladesh

No map was produced due to the lack of information about the distribution of wild species in this country. According to Champion (1967), Bangladesh lies within the borders delineating the natural habitat of the Rhodochlamys and Eumusa sections. *Musa ornata* and *Musa rosea*, both from the Rhodochlamys section, have been recorded in Bangladesh (Häkkinen 2002). It is possible that three Eumusa live there, *M. balbisiana*, *Musa sikkimensis* and *Musa flaviflora*, since the three of them grow in the Indian province of Meghalaya (see the appropriate section below), which borders Bangladesh.

Bhutan

Three wild species - their botanical names listed as *Musa* ssp - grow in Bhutan's sub-tropical and temperate regions up to 1800 metres (Rinchen 2003). However, from Nortie's Flora of Bhutan quoted by Constantine (1999), the following Eumusa species are present: *M. balbisiana*, *M. flaviflora* and *M. sikkimensis*. Also from a single gathering, *Musa thomsonii* (Eumusa) and a new species with no description tentatively named *Musa griersonii* have been observed.

Brunei

This small country is part of the island of Borneo. Previous banana expeditions on this island surveyed mainly Sarawak and Sabah, two provinces of Malaysia. However, a few collecting missions were made in Brunei. Hotta (1967) observed species from the Callimusa and Australimusa sections. He found out that *Musa textilis* (Australimusa) grows in Brunei, as well as a new species, *Musa tuberculata* (Australimusa). His discoveries extended the boundary of the Australimusa section which, according to Champion, stops in the Philippines. Hotta also described a new Callimusa named *Musa flavida* and recorded the presence of two populations of *Musa campestris*, one in the province of Temburong and the other in the province of Tutong (Figure 3).

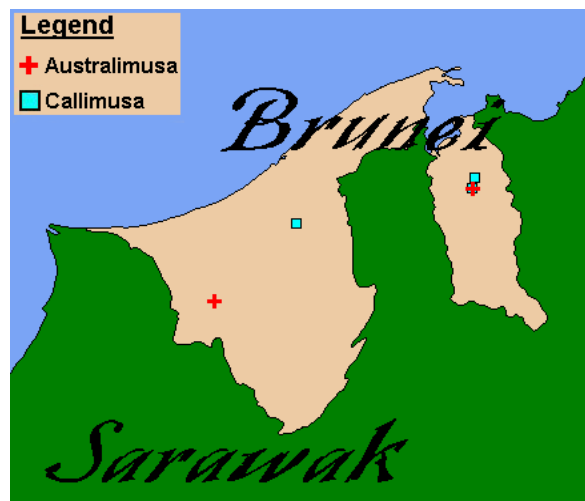


Figure 3. Distribution of *Musa* sections in Brunei (data from Hotta 1967).

More recently, Häkkinen (2003) made an exhaustive study of the section Callimusa. The author describes five varieties of *M. campestris* located in five different areas of the island of Borneo. Two of them, *M. campestris* var. *lawasensis* and *M. campestris* var. *limbangensis*, are partially located on the territory of Brunei (Figure 4).



Figure 4: Distribution of *M. campestris* var. *lawasensis* and *M. campestris* var. *limbangensis* in Brunei (adapted from Häkkinen 2003).

Myanmar (Burma)

This country has not been properly explored in the last decades, mainly because of the political situation. In the 50s, Simmonds (1956b) gave up on making field studies in this country for this reason. Like Bangladesh, Myanmar is the natural habitat for some *Rhodochlamys* species: *M. ornata*, *M. rosea*, *Musa laterita* and *Musa sanguinea* were all reported a century ago (Häkkinen 2002). Since some *Eumusa* species (*M. acuminata* ssp. *siamea*, *Musa itinerans*, *Musa nagensium* and *M. sikkimensis*) are found in Thailand and in China (see the appropriate section below), close to the border with Burma, it is likely that the same species grows there too.

Cambodia

Like Bangladesh and Myanmar, Cambodia is still waiting to be properly explored. The few available data are almost 100 years old. They come from the description of *Musa angcorensis* by Gagnepain (1907). According to the author, this species belonged to the *Rhodochlamys* section but later Simmonds (1960) referred to it as a *Callimusa*. It still awaits a modern description. Since Cambodia is situated at the center of *Callimusa* and *Eumusa* distribution, it is very likely that more species grow in this country.

China

A collecting mission of the South China University, sponsored by INIBAP, explored the provinces of Yunnan, Guangxi, Guangdong and the island of Hainan in 1997. The results of this expedition are stored in the MGIS database under the code SCU, with collecting numbers ranging from CHN1 to CHN4. More than 98 accessions are recorded, but only 17 concern wild species. Unfortunately, some of them contain errors. Three accessions were given a longitude and latitude that put them outside of China's boundaries (Table 4). Those mistakes were corrected by using new geographical coordinates based on the location of the nearest town listed in the collecting mission report.

Table 4. Corrections to the MGIS data points that fell outside China

IDNUM	COL_NUMB	COL_CTRY	PVC_STAT	DEP_CTRY	LOCATION	SIT_LAT	SIT_LGT	New_Lat	New_Long
SCU0004	CHN1-03	China	Yunnan	Hakou	Nanxi	22,5	104	22,63	103,93
SCU0016	CHN1-04	China	Yunnan	Hekou	Hekou	22,5	104	22,52	103,97
SCU0038	CHN4-29	China	Hainan	-----	Lingshui	18,1	110	18,5	110,02

Furthermore, 8 of the 17 wild species were located in the right provinces but in the wrong departments. For example, according to MGIS, SCU0011 lies in the department of Napo but the latitude and longitude from the database show that it is in the department of Malipo (Table 5). Unlike what happened for the errors of table 4, the location of the nearest town did not help clear up the matter. For this reason, the map shows only the provinces, not the departments.

Table 5. Wild accessions listed in the wrong department

IDNUM	COL_NUMB	Are located in	Should be located in	PVC_STAT	LOCATION	SIT_LAT	SIT_LGT
SCU0011	CHN2-05	Malipo	Napo	Guangxi	Bainan	23,08	106
SCU0013	CHN2-13	Malipo	Napo	Guangxi	Pinmao 10 Km	23,08	106
SCU0037	CHN4-18	Dan Xian	Qiongzong	Hainan	Songtao	19,3	109,58
SCU0049	CHN3-24	Huaxian	Guangzhou	Guangdong	Lufu Park	23,6	113,28
SCU0082	CHN2-04	Malipo	Napo	Guangxi	Pinmao	23,1	106
SCU0083	CHN2-01	Longzhou	Pingxiang	Guangxi	Pingxiang, Baiyun	22,25	106,75
SCU0084	CHN2-09	Malipo	Napo	Guangxi	Guilian village	23,08	106
SCU0088	CHN2-02	Longzhou	Pingxiang	Guangxi	Pingxiang	22,25	106,75

Despite those errors, useful data can be retrieved from this collecting mission (Figure 5). The researchers collected:

- Three species from the Eumusa section : *M. balbisiana*, *Musa basjoo* and *M. itinerans*
- One species from the Callimusa section : *Musa coccinea*
- One species from the Rhodochlamys section : *M. sanguinea*



Figure 5. Distribution of *Musa* sections in China.

Another source of information on China was an article recently published. It reported an expedition that studied the distribution of wild *Musa* species in China based on field observations, a literature review and herbarium research (Liu *et al.* 2002). Unfortunately, the researchers did not give any geographical coordinates but drew a map of the *Musaceae* distribution (Figure 6). This field survey found some of the same species as the collecting mission described above, along with a new species, *Musa paracoccinea* (Callimusa).

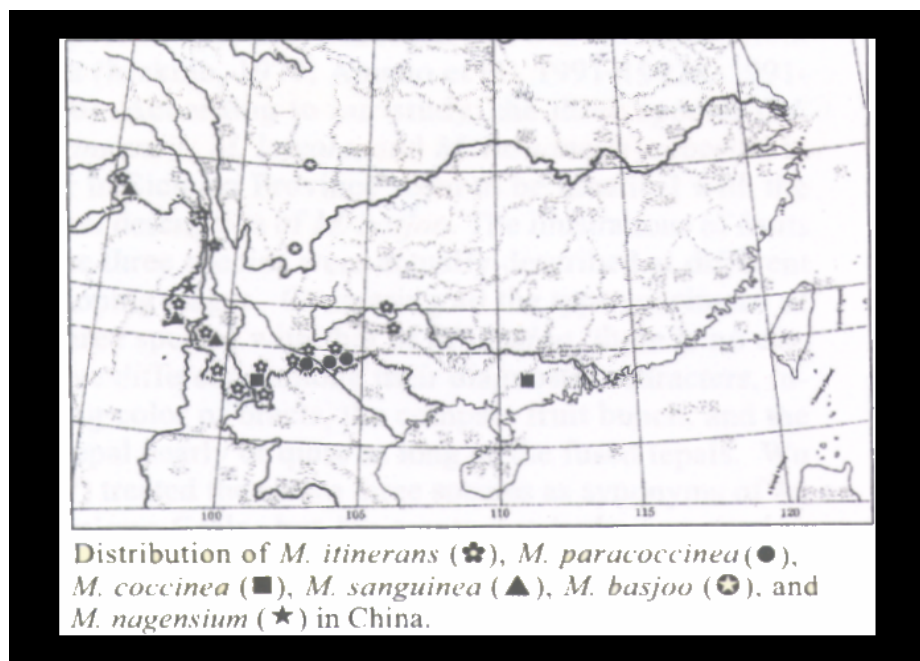


Figure 6. Distribution of *Musa* sections in China (Liu *et al.* 2002).

From the analysis of both maps, the following conclusion can be drawn: *M. balbisiana* and *M. itinerans* enjoy a wide distribution in China, from the island of Hainan to the province of Xizang Zizhiqu (Tibet). *M. basjoo* can be found as far as in the Sichuan province, which makes it the most septentrional species listed in this report. Liu (2002) writes that the previously described *Musa dechangensis*, *Musa luteola* and *Musa lushanensis* are all synonyms of *M. basjoo*. He adds that *M. basjoo* is now widely cultivated in China, while the wild populations appear to occur only in Sichuan. As for *M. nagensium*, it is grown only in the western parts of the Yunnan province. On Champion's map (Figure 1), the presence of *Callimusa* in China seems to be something new but it was not. A description from the Curtis Botanical Magazine, published in 1813, reports *M. coccinea* in Yunnan. In the past this species had a wide distribution, but human activity made it rare and it has become difficult to locate populations (Liu *et al.* 2002). As for the new species *M. paracoccinea* (*Callimusa*), it was observed in southeastern Yunnan. *M. sanguinea* (*Rhodochlamys*), about which we know almost nothing, was found in the evergreen forest of western Yunnan.

India

Recent explorations conducted by the National Research Centre of Banana in India (NRCB) led to the identification of several accessions (Uma 1999). The reports indicate species spotted in northeastern India: *M. balbisiana*, *M. itinerans*, *M. nagensium*, *M. sikkimensis* and *Musa cheesmani*. A study on the variability of *M. acuminata* revealed six subspecies, of which three were listed without any geographical data (*M. acuminata ssp. burmannica*, *M. acuminata ssp. burmannicoides* and *M. acuminata ssp. malaccensis*). The NRCB confirmed the existence of *Rhodochlamys* in Assam: *M. ornata* and an unidentified species. Unfortunately, almost all of the varieties listed in the annexes of the report are of landraces, not wild species.



Figure 7. Distribution of *Musa* sections in India.

An early exploration made by Simmonds (1956b) gives accurate information on the distribution of wild species in India (Figure 7). The researcher observed five *Eumusa* species: *M. itinerans* (not to be found in MGIS because of inaccurate location), *M. balbisiana*, *M. flaviflora*, *M. sikkimensis* and *M. cheesmani*. No pure *Rhodochlamys* population was reported, but Simmonds found a *M. flaviflora* × *Musa velutina* population in a small area of Assam. Two-thirds were constituted by apparently pure *M. flaviflora* and the remaining third, by an hybrid population. The absence of pure *M. velutina* is probably due to a dry season dieback, *Rhodochlamys* are more severely affected by rain shortfall than *Eumusa* (Simmonds 1956b). An interesting fact is the presence in Khasi Hill (at an altitude of over 1000 m) of *M. balbisiana*, which is generally distributed at low altitude throughout northeastern India (Simmonds 1956a).

Indonesia

Indonesia is the world's largest archipelago. Its major islands or island groups are Sumatra, Java, Kalimantan (Borneo), Sulawesi (Celebes), Papua (the western half of Papua New Guinea formerly known as Irian Jaya) and the Molluccas, a group of smaller islands. Indonesia is situated in the center of origin of *Musaceae* and has a large number of wild bananas growing throughout the country (Figure 8).

Since MGIS only uses degrees (DD) and minutes (MM) to indicate longitude and latitude, but not the seconds (SS), the banana accessions shown on the map are within 1 minute of their actual growing place. Sometimes it means that accessions are not in the right province (LIT 113-115-121) while others end up in water (LIT 123-130). But for RIF 198-199-200, this is another matter. These last three were 05DD from land. This error was due to the fact that 00DD05MM had been entered as 05DD00MM in MGIS and was easily corrected.

Almost 66% of the accessions come from Nasution's (1991) study of *M. acuminata*. He identified fifteen varieties of *M. acuminata*, 33% of them being described for the first time (Table 6). Only four are found in the *Musalogue* (Daniells *et al.* 2001) and are listed as subspecies and not varieties. Some of Nasution's observations were not entered in MGIS because of insufficient geographical data. For this reason, no entry is available in MGIS for Kalimantan (Borneo), although the expedition recorded wild species on all major islands. In this province, both *M. acuminata* ssp. *microcarpa* and *M. acuminata* ssp. *flava* were observed but they constitute the same species according to De Langhe *et al.* (2003). In spite of that, the variability of *M. acuminata* is important and far above the number of *M. acuminata* reported in neighbouring countries. Most *M. acuminata* described by Nasution are confined to Indonesia's lowland, except *M. acuminata* ssp. *halabanensis* and *M. acuminata* ssp. *malaccensis*, which also grow on mountains (Nasution 1991).

Table 6. *M. acuminata* varieties listed in Nasution's study.

#	Species	Status	#	Species	Status
1	<i>Musa acuminata</i> spp. <i>acuminata</i>	Not in Musalogue	9	<i>Musa acuminata</i> var. <i>malaccensis</i>	In Musalogue
2	<i>Musa acuminata</i> var. <i>alasensis</i>	New	10	<i>Musa acuminata</i> var. <i>microcarpa</i>	In Musalogue
3	<i>Musa acuminata</i> var. <i>bantamensis</i>	New	11	<i>Musa acuminata</i> var. <i>nakaii</i>	New
4	<i>Musa acuminata</i> var. <i>breviformis</i>	New	12	<i>Musa acuminata</i> var. <i>rutilifes</i>	Not in Musalogue
5	<i>Musa acuminata</i> var. <i>cerifera</i>	Not in Musalogue	13	<i>Musa acuminata</i> var. <i>sumatrana</i>	Not in Musalogue
6	<i>Musa acuminata</i> var. <i>flava</i>	Same as #10	14	<i>Musa acuminata</i> var. <i>tomentosa</i>	Not in Musalogue
7	<i>Musa acuminata</i> var. <i>halabanensis</i>	In Musalogue	15	<i>Musa acuminata</i> var. <i>zebrina</i>	In Musalogue
8	<i>Musa acuminata</i> var. <i>longepetiolata</i>	New	--	----	----

Other botanical excursions (different from those mentioned in table 6) have spotted *Eumusa* in Indonesia. *Musa schizocarpa* and *M. acuminata* ssp. *banksii* have been collected by Allen at the beginning of the sixties (Rosales *et al.* 1999). The Indonesian Research Institute for Fruits (RIF) – where of the 76 accessions listed only eight were wild species - reported the same wild *Musa* as Allen in Papua. The RIF and the Allen collecting mission also observed species from the *Callimusa* and *Australimusa* sections. According to Allen, *M. textilis* and *Musa lolodensis* respectively grow in the Moluccas and in Papua. Recently, a researcher described a new *Australimusa* species in southwestern Papua, in the Timika area (Argent 2001). This species, *Musa johnsii*, grows at high altitude, above 1000 m. Argent writes that other *Musaceae* have rooted around the Timika area: *M. lolodensis* and *M. acuminata* ssp. *banksii*. As for the *Callimusa* section, *M. coccinea* grows on the island of Java (Rosales *et al.* 1999) and the presence *Musa salaccensis* (native to Java) has been reported in Sumatra and Java (Nasution 1993). The latter has not been uploaded in MGIS because the geographical information about it is limited to the islands. Häkkinen (2003) also reported the presence of *Musa hirta* and *M. campestris* var. *sarawakenis* near the border of Sarawak.



Figure 8. Distribution of *Musa* sections in Indonesia.

Japan

Only one species is known to grow in Japan. *M. basjoo* is found in southern Japan, in the Ryukyu Islands. Turner (2002) listed it as a native species whereas Liu (2002) argues that it was introduced from China. Its actual origin requires further investigation. A subspecies of *M. basjoo* is said to grow in Sakhalin, much further north than the Ryukyus Islands (Turner 2002). It seems unlikely that the species occurs this far north.

Laos

Like all the countries between China and Malaysia, Laos has been poorly explored for its *Musaceae* diversity. We might expect *M. acuminata* ssp. *siamea* to grow in the western part of the country, since it does in the Thai province of Nan, which borders it (Figure 13). In the north, Laos also shares a border with the Chinese province of Yunnan, where *M. itinerans* and *M. coccinea* are found (Figures 5 and 6). *M. balbisiana*, a species present in western Vietnam, is also thought to grow in Laos (Figure 14).

Malaysia

One part of this country is a peninsula attached to the Asian continent. The other part consists of two provinces (Sarawak and Sabah) on the northern coast of Borneo. Malaysia has been explored many times compared to other countries. This report has 68 accessions coming from eight articles.

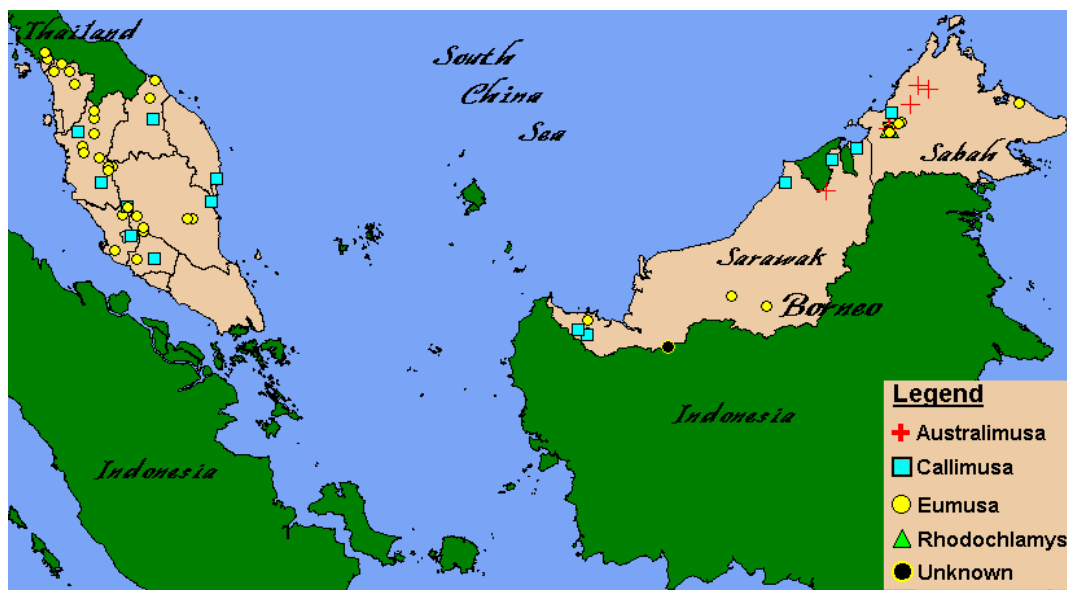


Figure 9. Distribution of *Musa* sections in Malaysia.

The map shows that all the *Musaceae* sections are present in Malaysia, contrary to Champion who did not report any *Australimusa* or *Rhodochlamys* (Figure 9). *M. ornate*, which belongs to the latter section, has been observed in the Lagud Seberang Agricultural Park in Sabah. However, it is not native to Borneo Island and it is cultivated in this park as an ornamental. Simmonds (1956b) did mention a new *Rhodochlamys* species from northern Borneo that has characteristics between *Musa rubra* and *M. laterita*, but according to Häkkinen (personal communication), Simmonds based his

conclusion on herbarium samples from Singapore that turned out to be *Musa campestris*. Unfortunately no more information on this matter has been found. A non-continental *Rhodochlamys* other than the cultivated one has still to be recorded. As for *Australimusa*, two new species have been reported outside the range of the park. *Musa monticola* (Argent 2000) and *Musa muluensis* (Hotta 1967) respectively observed in Sabah and Sarawak, extending the range of the *Australimusa* section.

The *Eumusa* section is well represented in Malaysia, especially on the peninsula. The expeditions of Simmonds and Allen have found four subspecies of *M. acuminata* (*malaccensis*, *microcarpa*, *siamea* and *truncata*) most of them on the western side of the country. In the province of Sabah and Sarawak, only *M. acuminata* ssp. *microcarpa* has been reported in various places (Simmonds 1956b, Rosales *et al.* 1999, De Langhe *et al.* 2003). The presence of the *microcarpa* subspecies outside Borneo is currently being revised. De Langhe *et al.* (2003), citing Sheppard (1999), say that *M. acuminata* ssp. *microcarpa* is confined to Borneo and that *M. acuminata* ssp. *truncata* is typical of the Malayan Highlands. The possible presence of the subspecies *microcarpa* in northern Borneo contrasts with what was found in other parts of Southeast Asia, such as peninsular Malaysia, Sumatra and Java, where two or more subspecies seem to be sympatric (De Langhe *et al.* 2003). This fact is based on cytogenetics studies. An interesting fact about Allen's records of *M. acuminata* is that they contain information on Sigatoka resistance and 14 of the 17 resistant varieties recorded were situated in peninsular Malaysia. Previous work made at INIBAP (Guinard 2002b) suggests that climatic and environmental factors could explain this phenomenon.

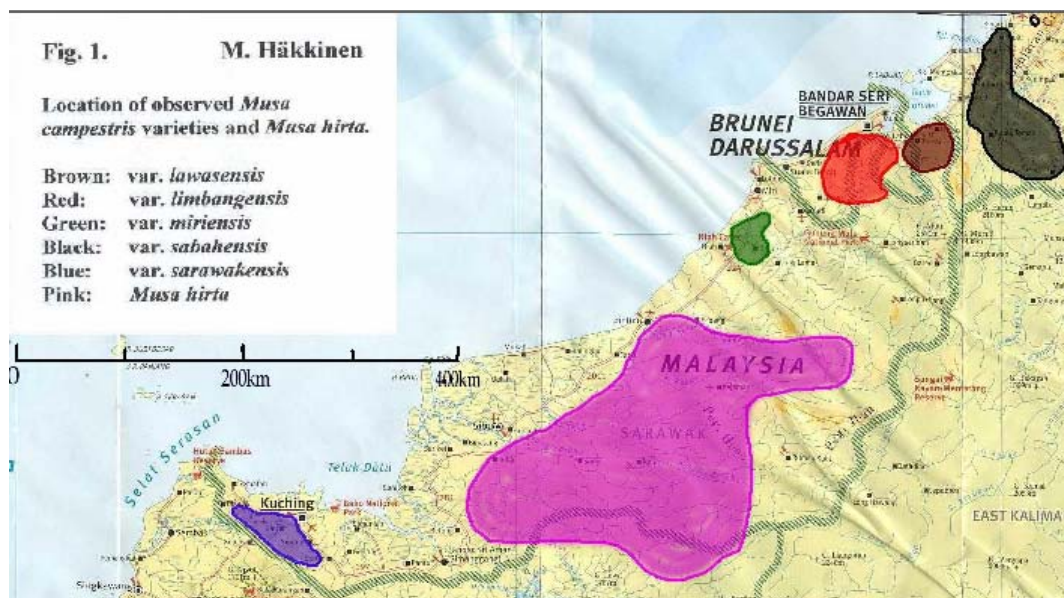


Figure 10. Observations of *M. campestris* subspecies and *M. hirta* (Häkkinen 2003).

With the recent expedition of Häkkinen in Borneo, we now have a better understanding of the diversity of the *Callimusa* section on this island (Figure 10). In the past, Hotta (1967) had reported the presence of *M. campestris* and *M. hirta*, but he had explored only small areas and could not evaluate the entire diversity of the section. Häkkinen (2003) observed *M. hirta* and five subspecies of

M. campestris mainly distributed in Sarawak (Figure 9). He also discovered a new species of Callimusa, *Musa bauensis* in the Bau limesonte area (Häkkinen and Meekiong 2003). Another new species is also being described (Häkkinen personal communication).

Two Callimusa species different from those in Borneo are found in peninsular Malaysia. They are *Musa gracilis* and *Musa violascens*. Both were observed by the Simmonds expedition in the 50s. Interestingly, the distribution of *M. violascens* is limited to the western part of the peninsula, while *M. gracilis* is found on the east side. No hybrid populations, where the two species overlap, was reported.

Finally, a new species was described by Argent (2000) as an intermediate between Australimusa and Callimusa. It was named *M. suratii* and one population was found in Sarawak and another in Sabah. The latter is rapidly shrinking as the forest is regrowing. The validity of this species should be investigated. If it belongs to the Australimusa section, it would be the most eastern native species of this section.

Papua New Guinea

With 158 accessions, this country is the best represented in this report. Many important collecting missions have been made in Papua New Guinea: Simmonds (1956b), Argent (1976), Allen in the 60s (Rosales *et al.* 1999) and finally the IBPGR project at the end of the 80s (Sharrock 1989). From the latter, 243 accessions (39 wild species) are recorded in MGIS under “Queensland Department of Primary Industries of South Johnstone in Australia” (SJR). The wild species belong to two of the four sections of the genus *Musa* (Table 7). The sections Callimusa and Rhodochlamys are not represented. Nine Australimusa, four Eumusa and one *Ingentimusa* have been observed on the main island or the smaller ones located in the eastern part of the country (e. g. Bougainville, New Britain, New Ireland.).

Unfortunately, the administrative boundaries of Papua New Guinea do not include divisions in provinces and/or departments. Moreover, 22 accessions end up in the water. Part of the problem is because MGIS uses only degrees (DD) and minutes (MM) to indicate longitude and latitude, and do not specify the seconds (SS), which means that the accessions end up within 1 minute from their true location. However, it is intriguing that a large number of points fell outside the country, given that it did not happen elsewhere on such a scale. One possibility is that the shapefile for Papua New Guinea is inaccurate. Another mistake involves MGIS. *M. boman* is listed as being in the Eumusa section, whereas Argent (1976) classified it as an Australimusa and *Musalogue* (Daniells *et al.* 1999) as an *Incertae sedis*. For the purpose of this report, MGIS was not corrected, but the DBF files used in DIVA-GIS was updated and *M. boman* is now under Australimusa. To determine in which section this species should be included, a chromosome count is currently being done. The same procedure was done with *M. ingens*, which is under *Ingentimusa*. Finally SJR0090 (PNG066) and SJR0138 (PNG176) are listed as landraces in the database, but are actually wild species (*M. acuminata* ssp. *banksii*). SJR0034 and SJR0059 both have the same collecting number (PNG220).

Table 7. Australimusa and Eumusa species found in Papua New Guinea

Section	Name	Section	Name
Australimusa	<i>M. boman</i>	Australimusa	<i>M. peekelii</i> ssp. <i>angustigemma</i>
Australimusa	<i>M. bukensis</i>	Australimusa	<i>M. peekelii</i> ssp. <i>peekelii</i>
Australimusa	<i>M. lolodensis</i>	Eumusa	<i>M. acuminata</i> ssp. <i>banksii</i>
Australimusa	<i>M. maclayi</i> ssp. <i>ailuluai</i>	Eumusa	<i>M. acuminata</i> ssp. <i>banksii</i> x <i>M. schizocarpa</i>
Australimusa	<i>M. maclayi</i> ssp. <i>maclayi</i> var. <i>erecta</i>	Eumusa	<i>M. balbisiana</i>
Australimusa	<i>M. maclayi</i> ssp. <i>maclayi</i> var. <i>maclayi</i>	Eumusa	<i>M. schizocarpa</i>
Australimusa	<i>M. maclayi</i> ssp. <i>maclayi</i> var. <i>namatani</i>	Ingentimusa	<i>M. ingens</i>

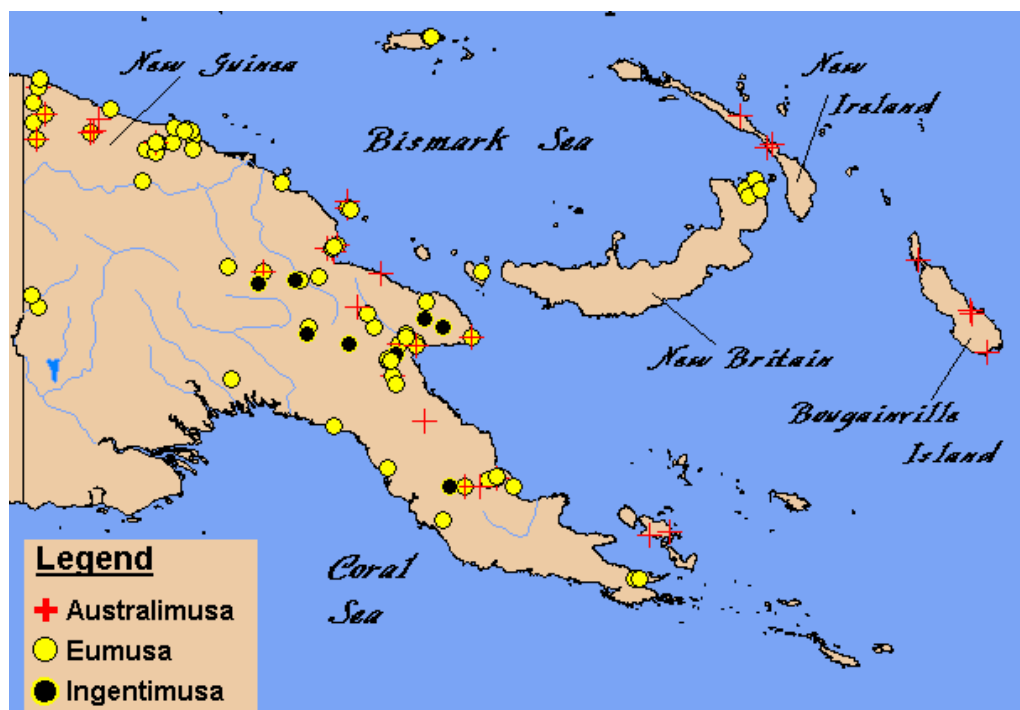


Figure 11. Distribution of *Musa* sections in Papua New Guinea.

Among the three *Eumusa* species, *M. acuminata* ssp. *banksii* is the most widespread in New Guinea (Argent 1976). Just as on the island of Borneo, there is the exclusive presence of an *acuminata* subspecies. The IBPGR even found it on Manus Island. This variety also enjoys the highest number of records in this report. *M. schizocarpa* is also widely distributed, even on the smaller eastern islands of New Guinea, but it is less common than the *acuminata* subspecies. Hybrids between the two *Eumusa* are known to occur (Argent 1976). Another species, *M. balbisiana*, is not as widely distributed and well adapted as the two other indigenous *Eumusa* (Sharrock 1988). The IBPGR expedition found it only in New Britain and in Oro Bay, on the main island, although they also searched the same province (Morobe) as Simmonds and Argent, who both observed the species in Markham Valley and/or the Wau/Bulolo Area (Sharrock 1988). Even in New Britain this species is growing rare, noted the IBPGR collecting mission. Whereas Simmonds (1956b) considers it native to PNG, Argent (1976) suggests that it may have been introduced as a wild species or as a primitive cultivar that later reverted to a wild type.

Papua New Guinea can boast of being the Asia-Pacific country with the greatest diversity of Australimusa. Nine species or subspecies of this section grow on the main island as well as on the smaller ones in the east. Their distribution pattern is clear. *M. boman* and *M. lolodensis* are found on the north-western part of Papua New Guinea. *M. peekelii* ssp. *angustigemma* seems to be limited to the province of Madang and the Eastern Highlands, while *M. maclayi* ssp. *maclayi* var. *maclayi* prefers the southern region, more precisely the Lae province. The other Australimusa varieties seem to grow only on the eastern islands: *M. maclayi* ssp. *maclayi* var. *namatani* in New Britain and New Ireland, *M. peekelii* ssp. *peekelii* in New Ireland, *M. maclayi* ssp. *maclayi* var. *erecta* and *M. bukensis* in Bougainville. These observations are based on the results of the collecting missions of Argent and the IBPGR.

Finally, *M. ingens* is common in the Eastern Highlands. This species does not belong to any of the four sections of *Musaceae*, because of its different number of chromosomes, which is $2n=14$ (Callimusa and Australimusa are $2n=20$, while *Musa* and *Rhodochlamys* are $2n=22$). A new section, *Ingentimusa*, has been created for this species; sometimes it is also included in the *Incertas sedis*. *M. ingens* is described as the world's largest herb of any type and its altitudinal range is from 1000 to 2100 m (Argent 1976).

Philippines

People from the Philippines cultivate bananas for their fibre as well as for their fruit. For ages, they have used the so-called "Manila hemp" to produce marine cordage whereas this type of hemp derives from the sheaths of abacá plants, *M. textilis*, an Australimusa (Simmonds 1995). There are a number of varieties of abaca (Valmayor *et al.* 2002). Unfortunately, none of the collecting missions mentioned in this report observed wild *M. textilis*. Constantine (1999) quoted Mabberley as opining that "*M. textilis* is a cultigen, meaning that it is a plant found only in cultivation or escaped from cultivation". However in a book on the wild bananas of the Philippines, a map of the Bikol peninsula shows the presence and natural habitat of *M. textilis* (Valmayor *et al.* 2002). The latter is not the only wild species found in the Philippines. Another Australimusa has been recently described: *Musa alinsanaya*. This indigeneous species was formerly mistaken for *M. textilis* (Valmayor 2001). On the Palawan island, the presence of *M. peekelii* was also reported (Valmayor *et al.* 2002), but the subspecies was not indicated. Species of the Eumusa section also grow in the country, such as *M. balbisiana* recorded by Allen in the 60s. A new subspecies of *M. acuminata* has been described and named *M. acuminata* ssp. *Errans*. It had previously been associated with the subspecies *banksii*, but detailed characterization revealed major differences (Valmayor 2001). It became necessary to reclassify it. In spite of all this information, the Philippines still wait to be explored in depth. Only a few observations have been made in Luzon and Mindanao, and none in the Visayas Islands (Figure 12).

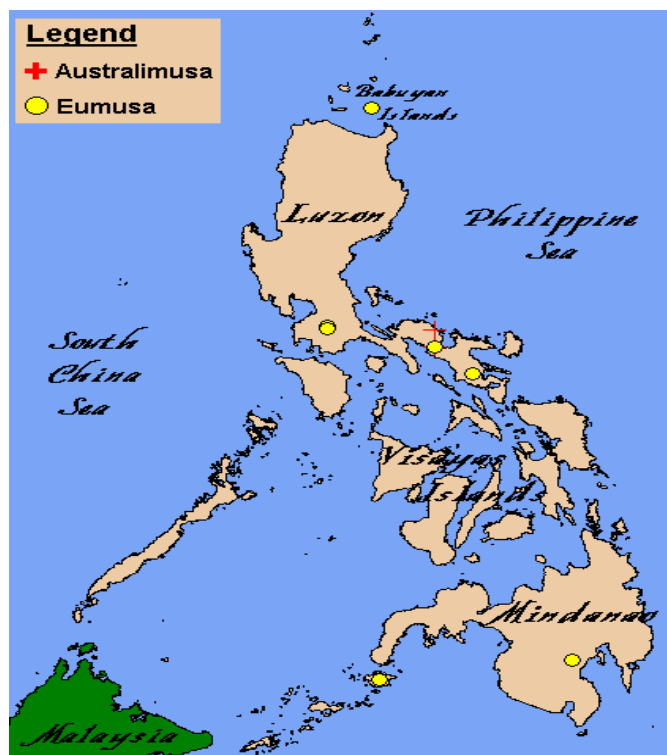


Figure 12. Distribution of *Musa* sections in the Philippines

Samoa

This country consists of two islands: Upolu and Savaii. Simmonds (1956b) made an expedition there and found that *M. acuminata* ssp. *banksii* was common. Specimens were collected on both islands. Unfortunately, the map is not shown because some accessions were in the water and it was not possible to locate and correct the source of this error.

Sri Lanka

The only information on wild species in Sri Lanka come from an IPGRI newsletter made in 1999. It mentions the existence of two wild species: *M. acuminata* and *M. balbisiana*. The subspecies of *acuminata* is not specified, but Constantine (1999) lists *M. acuminata* ssp. *burmannica* as present on this island.

Thailand

After Simmonds' (1956b) study of Thailand's wild species, no collecting mission and botanical study were carried out until De Langhe (2000). Both researchers explored the wilderness of northern Thailand and found two sections: *Eumusa* and *Rhodochlamys* (Figure 13). The former was represented by five species, while only one species was attested for the latter. A surprising fact is that Silayoi (1990) is the only one to have reported the presence of *Callimusa* in Thailand, even if this country lies at the center of diversity of this section. However he did not specify the species and the location.

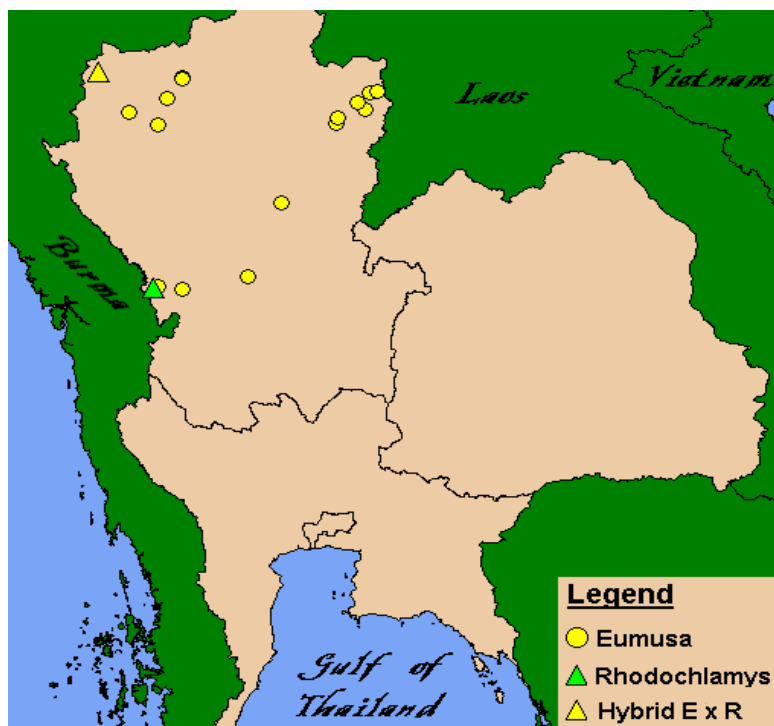


Figure 13. Distribution of *Musa* sections in Thailand.

M. acuminata ssp. *siamea* and *M. itinerans* have the largest distribution in the province. De Langhe noted that the subspecies *siamea* exists in two forms: one that is close to type and an atypical one. A specimen that looked very much like *M. acuminata* ssp. *malaccensis*, except for a few characters, was also recorded. It was tentatively named as a *pseudo-malaccensis* (De Langhe 2000). *M. nagensium* was observed by Simmonds (1956b) close to the borders of Burma. Despite active research, De Langhe (2003) could not find any traces of this species during his expedition. As for *M. sikkimensis*, it grows mainly in the northwestern part of the province. Unlike Simmonds (1956b), De Langhe (2000) gives it a putative status. If this accession is confirmed as *M. sikkimensis*, this species would enjoy a relatively large distribution (from the northwest of India to western Thailand). Finally, De Langhe (2000) found a population of wild *M. balbisiana*, although this species is more often observed in cultivated fields. Silayoi (1990) mentions that four subspecies of *M. acuminata* are found in Thailand, they are *malaccensis*, *microcarpa*, *siamea* and *burmannica* and their distribution is wide spread.

Only one species of *Rhodochlamys* was collected in Thailand, near the Burma border. De Langhe (2000) identified it as *M. laterita*, but his specimen was poor. However, a *Rhodochlamys* x *Eumusa* hybrid with a morphological *M. laterita* dominance was described. The *Eumusa* parent is probably *M. acuminata* ssp. *siamea*, since several plants of this species were growing nearby (De Langue 2000). Simmonds (1956b) also reports the existence of an undetermined *Rhodochlamys* hybrid with *Eumusa*.

Vietnam

Many of the accessions in the MGIS database come from the Vietnamese Pho Ho Fruit Crop Research Center (PHU). But given that the classification of the wild species is incomplete, it remains difficult to get a clear picture of which species grow in this country (Figure 14). Moreover, some accessions indicate an erroneous geographical situation. Five of the eight wild species were located in the right provinces, but in the wrong department (Table 8). This confusion could be due to the fact that the ADM Vietnam names were not spelled as suggested by the US Board on Geographic Names (GNS website). The same problem occurred with another country (see China). This time, the location of the nearest town did not clear up the matter. For this reason, the map shows only the provinces where bananas grow, not the departments. Another important mistake has found its way into MGIS. In the collecting site window under “Department/County”, the name Vietnam was entered and not the actual department, which was logged under “Location of the collecting site”. Someone probably confused the word “county” with “country”.

Table 8. Wild accessions of Vietnam listed in the wrong department.

IDNUM	COL_NUMB	SIT_LAT	SIT_LGT	Are located in	Should be located in	PVC_STAT	LOCATION
PHU0066	27	18,91	105,31	Do Luong	Tan Ky	Nghe An	
PHU0068	26	18,91	105,31	Do Luong	Anh Son	Nghe An	
PHU0071	54	21,45	105,23	Phong Chau	Doan Hung	Vinh Phu	
PHU0072	129	10,76	105,13	Chau Doc	Tinh Bien	An Giang	
PHU0075	155	18,91	105,31	Do Luong	Tan Ky	Nghe An	

An article published in the *InfoMusa* gives reliable information on the species observed in Vietnam (Danh *et al.* 1998). Unfortunately, it does not supply any accurate geographical data. During these five prospecting missions, which explored 30 of the 43 vietnamese provinces, two wild species were widely encountered growing side by side, *M. balbisiana* and *M. itinerans*. *M. acuminata* (subspecies not defined) and *M. coccinea* were observed in South Vietnam. A *Rhodochlamys* species was also found in gardens surrounding the temples, a domesticated plant cultivated for its ornamental value. This mission also yielded unidentified and undescribed species. One of them is *M. exotica* (*Callimusa*), which has been described by Valmayor (2001).

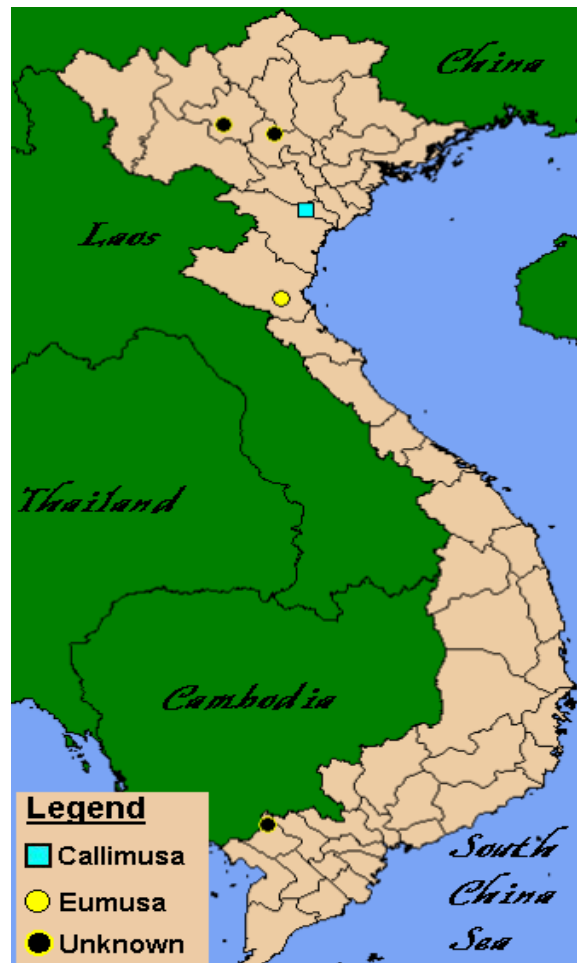


Figure 14. Distribution of *Musa* sections in Vietnam.

DISCUSSION

Recording information on wild species in MGIS

Quality control regarding the accuracy of data entry has already been reviewed in a previous report (Guinard 2003a). Consequently, this work will only formulate recommendations about how the information on wild species should be integrated to the database.

MGIS has proved to be an adequate tool to record data from literature. We only have to make some minor adjustments to the database. Firstly, a "Literature" menu should be created in the title bar. The passport data (Figure 15) has to be different from the one employed for the germplasm collection. The field "Status of the plant", being of no use, can be replaced by another one asking for the "Type of survey": observation only, collecting mission or other. A "Collector's name" field can be created to replace the "Curator's name" field. The action buttons "Notes", "Photos" and "Books" are useful and should stay, although the latter could be renamed "References". The "Acquisition" field remains useful as wild species can be collected. However, the new window onto which it opens should have more options to classify "The type of material received". In this field, terms like "flowers" or "leaves" could be added, since herbariums sometimes make collecting missions. On the

other hand, it would be wise to remove the “Hybrid” action button and replace it by “Synonyms” for the sometimes numerous names employed to designate a wild species. The “Location” button, to enter the location of an accession in the collection, should be replaced by a button that would open the collecting site window.

Figure 15. Current MGIS “Passport Data” window.

The collecting site window (Figure 16) is almost perfect. From it, it is already possible to enter ecogeographic data about the specific location of a species, where it was observed or collected. However, the action button “Situation”, which opens the “Geographical situation” window, should be updated. Latitude and longitude should include not only degrees and minutes, but also seconds. The location of a wild species specimen or population would then be more accurate. In the “Elevation” field, it would be better if it were possible to enter a range (i.e. 50 – 100 m) in addition to a discrete value. The “Destination” action button should stay because it shows whether the sample was treated during the mission, and then, the place to which the wild species was sent. The “Notes” action button is also very useful. It could be used to record more information about the population. For example, how many specimens are there in the population? Is the population allopatric (species growing in geographically isolated areas) or sympatric (two or more species growing in the same area or in areas that overlap)?

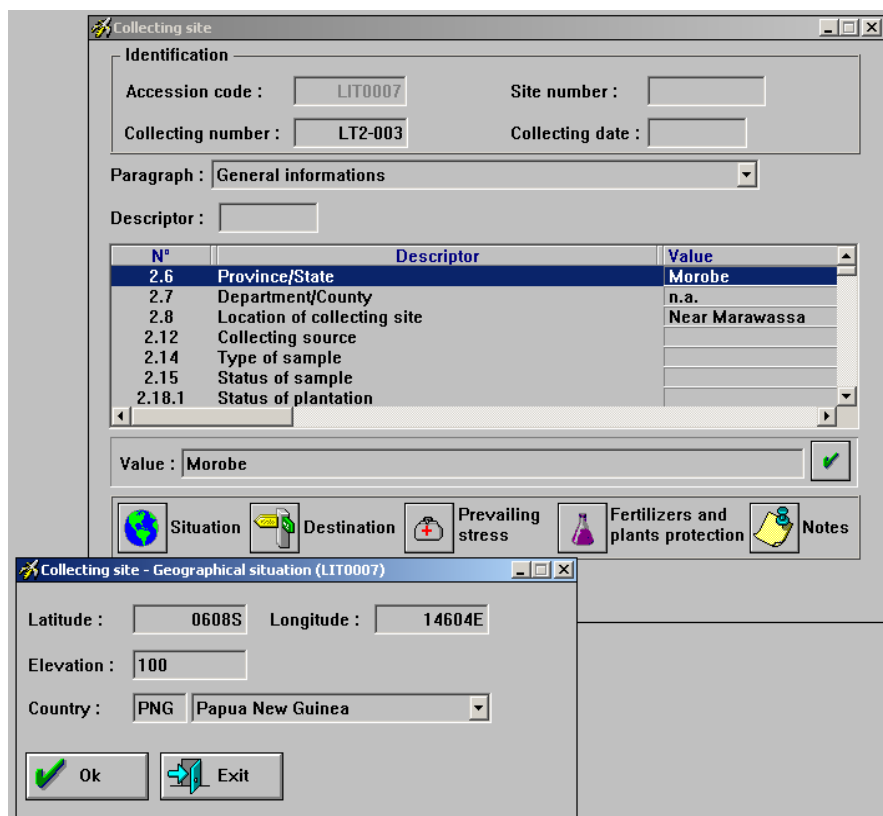


Figure 16. Current MGIS “Collecting Site” window.

Analysing *Musa* diversity using DIVA-GIS

The efficiency of this geographic information system has been analysed in a previous report (Guinard 2003b). Nonetheless, DIVA-GIS can be further exploited by using metadata. While studying climatic data sets, Guinard (2003b) found that wild *Musa* grow best where the average temperature is between 20 to 27°C and precipitations between 1300 to 4000 mm. We had less success in collecting additional data of interest, like cultivation intensity, soil degradation and deforestation. The reasons for this are various. For example, the Asia Pacific Spatial Data Project, an academic and applied research institution specializing in GIS databases for Asia, offers spatial data sets but these are licensed and sometimes cost over 1000 \$US. The GEO Data Portal, an online database, holds more than 400 geospatial data sets on freshwater, agriculture, health, forests, disasters and others. A potentially interesting data set about cultivation intensity was downloaded from this website but it was more than 10 years old. Moreover, the file format was not compatible with DIVA-GIS.

On the website of the Australian Center for International Agricultural Research an interesting document titled “Mapping Land Resource Potential and Agricultural Pressure in Papua New Guinea” (Hanson *et al.* 2001). On the website, only the report was available and not the shapefile, but it is possible to buy it from the center. Another possible interesting metadata for future integration in DIVA-GIS is the 2003 version of the World Database of Protected Areas (WDPA) CD-ROM. It has been prepared on behalf of the WDPA Consortium by the Center for Applied Biodiversity Science (CABS).

Data from Collecting missions

With GPS technology more accessible than ever, future collecting missions should use this tool to record the latitude and the longitude of a population. Accurate geographical data will facilitate mapping will help improve analysis with DIVA-GIS. In the last chapter of this report, we mentioned that some wild species observed or collected could not be added to MGIS because of insufficient information on their location. Since the collecting missions made 50, 30 or even 15 years ago did not have access to GPS technology, it is understandable that they could not always list accurate locations. Future expeditions should do everything in their power to avoid confusion. If they do not possess a GPS, they should record the exact locality in the following manner: XX km from XYZ village in the X direction (Moss and Guarino 1995). They should also explain how the site can be reached and describe its surroundings, if necessary. Recent collecting missions using a GPS, like the ones to northern Borneo (Häkkinen 2003) and Thailand (De Langhe 2000), did use a GPS and reported accurate locations. However, others (see the sections on China and Vietnam) had problems even when they used a GPS. In the future, field researchers would be well advised to enter their GPS data directly into a computer. Data editing would be easier and more secure and it would reduce the risk of making mistakes while entering the data. The subchapter on Papua New Guinea provides a good example of how this sort of errors can occur. In one instance, a person typed 0500 to indicate zero degrees and five minutes.

Collecting missions should record more ecogeographic data, especially since MGIS was originally conceived to store this type of information. An ecogeographic study is defined as a process of gathering and synthesizing taxonomic, geographic and ecological data (Maxted *et al.* 1995). The results can be used to assist future collecting missions and to set conservation priorities. Maxted and his collaborators are a good example of an ecogeographical study of annual legumes in Syria. They present a detailed analysis of the climatic and soil characteristics that influence the distribution of annual legumes in the country. They suggest that species diversity and seed production are related to annual rainfall and that populations in drier areas face a greater threat of genetic erosion. Based on their analysis of the ecogeographic data, they propose a detailed list of conservation priority (Maxted *et al.* 1995). Albeit very interesting, this kind of study may be difficult to realize on wild banana species, especially if the goal of the expedition is to get suckers, because those can only be stored for a limited time after collecting, especially if the conditions are hot and humid (Sharrock 1995). To overcome this problem, the collecting work should be carried out in a series of short missions. However, to gather taxonomic, geographic and ecological data takes so much time that it might prove incompatible with collecting suckers. More people could take part in the operation, but this would cost more money. Another solution is to collect wild species as seeds rather than suckers. Seed samples are easier to carry and store during collecting missions (Sharrock 1995).

Wild species status

Only Indonesia, Malaysia and Papua-New Guinea can boast of having near or over 50 records in the virtual "Literature" collection of MGIS. Australia, China, India, the Philippines, Thailand and

Vietnam all have around or fewer than 20. The situation is slowly improving due to the collecting missions that were undertaken recently. Bangladesh, Burma (Myanmar), Laos and Cambodia have no records at all. Moreover, all the information on wild *Musa* diversity in these countries is very old. One of the articles about the *Musaceae* in Cambodia dates back to the beginning of the 20th century. Much is to be expected when Burma (Myanmar) and its neighbours (Bangladesh, Cambodia and Laos) get properly explored, since all these countries lie within the center of diversity of the genus *Musa*. Unfortunately, the political situation prevailing in some of these countries makes it difficult and even dangerous to work there.

If some countries are underexplored, some sections of the *Musaceae* are also not well known. This is the case for *Rhodochlamys*. A recent review article (Häkkinen and Sharrock 2002) was largely based on descriptions made in the 19th and early 20th centuries. Even if the article had given up-to-date information, this section would still be poorly known. Only four records are found in the “literature” collection. Another species with few records is *M. balbisiana*; only 31, compared to 147 for *M. acuminata*. Of them, only 14 come from observations made in countries other than Papua New Guinea. Recently, 79 different wild *M. balbisiana* were collected in the Philippines and 45 in India (Anonymous 2003), but none of this data has yet been entered in MGIS. Collectors should publish their works more often or contact INIBAP for collaboration. INIBAP would then know about the countries or provinces being surveyed and eventually recommend regions that need to be sampled. In the case of *M. balbisiana*, even if the results in India and in the Philippines are encouraging, the diversity of this species does not limit itself to these two countries. New collecting missions should be made in China, Thailand, Vietnam, Bangladesh, Bhutan, Laos, Cambodia and Burma (Myanmar).

Finally, the genus *Musa* shows a great intraspecific variability. Earlier in this report it was mentioned that Nasution (1991) recorded 15 varieties of *M. acuminata* and Häkkinen (2003) five of *M. campestris*. In the future, for a more accurate classification, new species should be grown and botanically described under uniform conditions. With the help of multivariate analysis, or numerical analysis, it can be possible to determine how much variability is due to environmental conditions in the wild and which characters are stable or not. New species should also be submitted to the scrutiny of molecular markers. Ultimately, the goal is not to replace taxonomy by molecular biology, but to create a synergy between both in order to obtain a better understanding of the diversity of the *Musaceae*.

ACKNOWLEDGEMENTS

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APPENDIX A: *Musaceae* included in this report

Section	Accepted name
Eumusa	<i>Musa acuminata</i> L. A. Colla var. <i>Acuminata</i>
Eumusa	<i>Musa acuminata</i> L. A. Colla var. <i>alasensis</i> R.E. Nasution
Eumusa	<i>Musa acuminata</i> L. A. Colla subsp. <i>banksii</i> (F. J. H. von Mueller) N. W. Simmonds
Eumusa	<i>Musa acuminata</i> L. A. Colla var. <i>bantamensis</i> R.E. Nasution
Eumusa	<i>Musa acuminata</i> L. A. Colla var. <i>breviformis</i> R.E. Nasution
Eumusa	<i>Musa acuminata</i> L. A. Colla subsp. <i>burmannica</i> N. W. Simmonds
Eumusa	<i>Musa acuminata</i> L. A. Colla subsp. <i>burmannicoides</i> E. A. De Langhe
Eumusa	<i>Musa acuminata</i> L. A. Colla var. <i>cerifera</i> (C. A. Backer) R.E. Nasution
Eumusa	<i>Musa acuminata</i> L. A. Colla subsp. <i>errans</i> (F. M. Blanco) R. V. Valmayor
Eumusa	<i>Musa acuminata</i> L. A. Colla subsp. <i>halabanensis</i> (W. Meijer) M. Hotta
Eumusa	<i>Musa acuminata</i> L. A. Colla var. <i>longepetiolata</i> R.E. Nasution
Eumusa	<i>Musa acuminata</i> L. A. Colla subsp. <i>malaccensis</i> (H. N. Ridley) N.W. Simmonds
Eumusa	<i>Musa acuminata</i> L. A. Colla subsp. <i>microcarpa</i> (O. Beccari) N. W. Simmonds
Eumusa	<i>Musa acuminata</i> L. A. Colla var. <i>nakaii</i> R.E. Nasution
Eumusa	<i>Musa acuminata</i> L. A. Colla var. <i>rutifiles</i> (C. A. Backer) R.E. Nasution
Eumusa	<i>Musa acuminata</i> L. A. Colla subsp. <i>siamea</i> N. W. Simmonds,
Eumusa	<i>Musa acuminata</i> L. A. Colla var. <i>sumatrana</i> R.E. Nasution
Eumusa	<i>Musa acuminata</i> L. A. Colla var. <i>tomentosa</i> (K. M. Schumann) R.E. Nasution
Eumusa	<i>Musa acuminata</i> L. A. Colla var. <i>truncata</i> (H. N. Ridley) A. N. Other
Australimusa	<i>Musa alinsanaya</i> R. V. Valmayor
<i>Incertae sedis</i>	<i>Musa angcorensis</i> F. Gagnepain
Eumusa	<i>Musa balbisiana</i> L. A. Colla
Eumusa	<i>Musa basjoo</i> P. F. (B.) von Siebold & J. G. Zuccarini ex Y. Iinuma
Callimusa	<i>Musa bauensis</i> M. Häkkinen and K. Meekiong
Australimusa	<i>Musa boman</i> G. C. G. Argent
Australimusa	<i>Musa bukensis</i> G. C. G. Argent

Section	Accepted name
Callimusa	<i>Musa campestris</i> Becc. var. <i>lawasensis</i> M. Häkkinen
Callimusa	<i>Musa campestris</i> Becc. var. <i>limbangensis</i> M. Häkkinen
Callimusa	<i>Musa campestris</i> Becc. var. <i>miriensis</i> M. Häkkinen
Callimusa	<i>Musa campestris</i> Becc. var. <i>sabahensis</i> M. Häkkinen
Callimusa	<i>Musa campestris</i> Becc. var. <i>sarawakensis</i> M. Häkkinen
Eumusa	<i>Musa cheesmani</i> N. W. Simmonds
Callimusa	<i>Musa coccinea</i> H. C. Andrews
Australimusa	<i>Musa exotica</i> R. V. Valmayor
Australimusa	<i>Musa fitzalanii</i> F. J. H. von Mueller
Callimusa	<i>Musa flavida</i> M. Hotta
Eumusa	<i>Musa flaviflora</i> N. W. Simmonds
Callimusa	<i>Musa gracilis</i> R. E. Holttum ex E. E. Cheesman
<i>Incertae sedis</i>	<i>Musa griersonii</i> H. J. Noltie
Callimusa	<i>Musa hirta</i> O. Beccari
<i>Incertae sedis</i>	<i>Musa ingens</i> N. W. Simmonds
Eumusa	<i>Musa itinerans</i> E. E. Cheesman
Australimusa	<i>Musa jackeyi</i> W. Hill
Australimusa	<i>Musa johnsii</i> G. C. G. Argent
Rhodochlamys	<i>Musa laterita</i> E. E. Cheesman
Australimusa	<i>Musa lolodensis</i> E. E. Cheesman
Australimusa	<i>Musa maclayi</i> F. J. H. von Mueller ex N. N. Miklouho-Maclay subsp. <i>ailuluai</i> G. C. G. Argent
Australimusa	<i>Musa maclayi</i> F. J. H. von Mueller ex N. N. Miklouho-Maclay subsp. <i>maclayi</i> var. <i>erecta</i> (N. W. Simmonds) G. C. G. Argent
Australimusa	<i>Musa maclayi</i> F. J. H. von Mueller ex N. N. Miklouho-Maclay subsp. <i>maclayi</i> var. <i>maclayi</i>
Australimusa	<i>Musa maclayi</i> F. J. H. von Mueller ex N. N. Miklouho-Maclay subsp. <i>maclayi</i> var. <i>namatani</i> G. C. G. Argent
Australimusa	<i>Musa monticola</i> M. Hotta
Australimusa	<i>Musa muluensis</i> M. Hotta
Eumusa	<i>Musa nagensium</i> D. Prain
Rhodochlamys	<i>Musa ornata</i> W. Roxburgh
Callimusa	<i>Musa paracoccinea</i> A. Z. Liu & D. Z. Li

Section	Accepted name
Australimusa	<i>Musa peekelii</i> C. K. A. G. Lauterbach subsp. <i>angustigemma</i> (N. W. Simmonds) G. C. G. Argent
Australimusa	<i>Musa peekelii</i> C. K. A. G. Lauterbach subsp. <i>peekelii</i> (N. W. Simmonds) G. C. G. Argent
Rhodochlamys	<i>Musa rosea</i> J. G. Baker
Rhodochlamys	<i>Musa sanguinea</i> F. M. J. Welwitsch ex J. G. Baker
Australimusa	<i>Musa schizocarpa</i> N. W. Simmonds
Eumusa	<i>Musa sikkimensis</i> W. S. Kurz
<i>Incertae sedis</i>	<i>Musa suratii</i> G. C. G. Argent
Australimusa	<i>Musa textilis</i> L. Nee
<i>Incertae sedis</i>	<i>Musa thomsonii</i> (G. King ex K. M. Schumann) A. M. Cowan & J. M. Cowan
Australimusa	<i>Musa tuberculata</i> M. Hotta
Rhodochlamys	<i>Musa velutina</i> H. A. Wendland & C. G. O. Drude
Callimusa	<i>Musa violascens</i> H. N. Ridley

APPENDIX B: Articles incorporated in the MGIS database

IDNUM	COL_NUMB	BIBLIO
LIT0001 - 004	LT1-01 to LT1-04	De Langhe E., Häkkinen M., and Nasution R.E. 2003. <i>Musa acuminata</i> spp. <i>microcarpa</i> varieties in Northern Borneo. IN PRINT
LIT0005 - 99	LT2-01 to LT2-99	Argent, G. 1976. The wild bananas of Papua New Guinea Notes Roy. Bot. Gard. Edinb. 35: 77-113
LIT0100 - 129	LT3-01 to LT3-30	Nasution, R.E. 1991. A taxonomic study of the species <i>Musa acuminata</i> Colla with its intraspecific taxa in Indonesia. Memoirs of Tokyo University of Agriculture.
LIT0130 -132	LT4-01 to LT4-03	Argent, G. 2001. Contributions to the flora of Mount Jaya VI. A new banana, <i>Musa johnsii</i> (<i>Musaceae</i>) from New Guinea. Gardens Bulletin Singapore 53 : 1 - 7.
LIT0133 - 137	LT5-01 to LT5-05	Argent, G. 2000. Two interesting wild <i>Musa</i> species (<i>Musaceae</i>) from Sabah, Malaysia. Gardens' Bulletin Singapore, 52: 203 - 210
LIT0138 - 150	LT6-01 to LT6-13	Wong et al. 2002. Assessment of the validity of the sections in <i>Musa</i> (<i>Musaceae</i>) using AFLP. Annals of Botany 90: 231 - 238
LIT0151 - 154	LT7-01 to LT7-04	Valmayor, R.V. 2001. Classification and characterization of <i>Musa exotica</i> , <i>M. alinsanaya</i> and <i>M. acuminata</i> ssp. <i>errans</i> . Philippine Agricultural Scientist 84 : 325-331.
LIT0155 - 160	LT8-01 to LT8-06	Hotta, M. 1967. Notes on the wild banana of Borneo. Journal of Japanese Botany 42 : 344-353.
LIT0161 - 193	LT9-01 to LT9-33	Rosales, F. Arnaud, E. and Coto, J. 1999. A tribute to the work of Paul Allen: A catalogue of wild and cultivated bananas. INIBAP, Montpellier, France.
LIT0194 - 265	LT10-01 to LT10-72	Simmonds, N.W. 1956. Botanical results of the banana collecting expedition, 1954-5. Kew Bulletin 11: 463 - 489
LIT0266 - 280	LT11-01 to LT11-15	De Langhe, E. , Wattanachaiyingcharoen, D., Volkaert, H. and Piyapitchard, S. 2000. Biodiversity of wild <i>Musaceae</i> in Northern Thailand. In: Molina, A.B. and Roa, V.N. (eds) Advancing banana and plantain R & D in Asia and the Pacific. INIBAP, Montpellier, France. pp. 71-83.
LIT0281- 285	LT12-01 to LT12-05	Häkkinen, M. 2003. <i>Musa campestris</i> Beccari varieties in Northern Borneo. IN PRINT
LIT0286	LT13-01	Häkkinen, M. and Meekiong, K. 2003. A new species of <i>Musa</i> from Borneo. IN PRINT
LIT0287 - 288	LT14-01 to LT14-02	Sharrock, S. 1988. Report on the first IBPGR/QDPI Banana Germplasm Collecting Mission to Papua New Guinea.
LIT0289 - 291	LT15-01 to LT15-03	Sharrock, S. 1988. Report on the second IBPGR/QDPI Banana Germplasm Collecting Mission to Papua New Guinea.

APPENDIX C. Bibliographic data on wild species

Journal	Author	Title	Year	Country	Species involved	Personal evaluation
Advancing banana and plantain R & D in Asia and the Pacific - Molina, A.B., Roa, V.N. (eds) p. 71-83	De Langhe, E., Wattanachaiyingcharoen, D., Volkaert, H., Piyapitchard, S.	Biodiversity of wild Musaceae in Northern Thailand	2000	Thailand	<p><u>Eumusa</u> <i>Musa acuminata</i> spp. <i>malaccensis</i> <i>Musa acuminata</i> spp. <i>siamea</i> <i>Musa balbisiana</i> <i>Musa itinerans</i> <i>Musa sikkimensis</i> <u>Rhodochlamys</u> <i>Musa laterita</i> <u>Incertae sedis</u> <i>M. acuminata</i> spp. <i>siamea</i> x <i>M. laterita</i> <u>Ensete</u> <i>Ensete glaucum</i> <i>Ensete superbum</i></p>	Data on wild <i>Musaceae</i> in Thailand. Localisation is limited to a province or a region.
Annals of Botany 90: 231 - 238	Wong, S., Kiew, R., Argent, G., Set, O., Lee, S. K., Gan, Y. Y.	Assessment of the Validity of the Sections in <i>Musa</i> (Musaceae) using ALFP	2002	Malaysia Philippines	<p><u>Eumusa</u> <i>Musa acuminata</i> spp. <i>burmanica</i> <i>Musa acuminata</i> spp. <i>malaccensis</i> <i>Musa acuminata</i> spp. <i>siamea</i> <i>Musa acuminata</i> spp. <i>truncata</i> <i>Musa balbisiana</i> <i>Musa nagensium</i> <i>Musa sikkimensis</i> <i>Musa itinerans</i> <u>Rhodochlamys</u> <i>Musa laterita</i> <i>Musa ornata</i> <i>Musa velutina</i> <u>Callimusa</u> <i>Musa suratii</i> <i>Musa borneensis</i> <i>Musa campestris</i> <i>Musa coccinea</i> <i>Musa violescens</i> <i>Musa gracilis</i> <u>Australimusa</u> <i>Musa baccarii</i> <i>Musa jackeyi</i> <i>Musa monticola</i> <i>Musa textilis</i> <u>Ensete</u> <i>Ensete glaucum</i> <i>Ensete superbum</i></p>	Knowledge about molecular markers (AFLP). <i>Musa suratii</i> and <i>Musa monticola</i> are defined in a section, Samples coming from collection botanical gardens and in wild. Location limited to a province or a village.

Journal	Author	Title	Year	Country	Species involved	Personal evaluation
Australian Plants 17: 264-266	Dick, H.	Wild banana - <i>Musa banksii</i>	1994	Australia	<u>Eumusa</u> <i>Musa acuminata</i> spp. <i>banksii</i>	Information about <i>Musa acuminata</i> spp. <i>banksii</i> in wild. Location limited to a region.
Biotropia 16: 28-38	Javed, M.A., Chai, M., Othman, R.Y.	Characterization of Malaysian wild banana's based on anthocyanins	2001	Malaysia	<u>Eumusa</u> <i>Musa acuminata</i> <i>Musa balbisiana</i> <u>Callimusa</u> <i>Musa violascens</i>	Characterisation of wild species using chemotaxonomy. Location limited to a province or a village. Subspecies not always defined.
Biotropica 23: 151-158	Itino, T. Kato, M. Hotta, M.	Pollination ecology of the two wild bananas, <i>Musa acuminata</i> subsp. <i>halabanensis</i> and <i>M. salaccensis</i> : chiropterophily and ornithophily	1991	Indonesia	<u>Eumusa</u> <i>Musa acuminata</i> spp. <i>halabanensis</i> <u>Callimusa</u> <i>Musa salaccensis</i>	Knowledge about pollinisation Little information about location
Botanical Bulletin of Academia Sinica 43: 77-81	Ai-Zhong Liu, De-Zhu Li, Xi-Wen Li	Taxonomic notes on wild bananas (<i>Musa</i>) from China	2002	China	<u>Eumusa</u> <i>Musa basjoo</i> <i>Musa itinerans</i> <i>Musa nagensium</i> <u>Callimusa</u> <i>Musa coccinea</i> <i>Musa paracoccinea</i> <u>Rhodochlamys</u> <i>Musa sanguinea</i>	Taxonomic studies of wild bananas in China. Localisation show through a map only,
Bulletin de la Société Botanique France 54:412-413	Gagnepain, F.	<i>Musa angcorensis</i>	1907	Cambodia	<u>Callimusa or Rhodochlamys</u> <i>Musa angcorensis</i>	Description of <i>Musa angcorensis</i> localisation is available
Bulletin Heliconial Society 10: 1-2	Bar-Zvi, D.	<i>Musella lasiocarpa</i> : A cinderella from China	2000	China	<i>Musella lasiocarpa</i>	Description of <i>Musella lasiocarpa</i> only,
Current Genetics 25:265-269	Fauré S., Noyer J.L., Carreel F., Horry J.P., Bakry F., Lanaud C.	Maternal inheritance of chloroplast genome and paternal inheritance of mitochondrial genome in bananas (<i>Musa acuminata</i>).	1994	Not specified	<i>Musa acuminata</i>	Knowledge about mitochondrial and chloroplastic DNA. Plants came from a research center in Guadeloupe. No information about the localisation of the wild species

Journal	Author	Title	Year	Country	Species involved	Personal evaluation
Curtis's Botanical Magazine Vol. 117 Tab. 7182	Hooker, J.D.	<i>Musa basjoo</i>	1891	Japan	<u>Eumusa</u> <i>Musa basjoo</i>	Botanical description, agronomics characteristics, place of growth.
Curtis's Botanical Magazine Vol. 119 Tab. 7311	Hooker, J.D.	<i>Musa mannii</i>	1893	India	<u>Rhodochlamys</u> <i>Musa mannii</i>	Botanical description, agronomics characteristics, place of growth.
Curtis's Botanical Magazine Vol. 121 Tab. 7451	Hooker, J.D.	<i>Musa rubra</i>	1895	Burma	<u>Rhodochlamys</u> <i>Musa rubra</i>	Botanical description, agronomics characteristics, place of growth.
Curtis's Botanical Magazine Vol. 124 Tab. 7627	Hooker, J.D.	<i>Musa bakeri</i>	1898	Vietnam	None - undetermined cultivated cooking banana.	Botanical description, agronomics characteristics, place of growth.
Curtis's Botanical Magazine Vol. 127 Tab. 7802	Hooker, J.D.	<i>Musa oleracea</i>	1901	New Caledonia	None - undetermined cultivated cooking banana.	Botanical description, agronomics characteristics, place of growth.
Curtis's Botanical Magazine Vol. 38 Tab. 1559	Sims, J.	<i>Musa coccinea</i> . Scarlet Banana	1813	China	<u>Callimusa</u> <i>Musa coccinea</i>	Botanical description, agronomics characteristics, place of growth.
Curtis's Botanical Magazine Vol. 66 Tab. 3849-3850	Hooker, W.J.	<i>Musa superba</i> . Superb Plantain Tree	1840	India	<u>Ensete</u> <i>Ensete superbum</i>	Botanical description, agronomics characteristics, place of growth.
Curtis's Botanical Magazine Vol. 89 Tab. 5402	Hooker, W.J.	<i>Musa sapientum</i> ; var. <i>vittata</i>	1863	Benin	(AAB, plantains)	Botanical description, agronomics characteristics, place of growth.
Curtis's Botanical Magazine Vol. 98 Tab. 5975	Hooker, J.D.	<i>Musa sanguinea</i>	1872	India	<u>Rhodochlamys</u> <i>Musa sanguinea</i>	Botanical description, agronomics characteristics, place of growth.
Curtis's Botanical Magazine 19: 49-54	Turner, J., Mathew, B., Lock, M	<i>Musa basjoo</i>	2002	Japan	<u>Eumusa</u> <i>Musa basjoo</i>	Distribution, classification, uses and cultural requirements of <i>Musa basjoo</i> , Localisation limited to region.

Journal	Author	Title	Year	Country	Species involved	Personal evaluation
Flora of Australia. Vol.45	Ross, E.M.	<i>Musaceae</i>	1987	Australia	<u>Eumusa</u> <i>Musa acuminata</i> spp. <i>banskii</i> <u>Australimusa</u> <i>Musa jacekyi</i> <u>Incertae sedis</u> <i>Musa charlioi</i> <i>Musa fitzalanii</i>	Document came from an Australian flora. Information about wild bananas in Australia. Longitude and latitude is available for some species. The two species listed under <i>Incertae sedis</i> are hypothetical.
Fruit Gardener 33: 6-7	Häkkinen, M.	<i>Musa laterita</i> : An ornamental banana	2001	see comments	<u>Rhodochlamys</u> <i>Musa laterita</i>	The author gives an account of how he has grown <i>Musa laterita</i> indoors in Finland.
Fruit Gardener 34 : 12-18	Häkkinen, M.	Pictorial Travelogue: A trip to Borneo	2002	Malaysia	See comments	Illustrated report of a <i>Musa</i> wild species collecting mission in Borneo. No localisation, check upcoming articles by Häkkinen
Gardens' Bulletin Singapore, 52 : 203 - 210	Argent, G.	Two interesting wild <i>Musa</i> species (<i>Musaceae</i>) from Sabah, Malaysia	2000	Malaysia	<u>Incertae sedis</u> <i>Musa monticola</i> <i>Musa suratii</i>	Description of two new <i>Musa</i> species. Localisation is limited to village.
Gardens' Bulletin Singapore 53 : 1 - 7.	Argent, G.	Contributions to the Flora of Mount Jaya VI. A New Banana, <i>Musa johnsii</i> (<i>Musaceae</i>) from New Guinea	2001	Indonesia	<u>Australimusa</u> <i>Musa johnsii</i>	Description and illustration of a new species <i>Musa johnsii</i> . Location limited to region.
Gardens' Bulletin Singapore 53: 327 - 341	Wong, S., Kiew, R., Lamb, A., Set, O., Lee, S. K., Gan, L. H., Gan, Y. Y.	Sectional Placement of Three Bornean Species of <i>Musa</i> (<i>Musaceae</i>) based on Amplified Fragment Length Polymorphism (ALFP).	2001	Same as: Annals of Botany 90: 231 - 238	Same as: Annals of Botany 90: 231 - 238	Same as: Annals of Botany 90: 231 - 238

Journal	Author	Title	Year	Country	Species involved	Personal evaluation
Génét. Sél. Evol. 26:125s-136s	Fauré S., Noyer J.L., Carreel F., Horry J.P., Bakry F., Lanaud C.	Evaluation de la diversité génétique chez les bananiers diploïdes (<i>Musa</i> sp.).	1994	From collection	<u>Eumusa</u> <i>Musa acuminata</i> ssp. <i>banskii</i> <i>Musa acuminata</i> ssp. <i>burmannicoides</i> <i>Musa acuminata</i> ssp. <i>burmannica</i> <i>Musa acuminata</i> ssp. <i>errans</i> <i>Musa acuminata</i> ssp. <i>malaccensis</i> <i>Musa acuminata</i> ssp. <i>microcarpa</i> <i>Musa acuminata</i> ssp. <i>siamea</i> <i>Musa acuminata</i> ssp. <i>truncata</i> <i>Musa acuminata</i> ssp. <i>zebrina</i> <i>Musa balbisiana</i> <i>Musa schizocarpa</i>	Genetic diversity evaluated with molecular markers (RFLP). Specimens came from germplasm and collection.
Genetic Resources and Crop Evolution 46: 619 - 628	Lebot, V	Biomolecular evidence for plant domestication in Sahul.	1999	Australia Indonesia Papua New Guinea	<u>Eumusa</u> <i>Musa acuminata</i> spp. <i>banskii</i> <i>Musa balbisiana</i> <i>Musa schizocarpa</i>	Scientific paper about plant domestication, not only bananas. Localisation about wild bananas area of distribution limited to countries or provinces.
Genome 37: 328-332	Howell E.C., Newbury H.J., Swennen R.L., Withers L.A., Ford-Lloyd B.V.	The use of RAPD for identifying and classifying <i>Musa</i> germplasm	1994	Not specified	<u>Eumusa</u> <i>Musa acuminata</i> spp. <i>burmannicoides</i> <i>Musa acuminata</i> spp. <i>malaccensis</i> <i>Musa balbisiana</i>	Knowledge about molecular markers (RAPD). Plants came from a research center in Leuven (INIBAP). No information about the localisation of the wild species.
Infomusa 2: 16-17	Nasution, R.E.	Rediscovery of two wild seeded Bananas of Indonesia.	1993	Indonesia	<u>Australimusa</u> <i>Musa lolodensis</i> <u>Callimusa</u> <i>Musa salaccensis</i>	Detailed description of wild bananas, covering anatomy, common names, habitat and distribution. Localisation limited to region and village
Infomusa 4: 3-4	Danh, L.D., Valmayor, R.V.	Collection, characterization and conservation of the indigenous <i>Musa</i> germplasm of Vietnam - A progress report	1995	Vietnam	<u>Eumusa</u> <i>Musa balbisiana</i> <i>Musa itinerans</i> <i>Musa acuminata</i> ssp.? <u>Callimusa</u> <i>Musa coccinea</i>	Article about a prospecting mission in Vietnam. No localisation, but the species observed are mentioned.

Journal	Author	Title	Year	Country	Species involved	Personal evaluation
Infomusa 11: 10-13	Danh, L.D., Nhi, H.H., Valmayor, R.V.	Banana collection, characterization and conservation in Vietnam	1998	Vietnam	<u>Eumusa</u> <i>Musa balbisiana</i> <i>Musa itinerans</i> <i>Musa acuminata</i> ssp.? <u>Callimusa</u> <i>Musa coccinea</i>	Article about a prospecting mission in Vietnam. No localisation, but the species observed are mentioned.
INIBAP annual report 2000 p. 14-19	Sharrock, S.	Diversity in the genus <i>Musa</i> : focus on <i>Australimusa</i>	2001	Papua New Guinea	<i>Australimusa</i>	Global knowledge about <i>Australimusa</i>
INIBAP annual report 2001 p. 16-23	Sharrock, S. Häkkinen, M.	Diversity in the genus <i>Musa</i> : focus on <i>Rhodochlamys</i>	2002	Bangladesh China India Myanmar Thailand	<i>Rhodochlamys</i>	Global knowledge about <i>Rhodochlamys</i>
IPGRI newsletter for Asia, the Pacific and Oceania no. 28.	Anonymous	Collection, identification and conservation of genetic resources of <i>Musa</i>	1999	Sri Lanka	<u>Eumusa</u> <i>Musa balbisiana</i> <i>Musa acuminata</i> ssp.?	Article about a prospecting mission in Sri Lanka. No localisation, but the species observed are mentioned.
Journal of Japanese Botany 42 : 350-?	Hotta, M.	Notes on the wild banana of Borneo	1967	Indonesia	<u>Australimusa</u> <i>Musa muluensis</i> <i>Musa textilis</i> <i>Musa tuberculata</i> <u>Callimusa</u> <i>Musa campestris</i> <i>Musa flavida</i> <u>Incertae sedis</u> <i>Musa hirta</i>	Botanical descriptions of wild bananas. Description of new species, Localisation limited to a region or village. Altitude of collected plants is available.

Journal	Author	Title	Year	Country	Species involved	Personal evaluation
Kew Bulletin 5:27-29	Cheesman, E.E.	Classification of the Bananas	1947	See comments	See comments	Global knowledge about classification of <i>Musa</i>
Kew Bulletin 2:27-28	Cheesman, E.E.	Classification of the Bananas	1950	Indonesia	<u>Australimusa</u> <i>Musa lolodensis</i>	Description of <i>Musa lolodensis</i> , Location limited to region.
Kew Bulletin 5: 151-155	Cheesman, E.E.	Classification of the Bananas	1950	Malaysia	<u>Callimusa</u> <i>Musa borneensis</i> <i>Musa gracilis</i> <i>Musa violascens</i>	Description of some <i>Callimusa</i> species, Location limited to old observation made by my previous botanist.
Kew Bulletin 8: 571-573	Simmonds, N.W.	Classification of the Bananas	1953	Papua New Guinea	<u>Australimusa</u> <i>Musa erecta</i>	Description of <i>Musa erecta</i> , which is now known as <i>Musa maclayi</i> spp. <i>maclayi</i> var. <i>erecta</i> . Location limited to region.
Kew Bulletin 11: 463 - 489	Simmonds, N.W.	Botanical Results of the Banana Collecting Expedition, 1954-5	1956	Australia India Indonesia Malaysia Myanmar Papua New Guinea Thailand	<u>Eumusa</u> <i>Musa acuminata</i> spp. <i>banskii</i> <i>Musa acuminata</i> ssp. <i>burmannica</i> <i>Musa acuminata</i> ssp. <i>malaccensis</i> <i>Musa acuminata</i> ssp. <i>microcarpa</i> <i>Musa acuminata</i> ssp. <i>siamea</i> <i>Musa balbisiana</i> <i>Musa cheesmani</i> <i>Musa flaviflora</i> <i>Musa itinerans</i> <i>Musa nagensium</i> <i>Musa schizocarpa</i> <i>Musa sikkimensis</i> <u>Australimusa</u> <i>Musa angustigemma</i> <i>Musa maclayi</i> <u>Callimusa</u> <i>Musa gracilis</i> <i>Musa violescens</i> <u>Rhodochlamys</u> <i>Musa velutina</i> x <i>Musa flaviforma</i>	Results of a collecting mission. Specimens collected in the wild. Location is accurate with longitude and latitude. Altitude is also available.

Journal	Author	Title	Year	Country	Species involved	Personal evaluation
Memoirs of Tokyo University of Agriculture	Nasution, R.E.	A taxonomic study of the species <i>Musa acuminata</i> Colla with its intraspecific taxa in Indonesia	1991	Indonesia	<u>Eumusa</u> <i>Musa acuminata</i> ssp. <i>acuminata</i> <i>Musa acuminata</i> ssp. <i>alasensis</i> <i>Musa acuminata</i> ssp. <i>bantamensis</i> <i>Musa acuminata</i> ssp. <i>breviformis</i> <i>Musa acuminata</i> ssp. <i>cerifera</i> <i>Musa acuminata</i> ssp. <i>flava</i> <i>Musa acuminata</i> ssp. <i>halabanensis</i> <i>Musa acuminata</i> ssp. <i>longepetiolata</i> <i>Musa acuminata</i> ssp. <i>malaccensis</i> <i>Musa acuminata</i> ssp. <i>microcarpa</i> <i>Musa acuminata</i> ssp. <i>nakaii</i> <i>Musa acuminata</i> ssp. <i>rutifiles</i> <i>Musa acuminata</i> ssp. <i>sumatrana</i> <i>Musa acuminata</i> ssp. <i>tomentosa</i> <i>Musa acuminata</i> ssp. <i>zebrina</i>	Genetic diversity of wild bananas evaluated with taxonomy and isoenzymes. Specimens collected in the wild. Location limited to province or village. Altitude is also available

Journal	Author	Title	Year	Country	Species involved	Personal evaluation
New Phytologist 115: 567-571	Simmonds, N.W., Weatherup, S.T.C	Numerical taxonomy of the wild bananas (<i>Musa</i>).	1990	Not specified	<p><u>Eumusa</u> <i>Musa acuminata</i> spp. <i>banskii</i> <i>Musa acuminata</i> spp. <i>burmannica</i> <i>Musa acuminata</i> spp. <i>malaccensis</i> <i>Musa acuminata</i> spp. <i>microcarpa</i> <i>Musa acuminata</i> spp. <i>siamea</i> <i>Musa balbisiana</i> <i>Musa basjoo</i> <i>Musa cheesmani</i> <i>Musa itinerans</i> <i>Musa nagensium</i> <i>Musa schizocarpa</i> <i>Musa sikkimensis</i></p> <p><u>Australimusa</u> <i>Musa bukensis</i> <i>Musa lolodensis</i> <i>Musa maclayi</i> spp. <i>maclayi</i> <i>Musa peekelii</i> spp. <i>angustigemma</i> <i>Musa peekelii</i> spp. <i>peekelii</i> <i>Musa textilis</i></p> <p><u>Callimusa</u> <i>Musa borneensis</i> <i>Musa beccarii</i> <i>Musa coccinea</i> <i>Musa gracilis</i> <i>Musa violescens</i></p> <p><u>Rhodochlamys</u> <i>Musa laterita</i> <i>Musa ornata</i> <i>Musa sanguinea</i> <i>Musa velutina</i></p> <p><u>Incertae sedis</u> <i>Musa boman</i> <i>Musa ingens</i></p>	No information about localisation. Information about taxonomy

Journal	Author	Title	Year	Country	Species involved	Personal evaluation
Notes from the Royal Botanic Garden Edinburgh 35: 77 - 114	Argent, G. C. G.	The Wild Bananas of Papua New Guinea	1976	Papua New Guinea	<u>Eumusa</u> <i>Musa acuminata</i> ssp. <i>banskki</i> <i>Musa balbisiana</i> <i>Musa schizocarpa</i> <u>Australimusa</u> <i>Musa boman</i> <i>Musa bukensis</i> <i>M. maclayi</i> spp. <i>ailuluai</i> <i>M. maclayi</i> spp. <i>maclayi</i> var. <i>erecta</i> <i>M. maclayi</i> spp. <i>maclayi</i> var. <i>namatani</i> <i>Musa peekelii</i> spp. <i>angustigemma</i> <i>Musa peekelii</i> spp. <i>peekelii</i> <i>Musa lolodensis</i> <u>Ensete</u> <i>Ensete glaucum</i> <u>Ingentimusa</u> <i>Musa ingens</i>	Description of wild bananas. Localisation limited to village or province,
Philippine Agricultural Scientist 84 : 325-331	Valmayor, R.V.	Classification and characterization of <i>Musa exotica</i> , <i>M. alinsanaya</i> and <i>M. acuminata</i> ssp. <i>errans</i>	2001	Philippines Viet-Nam	<u>Eumusa</u> <i>M. acuminata</i> ssp. <i>errans</i> <u>Australimusa</u> <i>Musa alinsanaya</i> <u>Callimusa</u> <i>Musa exotica</i>	Botanical descriptions of 3 new wild bananas. Localisation is accurate for some and limited to a region or village for other,
Plant Genetic Resources Newsletter 48; 31-37	Hanson, J., Imelda, M.	Collecting in Maluku, Indonesia	1981	Indonesia	See comments	Not only about wild bananas. Nothing really interesting.
Plant resources of South-East Asia. Proceedings of the first PROSEA international symposium -Nasution, R.E. Siemonsma, J.S. (ed.); Wulijarni Soetjipto, N. (ed.) - p. 281-283		Wild bananas of Indonesia	1989	Indonesia	<u>Eumusa</u> <i>Musa acuminata</i> ssp. <i>acuminata</i> <i>Musa acuminata</i> ssp. <i>cerifera</i> <i>Musa acuminata</i> ssp. <i>halabanensis</i> <i>Musa acuminata</i> ssp. <i>malaccensis</i> <i>Musa acuminata</i> ssp. <i>rutifiles</i> <i>Musa acuminata</i> ssp. <i>sumatrana</i> <i>Musa acuminata</i> ssp. <i>zebrina</i> <u>Australimusa</u> <i>Musa lolodensis</i> <u>Callimusa</u> <i>Musa salaccensis</i> <u>Incertae sedis</u> <i>Musa celebica</i>	Description of 10 specimens of wild bananas coming from wild and herbarium. Geographical distribution limited to region.

Journal	Author	Title	Year	Country	Species involved	Personal evaluation
Proceedings of the 6th International Congress of SABRAO p.167-169	Nasution, R.E., Nakamura, T., Izumi, K., Iyama, S., Amano, M., Hirai, Y.	Taxonomic study of Monkey Bananas (Musa acuminata Colla) of Indonesia	1989	Indonesia	<u>Eumusa</u> <i>Musa acuminata</i> ssp. <i>acuminata</i> <i>Musa acuminata</i> ssp. <i>alasensis</i> <i>Musa acuminata</i> ssp. <i>bantamensis</i> <i>Musa acuminata</i> ssp. <i>breviformis</i> <i>Musa acuminata</i> ssp. <i>cerifera</i> <i>Musa acuminata</i> ssp. <i>flava</i> <i>Musa acuminata</i> ssp. <i>halabanensis</i> <i>Musa acuminata</i> ssp. <i>longepetiolata</i> <i>Musa acuminata</i> ssp. <i>malaccensis</i> <i>Musa acuminata</i> ssp. <i>microcarpa</i> <i>Musa acuminata</i> ssp. <i>nakaii</i> <i>Musa acuminata</i> ssp. <i>rutifiles</i> <i>Musa acuminata</i> ssp. <i>sumatrana</i> <i>Musa acuminata</i> ssp. <i>tomentosa</i> <i>Musa acuminata</i> ssp. <i>zebrina</i>	Taxonomic studies of wild bananas in Indonesia. No information about localisation. More information in M. Nasution memoirs of Tokyo University of Agriculture.
Revue de Botanique Appliquée et d'Agriculture Tropicale 14:506 - 521	Chevalier, A.J.B.	Bananiers spontanés de l'Indochine.	1934	Cambodia Vietnam	<u>Callimusa</u> <i>Musa coccinea</i> <u>Incertae sedis</u> <i>Musa angcorensis</i> <i>Musa bakeri</i> <i>Musa martini</i> <i>Musa splendida</i>	Description of some species of Cambodia and Vietnam not much details. Localisation is not available for all species.
RFC newsletter 68: 6	Daniels, J.	Native bananas of North Queensland	1991	Australia	<u>Eumusa</u> <i>Musa acuminata</i> ssp. <i>banskii</i> <u>Australimusa</u> <i>Musa jackeyi</i> <u>Incertae sedis</u> <i>Musa charlioi</i> <i>Musa fitzalanii</i>	Information about wild bananas in Australia. Location limited to region. The two species listed under <i>Incertae sedis</i> are hypothetical.
The Philippine Agricultural Scientist 85: 204-209	Valmayor, R.V., Le Dinh Danh	Classification and Characterization of <i>Musella splendida</i> sp. nov	2002	Vietnam	<u>Musella</u> <i>Musella splendida</i>	Description of a new specie. Longitude and latitude is available as well altitude. Also environmental data.

Journal	Author	Title	Year	Country	Species involved	Personal evaluation
The Philippine Agricultural Scientist 86 : 92-98	Hakkinen, M.	Taxonomic history and identity of <i>Musa rubra</i> Wall. ex Kurz., <i>Musaceae</i>	2003	India Myanmar Thailand	<u>Rhodochlamys</u> <i>Musa laterita</i> <i>Musa rubra</i>	No location, description came from specimen in herbarium. Clarification of taxonomic history and identity of <i>Musa rubra</i> ,
Theor. Appl. Genet. 84: 286-290.	Gawel, N.J., R.L. Jarret, Whittemore, A.P.	Restriction fragment length polymorphism (RFLP)-based phylogenetic analysis of <i>Musa</i>	1992	From collection	<u>Eumusa</u> <i>Musa acuminata</i> spp. <i>banskii</i> <i>Musa acuminata</i> spp. <i>burmanica</i> <i>Musa acuminata</i> spp. <i>malaccensis</i> <i>Musa acuminata</i> spp. <i>microcarpa</i> <i>Musa acuminata</i> spp. <i>siamea</i> <i>Musa acuminata</i> spp. <i>truncata</i> <i>Musa balbisiana</i> <i>Musa basjoo</i> <i>Musa liukuensis</i> <i>Musa schizocarpa</i> <u>Callimusa</u> <i>Musa beccarii</i> <i>Musa coccinea</i> <u>Rhodochlamys</u> <i>Musa ornata</i> <i>Musa velutina</i> <u>Australimusa</u> <i>Musa lolodensis</i> <i>Musa maclayi</i> spp. <i>ailuliai</i> <i>Musa peekelii</i> spp. <i>peekelii</i> <i>Musa textilis</i> <u>Incertae sedis</u> <i>Musa boman</i>	Knowledge about molecular markers (RFLP). Sample from collection only.

Journal	Author	Title	Year	Country	Species involved	Personal evaluation
Theoretical And Applied Genetics 84: 579-584	Jarret, R. Gawel, N. Whittemore, A. Sharrock, S.	RFLP-based phylogeny of <i>Musa</i> spp. in Papua New Guinea	1992	Papua New Guinea	<u>Eumusa</u> <i>Musa acuminata</i> spp. <i>banskki</i> <i>Musa acuminata</i> spp. <i>malaccensis</i> <i>Musa balbisiana</i> <i>Musa schizocarpa</i> <u>Australimusa</u> <i>Musa jackeyi</i> <i>Musa lolodensis</i> <i>Musa maclayi</i> spp. <i>maclayi</i> <i>Musa maclayi</i> spp. <i>ailuliai</i> <i>Musa peekelii</i> spp. <i>angustigemma</i> <i>Musa peekelii</i> spp. <i>peekelii</i> <i>Musa textilis</i> <u>Incertae sedis</u> <i>Musa boman</i> <u>Ensete</u> <i>Ensete</i> sp.	Knowledge about molecular markers (RFLP). Samples coming from collection site and in wild, Location limited to province or village.
Theor. Appl. Genet. 104: 1239-1245.	Ude, G., Pillay, M., Nwakanma, D., Tenkouano, A.,	Analysis of genetic diversity and sectional relationships in <i>Musa</i> using AFLP markers	2002	From collection	<u>Eumusa</u> <i>Musa acuminata</i> ssp. <i>banksii</i> <i>Musa acuminata</i> ssp. <i>burmannicoides</i> <i>Musa acuminata</i> ssp. <i>burmannica</i> <i>Musa acuminata</i> ssp. <i>malaccensis</i> <i>Musa acuminata</i> ssp. <i>microcarpa</i> <i>Musa acuminata</i> ssp. <i>banksii</i> <i>Musa acuminata</i> ssp. <i>truncata</i> <i>Musa acuminata</i> ssp. <i>zebrina</i> <i>Musa balbisiana</i> <i>Musa schizocarpa</i> <u>Australimusa</u> <i>Musa peekeli peekeli</i> <i>Musa maclayi maclayi</i> <i>Musa lolodensis</i> <i>Musa textilis</i> <i>Musa peekeli angustigemma</i> <u>Rhodochlamys</u> <i>Musa laterita</i> <i>Musa manni</i> <i>Musa ornata</i> <u>Callimusa</u> <i>Musa coccinea</i> <u>Ensete</u> <i>Ensete ventricosum</i>	Genetic diversity evaluated with molecular markers (AFLP). Specimens came from germplasm and collection.

Journal	Author	Title	Year	Country	Species involved	Personal evaluation
Tropical Agriculture 33:251271	Simmonds, N.W.	A banana collecting expedition to South East Asia and the Pacific,	1956	Australia India Indonesia Malaysia Myanmar Papua New Guinea Thailand	See Simmonds in Kew Bulletin 11: 463 - 489	Results of a collecting mission. Specimens collected in the wild. Location is limited, but see: See Simmonds in Kew Bulletin 11: 463 - 489
Vegetables of the Dutch East Indies p511-522	Ochse, J.J.	Musaceae - Musa	1931	Indonesia	<i>Musa brachyocarpa</i> (<i>Musa balbisiana</i>) <i>Musa glauca</i> (<i>Ensete glaucum</i>) <i>Musa parasiadica</i> (AAB, plantains) <i>Musa salaccensis</i> <i>Musa zebrina</i>	Description edible bananas in Indonesia. Many names are not used anymore.
Flora of Java 3: 35 - 38.	Backer, C. A., Bakhuizen van den Brink, R.C.	<i>Musaceae</i>	1968	n.a.	n.a.	Article not received
Philippines Agriculture 40: 258 - 268.	Brewbaker, J. L. Gorrez, D. D.	Classification of Philippine <i>Musaceae</i> III. (a) Saguing matsing (<i>Musa banksii</i> F. v. M.); (b) <i>Alinsay</i> , a putative hybrid of M. <i>textilis</i> and M. <i>banksii</i> .	1956	n.a.	n.a.	Article not received
Kew Bulletin 2: 97 - 106	Cheesman, E. E.	Classification of the Bananas. I. The Genus <i>Ensete</i> Horan.	1947	n.a.	n.a.	Article not received
Kew Bulletin 3: 17 - 28	Cheesman, E. E.	Classification of the Bananas. III. Critical Notes on Species. <i>Musa acuminata</i> Colla.	1948a	n.a.	n.a.	Article not received
Kew Bulletin 3: 145-153	Cheesman, E. E.	Classification of the Bananas. III. Critical Notes on Species. <i>Musa paradisiaca</i> L. and <i>Musa</i> <i>sapientum</i> L	1948b	n.a.	n.a.	Article not received
Kew Bulletin 3: 154 - 157	Cheesman, E. E.	Classification of the Bananas. III. Critical Notes on Species. <i>Musa banksii</i> F. Muell.	1948c	n.a.	n.a.	Article not received

Journal	Author	Title	Year	Country	Species involved	Personal evaluation
Kew Bulletin 3: 323 - 325	Cheesman, E. E.	Classification of the Bananas. III. Critical Notes on Species. <i>Musa basjoo</i> Siebold	1948d	n.a.	n.a.	Article not received
Kew Bulletin 3: 325 - 328	Cheesman, E. E.	Classification of the Bananas. III. Critical Notes on Species. <i>Musa nagensium</i> Prain	1948e	n.a.	n.a.	Article not received
Kew Bulletin 3: 24 - 28	Cheesman, E. E.	Classification of the Bananas. III. Critical Notes on Species. <i>Musa ornata</i> Roxb.	1949a	n.a.	n.a.	Article not received
Kew Bulletin 3: 23 - 24	Cheesman, E. E.	Classification of the Bananas. III. Critical Notes on Species. <i>Musa itinerans</i> Cheesm.	1949b	n.a.	n.a.	Article not received
Kew Bulletin 3: 133 - 135	Cheesman, E. E.	Classification of the Bananas. III. Critical Notes on Species. <i>Musa sanguinea</i> Hook.	1949c	n.a.	n.a.	Article not received
Kew Bulletin 3: 135 - 137	Cheesman, E. E.	Classification of the Bananas. III. Critical Notes on Species. <i>Musa velutina</i> Wendl. & Drude.	1949d	n.a.	n.a.	Article not received
Kew Bulletin 3: 265 - 267	Cheesman, E. E.	Classification of the Bananas. III. Critical Notes on Species. <i>Musa laterita</i> Cheesm.	1949e	n.a.	n.a.	Article not received
Kew Bulletin 3: 267 - 272	Cheesman, E. E.	Classification of the Bananas. III. Critical Notes on Species. <i>Musa textilis</i> Née.	1949f	n.a.	n.a.	Article not received
Kew Bulletin 3: 27 - 28	Cheesman, E. E.	Classification of the Bananas. III. Critical Notes on Species. <i>Musa lolodensis</i> Cheesm.	1950a	n.a.	n.a.	Article not received
Kew Bulletin 3: 151 - 152	Cheesman, E. E.	Classification of the Bananas. III. Critical Notes on Species. <i>Musa borneënsis</i> Becc.	1950b	n.a.	n.a.	Article not received
Kew Bulletin 3: 152 - 155	Cheesman, E. E.	Classification of the Bananas. III. Critical Notes on Species. <i>Musa violascens</i> Ridley and <i>Musa gracilis</i> Holttum.	1950c	n.a.	n.a.	Article not received
Bishop Mus. Bull., 128: 54.	Christophersen, E.	Flowering Plants of Samoa	1935	n.a.	n.a.	Article not received

Journal	Author	Title	Year	Country	Species involved	Personal evaluation
J. Econ. Tax. Bot. 16: 447-455	Hore, D. K. Sharma, B. D. Pandey, G.	Status of Banana in north-east India	1992	n.a.	n.a.	Article not received
Acta Phytotaxa Geobotanica. 38: 292 - 302.	Hotta, M.	Distribution of the genus <i>Musa</i> in Malesia.	1987	n.a.	n.a.	Article not received
Kagoshimna University Research Centre for the South Pacific Occasional Papers 16: 67 - 75.	Hotta, M.	Identification list of <i>Ensete</i> and <i>Musa</i> (<i>Musaceae</i>) in SE Asia and West Malesia	1989	n.a.	n.a.	Article not received
Biotropia 18: 21-37	Javed, M.A., Chai, M., Othman R.Y.	Morphological characterization of Malaysian wild banana <i>Musa acuminata</i> .	2002	n.a.	n.a.	Article not received
Gardens' Bulletin Singapore, 53 : 185 - 189.	Jong, K., Argent, G.	Cytology of Two New Species of <i>Musa</i> (<i>Musaceae</i>) and their sectional relationship.	2001	n.a.	n.a.	Article not received
Acta Phytotax.Sinica 16: 54 - 64.	Li, H.W.	The <i>Musaceae</i> of Yunnan	1978	n.a.	n.a.	Article not received
Acta botanica Neerlandica 10: 248 - 256.	Meijer, W	Notes on wild species of <i>Musa</i> from Sumatra.	1961	n.a.	n.a.	Article not received
Bulletin Kebun Raya Indonesia 8: 128 - 130	Nasution, R. E. Supardiyono.	New Species: <i>Musa lawitiensis</i> Nasution & Supardiyono sp. nov. from Bentuang-Karimum National Park, West Kalimantan.	1998	n.a.	n.a.	Article not received
Malayan Naturalist 38: 9 - 10.	Ng, F.	Portraits of Threatened Plants: <i>Musa gracilis</i> Holttum, <i>Musaceae</i> .	1984	n.a.	n.a.	Article not received
Bulletin of the Botanical Survey of India 18: 207 - 210.	Rao, A. S., Hajra, P. K.	<i>Ensete glaucum</i> (Roxb.) Cheesm. in the Khasi Hills, Meghalaya, India	1976	n.a.	n.a.	Article not received
Philipp. Agr. Rev. 12: 1 - 73.	Quisumbing, E.	Studies of Philippine bananas	1919	n.a.	n.a.	Article not received

Journal	Author	Title	Year	Country	Species involved	Personal evaluation
Memoirs of the College of Agriculture, National Taiwan University. 25: 98-106	Shao-Shun Ying	Miscellaneous notes on the flora of Taiwan	1985	n.a.	n.a.	Article not received
Kew Bulletin 17: 461 - 463.	Shepherd, K	A new species of Banana.	1964	n.a.	n.a.	Article not received
Rpt submitted to the IBPGR, Bangkok, Kasetsart Univ.	Silayoi B. Babprasert	Banana Genetic Resources Exploration in Thailand.	1983	n.a.	n.a.	Article not received
Malayan Nature Journal, 52: 157-160.	Singh, D. B., Sreekumar, T. V., Sharma, T. V. R. S., Bandyopadhyay, A. K.	<i>Musa balbisiana</i> var. <i>andamica</i> (<i>Musaceae</i>) - A New Banana Variety from Andaman Islands	1998	n.a.	n.a.	Article not received
Kew Bulletin 25: 331 - 333	Sundararaj, D., Balasubramanyam, G	Occurrence of <i>Musa ornata</i> Roxb. in South India.	1971	n.a.	n.a.	Article not received
NOVON 7: 440-442.	Wu, T. L.	Notes on the <i>Lowiaceae</i> , <i>Musaceae</i> , and <i>Zingiberaceae</i> for the Flora of China	1997	n.a.	n.a.	Article not received

APPENDIX D: Partial list of the type of information extracted from the MGIS database

IDNUM	SECTION	NAME	COL_NUMB	COL_CTRY	SIT_LAT	SIT_LGT	SIT_ALT	PVC_STAT	DEP_CTRY
LIT0001	EUMUSA	<i>Musa acuminata</i> ssp. <i>microcarpa</i>	LT1-001	Malaysia	1,83	113,66		Sarawak	N.A.
LIT0002	EUMUSA	<i>Musa acuminata</i> ssp. <i>microcarpa</i>	LT1-002	Malaysia	5,13	115,95		Sabah	n.a.
LIT0003	EUMUSA	<i>Musa acuminata</i> ssp. <i>microcarpa</i>	LT1-003	Malaysia	5,33	116,16		Sabah	n.a.
LIT0004	EUMUSA	<i>Musa acuminata</i> ssp. <i>microcarpa</i>	LT1-004	Malaysia	1,55	110,33		Sarawak	n.a.
LIT0005	ENSETE	<i>Ensete glaucum</i>	LT2-001	Papua New Guinea	-5,90	144,75		Madang	n.a.
LIT0006	ENSETE	<i>Ensete glaucum</i>	LT2-002	Papua New Guinea	-6,55	146,70		Morobe	n.a.
LIT0007	ENSETE	<i>Ensete glaucum</i>	LT2-003	Papua New Guinea	-6,13	146,06		Morobe	n.a.
LIT0008	ENSETE	<i>Ensete glaucum</i>	LT2-004	Papua New Guinea	-8,76	148,23		Northern	n.a.
LIT0009	ENSETE	<i>Ensete glaucum</i>	LT2-005	Papua New Guinea	-5,45	150,40		West new Britains	n.a.
LIT0010	ENSETE	<i>Ensete glaucum</i>	LT2-006	Papua New Guinea	-3,71	152,36		New Ireland	n.a.
LIT0011	EUMUSA	<i>Musa balbisia</i>	LT2-007	Papua New Guinea	-5,21	145,80		Madang	n.a.
LIT0012	EUMUSA	<i>Musa balbisia</i>	LT2-008	Papua New Guinea	-6,73	147,00		Morobe	n.a.
LIT0013	EUMUSA	<i>Musa balbisia</i>	LT2-009	Papua New Guinea	-6,70	147,01		Morobe	n.a.
LIT0014	EUMUSA	<i>Musa balbisia</i>	LT2-010	Papua New Guinea	-6,45	146,36		Morobe	n.a.
LIT0015	EUMUSA	<i>Musa balbisia</i>	LT2-011	Papua New Guinea	-6,60	147,85		Morobe	n.a.
LIT0016	EUMUSA	<i>Musa balbisia</i>	LT2-012	Papua New Guinea	-6,98	146,58		Morobe	n.a.
LIT0017	EUMUSA	<i>Musa balbisia</i>	LT2-013	Papua New Guinea	-8,76	148,23		Northern	n.a.
LIT0018	EUMUSA	<i>Musa acuminata</i> ssp. <i>banksii</i>	LT2-014	Papua New Guinea	-2,68	141,26		Sandaun	n.a.
LIT0019	EUMUSA	<i>Musa acuminata</i> ssp. <i>banksii</i>	LT2-015	Papua New Guinea	-3,03	141,16		Sandaun	n.a.
LIT0020	EUMUSA	<i>Musa acuminata</i> ssp. <i>banksii</i>	LT2-016	Papua New Guinea	-3,33	141,16		Sandaun	n.a.
LIT0021	EUMUSA	<i>Musa acuminata</i> ssp. <i>banksii</i>	LT2-017	Papua New Guinea	-3,20	141,35		Sandaun	n.a.
LIT0022	EUMUSA	<i>Musa acuminata</i> ssp. <i>banksii</i>	LT2-018	Papua New Guinea	-3,58	141,21		Sandaun	n.a.
LIT0023	EUMUSA	<i>Musa acuminata</i> ssp. <i>banksii</i>	LT2-019	Papua New Guinea	-3,48	142,03		Sandaun	n.a.
LIT0024	EUMUSA	<i>Musa acuminata</i> ssp. <i>banksii</i>	LT2-020	Papua New Guinea	-3,63	143,05		East Sepik	n.a.
LIT0025	EUMUSA	<i>Musa acuminata</i> ssp. <i>banksii</i>	LT2-021	Papua New Guinea	-3,65	143,30		East Sepik	n.a.
LIT0026	EUMUSA	<i>Musa acuminata</i> ssp. <i>banksii</i>	LT2-022	Papua New Guinea	-3,55	143,61		East Sepik	n.a.
LIT0027	EUMUSA	<i>Musa acuminata</i> ssp. <i>banksii</i>	LT2-023	Papua New Guinea	-5,60	144,68		Western Highlands	n.a.

IDNUM	SECTION	NAME	COL_NUMB	COL_CTRY	SIT_LAT	SIT_LGT	SIT_ALT	PVC_STAT	DEP_CTRY
LIT0028	EUMUSA	<i>Musa acuminata</i> ssp. <i>banksii</i>	LT2-024	Papua New Guinea	-5,73	145,23		Madang	n.a.
LIT0029	EUMUSA	<i>Musa acuminata</i> ssp. <i>banksii</i>	LT2-025	Papua New Guinea	-4,26	144,96		Madang	n.a.
LIT0030	EUMUSA	<i>Musa acuminata</i> ssp. <i>banksii</i>	LT2-026	Papua New Guinea	-5,21	145,80		Madang	n.a.
LIT0031	EUMUSA	<i>Musa acuminata</i> ssp. <i>banksii</i>	LT2-027	Papua New Guinea	-4,63	145,96		Madang	n.a.
LIT0032	EUMUSA	<i>Musa acuminata</i> ssp. <i>banksii</i>	LT2-028	Papua New Guinea	-2,01	147,21		Manus	n.a.
LIT0033	EUMUSA	<i>Musa acuminata</i> ssp. <i>banksii</i>	LT2-029	Papua New Guinea	-5,60	148,00		Morobe	n.a.
LIT0034	EUMUSA	<i>Musa acuminata</i> ssp. <i>banksii</i>	LT2-030	Papua New Guinea	-6,71	146,76		Morobe	n.a.
LIT0035	EUMUSA	<i>Musa acuminata</i> ssp. <i>banksii</i>	LT2-031	Papua New Guinea	-6,95	146,58		Morobe	n.a.
LIT0036	EUMUSA	<i>Musa acuminata</i> ssp. <i>banksii</i>	LT2-032	Papua New Guinea	-6,60	147,85		Morobe	n.a.
LIT0037	EUMUSA	<i>Musa acuminata</i> ssp. <i>banksii</i>	LT2-033	Papua New Guinea	-7,20	146,65		Morobe	n.a.
LIT0038	EUMUSA	<i>Musa acuminata</i> ssp. <i>banksii</i>	LT2-034	Papua New Guinea	-8,76	148,23		Northern	n.a.
LIT0039	EUMUSA	<i>Musa acuminata</i> ssp. <i>banksii</i>	LT2-035	Papua New Guinea	-8,88	147,75		Northern	n.a.
LIT0040	EUMUSA	<i>Musa acuminata</i> ssp. <i>banksii</i>	LT2-036	Papua New Guinea	-7,96	145,76		Gulf	n.a.
LIT0041	EUMUSA	<i>Musa schizocarpa</i>	LT2-037	Papua New Guinea	-2,68	141,26		Sandaun	n.a.
LIT0042	EUMUSA	<i>Musa schizocarpa</i>	LT2-038	Papua New Guinea	-3,33	141,16		Sandaun	n.a.
LIT0043	EUMUSA	<i>Musa schizocarpa</i>	LT2-039	Papua New Guinea	-3,20	141,35		Sandaun	n.a.
LIT0044	EUMUSA	<i>Musa schizocarpa</i>	LT2-040	Papua New Guinea	-3,03	141,16		Sandaun	n.a.
LIT0045	EUMUSA	<i>Musa schizocarpa</i>	LT2-041	Papua New Guinea	-3,58	141,21		Sandaun	n.a.
LIT0046	EUMUSA	<i>Musa schizocarpa</i>	LT2-042	Papua New Guinea	-3,48	142,03		Sandaun	n.a.
LIT0047	EUMUSA	<i>Musa schizocarpa</i>	LT2-043	Papua New Guinea	-3,73	142,88		East Sepik	n.a.
LIT0048	EUMUSA	<i>Musa schizocarpa</i>	LT2-044	Papua New Guinea	-3,63	143,05		East Sepik	n.a.
LIT0049	EUMUSA	<i>Musa schizocarpa</i>	LT2-045	Papua New Guinea	-3,65	143,30		East Sepik	n.a.
LIT0050	EUMUSA	<i>Musa schizocarpa</i>	LT2-046	Papua New Guinea	-3,55	143,61		East Sepik	n.a.
LIT0051	EUMUSA	<i>Musa schizocarpa</i>	LT2-047	Papua New Guinea	-5,73	145,23		Madang	n.a.
LIT0052	EUMUSA	<i>Musa schizocarpa</i>	LT2-048	Papua New Guinea	-5,21	145,80		Madang	n.a.
LIT0053	EUMUSA	<i>Musa schizocarpa</i>	LT2-049	Papua New Guinea	-5,70	145,53		Madang	n.a.
LIT0054	EUMUSA	<i>Musa schizocarpa</i>	LT2-050	Papua New Guinea	-6,26	146,26		Morobe	n.a.
LIT0055	EUMUSA	<i>Musa schizocarpa</i>	LT2-051	Papua New Guinea	-6,45	145,36		Morobe	n.a.
LIT0056	EUMUSA	<i>Musa schizocarpa</i>	LT2-052	Papua New Guinea	-7,20	146,65		Morobe	n.a.

IDNUM	SECTION	NAME	COL_NUMB	COL_CTRY	SIT_LAT	SIT_LGT	SIT_ALT	PVC_STAT	DEP_CTRY
LIT0057	EUMUSA	<i>Musa schizocarpa</i>	LT2-053	Papua New Guinea	-6,60	147,85		Morobe	n.a.
LIT0058	EUMUSA	<i>Musa schizocarpa</i>	LT2-054	Papua New Guinea	-10,30	150,35		Milne Bay	n.a.
LIT0059	EUMUSA	<i>M. acuminata</i> ssp. <i>banksii</i> x <i>M..schizocarpa</i>	LT2-055	Papua New Guinea	-2,68	141,26		Sandau	n.a.
LIT0060	EUMUSA	<i>M. acuminata</i> ssp. <i>banksii</i> x <i>M..schizocarpa</i>	LT2-056	Papua New Guinea	-3,55	143,61		East Sepik	n.a.
LIT0061	EUMUSA	<i>M. acuminata</i> ssp. <i>banksii</i> x <i>M..schizocarpa</i>	LT2-057	Papua New Guinea	-5,21	145,80		Madang	n.a.
LIT0062	EUMUSA	<i>M. acuminata</i> ssp. <i>banksii</i> x <i>M..schizocarpa</i>	LT2-058	Papua New Guinea	-6,71	146,76		Morobe	n.a.
LIT0063	AUSTRALIMUSA	<i>Musa maclayi</i> ssp. <i>maclayi</i> var. <i>maclayi</i>	LT2-059	Papua New Guinea	-6,15	146,10		Morobe	n.a.
LIT0064	AUSTRALIMUSA	<i>Musa maclayi</i> ssp. <i>maclayi</i> var. <i>maclayi</i>	LT2-060	Papua New Guinea	-6,60	147,85		Morobe	n.a.
LIT0065	AUSTRALIMUSA	<i>Musa maclayi</i> ssp. <i>maclayi</i> var. <i>maclayi</i>	LT2-061	Papua New Guinea	-6,71	146,76		Morobe	n.a.
LIT0066	AUSTRALIMUSA	<i>Musa maclayi</i> ssp. <i>maclayi</i> var. <i>maclayi</i>	LT2-062	Papua New Guinea	-7,20	146,65		Morobe	n.a.
LIT0067	AUSTRALIMUSA	<i>Musa maclayi</i> ssp. <i>maclayi</i> var. <i>maclayi</i>	LT2-063	Papua New Guinea	-8,76	148,23		Northern	n.a.
LIT0068	AUSTRALIMUSA	<i>Musa maclayi</i> ssp. <i>maclayi</i> var. <i>maclayi</i>	LT2-064	Papua New Guinea	-8,88	147,75		Northern	n.a.
LIT0069	AUSTRALIMUSA	<i>Musa maclayi</i> ssp. <i>maclayi</i> var. <i>namatani</i>	LT2-065	Papua New Guinea	-3,23	151,96		New Ireland	n.a.
LIT0070	AUSTRALIMUSA	<i>Musa maclayi</i> ssp. <i>maclayi</i> var. <i>erecta</i>	LT2-066	Papua New Guinea	-6,21	155,46		North Solomons	Bougainville Island
LIT0071	AUSTRALIMUSA	<i>Musa maclayi</i> ssp. <i>maclayi</i> var. <i>erecta</i>	LT2-067	Papua New Guinea	-6,83	155,73		North Solomons	Bougainville Island
LIT0072	AUSTRALIMUSA	<i>Musa maclayi</i> ssp. <i>maclayi</i> var. <i>erecta</i>	LT2-068	Papua New Guinea	-5,43	154,66		North Solomon	Buka Island
LIT0073	AUSTRALIMUSA	<i>Musa peekelii</i> ssp. <i>peekelii</i>	LT2-069	Papua New Guinea	-3,71	152,36		New Ireland	n.a.
LIT0074	AUSTRALIMUSA	<i>Musa peekelii</i> ssp. <i>peekelii</i>	LT2-070	Papua New Guinea	-3,66	152,45		New Ireland	n.a.
LIT0075	AUSTRALIMUSA	<i>Musa peekelii</i> ssp. <i>angustigemma</i>	LT2-071	Papua New Guinea	-5,60	144,68		Western Highlands	n.a.
LIT0076	AUSTRALIMUSA	<i>Musa peekelii</i> ssp. <i>angustigemma</i>	LT2-072	Papua New Guinea	-4,63	145,96		Madang	n.a.
LIT0077	AUSTRALIMUSA	<i>Musa peekelii</i> ssp. <i>angustigemma</i>	LT2-073	Papua New Guinea	-5,31	145,75		Magang	n.a.
LIT0078	EUMUSA	<i>Musa ingens</i>	LT2-074	Papua New Guinea	-5,78	144,61		Western Hignlands	n.a.
LIT0079	EUMUSA	<i>Musa ingens</i>	LT2-075	Papua New Guinea	-5,75	145,16		Madang	n.a.
LIT0080	EUMUSA	<i>Musa ingens</i>	LT2-076	Papua New Guinea	-6,71	145,98		Eastern Highlands	n.a.
LIT0081	EUMUSA	<i>Musa ingens</i>	LT2-077	Papua New Guinea	-6,86	146,71		Morobe	n.a.
LIT0082	EUMUSA	<i>Musa ingens</i>	LT2-078	Papua New Guinea	-6,33	147,13		Morobe	n.a.
LIT0083	EUMUSA	<i>Musa ingens</i>	LT2-079	Papua New Guinea	-6,46	147,43		Morobe	n.a.
LIT0084	EUMUSA	<i>Musa ingens</i>	LT2-080	Papua New Guinea	-8,90	147,53		Northern	n.a.
LIT0085	AUSTRALIMUSA	<i>Musa boman</i>	LT2-081	Papua New Guinea	-3,20	141,35		Sandaun	n.a.

IDNUM	SECTION	NAME	COL_NUMB	COL_CTRY	SIT_LAT	SIT_LGT	SIT_ALT	PVC_STAT	DEP_CTRY
LIT0086	EUMUSA	<i>Musa acuminata</i> ssp. <i>banksii</i>	LT2-082	Papua New Guinea	-3,13	142,35		Sandaun	n.a.
LIT0087	EUMUSA	<i>Musa acuminata</i> ssp. <i>banksii</i>	LT2-083	Papua New Guinea	-6,73	147,00		Morobe	n.a.
LIT0088	EUMUSA	<i>Musa schizocarpa</i>	LT2-084	Papua New Guinea	-7,33	146,71		Morobe	n.a.
LIT0089	EUMUSA	<i>M acuminata</i> ssp. <i>banksii</i> x <i>M.schizocarpa</i>	LT2-085	Papua New Guinea	-6,73	147,00		Morobe	n.a.
LIT0090	AUSTRALIMUSA	<i>Musa maclayi</i> ssp. <i>maclayi</i> var. <i>maclayi</i>	LT2-086	Papua New Guinea	-7,88	147,13		Morobe	n.a.
LIT0091	AUSTRALIMUSA	<i>Musa maclayi</i> ssp. <i>maclayi</i> var. <i>namatani</i>	LT2-087	Papua New Guinea	-3,66	152,45		New Ireland	n.a.
LIT0092	AUSTRALIMUSA	<i>Musa maclayi</i> ssp. <i>ailuluai</i>	LT2-088	Papua New Guinea	-9,63	150,58		Milne Bay	Fergusson Island
LIT0093	AUSTRALIMUSA	<i>Musa bukensis</i>	LT2-089	Papua New Guinea	-6,25	155,50		North Solomons	Bougainville Island
LIT0094	AUSTRALIMUSA	<i>Musa lolodensis</i>	LT2-090	Papua New Guinea	-3,58	141,21		Sandaun	n.a.
LIT0095	AUSTRALIMUSA	<i>Musa lolodensis</i>	LT2-091	Papua New Guinea	-3,48	142,03		Sandaun	n.a.
LIT0096	AUSTRALIMUSA	<i>Musa lolodensis</i>	LT2-092	Papua New Guinea	-3,45	142,10		Sandaun	n.a.
LIT0097	AUSTRALIMUSA	<i>Musa boman</i>	LT2-093	Papua New Guinea	-3,28	142,16		Sandaun	n.a.
LIT0098	AUSTRALIMUSA	<i>Musa boman</i>	LT2-094	Papua New Guinea	-3,20	141,35		Sandaun	n.a.
LIT0099	AUSTRALIMUSA	<i>Musa boman</i>	LT2-095	Papua New Guinea	-3,48	142,03		Sandaun	n.a.
LIT0100	EUMUSA	<i>Musa acuminata</i> ssp	LT3-001	Indonesia	0,85	127,68	100	Maluku	Maluku Utara
LIT0101	EUMUSA	<i>Musa acuminata</i> ssp	LT3-002	Indonesia	-3,31	128,93		Maluku	Maluku Tengah
LIT0102	EUMUSA	<i>Musa acuminata</i> ssp	LT3-003	Indonesia	-3,71	128,20		Maluku	Maluku Tengah
LIT0103	EUMUSA	<i>Musa acuminata</i> ssp	LT3-004	Indonesia	-0,88	131,25	30	Papua (Irian Jaya)	Sorong
LIT0104	EUMUSA	<i>Musa acuminata</i> ssp	LT3-005	Indonesia	-0,86	134,08		Papua (Irian Jaya)	Manokwari
LIT0105	EUMUSA	<i>Musa acuminata</i> ssp	LT3-006	Indonesia	-2,93	140,78		Papua (Irian Jaya)	Jayapura
LIT0106	EUMUSA	<i>Musa acuminata</i> ssp	LT3-007	Indonesia	3,50	97,80	400	Aceh	Aceh Tenggara
LIT0107	EUMUSA	<i>Musa halabanensis</i>	LT3-008	Indonesia	-0,45	100,41	350	Sumatera Barat	Sawahlunto/Sijunjung
LIT0108	EUMUSA	<i>Musa halabanensis</i>	LT3-009	Indonesia	-1,70	101,26	2000	Jambi	Kerinci
LIT0109	EUMUSA	<i>Musa halabanensis</i>	LT3-010	Indonesia	0,13	100,16		Sumatera Barat	Solok
LIT0110	EUMUSA	<i>Musa acuminata</i> ssp	LT3-011	Indonesia	-0,40	100,35	800	Sumatera Barat	Sawahlunto/Sijunjung
LIT0111	EUMUSA	<i>Musa acuminata</i> ssp	LT3-012	Indonesia	0,13	100,16	450	Sumatera Barat	Solok
LIT0112	EUMUSA	<i>Musa acuminata</i> ssp	LT3-013	Indonesia	-1,70	101,26	2200	Jambi	Kerinci
LIT0113	EUMUSA	<i>Musa acuminata</i> ssp	LT3-014	Indonesia	-0,23	100,63		Sumatera Barat	Sawahlunto
LIT0114	EUMUSA	<i>Musa acuminata</i> ssp	LT3-015	Indonesia	-0,45	100,42		Sumatera Barat	Sawahlunto/Sijunjung

IDNUM	SECTION	NAME	COL_NUMB	COL_CTRY	SIT_LAT	SIT_LGT	SIT_ALT	PVC_STAT	DEP_CTRY
LIT0115	EUMUSA	<i>Musa acuminata</i> ssp. <i>malaccensis</i>	LT3-016	Indonesia	-6,76	106,95		Jawa Barat	Mentawai
LIT0116	EUMUSA	<i>Musa acuminata</i> ssp. <i>malaccensis</i>	LT3-017	Indonesia	-6,76	106,95		Jawa Barat	Sukabumi
LIT0117	EUMUSA	<i>Musa acuminata</i> ssp.	LT3-018	Indonesia	-2,91	104,75		Sumatera Selatan	Musi Banyuasin
LIT0118	EUMUSA	<i>Musa acuminata</i> ssp.	LT3-019	Indonesia	-1,65	119,90	600	Sulawesi Tengah	Donggala
LIT0119	EUMUSA	<i>Musa acuminata</i> ssp.	LT3-020	Indonesia	-5,00	119,56	40	Sulawesi Selatan	Gowa
LIT0120	EUMUSA	<i>Musa acuminata</i> ssp.	LT3-021	Indonesia	-2,58	120,83		Sulawesi Selatan	Luwu
LIT0121	EUMUSA	<i>Musa acuminata</i> ssp.	LT3-022	Indonesia	-6,33	106,63		Jawa Barat	Bogor
LIT0122	EUMUSA	<i>Musa acuminata</i> ssp.	LT3-023	Indonesia	-7,80	112,73		Jawa Timur	Malang
LIT0123	EUMUSA	<i>Muca acuminata</i> ssp.	LT3-024	Indonesia	-7,78	108,91		Jawah Berat	Ciamis
LIT0124	EUMUSA	<i>Musa acuminata</i> ssp.	LT3-025	Indonesia	-6,76	106,78		Jawa Barat	Sukabumi
LIT0125	EUMUSA	<i>Musa acuminata</i> ssp.	LT3-026	Indonesia	-6,03	106,20		Jawa Barat	Serang
LIT0126	EUMUSA	<i>Musa acuminata</i> ssp.	LT3-027	Indonesia	-7,80	112,73		Jawa Timur	Malang
LIT0127	EUMUSA	<i>Musa acuminata</i> ssp.	LT3-028	Indonesia	-6,58	106,78		Jawa Barat	Bogor
LIT0128	EUMUSA	<i>Musa acuminata</i> ssp. <i>zebrina</i>	LT3-029	Indonesia	-6,58	106,78		Jawa Barat	Bogor
LIT0129	EUMUSA	<i>Musa acuminata</i> ssp. <i>zebrina</i>	LT3-030	Indonesia	-6,48	106,63		Jawa Barat	Bogor
LIT0130	AUSTRALIMUSA	<i>Musa johnsii</i>	LT4-001	Indonesia	-4,78	136,55		Papua (Irian Jaya)	Fak-Fak
LIT0131	AUSTRALIMUSA	<i>Musa johnsii</i>	LT4-002	Indonesia	-4,33	137,00	1600	Papua (Irian Jaya)	Fak-Fak
LIT0132	AUSTRALIMUSA	<i>Musa johnsii</i>	LT4-003	Indonesia	-4,23	137,08	1000	Papua (Irian Jaya)	Fak-Fak
LIT0133	MUSA Sec 500	<i>Musa suratii</i>	LT5-001	Malaysia	5,13	115,95	750	Sabah	n.a.
LIT0134	MUSA Sec 500	<i>Musa suratii</i>	LT5-002	Malaysia	1,05	111,83		Sarawak	n.a.
LIT0135	AUSTRALIMUSA	<i>Musa monticola</i>	LT5-003	Malaysia	5,96	116,68	1200	Sabah	n.a.
LIT0136	AUSTRALIMUSA	<i>Musa monticola</i>	LT5-004	Malaysia	6,03	116,48		Sabah	n.a.
LIT0137	AUSTRALIMUSA	<i>Musa monticola</i>	LT5-005	Malaysia	5,66	116,33		Sabah	n.a.
LIT0138	EUMUSA	<i>Musa acuminata</i> ssp. <i>truncata</i>	LT6-001	Malaysia	4,48	101,45		Pahang	n.a.
LIT0139	EUMUSA	<i>Musa acuminata</i> ssp. <i>truncata</i>	LT6-002	Malaysia	3,71	101,75		Pahang	n.a.
LIT0140	EUMUSA	<i>Musa acuminata</i> ssp. <i>malaccensis</i>	LT6-003	Malaysia	3,56	101,65		Selangor	n.a.
LIT0141	EUMUSA	<i>Musa balbisiana</i>	LT6-004	Philippines	18,91	121,90		Cagayan	Babuyan Islands
LIT0142	RHODOCHLAMYS	<i>Musa ornata</i>	LT6-005	Malaysia	5,20	115,95		Sabah	n.a.
LIT0143	MUSA Sec 500	<i>Musa suratii</i>	LT6-006	Malaysia	5,21	115,95		Sabah	n.a.

IDNUM	SECTION	NAME	COL_NUMB	COL_CTRY	SIT_LAT	SIT_LGT	SIT_ALT	PVC_STAT	DEP_CTRY
LIT0144	CALLIMUSA	<i>Musa borneensis</i>	LT6-007	Malaysia	5,21	115,96		Sabah	n.a.
LIT0145	CALLIMUSA	<i>Musa campestris</i>	LT6-008	Malaysia	5,18	115,95		Sabah	n.a.
LIT0146	CALLIMUSA	<i>Musa violascens</i>	LT6-009	Malaysia	3,71	101,75		Pahang	n.a.
LIT0147	CALLIMUSA	<i>Musa gracilis</i>	LT6-010	Malaysia	4,25	103,41		Terengganu	n.a.
LIT0148	AUSTRALIMUSA	<i>Musa textilis</i>	LT6-011	Malaysia	5,20	115,93		Sabah	n.a.
LIT0149	MUSA Sec 500	<i>Musa beccarii</i>	LT6-012	Malaysia	5,18	115,93		Sabah	n.a.
LIT0150	AUSTRALIMUSA	<i>Musa monticola</i>	LT6-013	Malaysia	5,20	115,95		Sabah	n.a.
LIT0151	CALLIMUSA	<i>Musa exotica</i>	LT7-001	Viet Nam	20,28	105,68	650	Ninh Binh	Hoang Long
LIT0152	AUSTRALIMUSA	<i>Musa alinsanaya</i>	LT7-002	Philippines	14,11	122,95		Camarines Norte	n.a.
LIT0153	AUSTRALIMUSA	<i>Musa alinsanaya</i>	LT7-003	Philippines	13,76	122,95		Camarines Sur	n.a.
LIT0154	EUMUSA	<i>Musa acuminata</i> ssp. <i>errans</i>	LT7-004	Philippines	14,13	121,18		Laguna	n.a.
LIT0155	AUSTRALIMUSA	<i>Musa textilis</i>	LT8-001	Brunei Darussalam	4,38	114,43	100	Seria	n.a.
LIT0156	AUSTRALIMUSA	<i>Musa muluensis</i>	LT8-002	Malaysia	4,03	114,78	100	Sarawak	n.a.
LIT0157	AUSTRALIMUSA	<i>Musa tuberculata</i>	LT8-003	Brunei Darussalam	4,70	115,15	50	Temburong	n.a.
LIT0158	CALLIMUSA	<i>Musa flavida</i>	LT8-004	Brunei Darussalam	4,70	115,15	50	Temburong	n.a.
LIT0159	CALLIMUSA	<i>Musa campestris</i>	LT8-005	Brunei Darussalam	4,60	114,66		Tutong	n.a.
LIT0160	CALLIMUSA	<i>Musa campestris</i>	LT8-006	Brunei Darussalam	4,73	115,16	300	Temburong	n.a.
LIT0161	EUMUSA	<i>Musa acuminata</i> ssp. <i>banksii</i>	LT9-001	Indonesia	-2,60	140,61		Papua (Irian Jaya)	Jayapura
LIT0162	EUMUSA	<i>Musa acuminata</i> ssp. <i>banksii</i>	LT9-002	Indonesia	-0,86	134,00		Papua (Irian Jaya)	Manokwari
LIT0163	EUMUSA	<i>Musa acuminata</i> ssp. <i>errans</i>	LT9-003	Philippines	6,98	125,26		North Cotabato	n.a.
LIT0164	EUMUSA	<i>Musa acuminata</i> ssp. <i>errans</i>	LT9-004	Philippines	6,56	122,05		Basilan	n.a.
LIT0165	EUMUSA	<i>Musa acuminata</i> ssp. <i>errans</i>	LT9-005	Philippines	13,18	123,60		Albay	n.a.
LIT0166	EUMUSA	<i>Musa acuminata</i> ssp. <i>malaccensis</i>	LT9-006	Malaysia	3,50	102,95		Pahang	n.a.
LIT0167	EUMUSA	<i>Musa acuminata</i> ssp. <i>malaccensis</i>	LT9-007	Malaysia	2,88	101,50		Selangor	n.a.
LIT0168	EUMUSA	<i>Musa acuminata</i> ssp. <i>malaccensis</i>	LT9-008	Malaysia	3,53	101,91		Pahang	n.a.
LIT0169	EUMUSA	<i>Musa acuminata</i> ssp. <i>malaccensis</i>	LT9-009	Malaysia	5,11	101,13		Perak	n.a.
LIT0170	EUMUSA	<i>Musa acuminata</i> ssp. <i>malaccensis</i>	LT9-010	Malaysia	4,88	100,90		Perak	n.a.
LIT0171	EUMUSA	<i>Musa acuminata</i> ssp. <i>malaccensis</i>	LT9-011	Malaysia	3,25	102,03		Pahang	n.a.
LIT0172	EUMUSA	<i>Musa acuminata</i> ssp. <i>malaccensis</i>	LT9-012	Malaysia	3,33	102,03		Pahang	n.a.

IDNUM	SECTION	NAME	COL_NUMB	COL_CTRY	SIT_LAT	SIT_LGT	SIT_ALT	PVC_STAT	DEP_CTRY
LIT0173	EUMUSA	<i>Musa acuminata</i> ssp. <i>microcarpa</i>	LT9-013	Malaysia	1,33	110,33		Sarawak	n.a.
LIT0174	EUMUSA	<i>Musa acuminata</i> ssp. <i>microcarpa</i>	LT9-014	Malaysia	2,01	113,01		Sarawak	n.a.
LIT0175	EUMUSA	<i>Musa acuminata</i> ssp. <i>microcarpa</i>	LT9-015	Malaysia	5,30	116,13		Sabah	n.a.
LIT0176	EUMUSA	<i>Musa acuminata</i> ssp. <i>microcarpa</i>	LT9-016	Malaysia	5,13	115,95		Sabah	n.a.
LIT0177	EUMUSA	<i>Musa acuminata</i> ssp. <i>microcarpa</i>	LT9-017	Malaysia	5,70	118,38		Sabah	n.a.
LIT0178	EUMUSA	<i>Musa acuminata</i> ssp. <i>siamea</i>	LT9-018	Malaysia	3,50	102,85		Pahang	n.a.
LIT0179	EUMUSA	<i>Musa acuminata</i> ssp. <i>siamea</i>	LT9-019	Malaysia	3,33	102,03		Pahang	n.a.
LIT0180	EUMUSA	<i>Musa acuminata</i> ssp. <i>siamea</i>	LT9-020	Malaysia	6,30	100,38		Kedah	n.a.
LIT0181	EUMUSA	<i>Musa acuminata</i> ssp. <i>siamea</i>	LT9-021	Malaysia	6,05	100,76		Kedah	n.a.
LIT0182	EUMUSA	<i>Musa acuminata</i> ssp. <i>siamea</i>	LT9-022	Malaysia	6,13	102,25		Kelantan	n.a.
LIT0183	EUMUSA	<i>Musa acuminata</i> ssp. <i>truncata</i>	LT9-023	Malaysia	5,41	101,13		Perak	n.a.
LIT0184	EUMUSA	<i>Musa acuminata</i> ssp. <i>truncata</i>	LT9-024	Malaysia	3,71	101,75		Pahang	n.a.
LIT0185	EUMUSA	<i>Musa acuminata</i> ssp. <i>truncata</i>	LT9-025	Malaysia	5,55	101,13		Perak	n.a.
LIT0186	EUMUSA	<i>Musa acuminata</i> ssp. <i>zebrina</i>	LT9-026	Indonesia	-6,55	106,38		Jawa Barat	Lebak
LIT0187	EUMUSA	<i>Musa balbisiana</i>	LT9-027	Philippines	13,76	122,96		Camarines Sur	n.a.
LIT0188	EUMUSA	<i>Musa balbisiana</i>	LT9-028	Philippines	14,18	121,18		Laguna	n.a.
LIT0189	EUMUSA	<i>Musa balbisiana</i>	LT9-029	Papua New Guinea	-7,20	146,65		Morobe	n.a.
LIT0190	EUMUSA	<i>Musa balbisiana</i>	LT9-030	Papua New Guinea	-6,56	146,85		Morobe	n.a.
LIT0191	CALLIMUSA	<i>Musa coccinea</i>	LT9-031	Indonesia	-6,73	107,05		Jawa Barat	Cianjur
LIT0192	CALLIMUSA	<i>Musa gracilis</i>	LT9-032	Malaysia	3,80	103,33		Pahang	n.a.
LIT0193	AUSTRALIMUSA	<i>Musa lolodensis</i>	LT9-033	Indonesia	-0,86	134,08		Papua (Irian Jaya)	Manokwari
LIT0194	EUMUSA	<i>Musa acuminata</i> ssp. <i>banksii</i>	LT10-01	Samoa	-13,85	-171,73	350	Upolu Island	n.a.
LIT0195	EUMUSA	<i>Musa acuminata</i> ssp. <i>banksii</i>	LT10-02	Samoa	-13,48	-172,26	300	Savaii Island	n.a.
LIT0196	EUMUSA	<i>Musa acuminata</i> ssp. <i>banksii</i>	LT10-03	Samoa	-13,68	-172,11	300	Savaii Island	n.a.
LIT0197	EUMUSA	<i>Musa acuminata</i> ssp. <i>banksii</i>	LT10-04	Samoa	-13,86	-171,73	300	Upolu Island	n.a.
LIT0198	EUMUSA	<i>Musa acuminata</i> ssp. <i>banksii</i>	LT10-05	Samoa	-13,88	-171,55	300	Upolu Island	n.a.
LIT0199	EUMUSA	<i>Musa acuminata</i> ssp. <i>banksii</i>	LT10-06	Australia	-16,81	145,65	300	Queensland	n.a.
LIT0200	EUMUSA	<i>Musa acuminata</i> ssp. <i>banksii</i>	LT10-07	Australia	-17,71	146,11	300	Queensland	n.a.
LIT0201	EUMUSA	<i>Musa acuminata</i> ssp. <i>banksii</i>	LT10-08	Australia	-17,86	146,11		Queensland	n.a.

IDNUM	SECTION	NAME	COL_NUMB	COL_CTRY	SIT_LAT	SIT_LGT	SIT_ALT	PVC_STAT	DEP_CTRY
LIT0202	EUMUSA	<i>Musa acuminata</i> ssp. <i>banksii</i>	LT10-09	Australia	-17,53	146,03	300	Queensland	n.a.
LIT0203	EUMUSA	<i>Musa acuminata</i> ssp. <i>banksii</i>	LT10-10	Australia	-16,25	145,31		Queensland	n.a.
LIT0204	EUMUSA	<i>Musa acuminata</i> ssp. <i>banksii</i>	LT10-11	Papua New Guinea	-3,40	143,33		East Sepik	n.a.
LIT0205	EUMUSA	<i>Musa acuminata</i> ssp. <i>banksii</i>	LT10-12	Papua New Guinea	-3,72	143,05		East Sepik	n.a.
LIT0206	EUMUSA	<i>Musa acuminata</i> ssp. <i>banksii</i>	LT10-13	Papua New Guinea	-4,23	142,83		East Sepik	n.a.
LIT0207	EUMUSA	<i>Musa acuminata</i> ssp. <i>banksii</i>	LT10-14	Papua New Guinea	-5,53	144,15	1200	Western Highlands	n.a.
LIT0208	EUMUSA	<i>Musa acuminata</i> ssp. <i>banksii</i>	LT10-15	Papua New Guinea	-6,73	147,00		Morobe	n.a.
LIT0209	EUMUSA	<i>Musa acuminata</i> ssp. <i>banksii</i>	LT10-16	Papua New Guinea	-7,26	144,20		Gulf	n.a.
LIT0210	EUMUSA	<i>Musa acuminata</i> ssp. <i>malaccensis</i>	LT10-17	Malaysia	3,16	101,83		Selangor	n.a.
LIT0211	EUMUSA	<i>Musa acuminata</i> ssp. <i>malaccensis</i>	LT10-18	Malaysia	4,18	101,26		Perak	n.a.
LIT0212	EUMUSA	<i>Musa acuminata</i> ssp. <i>malaccensis</i>	LT10-19	Malaysia	4,66	101,21		Perak	n.a.
LIT0213	EUMUSA	<i>Musa acuminata</i> ssp. <i>malaccensis</i>	LT10-20	Malaysia	4,76	100,93		Perak	n.a.
LIT0214	EUMUSA	<i>Musa acuminata</i> ssp. <i>malaccensis</i>	LT10-21	Malaysia	2,71	101,93		Negeri Sembilan	n.a.
LIT0215	EUMUSA	<i>Musa acuminata</i> ssp. <i>siamea</i>	LT10-22	Malaysia	6,30	100,66		Kedah	n.a.
LIT0216	EUMUSA	<i>Musa acuminata</i> ssp. <i>siamea</i>	LT10-23	Malaysia	6,43	100,51		Kedah	n.a.
LIT0217	EUMUSA	<i>Musa acuminata</i> ssp. <i>siamea</i>	LT10-24	Malaysia	6,53	100,25		Perlis	n.a.
LIT0218	EUMUSA	<i>Musa acuminata</i> ssp. <i>siamea</i>	LT10-25	Malaysia	6,65	100,20		Perlis	n.a.
LIT0219	EUMUSA	<i>Musa acuminata</i> ssp. <i>siamea</i>	LT10-26	Malaysia	5,80	102,15		Kelantan	n.a.
LIT0220	EUMUSA	<i>Musa acuminata</i> ssp. <i>siamea</i>	LT10-27	Malaysia	5,38	102,23		Kelantan	n.a.
LIT0221	EUMUSA	<i>Musa acuminata</i> ssp. <i>siamea</i>	LT10-28	Thailand	19,36	98,96	600	Northern	Chiang Mai
LIT0222	EUMUSA	<i>Musa acuminata</i> ssp. <i>siamea</i>	LT10-29	Thailand	18,80	100,70	200	Northern	Nan
LIT0223	EUMUSA	<i>Musa acuminata</i> ssp. <i>siamea</i>	LT10-30	Thailand	17,80	100,08		Northern	n.a.
LIT0224	EUMUSA	<i>Musa acuminata</i> ssp. <i>microcarpa</i>	LT10-31	Malaysia	4,48	101,38	1700	Pahang	n.a.
LIT0225	EUMUSA	<i>Musa acuminata</i> ssp. <i>microcarpa</i>	LT10-32	Malaysia	4,41	101,38	1100	Pahang	n.a.
LIT0226	EUMUSA	<i>Musa acuminata</i> ssp. <i>microcarpa</i>	LT10-33	Malaysia	5,55	101,13		Perak	n.a.
LIT0227	EUMUSA	<i>Musa flaviflora</i>	LT10-34	India	25,58	91,63		Meghalaya	West Khasi Hills
LIT0228	EUMUSA	<i>Musa flaviflora</i>	LT10-35	India	26,35	92,66		Assam	Nagaon
LIT0229	EUMUSA	<i>Musa flaviflora</i>	LT10-36	India	25,90	93,71	1000	Assam	Karbi Anglong
LIT0230	EUMUSA	<i>Musa balbisiana</i>	LT10-37	Papua New Guinea	-4,33	152,10		East New Britain	n.a.

IDNUM	SECTION	NAME	COL_NUMB	COL_CTRY	SIT_LAT	SIT_LGT	SIT_ALT	PVC_STAT	DEP_CTRY
LIT0231	EUMUSA	<i>Musa balbisiana</i>	LT10-38	Papua New Guinea	-4,35	152,03		East New Britains	n.a.
LIT0232	EUMUSA	<i>Musa balbisiana</i>	LT10-39	Papua New Guinea	-4,45	152,08		East New Britain	n.a.
LIT0233	EUMUSA	<i>Musa balbisiana</i>	LT10-40	Papua New Guinea	-6,73	147,00		Morobe	n.a.
LIT0234	EUMUSA	<i>Musa balbisiana</i>	LT10-41	Papua New Guinea	-6,96	146,63		Morobe#	n.a.
LIT0235	EUMUSA	<i>Musa balbisiana</i>	LT10-42	India	27,38	88,51	300	Sikkim	East District
LIT0236	EUMUSA	<i>Musa balbisiana</i>	LT10-43	India	27,18	88,53		Sikkim	East district
LIT0237	EUMUSA	<i>Musa balbisiana</i>	LT10-44	India	25,58	91,63	1000	Meghalaya	West Khasi Hills
LIT0238	EUMUSA	<i>Musa balbisiana</i>	LT10-45	India	25,90	93,71		Assam	Karbi Anglong
LIT0239	EUMUSA	<i>Musa balbisiana</i>	LT10-46	India	25,75	93,16		Assam	North Casha hills
LIT0240	EUMUSA	<i>Musa itinerans</i>	LT10-47	Thailand	19,36	98,96	600	Chiang Mai	Northern
LIT0241	EUMUSA	<i>Musa itinerans</i>	LT10-48	Thailand	18,80	100,70		Nan	Northern
LIT0242	EUMUSA	<i>Musa itinerans</i>	LT10-49	Thailand	17,80	100,08		Uttaradit	Northern
LIT0243	EUMUSA	<i>Musa schizocarpa</i>	LT10-50	Papua New Guinea	-3,40	143,33		East Sepik	n.a.
LIT0244	EUMUSA	<i>Musa schizocarpa</i>	LT10-51	Papua New Guinea	-3,66	143,05		East Sepik	n.a.
LIT0245	EUMUSA	<i>Musa schizocarpa</i>	LT10-52	Papua New Guinea	-3,78	143,03		East Sepik	n.a.
LIT0246	EUMUSA	<i>Musa schizocarpa</i>	LT10-53	Papua New Guinea	-5,53	144,15	1200	Western Highlands	n.a.
LIT0247	EUMUSA	<i>Musa schizocarpa</i>	LT10-54	Papua New Guinea	-6,60	146,86		Morobe	n.a.
LIT0248	EUMUSA	<i>Musa schizocarpa</i>	LT10-55	Papua New Guinea	-3,56	143,61	1200	Morobe	n.a.
LIT0249	EUMUSA	<i>Musa schizocarpa</i>	LT10-56	Papua New Guinea	-7,33	146,71		Morobe	n.a.
LIT0250	EUMUSA	<i>Musa schizocarpa</i>	LT10-57	Papua New Guinea	-8,61	146,58		Central	n.a.
LIT0251	EUMUSA	<i>Musa schizocarpa</i>	LT10-58	Papua New Guinea	-9,41	147,41	600	Central	n.a.
LIT0252	EUMUSA	<i>Musa nagensium</i>	LT10-59	Thailand	19,35	98,95	600	Chiang Mai	Northern
LIT0253	EUMUSA	<i>Musa sikkimensis</i>	LT10-60	India	27,03	88,26	1800	West Bengal	Darjiling
LIT0254	EUMUSA	<i>Musa sikkimensis</i>	LT10-61	India	25,30	91,70		Meghalaya	East Khasi Hills
LIT0255	EUMUSA	<i>Musa cheesmani</i>	LT10-62	India	25,90	93,73	1000	Assam	Karbi Anglong
LIT0256	EUMUSA	<i>Musa cheesmani</i>	LT10-63	India	26,36	93,73		Assam	Karbi Anglong
LIT0257	EUMUSA	<i>Musa flaviflora</i>	LT10-64	India	26,43	93,96		Assam	Karbi Anglong
LIT0258	AUSTRALIMUSA	<i>Musa maclayi</i>	LT10-65	Papua New Guinea	-6,73	147,00		Morobe	n.a.
LIT0259	AUSTRALIMUSA	<i>Musa peekelii</i> ssp. <i>angustigemma</i>	LT10-66	Papua New Guinea	-5,63	146,46		Madang	n.a.

IDNUM	SECTION	NAME	COL_NUMB	COL_CTRY	SIT_LAT	SIT_LGT	SIT_ALT	PVC_STAT	DEP_CTRY
LIT0260	AUSTRALIMUSA	<i>Musa peekelii</i> ssp. <i>angustigemma</i>	LT10-67	Papua New Guinea	-5,21	145,80		Madang	n.a.
LIT0261	CALLIMUSA	<i>Musa violascens</i>	LT10-68	Malaysia	3,16	101,83		Selangor	n.a.
LIT0262	CALLIMUSA	<i>Musa violascens</i>	LT10-69	Malaysia	4,18	101,26	1200	Perak	n.a.
LIT0263	CALLIMUSA	<i>Musa violascens</i>	LT10-70	Malaysia	5,13	100,83		Perak	n.a.
LIT0264	CALLIMUSA	<i>Musa violascens</i>	LT10-71	Malaysia	2,73	102,25		Negeri Sembilan	n.a.
LIT0265	CALLIMUSA	<i>Musa gracilis</i>	LT10-72	Malaysia	5,38	102,23		Kelantan	n.a.
LIT0266	EUMUSA	<i>Musa acuminata</i> ssp. <i>siamea</i>	LT11-01	Thailand	16,88	99,70	100	Northern	Sukhothai
LIT0267	EUMUSA	<i>Musa acuminata</i> ssp. <i>siamea</i>	LT11-02	Thailand	16,73	98,96	800	Northern	Tak
LIT0268	EUMUSA	<i>Musa itinerans</i>	LT11-03	Thailand	16,73	98,96		Northern	Tak
LIT0269	EUMUSA	<i>Musa acuminata</i> ssp.	LT11-04	Thailand	16,76	98,68	650	Northern	Tak
LIT0270	RHODOCHLAMYS	<i>Musa laterita</i>	LT11-05	Thailand	16,75	98,63	350	Northern	Tak
LIT0271	EUMUSA	<i>Musa sikkimensis</i>	LT11-06	Thailand	18,78	98,68		Northern	Chiang Mai
LIT0272	ENSETTE	<i>Ensete</i> ssp.	LT11-07	Thailand	19,63	98,96		Northern	Chiang Mai
LIT0273	EUMUSA	<i>Musa acuminata</i> ssp. <i>siamea</i>	LT11-08	Thailand	19,11	98,78	400	Northern	Chiang Mai
LIT0274	RHODO. X EUMUSA	<i>Rhodochlamys x Eumusa</i>	LT11-09	Thailand	19,43	98,00	600	Northern	Mae Hong Son
LIT0275	EUMUSA	<i>Musa sikkimensis</i>	LT11-10	Thailand	18,93	98,35	1000	Northern	Chiang Mai
LIT0276	EUMUSA	<i>Musa acuminata</i> ssp. <i>siamea</i>	LT11-11	Thailand	18,86	100,73	350	Northern	Nan
LIT0277	EUMUSA	<i>Musa acuminata</i> ssp. <i>siamea</i>	LT11-12	Thailand	19,18	101,08	1550	Northern	Nan
LIT0278	EUMUSA	<i>Musa acuminata</i> ssp. <i>siamea</i>	LT11-13	Thailand	19,20	101,18	750	Northern	Nan
LIT0279	EUMUSA	<i>Musa acuminata</i> ssp. <i>siamea</i>	LT11-14	Thailand	18,96	101,03		Northern	Phayao
LIT0280	EUMUSA	<i>Musa balbisiiana</i>	LT11-15	Thailand	19,05	100,95		Northern	Nan
LIT0281	CALLIMUSA	<i>Musa campestris</i> ssp. <i>lawasensis</i>	LT12-01	Malaysia	4,83	115,35	60	Sarawak	Lawas
LIT0282	CALLIMUSA	<i>Musa campestris</i> ssp. <i>limbangensis</i>	LT12-02	Malaysia	4,61	114,88	25	Sarawak	
LIT0283	CALLIMUSA	<i>Musa campestris</i> ssp. <i>miriensis</i>	LT12-03	Malaysia	4,18	114,03	50	Sarawak	
LIT0284	CALLIMUSA	<i>Musa campestris</i> ssp. <i>sabahensis</i>	LT12-04	Malaysia	5,50	116,00	650	Sabah	
LIT0285	CALLIMUSA	<i>Musa campestris</i> ssp. <i>sarawakensis</i>	LT12-05	Malaysia	1,26	110,33	40	Sarawak	Kuching
LIT0286	CALLIMUSA	<i>Musa bauensis</i>	LT13-01	Malaysia	1,36	110,16	40	Sarawak	Bau
LIT0287	AUSTRALIMUSA	<i>Musa boman</i>	LT14-01	Papua New Guinea	-2,80	141,23		West Sepik	
LIT0288	EUMUSA	<i>Musa balbisiiana</i>	LT14-02	Papua New Guinea	-4,20	152,18		East New Britain	

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LIT0289	EUMUSA	<i>Musa balbisiana</i>	LT15-01	Papua New Guinea	-4,35	152,26		East New Britain	
LIT0290	EUMUSA	<i>Musa ingens</i>	LT15-02	Papua New Guinea	-6,56	145,33		Eastern Highlands	
LIT0291	EUMUSA	<i>Musa balbisiana</i>	LT15-03	Papua New Guinea	-8,88	148,50		Northern	
PHU0006	EUMUSA	<i>Musa acuminata</i> ssp.	0051	Viet Nam	21,60	104,51	257	Yen Bai	Van Chan
PHU0066	EUMUSA	<i>Musa balbisiana</i>	0027	Viet Nam	18,91	105,31	27	Nghe An	Tan Ky
PHU0068	MUSA Sec 500	MUSA Sec 500 Sp/gr 500	0026	Viet Nam	18,91	105,31	27	Nghe An	Anh Son
PHU0069	Gen 500 Sec 500	Gen 500 Sec 500 Sp/gr 500	0049	Viet Nam	21,60	104,51	257	Yen Bai	Van Chan
PHU0070	MUSA Sec 500	MUSA Sec 500 Sp/gr 500	0052	Viet Nam	21,60	104,51	257	Yen Bai	Van Chan
PHU0071	MUSA Sec 500	MUSA Sec 500 Sp/gr 500	0054	Viet Nam	21,45	105,23	36	Vinh Phu	Doan Hung
PHU0072	MUSA Sec 500	MUSA Sec 500 Sp/gr 500	0129	Viet Nam	10,76	105,13	5	An Giang	Tinh Bien
PHU0075	EUMUSA	<i>Musa balbisiana</i>	0155	Viet Nam	18,91	105,31	27	Nghe An	Tan Ky
RIF0115	EUMUSA	<i>Musa acuminata</i> ssp. <i>malaccensis</i>	14	Indonesia	-3,06	128,21	80	Middle Maluku	Piru sub-district
RIF0116	AUSTRALIMUSA	<i>Musa textilis</i>	15	Indonesia	-3,06	128,21		Middle Maluku	Piru sub-district
RIF0117	AUSTRALIMUSA	<i>Musa textilis</i>	16	Indonesia	-3,23	128,43		Middle Maluku	Kairatu sub-district
RIF0118	EUMUSA	<i>Musa acuminata</i> ssp. <i>malaccensis</i>	17	Indonesia	-3,06	128,21		Middle Maluku	Piru sub district
RIF0122	AUSTRALIMUSA	<i>Musa textilis</i>	21	Indonesia	-3,16	128,68		Middle Maluku	Kairatu sub-district
RIF0197	EUMUSA	<i>Musa schizocarpa</i>	IRJ-W01	Indonesia	-2,53	140,23		Papua (Irian Jaya)	Jayapura
RIF0199	AUSTRALIMUSA	<i>Musa lolodensis</i>	IRJ-W04	Indonesia	-0,83	134,07		Papua (Irian Jaya)	Manokwari
RIF0200	EUMUSA	<i>Musa acuminata</i> ssp. <i>banksii</i>	IRJ-W05	Indonesia	-0,83	134,07		Papua (Irian Jaya)	Manokwari
SCU0004	RHODOCHLAMYS	<i>Musa laterita</i>	CHN1-03	China	22,63	103,93	110	Yunnan	Hakou
SCU0011	EUMUSA	<i>Musa itinerans</i>	CHN2-05	China	23,08	106,00	260	Guangxi	Napo
SCU0013	RHODOCHLAMYS	<i>Musa laterita</i>	CHN2-13	China	23,08	106,00	250	Guangxi	Napo
SCU0016	EUMUSA	<i>Musa itinerans</i>	CHN1-04	China	22,52	103,97	160	Yunnan	Hekou
SCU0037	EUMUSA	<i>Musa itinerans</i>	CHN4-18	China	19,30	109,58	120	Hainan	Qiongzong
SCU0038	EUMUSA	<i>Musa itinerans</i>	CHN4-29	China	18,50	110,02	120	Hainan	
SCU0043	EUMUSA	<i>Musa basjoo</i>	CHN4-28	China	19,00	109,90	120	Hainan	Qiongzong
SCU0044	EUMUSA	<i>Musa itinerans</i>	CHN4-22	China	19,00	109,78	270	Hainan	Qiongzong
SCU0045	EUMUSA	<i>Musa itinerans</i>	CHN4-19	China	19,20	109,75	120	Hainan	Qiongzong
SCU0046	EUMUSA	<i>Musa basjoo</i>	CHN4-20	China	19,20	109,75	120	Hainan	Qiongzong

IDNUM	SECTION	NAME	COL_NUMB	COL_CTRY	SIT_LAT	SIT_LGT	SIT_ALT	PVC_STAT	DEP_CTRY
SCU0047	EUMUSA	<i>Musa basjoo</i>	CHN4-21	China	19,00	109,75	250	Hainan	Qiongzhong
SCU0049	CALLIMUSA	<i>Musa coccinea</i>	CHN3-24	China	23,60	113,28	55	Guangdong	Guangzhou
SCU0076	EUMUSA	<i>Musa balbisia</i>	CHN1-15	China	23,50	102,80	1710	Yunnan	Jianshui
SCU0082	EUMUSA	<i>Musa balbisia</i>	CHN2-04	China	23,10	106,00	260	Guangxi	Napo
SCU0083	EUMUSA	<i>Musa itinerans</i>	CHN2-01	China	22,25	106,75	490	Guangxi	Pingxiang
SCU0084	EUMUSA	<i>Musa balbisia</i>	CHN2-09	China	23,08	106,00	240	Guangxi	Napo
SCU0088	EUMUSA	<i>Musa itinerans</i>	CHN2-02	China	22,25	106,75	250	Guangxi	Pingxiang
SJR0032	AUSTRALIMUSA	<i>Musa peekelii</i> ssp. <i>angustigemma</i>	PNG221	Papua New Guinea	-4,53	145,96	4		Madang
SJR0039	EUMUSA	<i>Musa schizocarpa</i>	PNG042	Papua New Guinea	-6,06	147,15		Morobe	Lae
SJR0045	AUSTRALIMUSA	<i>Musa peekelii</i> ssp. <i>angustigemma</i>	PNG150	Papua New Guinea	-5,26	145,66			Madang
SJR0048	AUSTRALIMUSA	<i>Musa lolodensis</i>	PNG364	Papua New Guinea	-3,63	143,03		West Sepik	Maprik
SJR0057	EUMUSA	<i>Musa acuminata</i> ssp. <i>banksii</i>	PNG151	Papua New Guinea	-5,23	145,75			Madang
SJR0058	EUMUSA	<i>Musa acuminata</i> ssp. <i>banksii</i>	PNG181	Papua New Guinea	-5,23	145,75			Madang
SJR0059	EUMUSA	<i>Musa acuminata</i> ssp. <i>banksii</i>	PNG220	Papua New Guinea	-4,66	146,00			Madang
SJR0063	AUSTRALIMUSA	<i>Musa peekelii</i> ssp. <i>peekelii</i>	PNG316	Papua New Guinea	-3,71	152,36		New Ireland	
SJR0065	EUMUSA	<i>Musa acuminata</i> ssp. <i>banksii</i>	PNG059	Papua New Guinea	-3,43	143,50		East Sepik	Wewak
SJR0066	EUMUSA	<i>Musa acuminata</i> ssp. <i>banksii</i>	PNG363	Papua New Guinea	-3,63	143,03		West Sepik	
SJR0085	EUMUSA	<i>Musa schizocarpa</i>	PNG051	Papua New Guinea	-3,46	143,58		West Sepik	Vanim
SJR0087	EUMUSA	<i>Musa acuminata</i> ssp. <i>banksii</i>	PNG060	Papua New Guinea	-3,46	143,48		East Sepik	Wewak
SJR0089	EUMUSA	<i>Musa acuminata</i> x <i>Musa schizocarpa</i>	PNG065	Papua New Guinea	-3,73	143,61		East Sepik	Wewak
SJR0091	ENSETTE	<i>Ensete glaucum</i>	PNG069	Papua New Guinea	-4,38	152,21		East New Britain	Rabaul
SJR0127	AUSTRALIMUSA	<i>Musa peekelii</i> ssp. <i>angustigemma</i>	PNG158	Papua New Guinea	-5,25	145,73			Madang
SJR0129	EUMUSA	<i>Musa acuminata</i> ssp. <i>banksii</i>	PNG162	Papua New Guinea	-5,25	145,73			Madang
SJR0136	EUMUSA	<i>Musa schizocarpa</i>	PNG172	Papua New Guinea	-5,23	145,75			Madang
SJR0137	EUMUSA	<i>Musa acuminata</i> ssp. <i>banksii</i>	PNG174	Papua New Guinea	-5,23	145,75			Madang
SJR0138	EUMUSA	<i>Musa acuminata</i> ssp. <i>banksii</i>	PNG176	Papua New Guinea	-5,23	145,75			Madang
SJR0141	EUMUSA	<i>Musa acuminata</i> x <i>Musa schizocarpa</i>	PNG180	Papua New Guinea	-5,23	145,75			Madang
SJR0177	EUMUSA	<i>Musa schizocarpa</i>	PNG232	Papua New Guinea	-8,75	148,25	50	Oro Province	Popondetta
SJR0178	EUMUSA	<i>Musa acuminata</i> ssp. <i>banksii</i>	PNG234	Papua New Guinea	-8,75	148,25		Oro Province	Popondetta

IDNUM	SECTION	NAME	COL_NUMB	COL_CTRY	SIT_LAT	SIT_LGT	SIT_ALT	PVC_STAT	DEP_CTRY
SJR0179	EUMUSA	<i>Musa acuminata x Musa schizocarpa</i>	PNG235	Papua New Guinea	-8,75	148,25		Oro Province	Popondetta
SJR0185	EUMUSA	<i>Musa schizocarpa</i>	PNG246	Papua New Guinea	-8,75	148,25		Oro Province	Popondetta
SJR0186	EUMUSA	<i>Musa acuminata x Musa schizocarpa</i>	PNG247	Papua New Guinea	-8,80	148,11		Oro Province	Popondetta
SJR0189	AUSTRALIMUSA	<i>Musa maclayi ssp.maclayi var. maclayi</i>	PNG252	Papua New Guinea	-8,88	147,98		Oro Province	Popondetta
SJR0190	EUMUSA	<i>Musa acuminata x Musa schizocarpa</i>	PNG253	Papua New Guinea	-8,75	148,25		Oro Province	Popondetta
SJR0192	EUMUSA	<i>Musa acuminata ssp. banksii</i>	PNG255	Papua New Guinea	-8,75	148,25		Oro Province	Popondetta
SJR0203	EUMUSA	<i>Musa acuminata ssp. banksii</i>	PNG269	Papua New Guinea	-6,16	141,25		Western Province	
SJR0209	EUMUSA	<i>Musa acuminata ssp. banksii</i>	PNG276	Papua New Guinea	-5,96	141,13		Western Province	Kiunga
SJR0220	EUMUSA	<i>Musa acuminata ssp. banksii</i>	PNG291	Papua New Guinea	-2,01	147,25		Manus	Lorengau
SJR0221	EUMUSA	<i>Musa acuminata ssp. banksii</i>	PNG292	Papua New Guinea	-2,01	147,25		Manus Island	Lorengau
SJR0238	AUSTRALIMUSA	<i>Musa peekelii ssp. peekelii</i>	PNG315	Papua New Guinea	-3,71	152,36		New Ireland	
SJR0241	EUMUSA	<i>Musa schizocarpa</i>	PNG320	Papua New Guinea	-10,31	150,41	50	Milne Bay	Alotau
SJR0252	AUSTRALIMUSA	<i>Musa maclayi ssp.ailuluai</i>	PNG339	Papua New Guinea	-9,58	150,88		Milne Bay	Fergusson Island
SJR0253	AUSTRALIMUSA	<i>Musa maclayi ssp.maclayi var. maclayi</i>	PNG340	Papua New Guinea	-9,58	150,88		Milne Bay	Fergusson Island
SJR0254	EUMUSA	<i>Musa acuminata x Musa schizocarpa</i>	PNG342	Papua New Guinea	-2,80	141,23		West Sepik	Vanimu
SJR0255	EUMUSA	<i>Musa acuminata ssp. banksii</i>	PNG343	Papua New Guinea	-2,66	141,28		West Sepik	Vanimu
SJR0256	EUMUSA	<i>Musa acuminata ssp. banksii</i>	PNG344	Papua New Guinea	-2,66	141,28		West Sepik	Vanimu

FUTURE
HARVEST

