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Collection of Millet Germplasm in Sri Lanka and Thailand

K. NISHIMAKI[1], K. OIKAWA[2], C. B. HINDAGALA[3], G. SAMARASINGHE[3], S. K. SENEVIRATNE[3], N. IAMSUPASIT[4], S. JUTTUPORNPONG[4], P. PRAMMANEE[4] and P. PUTTANOND[5]

1) *Nagano Chushin Agricultural Experiment Station,* Sohga, Shiojiri, Nagano 399-64, Japan.
2) *Iwate Prefectural Agricultural Experiment Station,* Sunagome, Takizawa, Iwate 020-01, Japan.
3) *Plant Genetic Resources Centre,* Gannoruwa, Peradeniya, Sri Lanka.
4) *Suphan Buri Field Crops Research Center,* U-Thong, Suphanburi, 72160, Thailand.
5) *Chiang Mai Field Crops Research Center,* San Sai, Chiang Mai, 50210, Thailand.

1. Introduction

Millets were common as food crops throughout Asia. Recently, improved varieties of profitable crops like rice and maize distribute widely and millets are rapidly disappearing from farmers' fields year by year. Millets are cultivated only sporadically on a small scale at present. Therefore, millet germplasm in this area is needed to be collected and preserved urgently.

The present exploration program was made under the Gene Bank Project of Ministry of Agriculture, Forestry and Fisheries (MAFF), Japan. Attention was focused on collecting millet germplasm in Asia which was considered as one of the gene centers of millets. This program was achieved in cooperation with the Governments of Sri Lanka and Thailand.

2. Joint Exploration in Sri Lanka

a) Method

Two exploration trips were carried out. The first exploration trip was made from January 10th to 15th at eleven sites in Matale, Polonnaruwa and Anuradhapura Districts in North Central and North Western Provinces. The second exploration was made from January 18th to 22nd at fourteen sites in Kandy, Badulla, Moneragala and Hambantota Districts in Southern Provinces. The route of the exploration and detailed itinerary are shown in Fig. 1 and Table 1, respectively.

Farmers' fields and houses were visited during the exploration. Plant height, panicle length, stem color, seed coat color, panicle number, disease injuries and other traits were recorded. The conditions of location such as altitude, topography, drainage, etc. were also recorded. Farmers were interviewed about farming information, including cropping season,

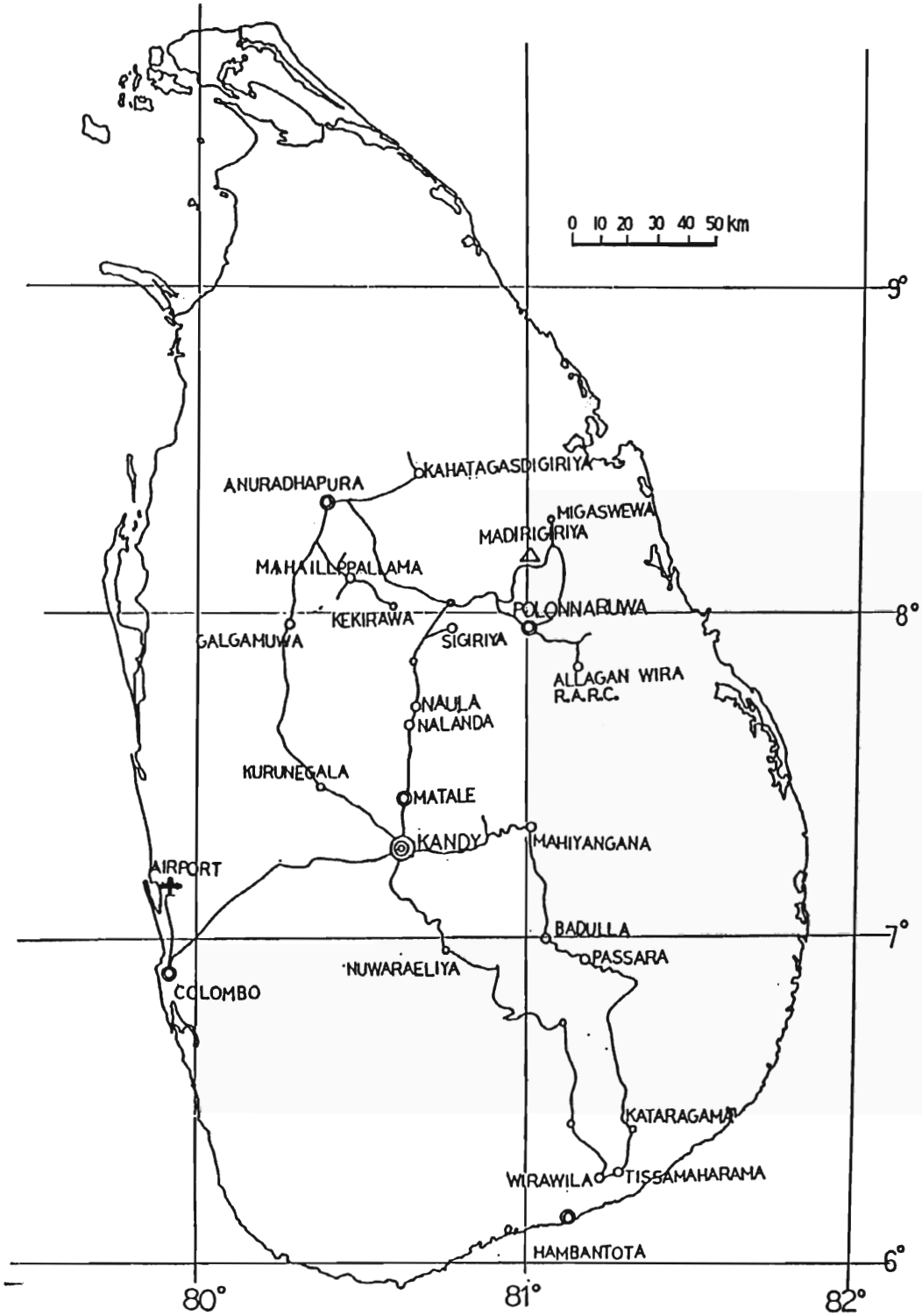

Fig. 1 The exploration routes in Sri Lanka

スリランカにおける探索ルート

Table 1 Itinerary of collection of millet germplasm in Sri Lanka and Thailand

スリランカとタイにおける雑穀類遺伝資源収集の日程

Date (1992)	Itinerary	Lodging	Notes
Jan.			
7 Tue.	Narita(12 : 30)---Bangkok(18 : 00)	Bangkok	flight, TG-641
8 Wed.	Bankok(10 : 30)---Colombo(12 : 25)	Kandy	flight, TG-307
	Courtesy visit to Japanese Embassy		meeting with Mr. Murakami, 1st Sec.
	Visit to JICA, Sri Lanka		
	Colombo---Kandy(116km, 3 hours)		by car
9 Thu.	Meeting with Deputy Director of Agriculture(Research), and assistant DDR	Kandy	Dr. S. Amarasin(DDR), Dr. S. D. Jayawardene(ADDR)
	Discussion of the program and making arrangements at PGRC		with Dr. P. Ganeshan and Dr. S. Watanabe
	Visit to the Herbarium at the Botanical Gardens		
10 Fri.	Arrangements and preparation	Sigiriya	
	Leave Kandy to Sigiriya(112km)		by car
11 Sat.	Exploration in Sigiriya, Naula	Polonna-	by car, 235km
	Visit to Aralaganvila Reg. Agric. Res. Centre	ruwa	11 samples collected
12 Sun.	Exploration in Migaswewa and arround near by Mt. Maderigiriya	Anurad-hapura	by car, 143km 8 samples collected
13 Mon.	Visit to Anuradhapura Agr. Ext. Office	Anurad-	by car, 172km
	Visit to Maha Illupallama Reg. Agric. Res. Centre	hapura	11 samples collected
	Exploration in Maha Illupallama		
14 Tue.	Exploration in Kahatagasdigiliya	Anurad-hapura	by car, 102km 6 samples collected
15 Wed.	Exploration in Talawa, Mahagalkadawala, Galgamuwa	Kandy	by car, 140km 9 samples collected
	Return to Kandy		
16 Thu.	Processing of seeds, keeping them in the drying room in PGRC	Kandy	at PGRC
17 Fri.	Continue seeds processing	Kandy	at PGRC
	Preparation for the second trip		
18 Sat.	Leave Kandy	Mahiyan-	by car, 149km
	Exploration in Madugalle, Uraniya, Karametiya	gana	17 samples collected
19 Sun.	Exploration in Mahiyangana, Taldena, Passara, Badulla	Badulla	by car, 105km 14 samples collected
20 Mon.	Exploration in Passara, Moneragala, Tissamaharama, Kataragama	Tissama- harama	by car, 173km 10 samples collected
21 Tue.	Exploration in Wirawila, Tanamalwila	Nuwara- Eliya	by car, 179km 5 samples collected
22 Wed.	Return to Kandy	Kandy	by car, 77km
	Drying seeds		

Table 1 (continued)

Date (1992)	Itinerary	Lodging	Notes
Jan.			
23 Tue.	Processing of seeds Arrangement of collection record	Kandy	at PGRC
24 Fri.	Arrangement and quarantine Writing report	Kandy	at PGRC
25 Sat.	Leave Kandy to Colombo	Colombo	by car
26 Sun.	Colombo(13 : 25)---Bangkok(18 : 25)	Bangkok	flight, TG-308
27 Mon.	Coutesy visit to Japanese Embassy Discussion of the program and making arrangements	Bangkok	meeting with Mr. Kuroki, 1st Sec. with Mr. Thanit, Director of Suphan Buri FCRC
28 Tue.	Bangkok(9 : 50)---Chiang Mai(10 : 45) Meeting and arrangement at Chiang Mai FCRC Visit to the market in Chiang Mai	Chiang Mai	flight, TG-114 with Deputy Derector of Chiang Mai FCRC
29 Wed.	Exploration in Pang Hang, Sop O Nok, Chiang Dao, Fa Hin	Chiang Mai	by car, 283km
30 Tue.	Exploration in Pang Nam Tu, Mae Khajan, Phayao	Chiang Mai	by car, 322km 2 samples collected
31 Fri.	Exploration in Doi Inthanon, Mae Chaem, Om Khul	Chiang Mai	by car, 274km 13 samples collected
Feb.			
1 Sat.	Exploration in Doi Suthep	Chiang Mai	by car 2 samples collected
2 Sun.	Processing of seeds	Chiang Mai	at Chiang Mai FCRC
3 Mon.	Continue seeds processing, packing Meeting and discussion	Chiang Mai	at Chiang Mai FCRC with Mr. Vichitr, Director of Chiang Mai FCRC
4 Tue.	Chiang Mai(9 : 40)---Bangkok(10 : 35)	Bangkok	flight, TG-101
5 Wed.	Bangkok(10 : 30)---Narita(18 : 00)		flight, TG-760

cultural practices, local name, usage, eating habits and history of introduction. Seed samples were collected mainly from farmers' field, but when seeds were immature, seeds preserved in farmers' houses were collected. Some samples were collected from local marktets.

b) Results and Discussion

The acreage of finger millet, foxtail millet and proso millet in 1988 was 11,081 ha, 58ha and 338 ha, respectively. Finger millet is grown in the rainy season called "maha" season characterized by northeast monsoon. Limited amount of finger millet is grown in the dry season "yala" characterized by southwest monsoon in Jaffna District. Finger millet is also grown in mixed with maize, mustard and sorghum in the rainfed shifting agriculture called "chena". Foxtail millet and proso millet are cultivated mainly from the end of "maha" to "yala" season.

Finger millet (*Eleusine corracana*) : Finger millet, called "kourakhan", "kurakkana" or "kurakhan", is grown most widely in this country, and is especially important in the dry zone. It is sown directly in the upland fields during the rainy season, from the middle of September to October. It is harvested by cutting at the neck of ears with small sickles in January, dried on the ground and threshed by beating with wooden sticks. Grains are ground with a stone mill for preparing a pancake called "rohty" or "rotty" and paste.

Forty seven samples of finger millet were collected in 25 sites of 8 districts which were located on the altitude from 0m to 500m. Most of samples were collected from farmers' fields or houses, except for samples No. 19, No. 54 and No. 73 which were collected from the local markets. According to hearing to the farmers, finger millet has been cultivated for a long time and these seeds are "attarah mattarah", which means "handed down from the generation of grandfather's grandfather".

There were various types of finger millet. The length of panicles ranged from 3cm to 8cm, number of fingers from 2 to 10, and plant height from 60cm to 140cm. There was an accession with incurved panicle. Some plants have purple nodes, purple anthers and purple panicles growing among normal types. Ear brust damage or neck brust damage was found in some samples. One sample, No. 28, was damaged by aphids.

Foxtail millet (*Setaria italica*) : Foxtail millet is called "thanahal" or "tanahal" and widely grown in dry zone and intermediate zone. It was observed that foxtail millet was sometimes grown mixed with finger millet. The number of foxtail millet, however, was much smaller than finger millet in mixed population. Farmers said that the mixed seeds of foxtail millet and finger millet were sown.

Foxtail millet is an important crop in some areas of the dry zone in this country. Its grains were consumed after boiling like rice or were used to cook gruel.

Twenty two samples with various characteristics, including a wild type of *Setaria* species

(perhaps *Setaria glauca* Beauv.) called "balo tone" in local language were collected. Plant height ranged from 100cm to 200cm and panicle length from 7. 5cm to 25cm. Glume color was classified into whitish yellow, yellow, orange, and blackish brown. Two samples, No. 36 and No. 44, had brown lesions on their leaves.

Proso millet (*Panicum milliaceum*) : Proso millet called "mineri" is cultivated mainly in the dry "yala" season. It is sown from April to May. Three samples from farmers' houses and three bulk samples from the local markets in Matale, Badulla and Hambantota were collected. The plants of proso millet were found in a field, but the seeds were still immature. Seed coat color was either yellow or gray. Its grains are cooked in the same way as rice.

No sample of little millet or samai (*Panicum miliare* Lam.) locally colled "hyie mineri" was collected in the area.

Other crops : Farmers tended to plant several crops in the same field under shifting agriculture "chena". Two landraces of sorghum (*Sorghum bicolor* Moench) called "waguruh" were obtained from two sites in Badulla District. Seeds were either white or light brown in color. Head length were 13cm and 25cm.

A sample of maize (*Zea mays* L.) was collected in the site located 23km from Madirigiriya in Polonnaruwa District. This was cultivated in the "maha" season matured in three months. Ear length was 14cm and kernel color was light purple. Young ears are boiled like sweet corn in Japan.

Five samples of mustard (*Brassica juncea* Coss.) locally called "aba" were collected from 5 sites of "chena" in Matale, Polonnaruwa and Anuradhapura Districts. Four samples were at the maturing stage, and one sample, No. 2, was at the flowering stage. Plant height ranged from 110cm to 155cm. Number of pods per plant was from 140 to 450. Stem color was either green or purple.

Two samples of mungbean (*Vigna radiata* Wilczek) called "kaha mung" or "mung" were collected in Matale and Moneragala Districts. Two samples of rice bean (*Vigna umbellata* Ohwi et Ohashi) known as "boo mae" were collected in Badulla District. One sample of cowpea (*Vigna unguiculata* Walp, called "ratu") was collected in Matale District. A sample of horsegram (*Dolichos uniflorus* Lam., called "kollu") was also collected in Hambantota District.

c) Recommendations for exploration and evaluation

1) Millet germplasm has disappeared from farmers' fields. However, as there are still a variety of valuable landraces in Naula, Kahatagasdigiliya, Madirigiriya, and Wirawila, the exploration for collecting millet germplasm should be undertaken in these areas as soon as possible.

2) Some immature samples were collected. These samples seem to possess so poor germina-

bility that they should be handled carefully to maintain, evaluate, and multiply.

3) Yard grass plants (*Eleusine indica* Gaertn.) were also found in the fields of finger millet. These wild species should be collected and evaluated to utilize for the breeding program and evolutionary research of finger millet.

4) Collection of millet germplasm was conducted from the low land to the semi-high land. The samples will show high variation of ecological characteristics such as growth period.

2. Joint exploration in Thailand

a) Method

Local markets were visited and some agricultural extension officers were interviewed to get the information on millets in Thailand.

One day tour for exploration was made four times from January 29th to February 1st in North Thailand by car. The route of exploration and the detailed itinerary are shown in Fig. 2 and Table 1, respectively.

b) Results and discussion

Seventeen samples consisting of 8 samples of maize, 6 of sorghum and 3 of the other crops were collected in villages including those of hill tribes, Karen and Lisu (Table 2).

A village named Copabong, 30km northwest from Chiang Dao, was visited on January 29th. The village people used to cultivate millet until 50 years ago, then it has been replaced by rice, maize, pepper and garlic. Even at Lisu tribe's village, nobody knew millet. Millets are not cultivated around Chiang Dao area according to hearing from the people at a local market in Chiang Dao.

Two sorghum samples were collected from a farmer at the village named Huang Pong, 75km northeast from Chiang Mai, in the way to Phayao. Sorghum was called "khao phan" or "khao tog". One was white seeded type produced as the feed for pigs, and the other was black seeded type with sweet stalk. Plant height of both samples ranged from 210cm to 220cm.

Southwestern part of Chiang Mai was explored on January 31st. Five samples of maize, one of sorghum, and one of finger millet were collected at the village named Ban Khun Krang in the Doi Inthanon National Park, 60km southwest from Chaing Mai. Samples of maize called "tien" were collected from ears which were air-dried after harvest. The ears varied from each other in kernel color, ear length and waxiness. The ears were boiled like sweet corn in Japan. "Tien dam" and "tien lueng" means black and yellow maize, respectively. One sample, No. 95, was separated into two types, No. 95 and No. 105, according to the waxiness of seeds. Sorghum seeds were distilled into spirits. Finger millet with 6 long fingers was harvester in the last rainy season and stocked. It is called "khao phang teen mah". Well ripen panicles of finger

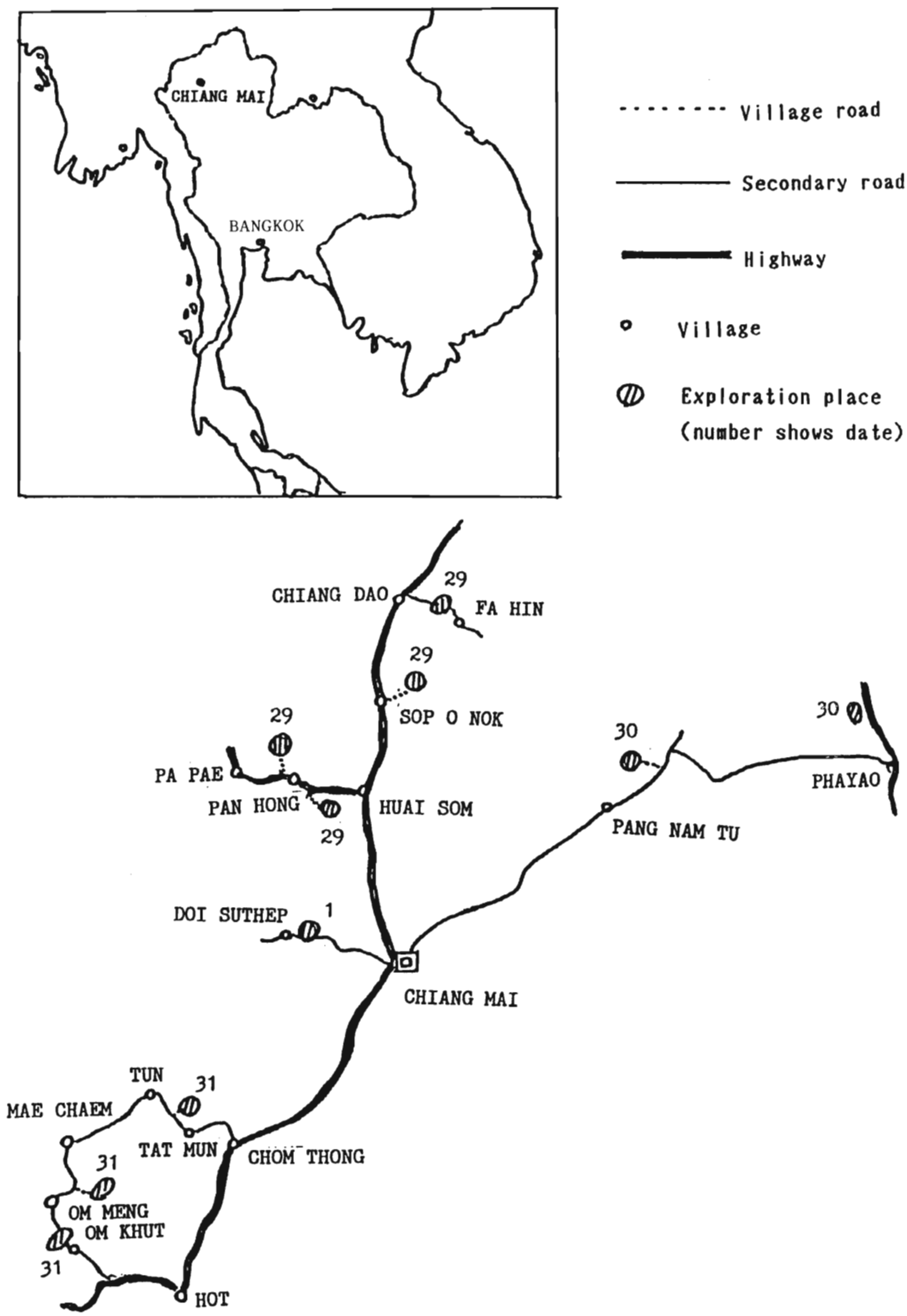

Fig. 2 The exploration routes in Thailand

タイにおける探索ルート

Table 2 Crop species and number of collections in Sri Lanka and Thailand

スリランカとタイにおける収集種名と点数

Country & Locality	Species						Total
	Eleusine coracana	*Setaria italica*	*Panicum miliaceum*	*Sorghum bicolor*	*Zea mays*	other species *	
Sri Lanka							
Matale	3	4	1	0	0	3	11
Polonnaruwa	4	1	0	0	1	2	8
Anuradhapura	11	4	0	0	0	2	17
Kuruganela	6	2	0	0	0	0	8
Kandy	1	1	0	0	0	0	2
Badulla	15	8	2	2	0	2	29
Moneragala	4	1	0	0	0	1	6
Hambantota	3	1	3	0	0	1	8
Thailand							
Chiang Mai	1	1	0	4	8	1	15
Chiang Rai	0	0	0	2	0	0	2
Total	48	23	6	8	9	12	106

Notes : * other species (species name and collections number ; *Brassica juncea* 5, *Vigna radiata* 2, *Vigna umbellata* 2, *Vigna sinensis* 1, *Dolichos uniflorus* 1, *Amaranthus caudatus* 1.)

millet were popped in the fire and were used in the ceremony. Proso millet was cultivated two years ago, but no farmer maintained his own seeds.

Two samples of sorghum and one of foxtail millet were collected at Ban Pa Pung, a Karen's village, 137km from Chiang Mai. Sorghum called "khao phan" was about 300cm in plant height. Foxtail millet was called "khao phan hang mah" meaning dog's tail cereal. Grains of foxtail millet were steamed to cook.

One sample of sorghum and of grain amaranthus were collected at Ban Rom Pong, on the road side between Mae Cham and Hot.

Mon tribe's village was explored on February 1st at Doi Pui, very near the Doi Suthep, about 20km from Chiang Mai and two samples of maize were collected.

c) Recommendations for exploration

Millet germplasm have disappeared from farmers' fields around Chiang Mai, Chaing Dao, and Phayao. Millet will be lost in Doi Inthanon, Mae Chaem, Hot and Cham Thong within a few years. In the next exploration to the Northern Thailand, it is recommended that the northwest-

ern area around Mae Hong Son province where Karen people live, the northern area around Chiang Rai where Lafu tribe live, and the northeastern area around Nan province where Lisu tribe live should be explored for collecting millets.

4. Acknowledgements

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in Japan: Dr. K. Kawaguchi and Dr. K. Okuno, NIAR.

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スリランカ及びタイにおける雑穀類遺伝資源の探索

西　牧　　清[1]・及　川　一　也[2]・C. B. ヒンダガラ[3]
ガミニ　サマニシンハ[3]・S. K. セネビラトネ[3]
ニポン　イアムスパシット[4]・サレワット　ジュッタポーンポング[4]
プリーチャ　プラマニー[4]・プラウィット　プッタノンド[5]

1）長野県中信農業試験場　畑作育種部
2）岩手県立農業試験場　技術部
3）スリランカ　植物遺伝資源センター
4）タイ　スーファンブリ畑作研究センター
5）タイ　チェンマイ畑作研究センター

要約

雑穀類は，イネ，ムギ等のような多量生産を行う穀類以外を総称していう言葉である。今回の探索収集では，禾穀類の中の小粒作物（アワ，キビ，ヒエ等，ミレットと言われる）を中心に，モロコシ，トウモロコシ等も収集した。ミレットは，古くからユーラシア大陸或はアフリカ大陸において広く栽培され，受け継がれてきたが，近年，生産性や収益性の高い作物に置き代わり，急速に耕地から姿を消しつつある。今回は，特にインドを中心としていまなお広く栽培されているシコクビエ，アワ等のミレットを中心に，数種類の雑穀類をスリランカ及びタイ北部から収集した。収集した系統のほとんどは各地域の農家において古くから栽培されてきた在来種である。

本探索により，48点のシコクビエ（*Eleusine coracana*），23点のアワ（*Setaria italica*），6点のキビ（*Panicum miliaceum*），8点のモロコシ（*Sorghum bicolor*），9点のトウモロコシ（*Zea mays*）を収集した。また，ミレットとの混作作物或は隣接した畠の作物も一部収集した。全収集数は106点で，そのうち89点はスリランカで，17点はタイで収集した。

中部及び南部スリランカにおいて，標高0mから約2,000mの地域を延べ1,475kmに渡り探索し，作物の生育データと共に種子を収集した。スリランカにおいては，植物遺伝資源センターが独自に探索収集を行っていたので，同センターの収集リストを照合し，探索集落に重複を生じないように配慮した。シコクビエは乾燥・半乾燥地帯の焼畑等において広く栽培されていた。収集したサンプルには穂の形や大きさ，節の色等に変異が認められた。混作が多く，混作作物にはアワ，ナ類等色々であった。キビの栽培を見かけることは非常に少なく，主として農家の保存種子の分譲を受けた。豆類等隣接畑から収集したものもあった。シコクビエはいわゆる“うす焼き”あるいはペースト状にして食べるということであった。アワはお粥として食べるのが一般的のようであった。農家は雑穀，野菜等の作物の種子をよく保存しており，古くから集落に伝わる在来種が多かった。スリランカには今回を含めても未収集地域が多くあり，今後とも収集が必要である。

北部タイにおいてはミレットの食用としての栽培は急減していた。作期ではないこともあってか，栽培畑に巡り会うことはなかった。小数部族の集落を訪ね，農家が保存している穂や乾燥中の穂から種子を収集した。収集物はモロコシ，トウモロコシがほとんどであった。北部タイのミレット収集を計画する場合，北西部のカレン族，北東部のリス族等が住む，より深い山岳地帯に足を踏み入れる必要があると考えられた。

LIST OF COLLECTED MATERIALS (Collection of Millet Germplasm in Sri Lanka and Thailand)

Collection No.	Date Month	Genus & Species	Cultivar or local name	Sample P/In[1]	Status[2]	Locality(Prov.,Vill. km) & Altitude(m)	Crop season	Cultural practice	Usage	Topography[3]	Site[4]	Drainage[5]	Characteristics of the Crops, Gained on the Fields	Notes Name & address etc.
1	11/Jan	Eleusine coracana	kurakkan	P	land-race	Matale, Elukwella,6 km from Sigiriya, 140m	maha,early ripening s.			plain	level	moderate	plant height(h.)[7]:90 cm, panicle length(l.)[7]:5cm	Wasantha Sandenyaka, Elukwella,Sigiria for propagation
7	11/Jan	Eleusine coracana	kurakkan	P	land-race	Matale, Karanwilahena, 2km from Naula	maha	m.c. d.s.	flour, roti		☆ slope		☆[6]plant h.:120cm, panicle l.:3-4cm	H.N.W.Samaratna, Karanwilahena,Naula
9	11/Jan	Eleusine coracana	kurakkan	P	land-race	Matale, Karanwilahena, 2km from Naula	maha				☆ slope	good	seed color(co.)[7]:reddish brown,☆plant h.:90cm, panicle l.:3-4cm	B.G.Podibanda, Karanwilahena,Naula
12	12/Jan	Eleusine coracana	kurakkan or kurahan	P	land-race	Polonnaruwa, Mahatalakolawewa, 23km from Medirigiriya,0m	maha,early ripening s.	d.s.	roti, paste	hilly	level	moderate	seed co.:white, plant h.:98cm, panicle l.:5.5cm	K.B.Muthubanda,1895 Mahatalakolawewa, Yaya 8,Medirigiriya
14	12/Jan	Eleusine coracana	kurahan	P	land-race	Polonnaruwa, Mahatalakolawewa, 23km from Medirigiriya,0m	maha	s.c. d.s.			level	good	seed co.:brown, ☆plant h.:95-100cm panicle l.:4.5-7cm	S.Karunawathi, Kuhkunawela, Migaswewa
15	12/Jan	Eleusine coracana	kurakkan	P	land-race	Polonnaruwa, Mahatalakolawewa, 23km from Medirigiriya,0m	maha,early ripening s.	d.s. s.c.		plain			seed co.:white, plant h.:124cm	K.K.Pyasena, Migaswewa, Medirigiriya
19	12/Jan	Eleusine coracana	kurakkan	P	land-race	Polonnaruwa,Mahatalakolawewa,9.6km from Medirigiriya, MARKET	maha	d.s. or transplanting			slope		☆plant h.:80cm, panicle l.:5.5cm	H.M.Tikiribanda, Yaya 7,No.1530, Pulayar Junction
20	13/Jan	Eleusine coracana	tunmus kurakkan	P	land-race	Anuradhapura,Ippulogama, 13km from Kekirawa, 60m	maha,harvest after 10d			plain	slope		nod co.:normal green, plant h.:138cm, finger number(n.)[7]:10	K.A.Sraweero, Nelliyagama, Ippulogama
21	13/Jan	Eleusine coracana	tunmus kurakkan	P	land-race	Anuradhapura,Ippulogama, 13km from Kekirawa, 60m	maha,harvest after 10d			plain	slope		purple nod, plant h.:130cm, finger n.:8, panicle l.:4-5cm	K.A.Sraweero, Nelliyagama, Ippulogama
22	13/Jan	Eleusine coracana	tunmus kurakkan	P	land-race	Anuradhapura,Ippulogama, 13km from Kekirawa, 60m	maha,harvest after 10d			plain	slope		closed finger, plant h.:108cm, finger n.:5, panicle l.:5-8cm	K.A.Sraweero, Nelliyagama, Ippulogama

Notes 1)Sample: P=population, In=individual 2)Status:wild, weedy, landrace, improved, breeder's line, others. 3)Topography:swamp, flood plain, plain level, undulating, hilly, mountainous, others. 4)Site:level, slope, summit, depression. 5)Drainage:poor, moderate, good, excessive. 6)"☆" means data from hearing on the fields 7)Abbreviation: h. height, l. length, n. number, co. color, s. stage, d. day, m.c. mixed cropping, d.s. direct sawing, s.c. shifting cropping,

Collection No.	Date Month	Genus & Species	Cultivar or local name	Sample P/In[1]	Status[2]	Locality(Prov.,Vill. km) & Altitude(m)	Crop season	Cultural practice	Usage	Topography[3]	Site[4]	Drainage[5]	Characteristics of the Crops, Gained on the Fields	Notes Name & address etc.
23	13/Jan	Eleusine coracana	tunmus kurakkan	P	landrace	Anuradhapura,Ippulogama, 13km from Kekirawa, 60m	maha,harvest after 10d			plain	slope		opened finger, plant h.:119cm, panicle l.: 5.5-6.0cm, finger n.:5	K.A.Sraweero, Nelliyagama, Ippulogama
27	13/Jan	Eleusine coracana	kurahan	P	landrace	Anuradhapura, Ippulogama, 60m	maha, not maturing	d.s.		plain	slope		white and purple anther, plant h.:106cm, panicle l.:7cm	D.B.Siripala, Kadiyangawla, Ippulogama
28	13/Jan	Eleusine coracana	kurahan	P	landrace	Anuradhapura, Ippulogama, 110m	maha			plain	level	good	big finger, plant h.: 127cm, panicle l.:6cm, finger n.:9	H.M.S.Ginadase, Matchagama, Ippulogama
29	13/Jan	Eleusine coracana	kurahan	P	landrace	Anuradhapura, Ippulogama, 110m	maha, maturing			plain	level	good	small ear, plant h.:86 cm, panicle l.:4.5cm, finger n.:5	H.M.S.Ginadase, Matchagama, Ippulogama
31	14/Jan	Eleusine coracana	kurahan	P	landrace	Anuradhapura,Ambagahawewa,2.5km from Kahatagasdigiliya, 0m	maha, harvest in Jan.	d.s. m.c.(mustard)		plain	level	good	normal,light green stem, plant h.:122cm, panicle l.:7.5cm	S.Steven, Ambagahawewa, Kahatagasdigiriya
32	14/Jan	Eleusine coracana	kurahan	P	landrace	Anuradhapura,Ambagahawewa,2.5km from Kahatagasdigiliya, 0m	maha, harvest in Jan.	d.s. m.c.(mastard)		plain	level	good	purple nod and purple anther, plant h.:122cm finger n.:4	S.Steven, Ambagahawewa, Kahatagasdigiriya
33	14/Jan	Eleusine coracana	kurahan	P	landrace	Anuradhapura,Ambagahawewa,2.5km from Kahatagasdigiliya, 0m	maha, harvest in Jan.	d.s. m.c.(mustard)		plain	level	good	short plant height and few finger, plant h.: 59cm, finger n.:2	S.Steven, Ambagahawewa, Kahatagasdigiriya
35	14/Jan	Eleusine coracana	kurahan	P	landrace	Anuradhapura,Ambagahawewa,2.5km from Kahatagasdigiliya, 0m	maha, harvest in Jan.	d.s. m.c.(mastard)		plain	level	good	branching stem, plant h.:93cm, panicle l.:5 cm, finger n.:7	S.Steven, Ambagahawewa, Kahatagasdigiriya
37	15/Jan	Eleusine coracana	kurahan	P	landrace ?[6]	Kurunegala, Mahagalkadavala, 13km from Galgamuva, 30m	maha, harvest in Jan.	d.s.,m.c .(Amaranthus)		undulating	level	good	big finger,plant h.:94 cm,panicle l.:6.5cm, finger n.:7	D.M.Kiribanda, No.4,Madagama,Mahagalkadavala,Galgamuva
38	15/Jan	Eleusine coracana	kurahan	P	landrace	Kurunegala, Mahagalkadavala, 13km from Galgamuva, 30m	maha, harvest in Jan.	d.s.,m.c .(Amaranthus)		undulating	level	good	4 finger,plant h.:62cm panicle l.:4.5cm, nod color:light green	D.M.Kiribanda, No.4,Madagama,Mahagalkadavala,Galgamuva

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Collection No.	Date Month	Genus & Species	Cultivar or local name	Sample P/In[1]	Status[2]	Locality(Prov.,Vill. km) & Altitude(m)	Crop season	Cultural practice	Usage	Topography[3]	Site[4]	Drainage[5]	Characteristics of the Crops, Gained on the Fields	Notes Name & address etc.
39	15/Jan	Eleusine coracana	kurahan	P	landrace	Kurunegala, Mahagalkadawala, 13km from Galgamuwa, 30m	maha, harvest in Jan.	d.s. m.c.(Amranthus)		undulating	level	good	5 finger type, plant h.:79cm, panicle l.: 5.5cm, nod co.:green	D.M.Kiribanda, No.4, Madagama, Mahagalkadawala, Galgamuwa
40	15/Jan	Eleusine coracana	kurahan	P	uncertain	Kuruganela, Gojaragama, 3km from Galgamuwa, 65m	maha, harvest in Jan.	high yield		plain	level	good	big and high yield type,plant h.:124cm,panicle l.:5.5cm,finger:9	K.Kadiravalu, Gojaragama
41	15/Jan	Eleusine coracana	kurahan	P	uncertain	Kuruganela, Gojaragama, 3km from Galgamuwa, 65m	maha, harvest in Jan.	high yield		plain	level	good	the lowest finger splitted type, plant h.: 112cm, panicle l.:8cm	K.Kadiravalu, Gojaragama
42	15/Jan	Eleusine coracana	kurahan	P	uncertain	Kuruganela, Gojaragama, 3km from Galgamuwa, 65m	maha, harvest in Jan.	high yield		plain	level	good	purple nod and glume, plant h.:85cm,panicle l.:5.5cm, finger n.:7	K.Kadiravalu, Gojaragama
45	18/Jan	Eleusine coracana	kalugal kurahan	P	landrace	Kandy, Dambagahapitiya, 6km from Udadumbara, 500m	maha, harvest 15/Jan.	m.c.	pit rotty	mountainous	slope		early ripening type, plant h.:80cm, panicle l.:3.5cm, finger n.:5	G.K.G.Prmemadasa, Dambagahapitiya, Kahataliyadda
47	18/Jan	Eleusine coracana	kurakkan	P	landrace	Badulla, Kotobakine, 22km from Mahiyangana, 120m	maha, not earing	m.c. (corn)		undulating	level	good	☆plant h.:90cm	Urwarge Wannia, Dambara, Mahiyangana
48	18/Jan	Eleusine coracana	kiri kurakkan	P	landrace	Badulla, Dambana, 21 km from Mahiyangana	maha, harvest in Jan.	m.c. (corn)		undulating	level	good	White seed type, plant h.:50-60cm,panicle l.: 3.5-4cm, finger n.:3-5	H.M.Karunarathne, Dambana, Mahiyangana, Watuyaya
49	18/Jan	Eleusine coracana	kiri kurakkan	P	landrace	Badulla, Dambana, 21 km from Mahiyangana	maha, harvest in Jan.	m.c. (corn)		undulating	level	good	purple glume, plant h. :50-60cm, panicle l.: 3-4.5cm, finger n.:2-4	H.M.Karunarathne, Dambana, Mahiyangana, Watuyaya
50	18/Jan	Eleusine coracana	kalu kurakkan	P	landrace	Badulla, Dambana, 21 km from Mahiyangana	maha, harvest in Feb.	m.c. (f.millet etc.)		undulating	level	good	plant h.:90cm, panicle l.:4-5cm, finger n.:4-6	Gunerathne, Dambana, Mahiyangana, Watuyaya
53	18/Jan	Eleusine coracana	kiri kurahan	P	landrace	Badulla, Dambana, 21 km from Mahiyangana, 90m	maha, harvest in Jan.	m.c. (aba)		plain	slope	good	white glume, plant h.: 60cm, panicle l.:3-4.5 cm, finger n.:4-5	T.M.Kiribanda, Dambana, Mahiyangana, Wekeyaya

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LIST OF COLLECTED MATERIALS (Collection of Millet Germplasm in Sri Lanka and Thailand)

Collection No.	Date Month	Genus & Species	Cultivar or local name	Sample P/In[1]	Status[2]	Locality(Prov.,Vill. km) & Altitude(m)	Crop season	Cultural practice	Usage	Topography[3]	Site[4]	Drainage[5]	Characteristics of the Crops, Gained on the Fields	Notes Name & address etc.
54	18/Jan	Eleusine coracana	kurakkan	P	land-race	Bdulla, Dambana, 18 km from Mahiyangana, MARKET							seed c.:grayish brown, received from farmers in Dambana	Jayasinghe, Dambana, Mahiyangana, road side
55	18/Jan	Eleusine coracana	kurakkan	In	land-race	Badulla, Gadaguduwewa 13km from Mahiyangana, 55m	maha	m.c.		plain	level		plant h.:132cm, finger n.:6, maybe one plant, growing independently	D.M.Mutubanda,No.302 Gadaguduwewa, Mahiyangana, Bibile road
57	18/Jan	Eleusine coracana	bala kurakkan	P	land-race	Badulla, Polwatta, 14km from Mahiyangana, 55m	maha					good	early ripening type, plant h.:105cm,panicle l.:4-5cm,finger n.:2-5	L.A.M.Punchibanda, 15mile post Polwatta , Uraniya
58	18/Jan	Eleusine coracana	kurakkan	P	land-race ?	Badulla, Unit 40/2, 34km from Badulla, 95km	maha, harvest in Jan.	m.c. (corn or sorghum)		mountainous	slope	moderate	plant h.:114cm, panicle l.:5.5cm, finger n.:5-8	D.M.Heenbanda, Unit 40/2, Badulla Oya
61	18/Jan	Eleusine coracana	kurakkan	P	land-race	Badulla, Karametiya, 34km from Badulla, 80m	harvest in Dec.	m.c. (corn)		mountainous	slope	good	☆plant h.:65cm, panicle l.:4.5cm	G.M.Sudubanda, 27/2 Karametiya, Badulla Oya
62	19/Jan	Eleusine coracana	kurakkan	P (bulk)	land-race	Badulla, Hakurukaduwa, 24km from Badulla, 250m	maha	m.c. (corn)		hilly	slope	good	80 days ripening type, plant h.:104cm, panicle l.:5cm, finger n.:5	Y.R.M.Aranda Royapaksha, Hakurukaduwa, Migahakiula
63	19/Jan	Eleusine coracana	kurakkan	P (bulk)	land-race	Badulla, Hakurukaduwa, 24km from Badulla, 250m	maha	m.c. (corn)		hilly	slope	good	purple nod, plant h.: 110cm, panicle l.:4.5 cm, finger n.:6	Y.R.M.Aranda Royapaksha, Hakurukaduwa, Migahakiula
67	19/Jan	Eleusine coracana	kiri kurakkan	P	land-race	Badulla, Taldena, 14km from Badulla, 290m	maha, harvest in Jan.	m.c. (corn)		hilly	slope,steep		☆plant h.:50cm	K.R.S.M.Ganathi, Taldena, Boliyadda, Ketawelagedera
71	19/Jan	Eleusine coracana	kurakkan	P (bulk)	land-race	Badulla, Hakurukaduwa, 24km from Badulla, 250m								Y.R.M.Aranda Royapaksha, Hakurukaduwa, Migahakiula
73	19/Jan	Eleusine coracana	kurakkan	P	uncertain	Badulla, Passara road, MARKET								A.B.David Silva, No.75, Main street, Passara,TEl055-8707

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75	20/Jan	Eleusine coracana	kurakkan	P	land-race	Moneragala, Galakulugolla, 9km from Passara, 390m	maha, harvest in Jan.			mountainous	slope	good	plant h.:82cm, panicle l.:8cm, finger n.:14	R.M.Jayarathne, Galakulugolle, Kotamuduna, Passara
76	20/Jan	Eleusine coracana	kurakkan	P	land-race	Moneragala, Galakulugolla, 9km from Passara, 390m	maha, harvest in Jan.			mountainous	slope	good	purple nod, plant h.: 69cm, panicle l.:5.5 cm, finger n.:5	R.M.Jayarathne, Galakulugolla, Kotamuduna, Passara
78	20/Jan	Eleusine coracana	maha kurakkan	P	land-race	Moneragala, Peraketiya, 8km from Pelwatta, 150m	maha, harvest in Jan.	mono culture		undulating	slope		early ripening type, plant h.:80cm, panicle l.:7-8cm, finger n.:7	A.M.Karunarathe, Peraketiya, Udarawa, Uva Pelwatta
79	20/Jan	Eleusine coracana	maha kurakkan	P	land-race	Moneragala, Peraketiya, 8km from Pelwatta, 150m	maha, harvest in Jan.	m.c.,deweeding 2 times		undulating	slope	good	plant h.:125cm, finger n.:8	W.M.Ganarambanda. Peraketiya, Udarawa, Uva Polwatte
81	20/Jan	Eleusine coracana	loku kurakkan	P	land-race	Hambantota, Kudagamana, 8km from Tissamaharama, 40km	maha	bad stand		plain	slope		plant h.:107cm, panicle l.:4.5cm, finger n.:6-7	R.P.Dayadasa, Kudagamana, 8 left bank, Kirindi Oya Project
84	21/Jan	Eleusine coracana	idal kurakkan	P	land-race	Hambantota, No.44, New Town, 2km from Wirawila, 0m	maha, harvest in Jan.	m.c. (legume)		plain	level	good	much lodging, plant h.:91cm, panicle l.:5.5-6.5cm, finger n.:5-6	S.D.Kulatunge, No.44 New Town, Wirawila, Wellawaye road
85	21/Jan	Eleusine coracana	kiri kurakkan	P	land-race	Hambantota, Beliattakode, 6km from Tanamalwila,65m	maha, harvest in Jan.	mono culture		plain	level		purple nod,lately ripening type,plant h.:100cm, panicle l.:6-7cm,	K.A.Danapala, Beliattakode, Degaldehira, Glohihyeya
★[9]96	31/Jan	Eleusine coracana	khao pang teen mah	In	land-race	Chiang Mai, Ban Khcun Krang, 60km from Chiang Mai, 1230m	rainy season	hill planting	eat like popcorn	mountainous	slope	good	☆plant h.:110cm, panicle l.:11cm, finger n.:6	Pai(Moor hill tribe) Ban Khchun Krang Doi Inthanong

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Collection No.	Date Month	Genus & Species	Cultivar or local name	Sample P/In[1]	Status[2]	Locality(Prov.,Vill. km) & Altitude(m)	Crop season	Cultural practice	Usage	Topography[3]	Site[4]	Drainage[5]	Characteristics of the Crops, Gained on the Fields	Notes Name & address etc.
4	11/Jan	Setaria italica	Tanahal	P	land-race	Matale, Elukwella, 6km from Sigiriya, 140m				plain	level	moderate	seed and bristle co.: redish and brown, panicle l.:11cm	Wasantha Sandenyaka, Elukwella, Sigiriya
8	11/Jan	Setaria italica	Tanahal	P	land-race	Matale, Karanwilahena, 2km from Naula	maha		gruel		slope		seed and bristle co.: yellow, long ear, panicle l.:20cm	H.N.W.Samaratna, Karanwilahena, Naula
10	11/Jan	Setaria italica	Tanahal	P	land-race	Matale, Karanwilahena, 2km from Naula					☆ slope		seed and bristle co.: whitish and yellow, panicle l.:7.5cm	B.G.Podibanda, Karanwilahena, Naula
11	11/Jan	Setaria italica	Tanahal	P	land-race	Matale, Karanwilahena, 2km from Naula	maha, harvest in Jan.			plain	☆ level		☆plant h.:150cm, panicle l.:7.5cm	Mathumanike,H.M.U., Karanwilahena, Naula
17	12/Jan	Setaria italica	Tanahal	P	land-race	Polonnaruwa, Mahatalakolawewa, 23km from Madirigiriya, 0m	maha		like gruel	plain	level		plant h.:102cm, panicle l.:14cm, stem l.:82 cm, leaf n.:7	K.K.Pyasena, Migaswewa, Madirigiriya
24	13/Jan	Setaria italica	Tanahal	P	land-race	Anuradapura, Ippulogama, 13km from Kekirawa, 60m				plain	slope		clearly lobed? type, big ear, panicle l.:16 cm	K.A.Sraweero, Nelliyagama, Ippulogama
25	13/Jan	Setaria italica	Tanahal	P	land-race	Anuradapura, Ippulogama, 13km from Kekirawa, 60m				plain	slope		not clearly lobed type ,compacted small ear, panicle l.:11cm	K.A.Sraweero, Nelliyagama, Ippulogama
26	13/Jan	Setaria italica	Tanahal	P	land-race	Anuradapura, Ippulogama, 13km from Kekirawa, 60m							clearly lobed ear type , plant h.:160cm, panicle l.:21-22cm	W.M.Jayasinghe, Nelliyagama, Ippulogama
36	14/Jan	Setaria italica	Tanahal	P	land-race	Anuradhapura,Ambagahawewa,Kanhindadomar.,Kahatagasdigiliya	maha, harvest in Jan.	s.c. d.c.		plain	level	good	clearly lobed ear,glume co.:brownish,plant h.:121cm,stem l.:82cm	M.Haramanis, Ambagahawewa, Kanhindadomar.,Kahatagasdigiliya
43	15/Jan	Setaria italica	Tanahal	P	land-race ?	Kuruganela, Gojaragama, 3km from Galgamuwa, 65m				plain	level	good	glume co.:black, plant h.:124cm, panicle l.: 21cm	K.Kadiravalu, Gojaragama

Notes 1)Sample: P=population, In=individual 2)Status:wild, weedy, landrace, improved, breeder's line, others. 3)Topography:swamp, flood plain, plain level, undulating, hilly, mountainous, others. 4)Site:level, slope, summit, depression. 5)Drainage:poor, moderate, good, excessive. 6)"☆" means data from hearing on the fields 7)Abbreviation: h. height, l. length, n. number, co. color, s. stage, d. day, m.c. mixed cropping, d.s. direct sawing, s.c. shifting cropping, r. road, 8)"?" means "not clearly"

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44	15/Jan	Setaria italica	tanahal	In	land-race ?	Kuruganela, Gojaragama, 3km from Galgamuwa, 65m				plain	level	good	glume co.:brownish, plant h.:161cm,stem l.:109cm,panicle l.:21cm	K.Kadiravalu, Gojaragama
46	15/Jan	Setaria italica	tanahal	P	land-race ?	Kandy, Dambagahapitiya, MARKET								A.F.M.Razeak, Dambagaha, Kahataliyadda
51	18/Jan	Setaria italica	tanahal	P	uncer-tain	Badulla, Dambana,21 km from Mahiyangana	maha	m.c., (finger millet)	like rice	undulating	level	good	glume co.:orange, panicle l.:16cm	Gunerathne, Dambana, Mahiyangana, Watuyaya
56	18/Jan	Setaria italica	tanahal	P	land-race	Badulla, Gadaguduwewa, 13km from Mahiyangana,55m	for four months			plain	level		plant h.:120cm	D.M.Mutubanda,No.302 Gadaguduwewa, Mahiyangana, Bibile road
59	19/Jan	Setaria italica	tanahal	P	land-race	Badulla, Unit 40/2, 34km from Badulla, 95m				mountainous	slope	moderate	glume co.:blackish brown, plant h.:118cm, panicle l.:15cm	D.M.Heenbanda, Unit 40/2, Badulla Oya
60	19/Jan	Setaria italica	tanahal	P	land-race	Badulla, Karametiya, 34km from Badulla, 80m				mountainous	slope	good	seed co.:whitish brown, panicle l.:21cm	G.M.Sudubanda, 27/2 Karametiya, Badulla Oya
64	19/Jan	Setaria italica	tanahal	P	land-race	Badulla, Hakurukaduwa, 24km from Badulla, 250m	maha			hilly	slope	good	plant h.:106cm, panicle l.:12cm	Y.R.M.Aranda Royapaksha, Hakurukaduwa, Migahakiula
65	19/Jan	Setaria italica	balo tanahal	P	wild	Badulla, Hakurukaduwa, 24km from Badulla, 250m							wild type, plant h.:200cm, panicle l.:6cm	the roadside,near from collection No.64
68	19/Jan	Setaria italica	tanahal	P	land-race	Badulla, Taldena, 14km from Badulla, 290m	maha, harvest in Jan.	m.c., (finger millet)					seed co.has two types, black and yellow	D.M.Bandaramenike, Tehnabenagedava, Boliyedda
74	20/Jan	Setaria italica	tanahal	P	uncer-tain	Badulla, Passara road, MARKET							seed co.:brown	A.B.David Silva, No.75, Main street, Passara,TE1055-8707

Notes 1)Sample: P=population, In=individual 2)Status:wild, weedy, landrace, improved, breeder's line, others. 3)Topography:swamp, flood plain, plain level, undulating, hilly, mountainous, others. 4)Site:level, slope, summit, depression. 5)Drainage:poor, moderate, good, excessive. 6)"☆" means data from hearing on the fields 7)Abbreviation: h. height, l. length, n. number, co. color, s. stage, d. day, m.c. mixed cropping, d.s. direct sawing, s.c. shifting cropping, r. road, 8)"?" means "not clearly"

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80	20/Jan	Setaria italica	tanahal	P	land-race	Moneragala, Peraketiya, 8km from Pelwatta, 150m	maha, harvest in Jan.	m.c.,de-weeding 2 times		undulating	slope	good	plant h.:139cm, panicle l.:17cm	W.M.Ganarambanda. Peraketiya, Udarawa, Uva Pelwatta
86	21/Jan	Setaria italica	tanahal	P	land-race	Hambantota, Beliattakode, 6km from Tanamalwila, 65m	maha, harvest in Jan.			plain	level		plant h.:100cm, panicle l.:16cm	K.A.Danapala, Beliattakode, Degaldehira, Glohihyeya
★98	31/Jan	Setaria italica	khao pang hang mah(dog)	In	land-race	Chiang Mai, Ban Pa Pung, 90km from Chiang Mai, 520m	rainy season V～VIII	broadcasting	steamed,dessert	mountainous	slope	good	☆plant h.:150cm, panicle l.:27cm	Yang Gong(Karen hill tribe), Tumbol Tapa, Maecham, Chiang Mai

Notes 1)Sample: P=population, In=individual 2)Status:wild, weedy, landrace, improved, breeder's line, others. 3)Topography:swamp, flood plain, plain level, undulating, hilly, mountainous, others. 4)Site:level, slope, summit, depression. 5)Drainage:poor, moderate, good, excessive. 6)"☆" means data from hearing on the fields 7)Abbreviation: h. height, l. length, n. number, co. color, s. stage, d. day, m.c. mixed cropping, d.s. direct sawing, s.c. shifting cropping, 8)"?" means "not clearly" 9)"★" means collection in Thailand, no mark's in Sri Lanka

LIST OF COLLECTED MATERIALS (Collection of Millet Germplasm in Sri Lanka and Thailand)

Collection No.	Date Month	Genus & Species	Cultivar or local name	Sample P/In[1]	Status[2]	Locality(Prov.,Vill. km) & Altitude(m)	Crop season	Cultural practice	Usage	Topography[3]	Site[4]	Drainage[5]	Characteristics of the Crops, Gained on the Fields	Notes Name & address etc.
3	11/Jan	Panicum miliaceum	mineri	P	landrace	Matale, Elukwella, 6km from Sigiriya, 140m	maha,beginning of ri.	d.s.	like rice	plain	level	moderate	seed co.:golden, not awn, plant h.:100cm, panicle l.:24cm	Wasantha Sandenyaka, Elukwella, Sigiria
72-a	20/Jan	Panicum miliaceum	mineri	P	uncertain	Badulla, Passara road, MARKET							seed co.:brownish yellow	A.B.David Silva, No.75, Main street, Passara, TE1055-8707
72-b	20/Jan	Panicum miliaceum	mineri	P	uncertain	Badulla, Passara road, MARKET							seed co.:blackish yellow	A.B.David Silva, No.75, Main street, Passara, TE1055-8707
83	20/Jan	Panicum miliaceum	mineri	P	uncertain	Hambantota, Kataragama, MARKET	yala, sawing in April						seed produced in 1990	Ariya Wellandasela, Sella, Kataragama
87	21/Jan	Panicum miliaceum	mineri	P	landrace	Hambantota, Beliattakode, 6km from Tanamalwila, 65m	yala, maha,too						seed mixed(yellow and gray)	K.A.Danapala, Beliattakode, Degaldehira, Glohihyeya
88	21/Jan	Panicum miliaceum	mineri	P	landrace	Hambantota, Beliattakode, 6km from Tanamalwila, 65m								K.A.Danapala, Beliattakode, Degaldehira, Glohihyeya

Notes 1)Sample: P=population, In=individual 2)Status:wild, weedy, landrace, improved, breeder's line, others. 3)Topography:swamp, flood plain, plain level, undulating, hilly, mountainous, others. 4)Site:level, slope, summit, depression. 5)Drainage:poor, moderate, good, excessive. 6)"☆" means data from hearing on the fields 7)Abbreviation: h. height, l. length, n. number, co. color, s. stage, d. day, m.c. mixed cropping, d.s. direct sawing, s.c. shifting cropping, r. road, ri. ripening, 8)"?" means "not clearly"

Sorghums

LIST OF COLLECTED MATERIALS (Collection of Millet Germplasm in Sri Lanka and Thailand)

No. 1

Collection No.	Date Month	Genus & Species	Cultivar or local name	Sample P/In[1]	Status[2]	Locality(Prov.,Vill. km) & Altitude(m)	Crop season	Cultural practice	Usage	Topography[3]	Site[4]	Drainage[5]	Characteristics of the Crops, Gained on the Fields	Notes Name & address etc.
52	18/Jan	Sorghum bicolor	waguru	P	land-race	Badulla, Dambana, 21 km from Mahiyangana				undulating	level	good	seed co.:white, glume co.:blackish, panicle l.:13cm	Gunerathne, Dambana, Mahiyangana, Watuyaya
66	19/Jan	Sorghum bicolor	waguru	P	land-race	Badulla, Hakurukaduwa, 24km from Badulla, 250m				hilly	slope	good	seed co.:light brown, plant h.:200-250cm, panicle l.:25cm	Y.R.M.Aranda Royapaksha, Hakurukaduwa, Migahakiula
★89	30/Jan	Sorghum bicolor	khao phan or khao tog	P	land-race	Chiang Rai, Ban Huang Pong, 75km from Chiang Mai, 730m	rainy season, V～XII	broad-ca,no fertilizer	mainly pig's feed,	mountainous	slope	good	seed co.:white, plant h.:210-220cm, panicle l.:35cm, nod n.:8	Jatoa Jaka, Ban Huang-Pong, Maekachan, Chiang Rai
★90	30/Jan	Sorghum bicolor	khao phan dum(lolo gui)	In	land-race	Chiang Rai, Ban Huang Pong, 75km from Chiang Mai, 730m	rainy season, V～XII	broad-ca,no fertilizer	chew., cow's feed	mountainous	slope	good	seed co.:black, ☆plant h.:210-220cm, panicle l.:35cm	Jatoa Jaka, Ban Huang-Pong, Maekachan, Chiang Rai
★97	31/Jan	Sorghum bicolor	khao phan dum	In	land-race	Chiang Mai, Ban Khun-Krang, 60km from Chiang Mai, 1230m	rainy season,	broad-ca	eat, chew., alchol	mountainous	slope	good	seed co.:brown, ☆plant h.:300cm, panicle l.:31cm	Pai(Mong hill tribe), Ban Khun Krang, Chomthong, Chiang Mai
★99	31/Jan	Sorghum bicolor	khao phan dum	In	land-race	Chiang Mai, Ban Papung, 90km from Chiang Mai, 520m	rainy season	broad-ca	eat, chew., alchol	mountainous	slope	good	seed co.:brown, ☆plant h.:300cm, panicle l.:37cm	Yang Gong(Karen hill tr.),Ban Papung Tapa Maecham, Chiang Mai
★100	31/Jan	Sorghum bicolor	khao phan dum	P	land-race	Chiang Mai, Ban Papung, 90km from Chiang Mai, 520m	rainy season	broad-ca	eat, chew., alchol	mountainous	slope	good	seed co.:reddidh black, ☆plant h.:275cm, panicle l.:26cm	Pahair(Karen hill tr.),Tumbol Tapa, Maecham, Chiang Mai
★101	31/Jan	Sorghum bicolor	khao phan dum	In	land-race	Chiang Mai, Ban Lom Pong, 110km from Chiang Mai, 820m	rainy season	broad-ca	eat, chew., alchol	undulating	level		plant h.:230cm, panicle l.:45cm	Nawang, Ban Lom Pong, Maecham, Chiang Mai

Notes 1)Sample: P=population, In=individual 2)Status:wild, weedy, landrace, improved, breeder's line, others. 3)Topography:swamp, flood plain, plain level, undulating, hilly, mountainous, others. 4)Site:level, slope, summit, depression. 5)Drainage:poor, moderate, good, excessive. 6)"☆" means data from hearing on the fields 7)Abbreviation: h. height, l. length, n. number, co. color, s. stage, d. day, m.c. mixed cropping, d.s. direct sawing, s.c. shifting cropping, broad-ca broad-casting, chew. chewing, 8)"?" means "not clearly" 9)"★" means collection in Thailand, no mark's in Sri Lanka

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Collection No.	Date Month	Genus & Species	Cultivar or local name	Sample P/In[1]	Status[2]	Locality(Prov.,Vill. km) & Altitude(m)	Crop season	Cultural practice	Usage	Topography[3]	Site[4]	Drainage[5]	Characteristics of the Crops, Gained on the Fields	Notes Name & address etc.
18	12/Jan	Zea mays	hewnati-bada irigu	In	land-race	Polonnaruwa, Mahatalakolawewa, 23km from Madirigiriya, 0m	maha(for three months)		boiled and eaten	plain			seed co.:light purple, flint, ☆plant h.:140 cm, panicle l.:14cm	K.K.Pyasena, Migaswewa, Medirigiriya
★91	31/Jan	Zea mays	tien dang (red)	P	land-race	Chiang Mai, Ban Khun Krang, 60km from Chiang Mai, 1230m	rainy season, VI-X I	hill planting	boiled and eaten	mountainous	slope	good	seed co.:reddish brown, ☆plant h.:170cm, panicle l.:12cm	By(Mong hill tribe), Ban Khun Krang, Chomtong, Chiang Mai
★92	31/Jan	Zea mays	tien see kie moo	P	land-race	Chiang Mai, Ban Khun Krang, 60km from Chiang Mai, 1230m	rainy season, VI-X I	hill planting	boiled and eaten	mountainous	slope	good	seed co.:purple black, ☆plant h.:170cm, panicle l.:12.5cm	By(Mong hill tribe), Ban Khun Krang, Chomtong, Chiang Mai
★93	31/Jan	Zea mays	tien dum (black)	P	land-race	Chiang Mai, Ban Khun Krang, 60km from Chiang Mai, 1230m	rainy season, VI-X I	hill planting	boiled and eaten	mountainous	slope	good	seed co.:purple black, ☆plant h.:250cm, panicle l.:11.5cm	By(Mong hill tribe), Ban Khun Krang, Chomtong, Chiang Mai
★94	31/Jan	Zea mays	tien lueng	P	land-race	Chiang Mai, Ban Khun Krang, 60km from Chiang Mai, 1230m	rainy season, VI-X I	hill planting	boiled and eaten	mountainous	slope	good	seed co.:white, panicle l.:8.5cm	By(Mong hill tribe), Ban Khun Krang, Chomtong, Chiang Mai
★95	31/Jan	Zea mays	khao phod lueng (yellow)	P	land-race	Chiang Mai, Ban Khun Krang, 60km from Chiang Mai, 1230m	rainy season, VI-X I	hill planting	boiled and eaten	mountainous	slope	good	seed co.:cream yellow, ☆plant h.:250cm, panicle l.:19cm	By(Mong hill tribe), Ban Khun Krang, Chomtong, Chiang Mai
★103	1/Feb.	Zea mays	khao phod dum (black)	P	land-race	Chiang Mai, Doi Pui, 118km from Chiang Mai, 1240m	rainy season, VI-X I	hill planting	boiled and eaten	mountainous	slope		seed co.:purple black, ☆plant h.:180cm, panicle l.:9-11cm	Lee(Mong hill tribe), Doi Suthep-Pui, Chiang Mai
★104	1/Feb.	Zea mays	khao phod khaow (white)	P	land-race	Chiang Mai, Doi Pui, 118km from Chiang Mai, 1240m	rainy season, VI-X I	hill planting	boiled and eaten	mountainous	slope		seed co.:white, ☆plant h.:200-300cm, ☆panicle l.:20-25cm	Lee(Mong hill tribe), Doi Suthep-Pui, Chiang Mai
★105	31/Jan	Zea mays	khao phod lueng	In	land-race	Chiang Mai, Ban Khun Krang, 60km from Chiang Mai, 1230m	rainy season, VI-X I	hill planting	boiled and eaten	mountainous	slope	good	seed co.:yellow, waxy, other's the same of No.95	By(Mong hill tribe), Ban Khun Krang, Chomtong, Chiang Mai

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Amaranthus　　LIST OF COLLECTED MATERIALS (Collection of Millet Germplasm in Sri Lanka and Thailand)　　No. 1

Collection No.	Date Month	Genus & Species	Cultivar or local name	Sample P/In[1]	Status[2]	Locality(Prov.,Vill. km) & Altitude(m)	Crop season	Cultural practice	Usage	Topography[3]	Site[4]	Drainage[5]	Characteristics of the Crops, Gained on the Fields	Notes Name & address etc.
★102	31/Jan	Amaranthus caudatus	song doo (chopping)	In	landrace	Chiang Mai, Ban Lom Pong, 110km from Chiang Mai	rainy season	broadcasting	pig's feed	undulating	slope		☆plant h.150cm, panicle l.:40-50cm	Nawang, Ban Lom Pong, Meacham, Chian Mai

Notes 1)Sample: P=population, In=individual 2)Status:wild, weedy, landrace, improved, breeder's line, others. 3)Topography:swamp, flood plain, plain level, undulating, hilly, mountainous, others. 4)Site:level, slope, summit, depression. 5)Drainage:poor, moderate, good, excessive. 6)"☆" means data from hearing on the fields 7)Abbreviation: h. height, l. length, n. number, co. color, s. stage, d. day, m.c. mixed cropping, d.s. direct sawing, s.c. shifting cropping, 8)"?" means "not clearly" 9)"★" means collection in Thailand

作物種:Brassica　　LIST OF COLLECTED MATERIALS (Collection of Millet Germplasm in Sri Lanka and Thailand)　　No. 1

Collection No.	Date Month	Genus & Species	Cultivar or local name	Sample P/In[1]	Status[2]	Locality(Prov.,Vill. km) & Altitude(m)	Crop season	Cultural practice	Usage	Topography[3]	Site[4]	Drainage[5]	Characteristics of the Crops, Gained on the Fields	Notes Name & address etc.
2	11/Jan	Brassica juncea	aba	P	landrace	Matale, Elukwella, 6 km from Sigiriya, 140m	maha	d.s.	for selling	plain	level	moderate	stem co.:purple,pod co.:black, plant h.:115 cm, seed n./pod:14-15	Wasantha Sandenyaka, Elukwella, Sigiria
13	12/Jan	Brassica juncea	aba	P	landrace	Polonnaruwa, Mahatalakolawewa, 23km from Medirigiriya, 0m	maha, at ripening	d.s.		hilly	level	good	stem co.:green, plant h.:110cm, seed n./pod: 10-12	K.B.Muthubanda, 1895 Mahatalakolawewa, Yaya 8, Madirigiriya
16	12/Jan	Brassica juncea	aba	P	landrace	Polonnaruwa, Mahatalakolawewa, 23km from Madirigiriya, 5m	maha, at early ripening	d.s.		plain			stem co.:purple, plant h.:140cm, pod l.:2.5cm, branching n.:9	K.K.Pyasena, Migaswewa, Madirigiriya
30	13/Jan	Brassica juncea	aba	P	landrace	Anuradhapura, Ipalogama, 110m	maha, at early ripening	d.s.		plain	level	good	stem co.:purple, plant h.:146cm, pod n.:140, nod n.:7	H.M.S.Ginadase, Machchagama, Ipalogama
34	14/Jan	Brassica juncea	aba	P	landrace	Anuradhapura,Ambagahawewa,2.5km from Kahatagasdigiliya, 0m	maha, at early ripening	d.s.		plain	level	good	stem co.:purple, stem diameter:10mm,plant h. :155cm, seed n./pod:12	S.Steven, Ambagahawewa, Kahatagasdigiriya

Notes 1)Sample: P=population, In=individual 2)Status:wild, weedy, landrace, improved, breeder's line, others. 3)Topography:swamp, flood plain, plain level, undulating, hilly, mountainous, others. 4)Site:level, slope, summit, depression. 5)Drainage:poor, moderate, good, excessive. 6)"☆" means data from hearing on the fields 7)Abbreviation: h. height, l. length, n. number, co. color, s. stage, d. day, m.c. mixed cropping, d.s. direct sawing, s.c. shifting cropping, r. road, 8)"?" means "not clearly"

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Collection No.	Date Month	Genus & Species	Cultivar or local name	Sample P/In[1]	Status[2]	Locality(Prov.,Vill. km) & Altitude(m)	Crop season	Cultural practice	Usage	Topography[3]	Site[4]	Drainage[5]	Characteristics of the Crops, Gained on the Fields	Notes Name & address etc.
5	11/Jan	Vigna radiata	kaha mung	P	land-race	Matale, Elukwella, 6 km from Sigiriya, 140m	maha			plain	level	moderate	seed co.:yellow green, stem co.:green, plant h.:83cm,seed n./pod:21	Wasantha Sandenyaka, Elukwella, Sigiriya
6	11/Jan	Vigna sinensis	ratu	P	land-race	Matale, Elukwella, 6 km from Sigiriya, 140m	maha	d.s.		plain	level	moderate	plant h.:77cm, seed n./pod:5-10	Wasantha Sandenyaka, Elukwella, Sigiriya
69-a	19/Jan	Vigna umbellata	boo mae	P	land-race	Badulla, Taldena, 14km from Badulla, 290m				hilly	steep slope			K.R.S.M.Ganathi, Taldena, Boliyadda, Ketawelagedera
69-b	19/Jan	Vigna umbellata	boo mae	P	land-race	Badulla, Taldena, 14km from Badulla, 290m				hilly	steep slope			K.R.S.M.Ganathi, Taldena, Boliyadda, Katavalagedera
77	20/Jan	Vigna radiata	mung	P	land-race	Moneragala, Galakulugolla, 9km from Passara, 390m				mountainous	slope			R.M.Jayarathne, Galakulugolle, Kotamuduna, Passara
82	20/Jan	Dolichos uniflorus	kollu	P	land-race	Hambantota, Kudagamana, 8km from Tissamaharama, 40km				plain	slope			R.P.Dayadasa, Kudagamana, 8 left bank, Kirindi Oya Project

Notes 1)Sample: P=population, In=individual 2)Status:wild, weedy, landrace, improved, breeder's line, others. 3)Topography:swamp, flood plain, plain level, undulating, hilly, mountainous, others. 4)Site:level, slope, summit, depression. 5)Drainage:poor, moderate, good, excessive. 6)"☆" means data from hearing on the fields 7)Abbreviation: h. height, l. length, n. number, co. color, s. stage, d. day, m.c. mixed cropping, d.s. direct sawing, s.c. shifting cropping, r. road, 8)"?" means "not clearly"