

Adapting agriculture to climate change:
collecting, protecting and preparing crop wild relatives

Sri Lanka



Seed Collecting Guide



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RBG Kew (2016) Sri Lanka Seed Collecting Guide

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The content of this collecting guide is intended only as a general reference for future collecting missions; the contents and data within are not guaranteed to be complete, correct, timely, current or up-to-date at the time of publishing. For general information and resources on collecting crop wild relatives, visit cwrdiversity.org.

Cover photos

TOP LEFT: Black beans, CREDIT: Neil Palmer/CIAT;

TOP RIGHT: *Ipomoea*, CREDIT: RBG Kew;

BOTTOM LEFT: Sorghum, CREDIT: RBG Kew;

BOTTOM RIGHT: Rice CREDIT: Neil Palmer/CIAT.

This work was undertaken as part of the initiative “Adapting Agriculture to Climate Change” which is supported by the Government of Norway. The project is managed by the Global Crop Diversity Trust with the Millennium Seed Bank of the Royal Botanic Gardens, Kew, in partnership with national and international genebanks and plant breeding institutes around the world. It is implemented in accordance with the International Treaty on Plant Genetic Resources for Food and Agriculture. For further information see the project website: www.cwrdiversity.org/

Many individual scientists, herbaria, genebanks and specialist institutes are contributing advice and information to the Project and these guides. The Project aims to collect the wild relatives of 29 key crops, conserve them in genebanks, and prepare them for use in plant improvement programs to breed new crop varieties adapted to future climates.



MILLENNIUM
SEED BANK
PARTNERSHIP



The boundaries and names shown on the maps included in this guide do not imply official endorsement or acceptance by the Adapting Agriculture to Climate Change Project. Data source: GADM, Version 1.0 via diva-gis.org

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The Harlan and de Wet Crop Wild Relatives Checklist was developed by Holly Vincent and Nigel Maxted at the University of Birmingham.

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International Center for Tropical Agriculture
Since 1967 *Science to cultivate change*

The Gap Analysis work which informed the list of species included in this guide, and all the map files, were produced by the Gap Analysis team at CIAT: Andy Jarvis, Nora Castañeda, Colin Khoury and Julian Ramirez-Villegas.

RBG Kew is involved in the research and collection phases of the project. This collecting guide was developed based on the work of the Millennium Seed Bank Enhancement Project Species Targeting Team.

Royal Botanic Gardens
Kew



The Crop Wild Relatives Project is led by the Global Crop Diversity Trust. This work was undertaken as part of the initiative.

Specimen data was kindly provided to this project by many individuals and organisations who are listed on the website: <http://www.cwrdiversity.org/home/data-sources>

This data set will be made available for download. Please refer to the website for more information on this dataset.

This collecting guide has been compiled by:

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This collecting guide consists of species profiles and information sheets contained within this folder, alongside a CD which contains localities of the taxa in an excel file.

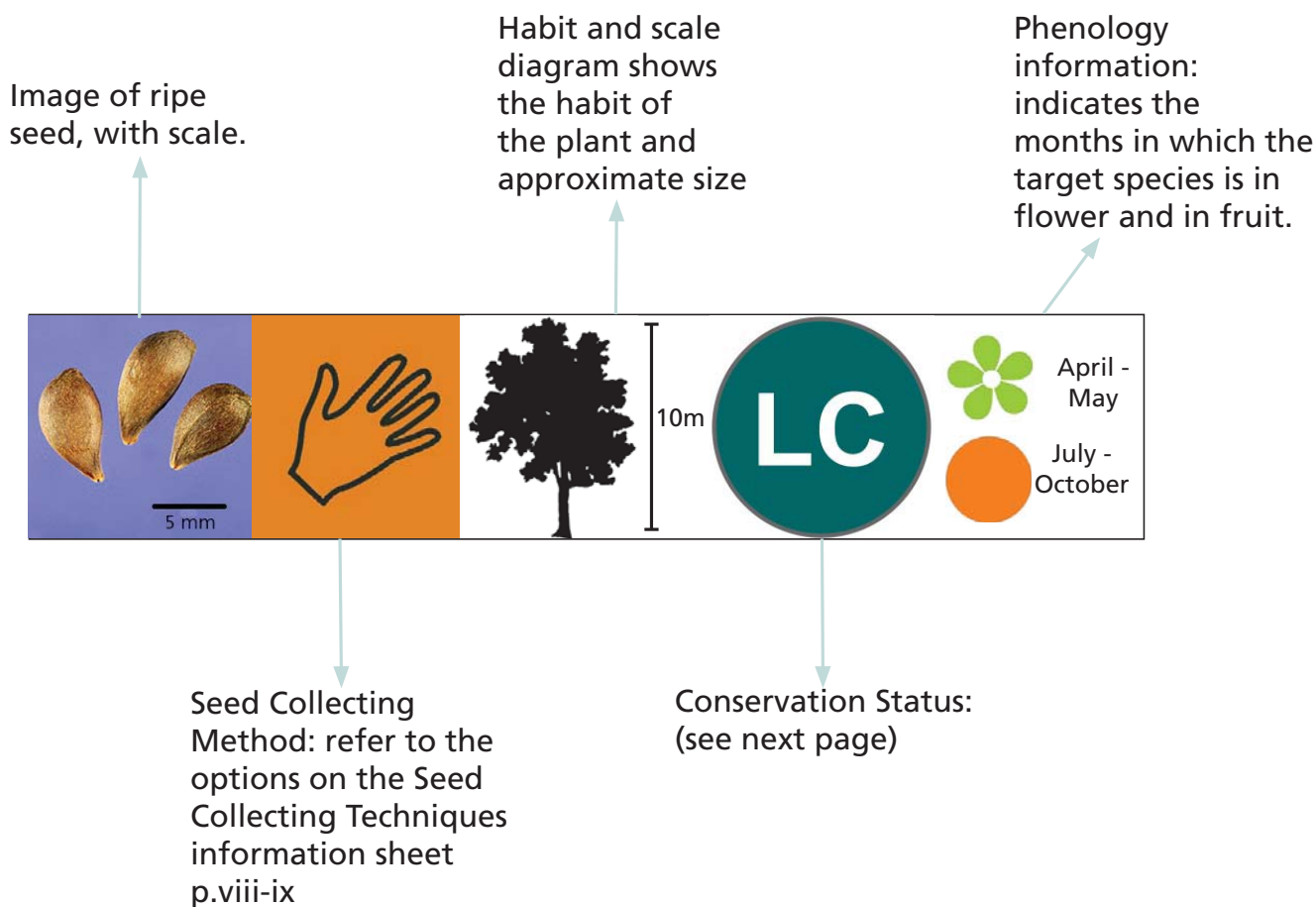
The species included in this guide are a selection of the wild relatives of the 29 key crops which this project covers (African Rice, Alfalfa, Apple, Aubergine, Bambara groundnut, Banana, Barley, Bread Wheat, Butter Bean, Carrot, Chickpea, Common Bean, Cowpea, Faba bean, Finger millet, Grasspea, Lentil, Oat, Pea, Pearl millet, Pigeon pea, Plantain, Potato, Rice, Rye, Sorghum, Sunflower, Sweet potato, Vetch). It is not a definitive guide to the Crop Wild Relatives in this country.

The guides are designed to be used both in the planning of a collecting trip, and also in the field.

At the front of this guide there is a phenology table showing the flowering and fruiting times of all the taxa to indicate which species may be found at a certain time of year, or when to collect target species.

Synonyms for each species are listed in the Appendix at the end of this guide.

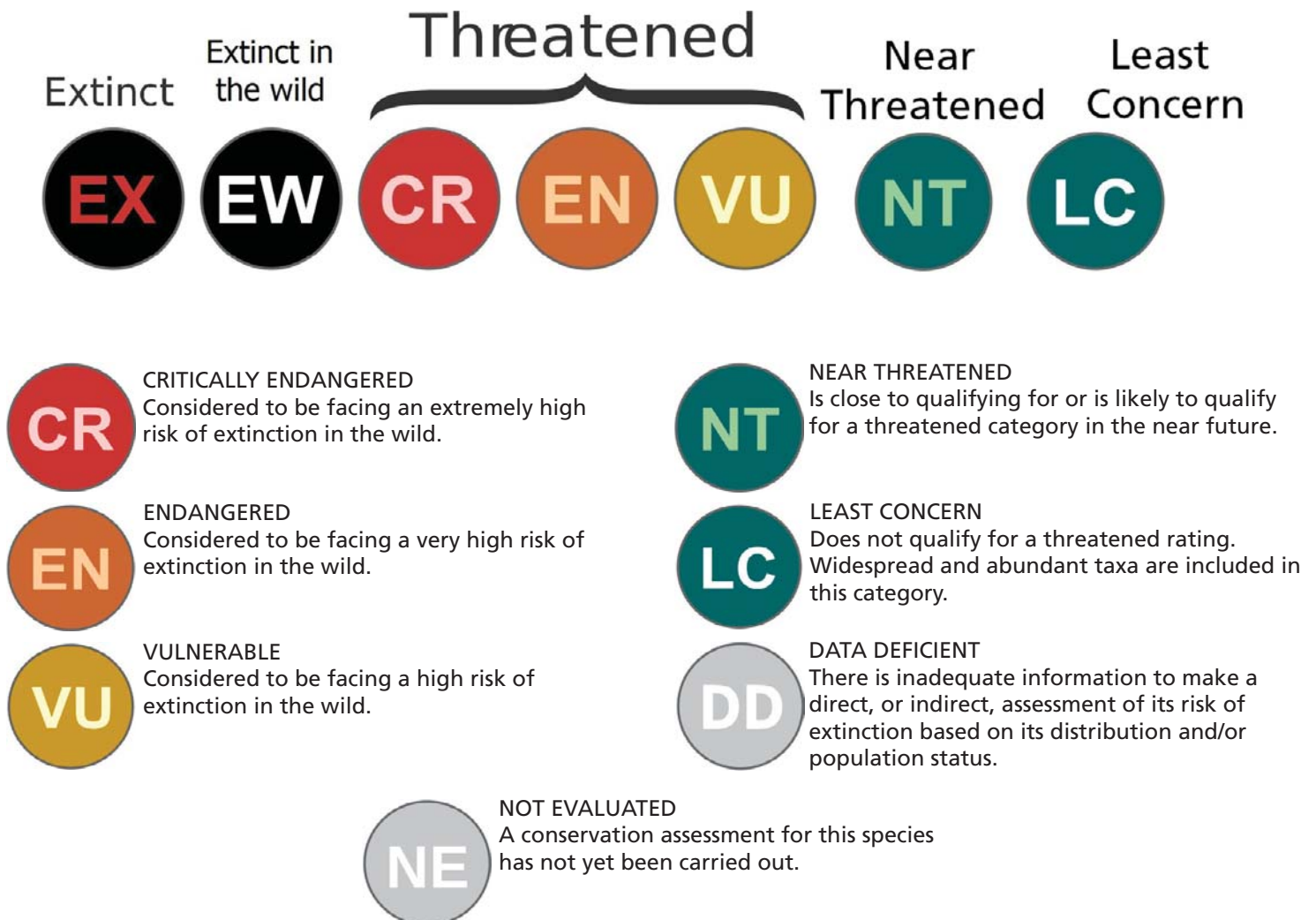
On each species profile, there is a collection of images to help identify the target species, accompanied by a series of symbols :



Conservation Assessments

Conservation Status:

Assessments are completed using 2001 IUCN Red List Categories and Criteria version 3.1 with the following categories:

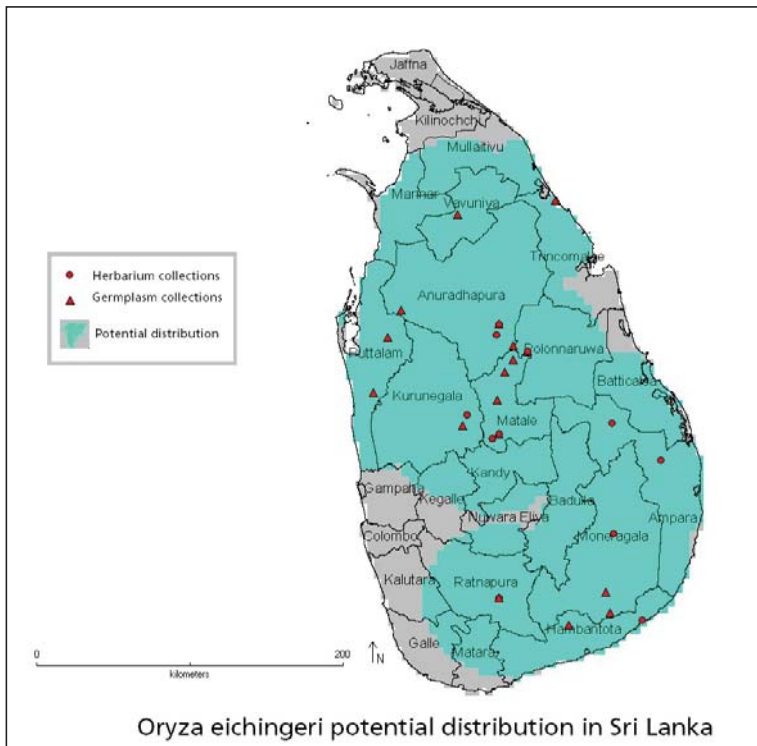


Where a full conservation assessment has not been completed, a preliminary conservation rating may be indicated. Preliminary assessments are produced using specimen locality data and GIS, which calculates two parameters accepted by IUCN as suitable measures of range: namely extent of occurrence (EOO) and area of occupancy (AOO). These values derived for each species are then compared with thresholds set out by IUCN under Criterion B. Where a preliminary conservation assessment has been calculated this is indicated by the word PRELIM:

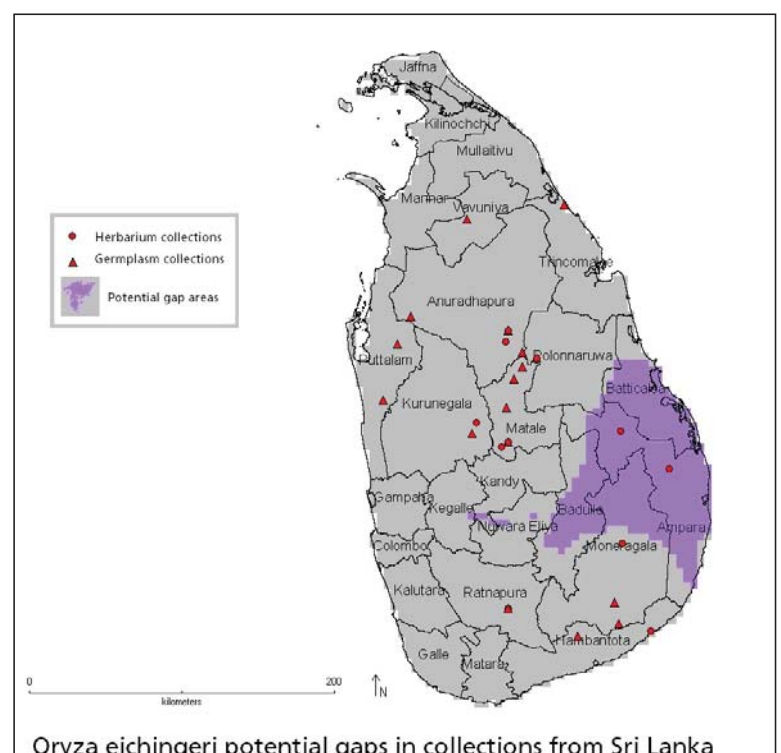


Maps

Two maps are provided for each target species. The first map shows a point distribution of all the known localities of this species based on herbarium specimen records and existing data-sets. The area shaded on this map shows the predicted distribution based on Maxent.



The second map shows the potential gaps in gene bank collections, where seed collections should be targeted.



Useful resources

The following resources are available online.

Kew technical information sheets

- Assessing a potential seed collection:
<http://brahmsonline.kew.org/Content/Projects/msbp/resources/Training/02-Assessing-population.pdf>
- Post-harvest handling of seed collections:
<http://brahmsonline.kew.org/Content/Projects/msbp/resources/Training/04-Post-harvest-handling.pdf>

Other sheets covering the following topics are available from

<http://brahmsonline.kew.org/msbp/Training/Resources>

- Protocol for comparative seed longevity testing
- Measuring seed moisture status using a hygrometer
- Selecting containers for long-term seed storage
- Low-cost monitors of seed moisture status
- Small-scale seed drying methods
- Equilibrating seeds to specific moisture levels
- Identifying desiccation-sensitive seeds
- Seed bank design: seed drying rooms
- Seed bank design: cold rooms for seed storage
- Cleaning seed collections for long-term conservation

ENSCONET seed collecting manual for wild species

http://ensconet.maich.gr/PDF/Collecting_protocol_English.pdf

Seed conservation: turning science into practice

<https://academic.oup.com/aob/article/95/5/888/201951>

Collecting plant genetic diversity: Technical guidelines (Bioversity)

http://cropgenebank.sgrp.cgiar.org/index.php?option=com_content&view=article&id=390&Itemid=557

FAO – Commission on Genetic Resources for Food and Agriculture

<http://www.fao.org/nr/cgrfa/en/>

IUCN Red List Categories and Criteria (Version 3.1)

<https://iucn-csg.org/red-list-categories/>

Plants of the World Online

<http://plantsoftheworldonline.org/>

For more information about the Crop Wild Relatives Project and to access the Harlan and de Wet Crop Wild Relatives checklist, please visit the website:

www.cwrdiversity.org

Identification Keys

Interactive identification keys can be accessed using the links below.

Kew Grassbase interactive identification key

<http://www.kew.org/data/grasses-db/ident.htm>

Clayton, W.D., Vorontsova, M.S., Harman, K.T. and Williamson, H. (2006 onwards). GrassBase - The Online World Grass Flora. <http://www.kew.org/data/grasses-db.html>. [accessed 15 March 2012; 14:30 GMT]

Seed Collecting Techniques

Michael Way and Kate Gold, Seed Conservation Department

Seed collecting from wild plants requires care, resourcefulness and determination. There are many different collecting techniques. The most appropriate technique will depend on the species, particularly the type of dispersal unit (fleshy fruit, dry fruit, individual seeds etc). This information sheet outlines the manual techniques most commonly used to make seed collections of adequate quality and quantity, for long term conservation.

Hand picking of whole fruits

The most basic and flexible of techniques, hand picking or plucking, has many benefits. Consider though, if you can use a more efficient technique.



Plucking is particularly suitable when:

- target fruits can easily be selected by eye (e.g. due to colour or texture change of fruit coat, or swelling of fruit);
- non-target (e.g. immature or damaged) fruit cannot be excluded from the collection by more efficient techniques;
- fruits are easily accessible and collectors can tie buckets or similar containers around the waist, releasing both hands for collecting;
- collecting many-seeded fleshy or dry indehiscent fruits; and
- making small seed collections.

Pruning clusters of fruit

This technique is typically used to collect tree seeds. Cut groups or clusters of fruits using secateurs or tree pruners. Assess for ripeness and damage before adding seeds to the collection.

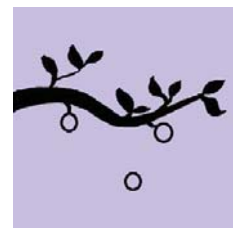


This is a very effective technique when:

- seed is clustered at the distal (terminal) parts of branches;
- the species is abundant and a small associated loss of branch and foliage is acceptable;
- seed is beyond reach of the collectors and has to be obtained using tree pruners.

Shaking branches

Careful shaking of branches will sometimes dislodge the best available seed, which can be collected in buckets or on a tarpaulin held or spread out beneath the plant. Start with gentle taps, and carefully check each sample of seed dislodged. Light shaking will often dislodge fully ripe fruits and seeds, leaving immature, poorly developed and damaged seeds to be retained on the parent plant. Too-heavy beating of branches may cause damage to the tree, and may also dislodge other plant material and associated insects, necessitating additional cleaning of the collection.



Shaking branches may be useful when collecting:

- dehiscent fruits with medium large seeds;
- seeds with irritant plumes (e.g. *Cercocarpus* of the Rosaceae);
- spiny trees such as *Prosopis* (Fabaceae);
- on level, open terrain suitable for tarpaulin use.

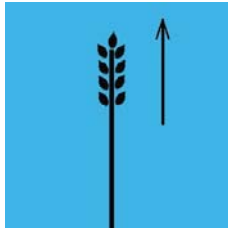
This technique may not be suitable for light, plumed seed from Bombacaceae and Asclepiadaceae, which may be carried away by air currents.



ABOVE: Stripping seed heads may be appropriate for grasses
Credit: Global Crop Diversity Trust/Britta Skagerfalt

Stripping entire seed-heads

This is a popular technique for collecting seed from grasses and may be suitable for other species with erect infructescences (seedheads). Grasp the seed-heads at the base with a gloved hand and slide the hand upwards, dislodging many or all of the seeds. This technique may introduce a proportion of immature seeds into the collection. Such seeds might need further postharvest ripening which can be time consuming and is best avoided.

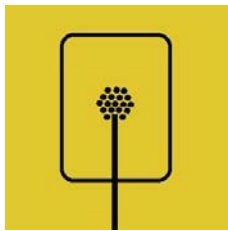


The stripping technique is most suitable for:

- dense, mono-specific stands of target species with no weed or other species present; and
- infructescences which are completely and consistently at the natural dispersal stage.

Bagging seed-heads

If there is frequent access to the collecting site, and if seeds would otherwise be lost, fix a well-tied mesh bag loosely over pre-dispersal seed heads. Seeds are captured as soon as they are shed, and can be periodically removed. This has been successfully used on a small scale, e.g. for collecting *Fouquieria* sp.



Collecting from the ground

You will frequently find seeds on the ground below trees or shrubs, but they will often be damaged by pests or pathogens. The seeds may have been on the ground for several months, and could even date from the previous year. Such seed will have aged and life-span in storage will be reduced. Inspect the seed carefully, noting any variation in the fruit, seed coat and internal tissues.



In general, only collect from the ground when:

- the parent tree(s) can be determined without doubt;
- you are certain that you are collecting recently dispersed seeds;
- seeds have not suffered significant damage from pests or pathogens; and
- other techniques or collecting options are unsuitable.

Collecting fleshy fruits

- Collect fleshy fruits directly into strong plastic bags or tubs with as much air as possible.
- Pack the bags in a rigid plastic container to ensure that the fruits are not squashed and help prevent them getting too hot and fermenting during transit.
- You may need to remove the seeds from fleshy fruits either during or immediately after the field trip.



ABOVE Collecting small seeds into paper bags
Credit: Ruth Harker/ RBG Kew

Containers

Collect into buckets, cloth or paper bags, and check each person's sample carefully before combining into a single population collection.

Using buckets has the advantage of allowing you to monitor the quality of the collection whilst associated insects disperse freely.

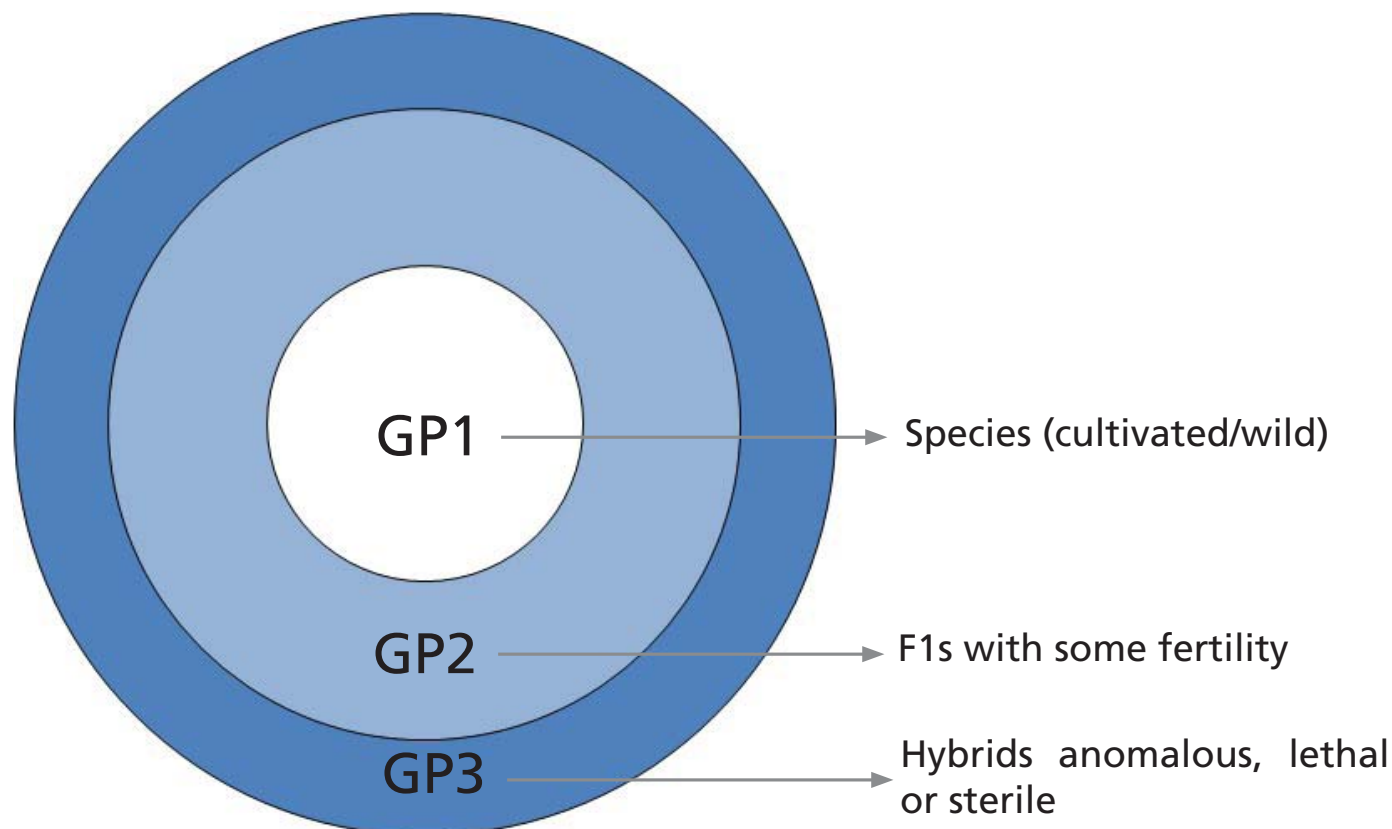
Place collections of dry, ripe seed into cloth or paper bags for transit. Store any awned seed or hooked fruit, that would damage or get stuck in cotton bags, in cardboard boxes or strong paper bags. Never collect or store seeds in plastic bags.

Label all seed containers inside and out with a unique collection number, and seal them securely. It is best to prepare sufficient labels before filling the containers.

Each target species in this guide is a wild relative of a crop. On each species profile it is indicated how closely related the target species is to the crop using either the **Gene Pool concept** or the **Taxon Group concept**. Species more closely related to the crop are higher priorities for collecting.

Gene Pool Concept

Harlan and de Wet, 1971



Taxon Group Concept

Maxted et al. 2006

Taxon Group 1 – cultivated/wild form of the crop

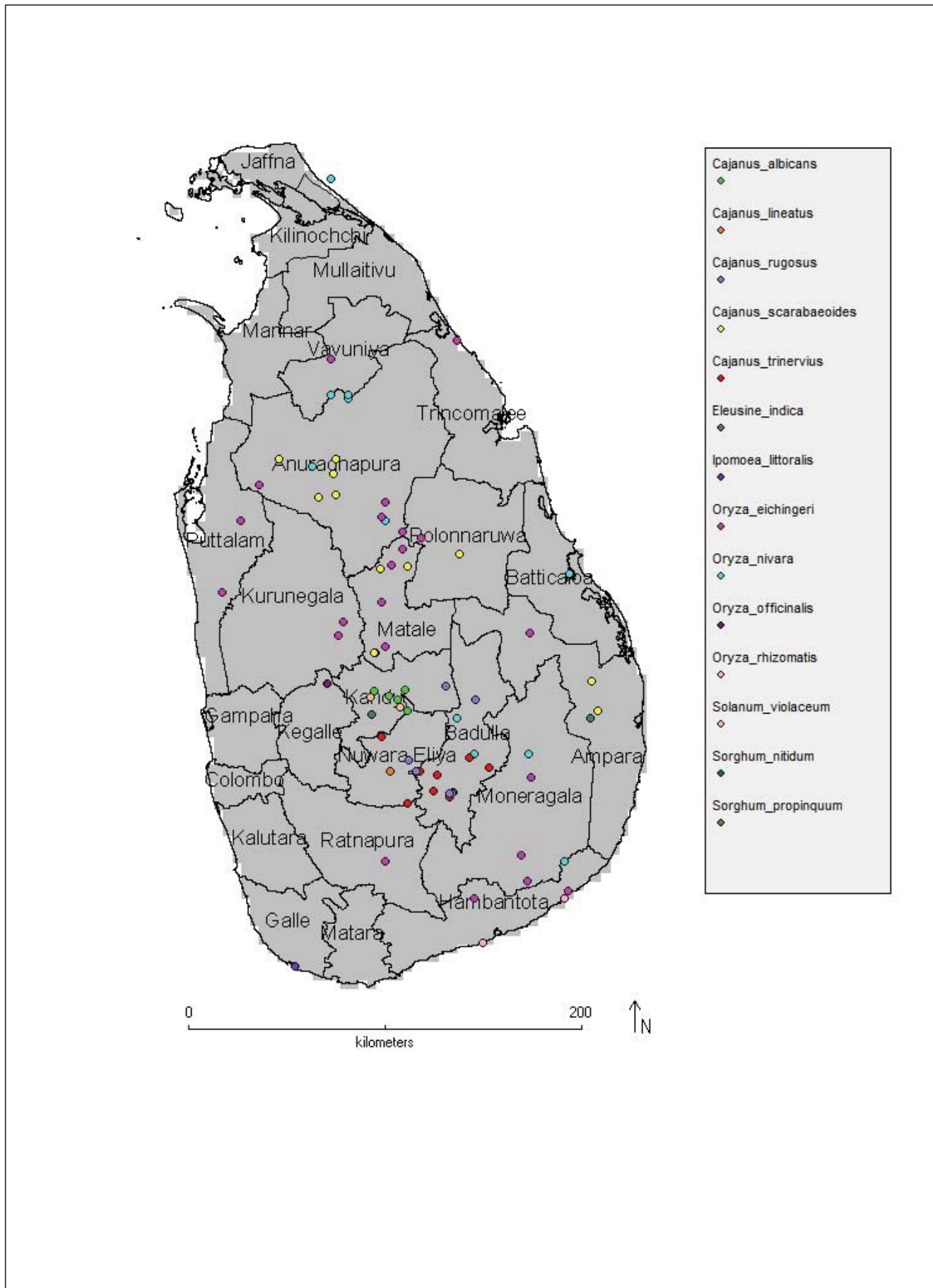
Taxon Group 2 – species in same series/section as crop

Taxon Group 3 – species in same subgenus as crop

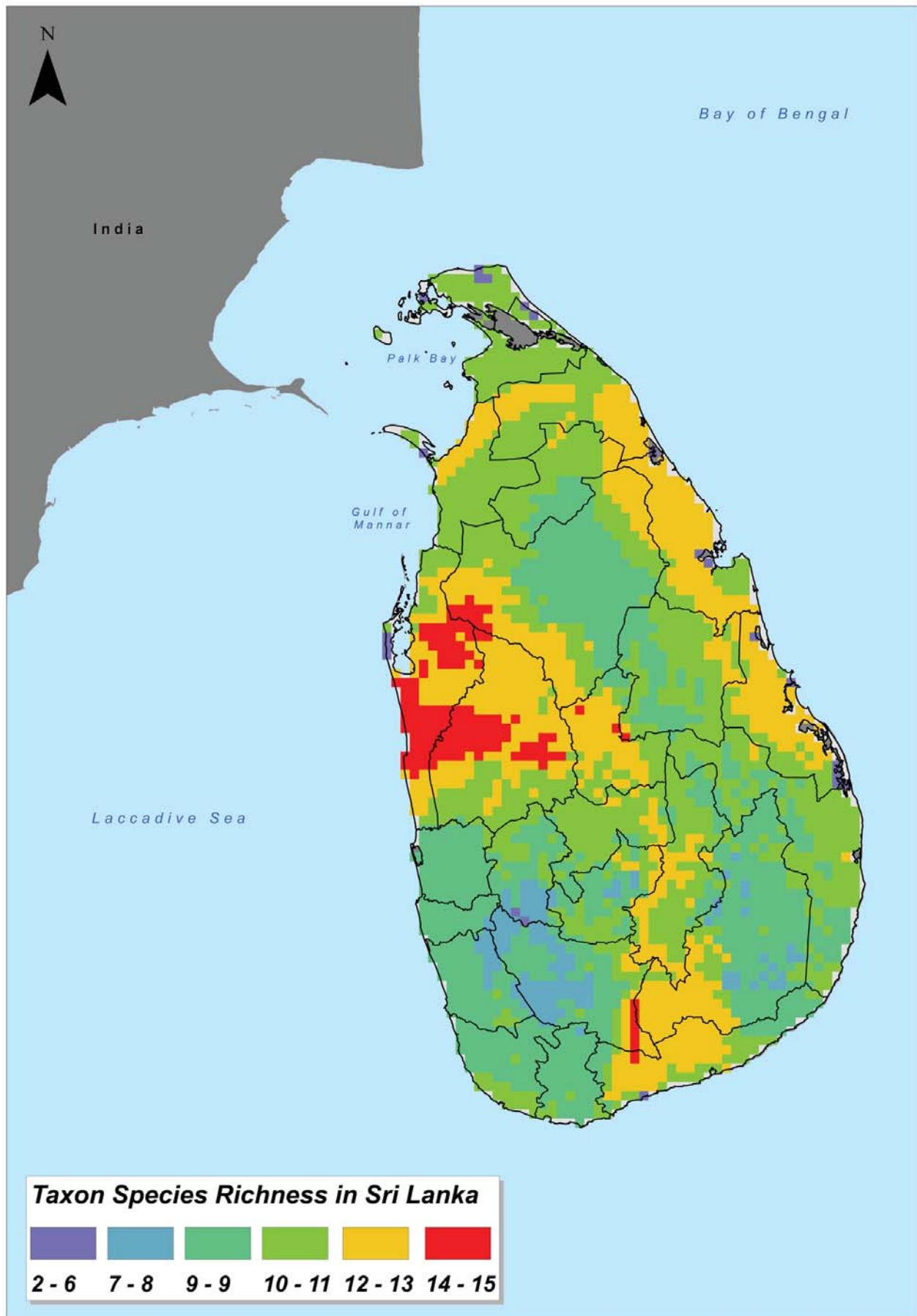
Harlan, J. and J. de Wet (1971). Towards a rational classification of cultivated plants. *Taxon* 20: 509-517.

Maxted, N., B.V. Ford-Lloyd, S.L. Jury, S.P. Kell and M.A. Scholten (2006). Towards a definition of a crop wild relative. *Biodiversity and Conservation* 14: 1-13.

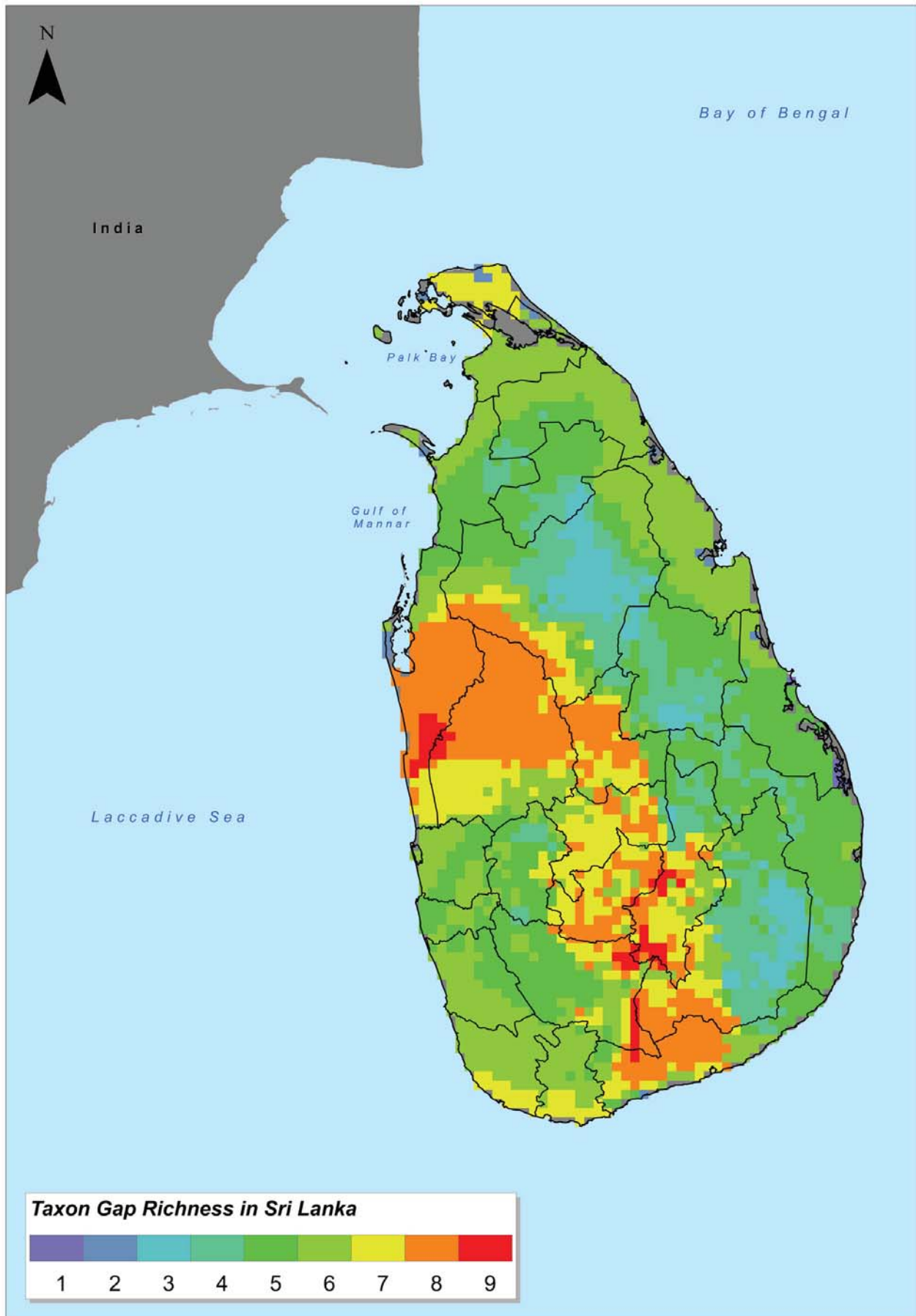
Occurrences of all taxa in this guide, as a point distribution



Species richness



Collecting Gaps



Species in this guide - High priority for collecting

Family	Taxon	Genepool	Sheet	Conservation Status
Convolvulaceae	<i>Ipomoea littoralis</i> Blume	Gene Pool 2 relative of <i>Ipomoea batatas</i> (L.) Poir	1	LC prelim
Leguminosae	<i>Cajanus lineatus</i> (Wight & Arn.) Maesen	Gene Pool 2 relative of <i>Cajanus cajan</i> (L.) Millsp.	2	LC prelim
Leguminosae	<i>Cajanus trinervius</i> (DC.) Maesen	Gene Pool 2 relative of <i>Cajanus cajan</i> (L.) Millsp.	3	LC prelim
Musaceae	<i>Musa acuminata</i> subsp. <i>acuminata</i> var. <i>acuminata</i> Colla	Gene Pool 1B relative of <i>Musa acuminata</i> Colla	4	DD
Musaceae	<i>Musa balbisiana</i> var. <i>balbisiana</i> Colla	Gene Pool 1B relative of <i>Musa acuminata</i> Colla	5	DD
Poaceae	<i>Eleusine indica</i> (L.) Gaertn.	Wild Relative of Finger millet - <i>Eleusine coracana</i> (L.) Gaertn.	6	LC
Poaceae	<i>Sorghum nitidum</i> (Vahl) Pers.	Gene Pool 3 relative of <i>Sorghum bicolor</i> (L.) Moench	7	LC prelim
Poaceae	<i>Sorghum propinquum</i> (Kunth) Hitchc.	Gene Pool 1B relative of <i>Sorghum bicolor</i> (L.) Moench	8	LC prelim
Solanaceae	<i>Solanum violaceum</i> Ortega	Gene Pool 3 relative of <i>Solanum melongena</i> L.	9	LC prelim

Species in this guide - Lower priority for collecting

Family	Taxon	Genepool	Sheet	Conservation Status
Convolvulaceae	<i>Ipomoea cairica</i> (L.) Sweet	Wild relative of sweet potato	10	LC prelim
Leguminosae	<i>Cajanus albicans</i> (Wight & Arn.) Maesen	Gene Pool Secondary relative of <i>Cajanus cajan</i> (L.) Millsp.	11	LC prelim
Leguminosae	<i>Cajanus rugosus</i> (Wight & Arn.) Maesen	Gene Pool Tertiary relative of <i>Cajanus cajan</i> (L.) Millsp.	12	LC prelim
Leguminosae	<i>Cajanus scarabaeoides</i> (L.) Thouars	Gene Pool 2 relative of <i>Cajanus cajan</i> (L.) Millsp.	13	LC prelim
Poaceae	<i>Oryza eichingeri</i> Peter	Gene Pool Secondary relative of <i>Oryza glaberrima</i> and <i>Oryza sativa</i>	14	LC prelim
Poaceae	<i>Oryza meyeriana</i> var. <i>granulata</i> (Watt) Duist.		15	NE
Poaceae	<i>Oryza nivara</i> S.D.Sharma & Shastry Baill.	Gene Pool 1B relative of <i>Oryza sativa</i> L and <i>Oryza glaberrima</i> Steud.	16	LC prelim
Poaceae	<i>Oryza officinalis</i> Wall.	Gene Pool 2 relative of <i>Oryza sativa</i> L and <i>Oryza glaberrima</i> Steud.	17	LC
Poaceae	<i>Oryza rhizomatis</i> D.A.Vaughan	Gene Pool Secondary relative of <i>Oryza sativa</i> L. and <i>Oryza glaberrima</i> Steud.	18	NT prelim
Solanaceae	<i>Solanum virginianum</i> L.	Gene Pool 3 relative of <i>Solanum melongena</i> L.	19	LC prelim

Taxon	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
<i>Ipomoea cairica</i>	Flower	Flower	Flower	Flower	Flower	Flower	Flower				Flower	Flower
<i>Cajanus albicans</i>	Flower		Flower							Flower		Flower
<i>Cajanus rugosus</i>	Flower	Flower	Flower	Flower	Flower	Flower	Flower		Flower	Flower	Flower	Flower
<i>Cajanus scarabaeoides</i>									Flower	Flower	Flower	Flower
<i>Oryza eichingeri</i>		Flower	Flower	Flower	Flower	Flower	Flower	Flower	Flower	Flower	Flower	Flower
<i>Oryza meyeriana</i> var. <i>granulata</i>	Flower	Flower	Flower	Flower	Flower	Flower	Flower	Flower	Flower	Flower	Flower	Flower
<i>Oryza nivara</i>									Flower	Flower	Flower	Flower
<i>Oryza officinalis</i>	Flower	Flower	Flower	Flower			Flower	Flower	Flower	Flower	Flower	Flower
<i>Oryza rhizomatis</i>	Flower	Flower	Flower	Flower	Flower							Flower
<i>Solanum virginianum</i>	Flower	Flower	Flower	Flower	Flower							Flower

KEY



Species in flower



Species in fruit

data gathered from literature and herbarium specimens

Gene Pool 2 relative of *Ipomoea batatas* (L.) Poir

Herbs perennial. Stems prostrate, rooting at nodes, or twining, slender, mostly glabrous. Petiole 0.5-7 cm; leaf blade ovate to oblong, occasionally circular or reniform, 1-10 X 1-7.5 cm, glabrous or nearly so, base cordate, margin entire or minutely undulate to angular, or ± 3-lobed, apex acute, obtuse or emarginate, mucronulate. Inflorescences usually 1- (less often few) flowered; peduncle 0.1-3 cm; bracts early deciduous, 1-2 mm. Pedicel 1-4 cm, glabrous. Sepals unequal, glabrous; outer 2 concave, oblong-elliptic, 6-10 mm, apex acute to obtuse; inner 3 elliptic to nearly circular, 0.8-1.2 cm. Corolla pink or pink-purple, with a darker center, funnelform, 3-4.5 cm, glabrous. Stamens included; filaments unequal, glandular pubescent on basal 1/2. Pistil included; ovary glabrous. Stigma 2-lobed. Capsule depressed-globose, ca. 9 mm in diam. Seeds black, ovoid, 3.5-4 mm, glabrous.

Habitat:

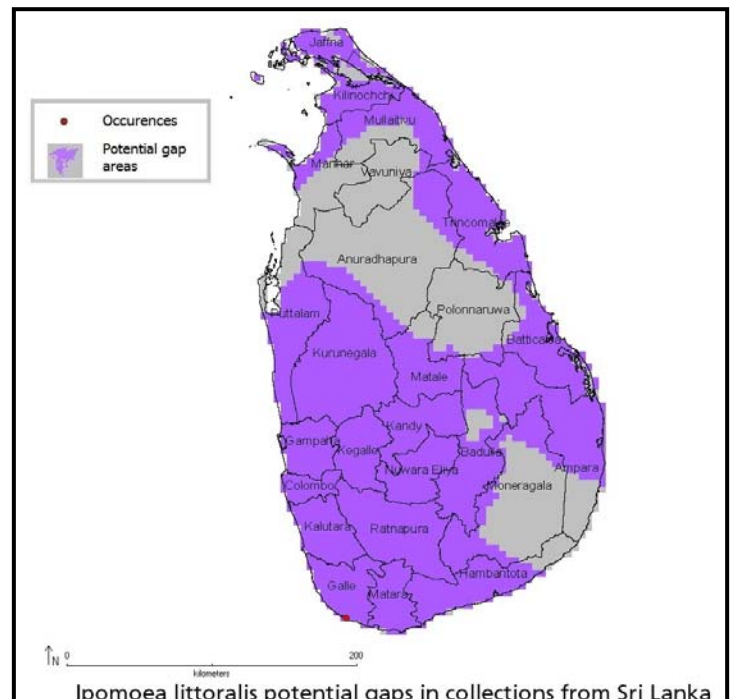
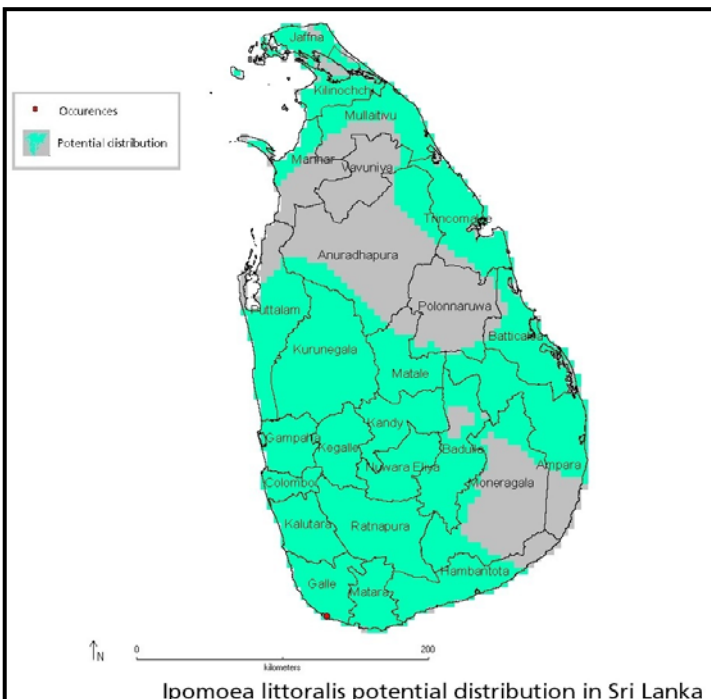
Sandy seashores, coastal thickets, forest floors.

Distribution:

Hainan (Nanhai Zhudao), Taiwan, Cambodia, India, Indonesia, Japan (Ryukyu Islands), Malaysia, Myanmar, New Guinea, Philippines, Sri Lanka, Thailand, Vietnam; Africa, N Australia, Pacific Islands.

Altitude: 0 - 100 m

<i>Ipomoea littoralis</i>	May be confused with: <i>Ipomoea batatas</i>
Perennial. Although flowers similar size, pedicels are longer 1-4 cm.	Annual. Flowers with pedicel 0.2 - 1 cm.



References: Flora of China http://www.efloras.org/florataxon.aspx?flora_id=2&taxon_id=210000740

Gene Pool 2 relative of *Ipomoea batatas* (L.) Poir



No seed image available



LC
PRELIM



No data

No data

Gene Pool Secondary relative of *Cajanus cajan* (L.) Millsp.

Erect shrub, 0.5 - 2.5 m tall, open habit, perennial. Branches horizontal to quite erect, striate. Stipules small, narrowly lanceolate, 2-3 mm, caducous. Leaves digitately trifoliolate, petiole 7-25 mm. Leaflets soft-coriaceous, glandular punctate both sides, pubescent on the prominent veins below, upper surface thinly pubescent, hairs up to 0.5 mm, top leaflet obovate-oblong, 15 - 42 mm long, 6 - 23 mm wide; apex acute to rounded emarginate, mucronate, base cuneate, side leaflets obliquely so, 12 - 21 mm long, 5 - 12 mm wide, petiolules ca 1 mm, stipellae absent. Racemes sessile, 1-2 flowered, peduncle absent, pedicels 7-10 mm, corolla yellow, marcescent. Bracts triangular pubescent scales, clustered in leaf axil, 1-2 mm long. Calyx pubescent, tube 3-4mm. Vexillum obovate-orbicular, ca 13 mm long, ca 13 mm wide, base clawed, auriculate. Keel petals oblique, 11 - 13 mm long, 4-5 mm wide. Ovary densely white pubescent, ca 5 mm, 2-3 ovules. Pods small, oblong, acute at both ends, ca 12 mm long, 8 mm wide, pubescent with caducous white hairs sometimes bulbous-based, covered with glands, transverse depressions not deeply marked, and at oblique angle to the sutures; 2-3 seeds. Seeds flattened-orbicular, ca 5mm long, 4mm wide, 2-3 mm thick, brownish or greyish with black mosaic, strophiole whitish, divided, ca 1 X 3 mm.

Habitat:

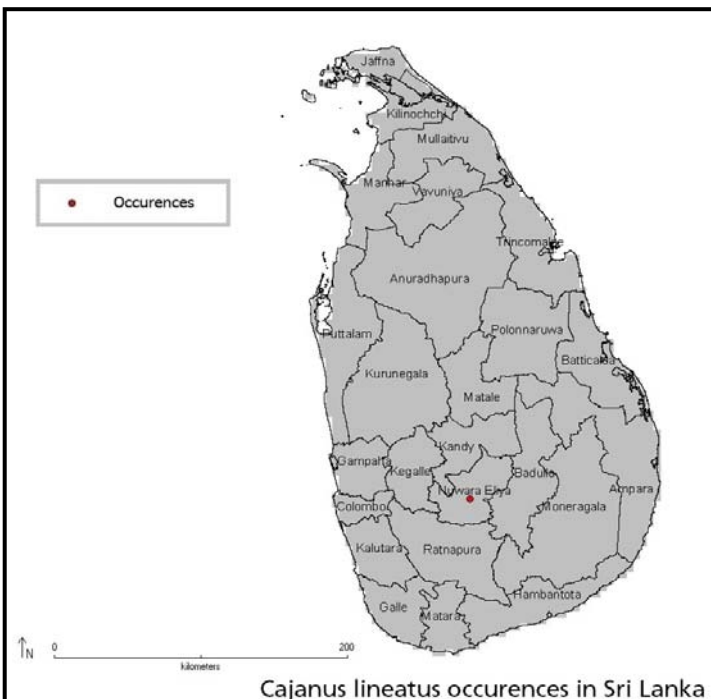
Tropical dry or moist forest, in shaded or sunny places, often on slopes, forest edges, along roadsides, in undergrowth.

Distribution:

Found in India and Sri Lanka.

Altitude: 400 - 1660 m

<i>Cajanus lineatus</i>	May be confused with: <i>Cajanus trinervius</i>
Smaller pods, ~12 mm long, with 2-3 seeds.	Pods 2 -4 cm long with 5-7 seeds.



All populations priority
for collection

No accessions from
Sri Lanka listed on
Germplasm Resources
Information Network
(GRIN) [online database]
for this taxon

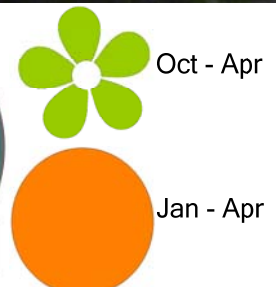
References:

Cajanus lineatus (Wight & Arn.) Maesen

Gene Pool Secondary relative of *Cajanus cajan* (L.) Millsp.



No seed image available



Gene Pool Secondary relative of *Cajanus cajan* (L.) Millsp.

Erect shrub, perennial, height 0.5 - 2 m. Stems and branches straight, terete, densely pubescent, golden brown at the top, becoming less dense and greyish with age. Stipules triangular-lanceolate, acuminate, up to 5 mm, pubescent, caducous. Leaves digitately trifoliolate, petiole 5 - 18 mm. Leaflets thick, soft, lower surface reticulate, strongly haired, longer on the veins, upper surface evenly covered with short hairs, ovate to elongate-ovate, apex acute to obtuse, mucronate, end leaflet 2-6 cm long, 1 - 2.7 cm wide, side leaflets 1.5 - 4 cm long, 0.8 - 2.3 cm wide, petiolules 2-3 mm, stipellae none. Racemes short, pubescent, peduncles 5-15 mm (1-)2-flowered, pedicels 5-15 mm, flowers yellow, flag red-purple veined, marcescent. Bracts ovate-acuminate, dorsally pubescent, ventrally glabrous, ca 4 mm long, 3 mm wide. Calyx pubescent (interior also), tube ca 5-6 mm, teeth lanceolate, 7 - 15 mm long, the lower one longest, the upper ones connate. Vexillum obovate, base clawed, auriculate, apex emarginate, 20 - 28 mm long, 9 - 20 mm wide. Keel petals rounded-oblique, clawed, 17-22 mm long. Pods oblong, 2-4 cm long, ca 1cm wide, ends rounded, base of the style pointing down, (3)5-7 seeds, very pubescent, sticky, transverse depressions at a right angles to the sutures. Seeds rectangular-rounded, ca 4 mm long and wide, ca 2.5 mm thick, dark brown, strophiole large, whitish, divided.

Habitat:

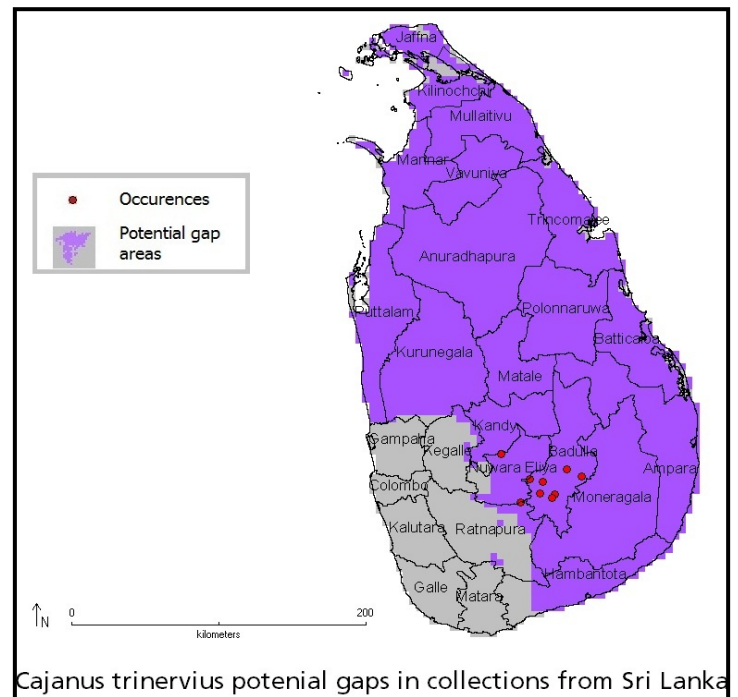
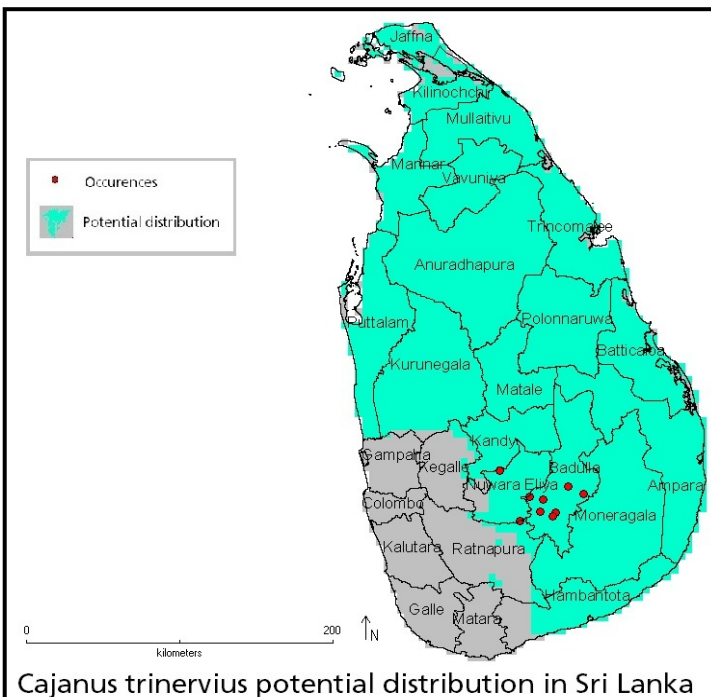
Hills and hilltops in scrub vegetation, open forest, grasslands, between boulders.

Distribution:

Found in India and Sri Lanka.

Altitude: 1400 - 2650

<i>Cajanus trinervius</i>	May be confused with: <i>Cajanus lineatus</i>
Larger pods, 2-4 cm long, with 5-7 seeds.	Pods ~12 mm long, with 2-3 seeds.

**References:**

Gene Pool Secondary relative of *Cajanus cajan* (L.) Millsp.



No seed image available



LC
PRELIM

thoughtout the year
Jan - Mar

Gene Pool Primary relative of *Musa acuminata* Colla

Pseudostems green with black blotches, ca. 4.8 m. Leaf sheath and petiole pruinose; petiole ca. 80 cm, margin erect or spreading and basally with scarious wings; leaf blade adaxially green and pruinose, abaxially yellow-green and pruinose or not, oblong, 1.9--2.3 m × 50--70 cm, base cordate, asymmetric, midvein adaxially green, abaxially white-yellow. Inflorescence subhorizontal or vertically reflexed; peduncle usually downy or hairy. Bracts bright red to dark violet, sometimes yellow at extreme apex, ovate, apex usually acute. Male flowers ca. 20 per bract, in 2 rows. Compound tepal white or cream, lemon yellow at apex, 3.5--4 cm, apex of outer lobes with a hooklike, hairy appendage; free tepal not more than 1/2 as long as compound tepal, apex emarginate, shortly apiculate. Infructescence ca. 1.2 m; peduncle to 70 × ca. 4 cm, white setose. Berries incurved, green to yellow-green, 5-angled when young, cylindric at maturity, ca. 9 cm, white setose, base curved and attenuate into a stalk, apex contracted into a rostrum 6--10 mm. Seeds numerous in wild plants but absent in cultivated clones, brown, depressed, 5--6 mm in diam., irregularly angled.

Habitat:

Shaded and moist ravines, marshlands, semimarshlands, slopes, also cultivated.

Distribution:

Native to China, India, Sri Lanka, Indonesia and Malaysia.

Altitude: 0 - 1200 m

<i>Musa acuminata subsp. acuminata</i>	May be confused with: <i>Cultivated Musa amuminata</i>
Wild plants are diploid (2n = 22) and bear fruits containing numerous seeds making them inedible.	Cultivated plants are triploid (2n = 33) and bear seedless, edible fruits; such plants have been called <i>M. acuminata</i> 'Dwarf Cavendish' (<i>M. cavendishii</i> Lambert ex Paxton; <i>M. chinensis</i> Sweet; <i>M. nana</i> Loureiro).

Reported from
Sri Lanka, but
no localities
known

Gene Pool Primary relative of *Musa acuminata* Colla



M. acuminata ssp. ? Paul Wilkin/ RBG Kew



M. acuminata ssp. ? Paul Wilkin/ RBG Kew



M. acuminata ssp. ? Paul Wilkin/ RBG Kew

No seed
image
available



5 m



No data

No data

Gene Pool 1B relative of *Musa acuminata* Colla

Pseudostems clumped, yellow-green, often with large, black markings, ca. 6 m. Petiole 60--75 cm, margin open, ca. 2 cm wide, often closed when young; leaf blade adaxially green and slightly pruinose or not, ovate-oblong, ca. 2.9 m × 90 cm, base auriculate, asymmetric. Inflorescence pendulous, ca. 2.5 m; peduncle and rachis glabrous. Bracts of bisexual and male flowers adaxially purple-red, abaxially brownish purple to yellow-green and pruinose, ovate to lanceolate, persistent, apex obtuse, reflexed after flowering; bracts of female flowers deciduous. Male flowers up to 20 per bract, in 2 rows. Compound tepal adaxially pale purple, abaxially pale purple-white, 4--5 cm, striate, teeth yellow to orange; free tepal milky white, translucent, obovate, ca. 1/2 as long as compound tepal, apex emarginate, shortly mucronate-apiculate. Infructescence pendulous, with ca. 8 clusters ("hands") each of 15 or 16 berries in 2 rows. Berries gray-green, obovoid, ca. 13 × 4 cm, distinctly angled at maturity, base narrowed into a stalk ca. 2.5 cm, apex contracted or not into a short, angled column ca. 2 cm. Seeds numerous, brown, oblate, 5--10 mm in diam., minutely warty.

Habitat:

Ravines in evergreen forests

Distribution:

China, Papua New Guinea, Southcentral and Southeastern Asia.

Altitude: ca. 1100 m

<i>Musa balbisiana</i> var. <i>balbisiana</i>	May be confused with: <i>Musa balbisiana</i> var. <i>bakeri</i>
Up to 6m tall.	Up to 3 m tall.

Reported from
Sri Lanka, but
no localities
known

References:

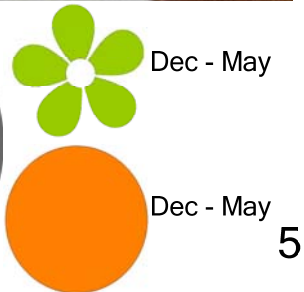
MUSACEAE

Musa balbisiana var. *balbisiana* Colla

Gene Pool 1B relative of *Musa acuminata* Colla



6 m



Relative of Finger millet - *Eleusine coracana* (L.) Gaertn.

HABIT Annual; caespitose. Basal innovations flabellate. Culms geniculately ascending, or decumbent; slender; 15-85 cm long. Leaves mostly basal. Leaf-sheaths keeled; outer margin hairy. Leaf-blades conduplicate; 5-35 cm long; 2.5-6 mm wide. **INFLORESCENCE** Inflorescence composed of racemes. Racemes 1-10(-17); single (rarely), or digitate; unilateral; 3.5-15.5 cm long; 3-3.5 mm wide. Spikelet packing broadside to rachis; regular; 2-rowed. Spikelets appressed; solitary. Fertile spikelets sessile. **FERTILE SPIKELETS** Spikelets comprising 3-9 fertile florets; with diminished florets at the apex. Spikelets elliptic; laterally compressed; 3-5 mm long; breaking up at maturity; disarticulating below each fertile floret. **GLUMES** Glumes persistent; similar; shorter than spikelet. Lower glume lanceolate; 1-2.3 mm long; 0.6-0.7 length of upper glume; membranous; 1-keeled; winged on keel; 1-veined. Lower glume lateral veins absent. Lower glume apex acute. Upper glume elliptic; 1.8-2.9 mm long; 0.7-0.9 length of adjacent fertile lemma; membranous; 1-keeled; winged on keel; 3-veined (with subsidiaries in keel). Upper glume apex acute. **FLORETS** Fertile lemma lanceolate in profile; 2.1-3.6 mm long; membranous; 3-veined (excluding subsidiaries). Lemma midvein with contiguous subsidiary veins (3-veined). Lemma apex acute. Palea 0.9-1 length of lemma; 2-veined. Apical sterile florets resembling fertile though underdeveloped. **FLOWER** Lodicules 2; cuneate; fleshy. **FRUIT** Caryopsis with free soft pericarp; ellipsoid; isodiametric; trigonous; concealed by floret; 1-1.3 mm long; black; striate.

Habitat:

Found in moist as well as marshy areas, puddles, shallow ponds, fields, river and stream edges, ditches, canals etc.

Distribution:

Widespread throughout Africa, North and Central America, Southern Europe, Asia and Australasia.

Altitude: 0 - 2000 m

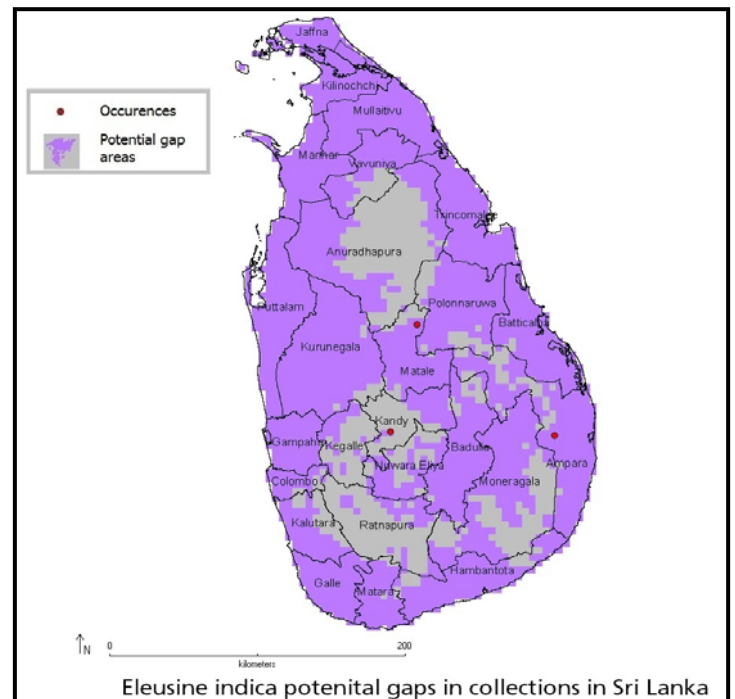
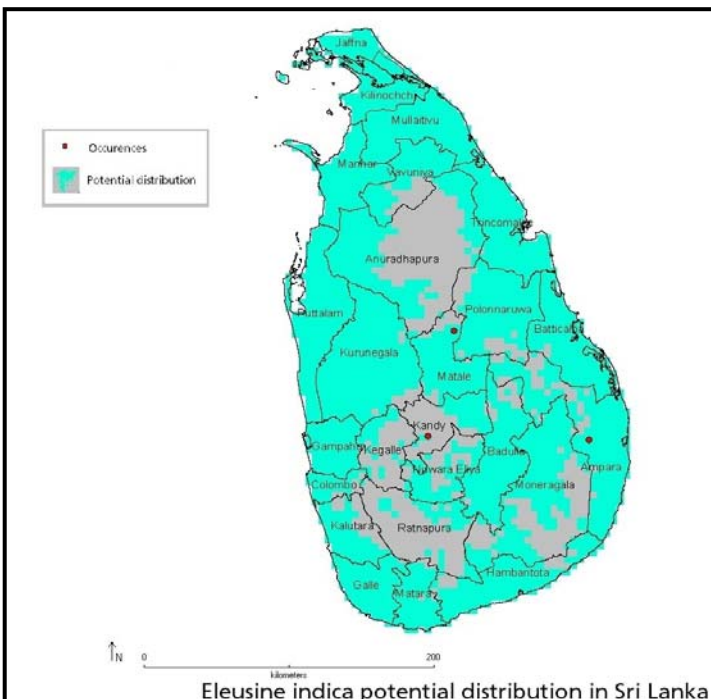
Eleusine indica

Smaller spikelets (3-5mm), oblong grains.



May be confused with:
Eleusine africana

Larger spikelets (4.6 - 7.8 mm) and rounded grains.



References: Juffe Bignoli, D. 2011. IUCN Conservation assessment: <http://www.iucnredlist.org/details/177359/0>; Clayton, W.D., Vorontsova, M.S., Harman, K.T. and Williamson, H. GrassBase - The Online World Grass Flora. <http://www.kew.org/data/grasses-db.html>. [accessed 18th April 2013; 12:15 GMT]

Relative of Finger millet - *Eleusine coracana* (L.) Gaertn.



USDA-NRCS PLANTS Database / Hitchcock, A.S. (rev. A. Chase). 1950



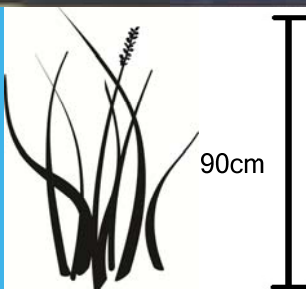
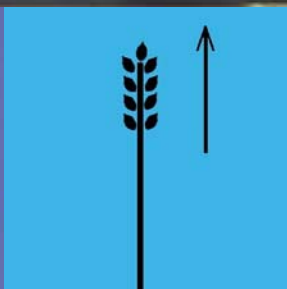
Credit: Frances Cook/RBGKew



Credit: Harry Rose



Credit: Harry Rose



Gene Pool Tertiary relative of *Sorghum bicolor* (L.) Moench

Perennial forming loose tufts. Culms erect, 0.6-2 m tall; nodes bearded with pale spreading hairs. Leaf sheaths glabrous or pilose; leaf blades linear, 10-40(-50) × 0.4-1 cm, glabrous to hispid, bearded at base; ligule 1-1.5 mm. Panicle lanceolate in outline, 15-30 cm, glabrous but with soft hairs at the nodes; primary branches whorled, simple, flexuous, 2-5 cm, lower part bare; racemes borne at branch ends, fragile, composed of 2-4 spikelet pairs; internodes and pedicels brown-ciliate. Sessile spikelet ovate-lanceolate, 3.5-5 mm; lower glume leathery, black-brown at maturity, glossy, glabrous below middle, upper part and margins hispid with brown hairs; upper lemma awnless or awned; awn 1-1.5 cm. Pedicelled spikelet usually staminate, elliptic, 3-3.7 mm, papery, light brown.

Habitat:

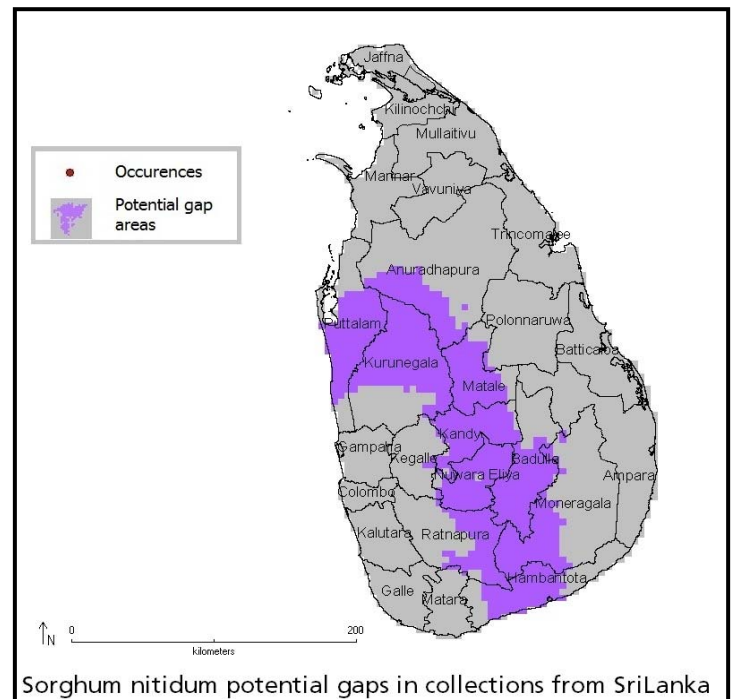
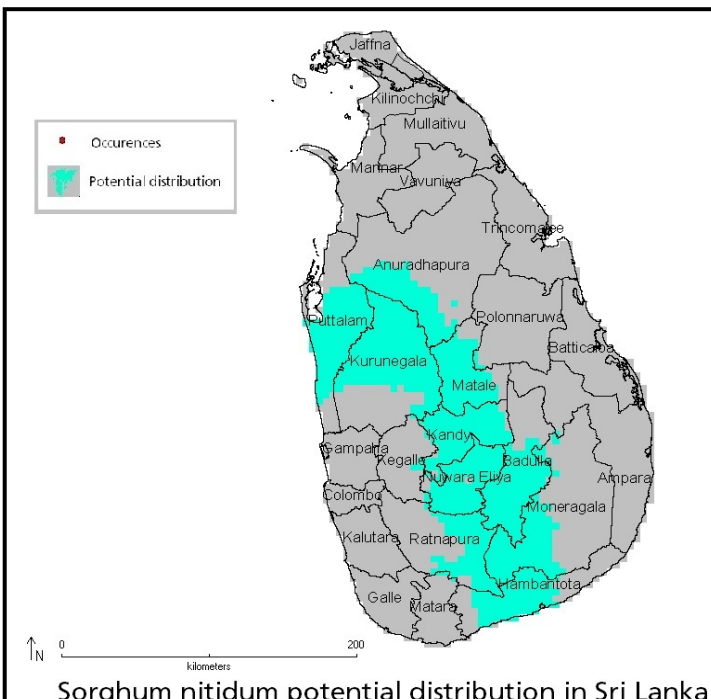
Meadows, grassy hillsides.

Distribution:

Native to Australia & New Zealand, Eastern Asia, Melanesia, Southcentral Asia and Southeastern Asia.

Altitude: 300-1400 m

<i>Sorghum nitidum</i>	May be confused with: <i>Sorghum bicolor</i>

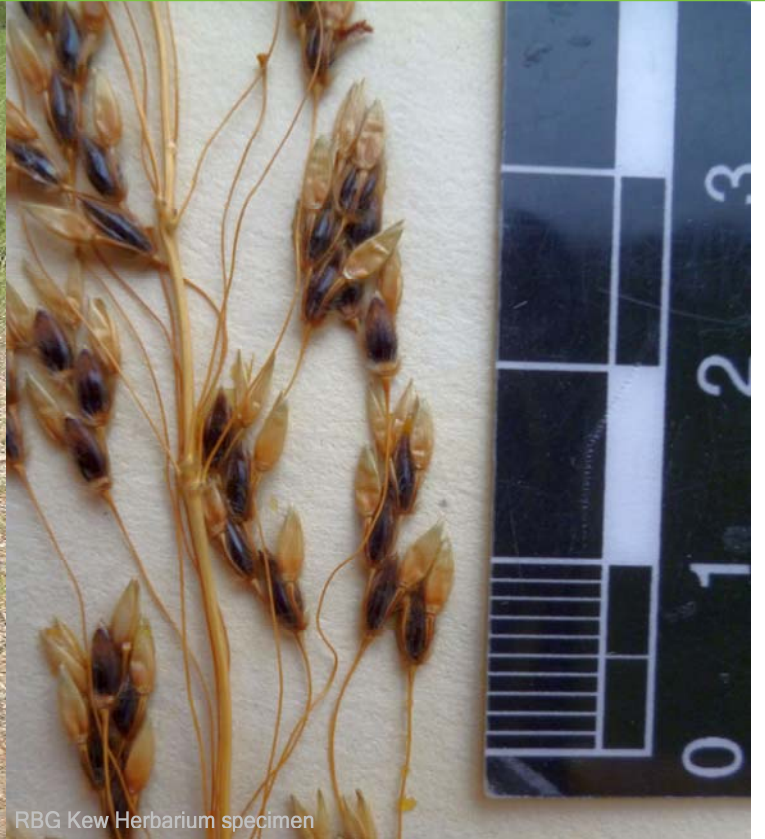


References: FOC Vol. 22 Page 600

Gene Pool Tertiary relative of *Sorghum bicolor* (L.) Moench



Credit: Wikimedia Commons user Mark Marathon



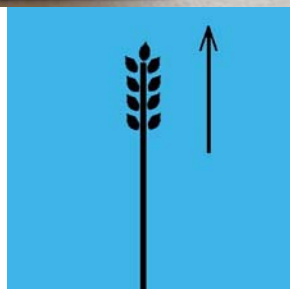
RBG Kew Herbarium specimen



RBG Kew Herbarium specimen



RBG Kew Herbarium specimen



May - Dec

May - Dec

Gene Pool Primary relative of *Sorghum bicolor* (L.) Moench

Perennial, loosely tufted with a few stout rhizomes. Culms 1.5-3 m tall, up to 1 cm in diam., many-noded; nodes puberulous. Leaf sheaths glabrous, ciliate at mouth and margins; leaf blades yellowish green, linear or linear-lanceolate, 40-90 × 3-5 cm, glabrous, midvein robust, margins ciliolate; ligule 0.5-1 mm, puberulous. Panicle open, ovate or broadly ovate, 30-55 cm; primary branches in whorls of 3-6; lower part bare, upper part branched, branches tipped by racemes; racemes fragile, composed of 3-7 spikelet pairs. Sessile spikelet ovate, 3.8-4.5 mm; callus obtuse, pubescent with pale hairs; lower glume subleathery, pale or purple-tinged, thinly pilose, 9-13-veined, veins distinct in upper part, apex acute to apiculate or tridenticulate; upper lemma acute or emarginate, awnless, rarely with short awn. Pedicelled spikelet staminate, linear-lanceolate, 4-5.5 mm, yellowish to pale purple.

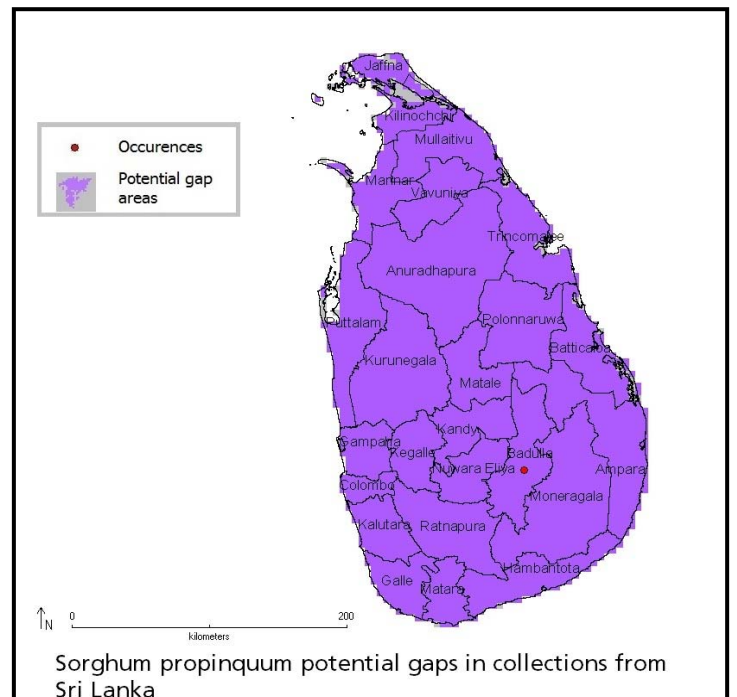
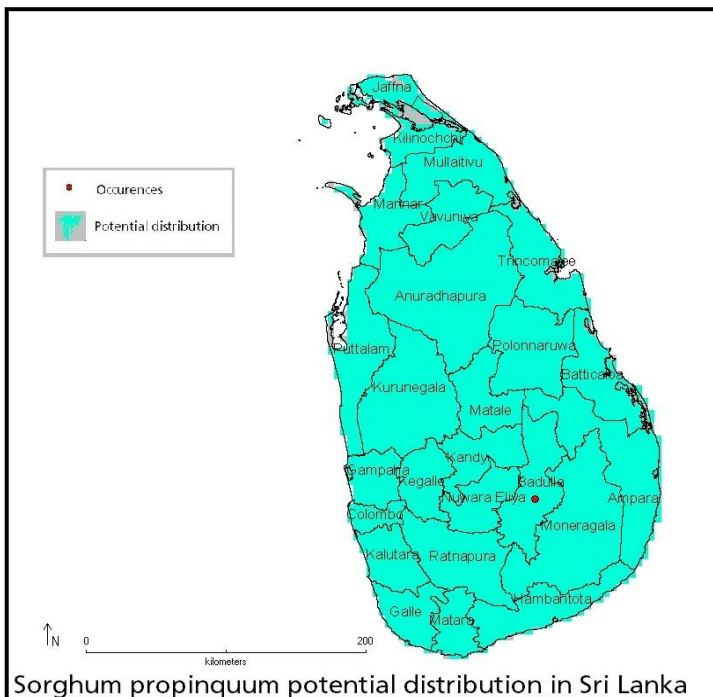
Habitat:

Distribution:

Native to Southcentral and Southeastern Asia.

Altitude:

<i>Sorghum propinquum</i>	May be confused with:



References:

Gene Pool Primary relative of *Sorghum bicolor* (L.) Moench



RBG Kew Herbarium specimen



RBG Kew Herbarium specimen

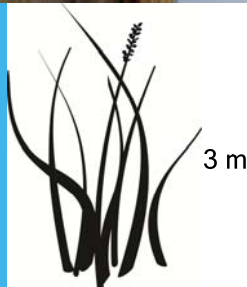


RBG Kew Herbarium specimen



RBG Kew Herbarium specimen

No seed image available



Feb - Nov

Feb - Nov

Gene Pool Tertiary relative of *Solanum melongena* L.

Shrubs 0.5-1.5(-2) m tall, much branched, pubescent overall with dense, stalked, 5-11-rayed stellate hairs. Stems and branches with pale yellow, recurved prickles 4-10 × 1.5-7 mm, gray stellate tomentose. Leaves unequal paired; petiole 1.5-4 cm; leaf blade ovate, 5-8(-11) × 2-7(-8.5) cm, tomentose with short-stalked, 5-9(-11)-rayed stellate hairs adaxially, with long-stalked hairs abaxially, with straight needlelike prickles, base cordate or truncate, margin 5-7-sinuate lobed, apex obtuse or acute. Inflorescences extra-axillary, scorpioid racemes, 2-6 cm, sparingly branched; peduncle ca. 1.5 cm, prickly or not. Pedicel 4-15 mm. Calyx 4-7 mm; lobes lanceolate, 3-5 mm, unequal, pubescent and prickly as on pedicel. Corolla blue-purple, sometimes white, rotate, 1-1.2 × 1-2 cm; lobes ovate or ovate-lanceolate, 5-8 × 2-5 mm, obtuse. Filaments ca. 1 mm; anthers oblong, 5-6 mm. Style 8-10 mm, stellate pubescent. Fruiting pedicel 1-2 cm, stellate pubescent, prickly, erect or sometimes recurved. Fruiting calyx reflexed, stellate pubescent, prickly. Berry shiny orange, globose, 0.8-1.3 cm in diam. Seeds sub-discoid, ca. 2 mm in diam.

Habitat:

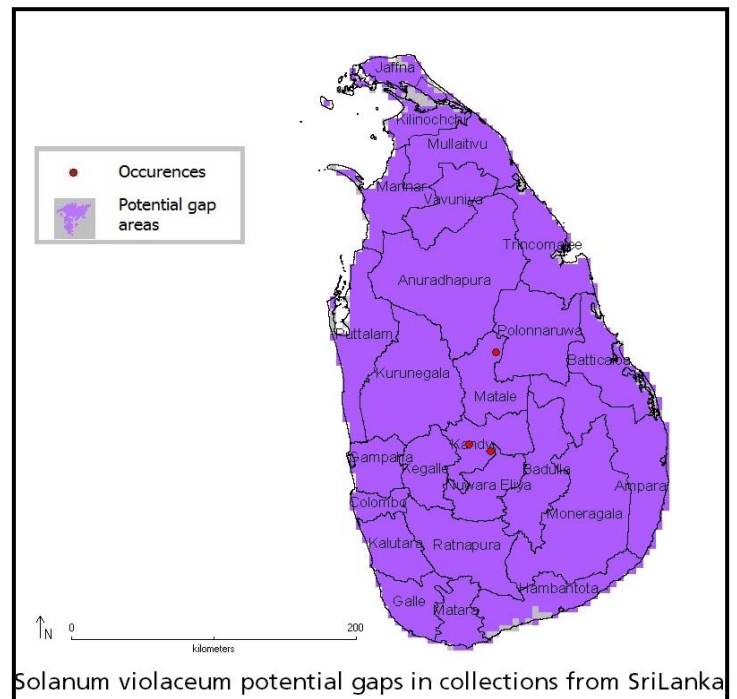
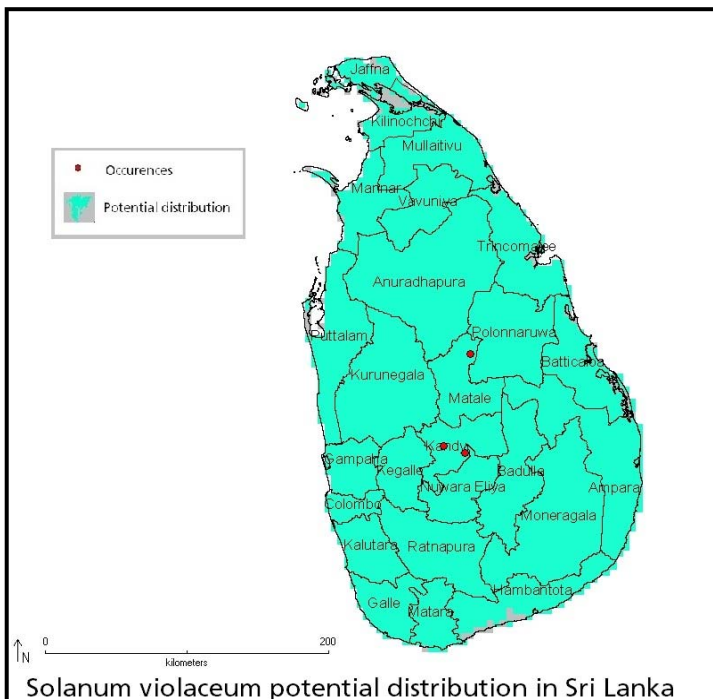
Forests, dry thickets, wastelands, roadsides.

Distribution:

Native to Eastern, Southcentral and Southeastern Asia.

Altitude: 100 - 2700 m

<i>Solanum violaceum</i>	May be confused with: <i>Solanum virginianum</i>
More shrub like in habit. Fruit shiny orange, 0.8 - 1.3 cm diameter.	Herb like erect or creeping habit. Fruit pale yellow 1.3 - 2.2 cm diameter.



References: FOC Vol. 17 Page 322

Gene Pool Tertiary relative of *Solanum melongena* L.



Credit: Wikimedia Commons User Vinayaraj



Credit: Wikimedia Commons User Vinayaraj



Credit: Wikimedia Commons User Vinayaraj



Credit: Wikimedia Commons User Vinayaraj

No seed image available



1.5 m

LC
PRELIM



All year

All year

Wild relative of sweet potato

Morning glory, Mile-a-minute vine

Description: Perennial herb with twining and trailing stems. Roots tuberous and plant rooting at nodes. Plants hairless. Leaves round in outline, 3-10 cm long and wide, deeply 5-segmented with basal segments often lobed; leaf stalk 2-6 cm long. Inflorescence axillary, 1-3 flowered. Capsule almost globe-shaped, 9-12 mm wide, with 2 chambers, splitting into 4 valves, contains up to 4 seeds. Seeds dark brown to black, 5-6 mm long, flattened ovoid, hairy with pale brown long hairs on outer ridges.

Flowers: funnel-shaped violet (rarely white) joined petals 3.5-6 cm long, 6-8 cm wide, with darker violet hairless mid-petal bands, throat usually darker. Surrounded by sepals 0.4-0.8 cm long, stamens and style included in flower tube.

Habitat:

A common inhabitant of swampy grassland, riverine edges and roadsides, where it may cover extensive areas.

Distribution:

Throughout tropical Africa; also from the eastern Mediterranean region through Asia to Taiwan.

Altitude: Up to 1650 m

<i>Ipomoea cairica</i>	May be confused with: <i>Ipomoea batatas</i>
Deeply 5 segmented leaves.	Leaves not segmented.

Reported from
Sri Lanka, but
no localities
known

References: Hyde, M.A., Wursten, B.T., Ballings, P. & Dondeyne, S. (2013). Flora of Mozambique: Species information: *Ipomoea cairica* var. *cairica*. http://www.mozambiqueflora.com/speciesdata/species.php?species_id=147580, retrieved 22 May 2013; Thorp, J.R., Wilson, M, Weeds Australia - www.weeds.org.au

CONVOLVULACEAE

Wild relative of sweet potato

Ipomoea cairica (L.) Sweet

Morning glory, Mile-a-minute vine



Credit: BT Wursten/ Flora of Mozambique website



Credit: BT Wursten/ Flora of Mozambique website



Credit: BT Wursten/ Flora of Mozambique website



Credit: Sheldon Navie

Credit: Steve Hurst @ USDA-NRCS PLANTS Database



Nov - Jul

Nov - Jul

Gene Pool Secondary relative of *Cajanus cajan* (L.) Millsp.

Perennial tinners; branchlets white-canescens. Stipules triangular acute, ca 2mm long, caducous. Leaflets 3-4.5 x 2-4 cm, obovate, apex rounded, base obtuse, grey pubescent below, nerves ca. 4 pairs, laterals oblique; petiole to 2-4 cm, petiolule 2 mm, pubescent, stipules 3 mm. Racemes lax, to 4 cm; bracts 3 mm; calyx tube 3 mm, lobes 1.5 mm, triangular, pubescent; petals persistent, yellow. Pod 3.5 x 1 cm, transversally flattened, grey pubescent, strongly mucronate. Seeds rectangular-rounded, about 5 mm long, 3 mm wide, 2-3mm tick, grey and black mosaic; strophiole divided, greenish.

Habitat:

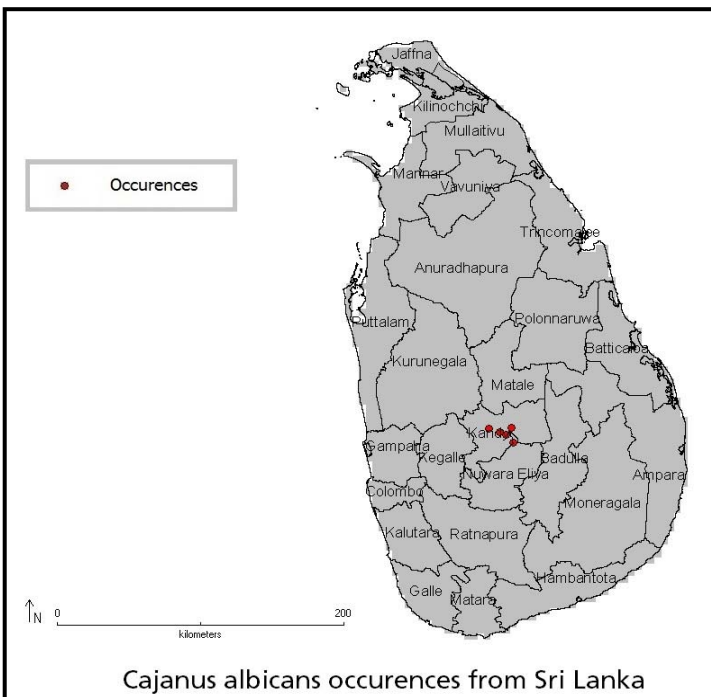
Tropical dry deciduous forests or scrub vegetation.

Distribution:

Peninsular India, Sri Lanka.

Altitude: 500 - 1700 m

<i>Cajanus albicans</i>	May be confused with: <i>Cajanus rugosus</i>
Pods 5-6 seeded. Usually found as a strong climber in trees.	Pods 3-4 seeded, usually found as a twiner in grasses.



All populations priority
for collection

No accessions from
Sri Lanka listed on
Germplasm Resources
Information Network
(GRIN) [online database]
for this taxon

References: <http://indiabiodiversity.org/species/show/245247>


Cajanus albicans (Wight & Arn.) Maesen


Gene Pool Secondary relative of *Cajanus cajan* (L.) Millsp.




RBG Kew herbarium material


No seed image available






6m





Oct - Jan



Dec - Apr

11

Climbers; stems ridged, tomentose. Leaflets 3.5 x 3 cm, obovate, acute at base, reticulate below, densely tomentose on both sides; petiole 3-4 cm long. Raceme to 4 cm long, peduncled. Flowers 3-5, yellow; calyx 7 mm long, lobes ovate, acute, densely hairy outside; standard 10 x 8 mm, retuse, auricled, yellow with red lines; wings 8 x 3 mm, obovate; keel 9 mm long, gibbous to one side. Pods oblong, not quite straight, (8-) 14-23 mm long, 5-7 mm wide, surface brown to grey pubescent, hairs short, transverse depressions at oblique or right angles to the suture. Seeds compressed-globose, ca 3.5 mm long and wide, ca 2 mm thick, dark brown or light brown with dark blotches, strophiole large, greenish, divided.

Habitat:

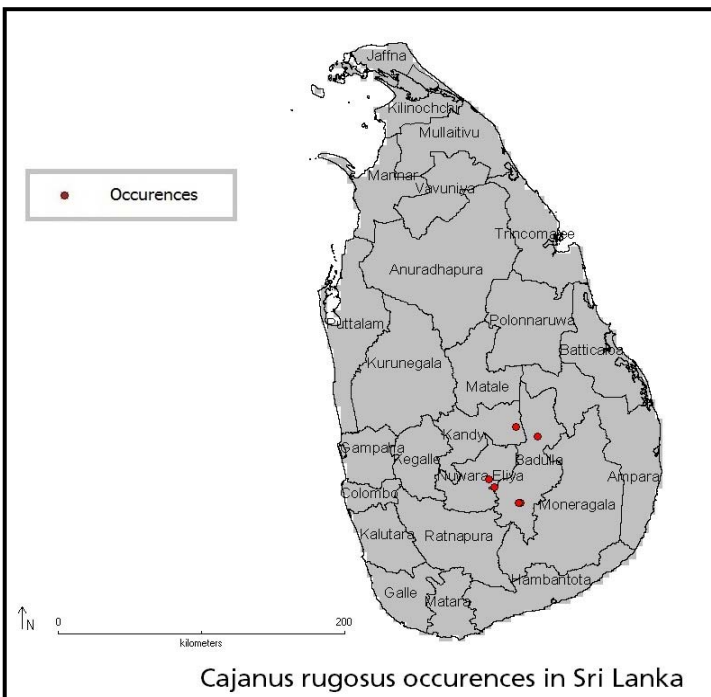
Twiner-creeper in forest, low scrub, open spaces (downs).

Distribution:

South India and Sri Lanka.

Altitude: 1300 - 2400 m

<i>Cajanus rugosus</i>	May be confused with: <i>Cajanus albicans</i>
Pods 3-4 seeded, usually found as a twiner in grasses.	Pods 5-6 seeded. Usually found as a strong climber in trees.



All populations priority
for collection

No accessions from
Sri Lanka listed on
Germplasm Resources
Information Network
(GRIN) [online database]
for this taxon

References:



RBG Kew herbarium material

No seed image available



1m



Sep - Jul

Oct - Jul

Gene Pool 2 relative of *Cajanus cajan* (L.) Millsp.

Vines, woody, twining or trailing, to 2 m. Stems slender, \pm pubescent. Leaves pinnately 3-foliolate; stipules small, ovate, hairy, usually deciduous; petiole 1-2 cm; stipels absent; petiolules extremely short; leaflets papery or nearly leathery, with glandular spots, sparsely pubescent on both surfaces, denser abaxially, basal veins 3, obviously convex below; terminal leaflet elliptic or obovate-elliptic to obovate, 1.2-4 \times 0.8-1.5(-3) cm, apex obtuse or rounded; lateral leaflets smaller, obliquely elliptic to obliquely obovate. Raceme axillary, usually less than 2 cm, 1-5-flowered; peduncle 2-5 mm, densely brown to dull brown villous. Calyx campanulate, 5-lobed, or 4-lobed with upper 2 incompletely connate; lobes linear-lanceolate. Corolla yellow, ca. 1 cm, usually deciduous; standard obovate, with emarginate auricle and claw at base; wings narrowly elliptic, slightly curved, base auriculate; keels curved at apex, densely very pale brown villous. Ovules several. Pod oblong, 1.5-2.5 \times 0.4-0.6 cm, leathery, densely villous, transversely constricted between seeds. Seeds 2-7, dark brown, ellipsoidal, ca. 4 mm; strophiole convex.

Habitat:

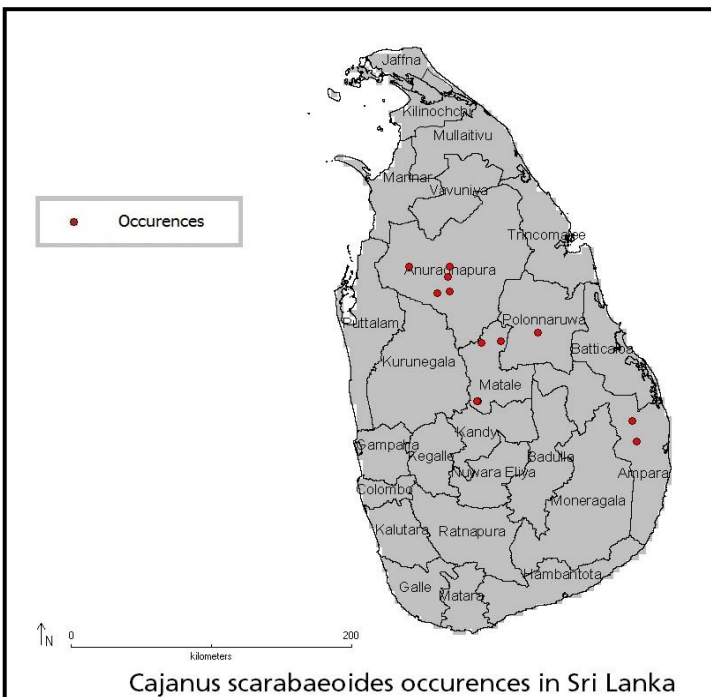
Fields, roadsides, grassy slopes, seashores.

Distribution:

China, Bangladesh, Bhutan, Cambodia, India, Indonesia, Japan, Laos, Malaysia, Myanmar, Nepal, Pakistan, Sri Lanka, Thailand, Vietnam; Africa, Oceania.

Altitude: 100 - 1500 m

<i>Cajanus scarabaeoides</i>	May be confused with: <i>Cajanus goensis</i>
Pod much smaller: 1.5 - 2.5 cm long.	Pod 4 - 6 cm long.

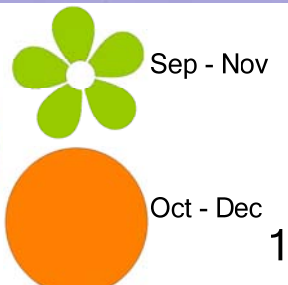
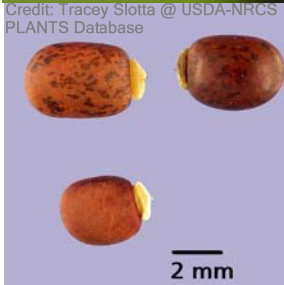


All populations priority
for collection

No accessions from
Sri Lanka listed on
Germplasm Resources
Information Network
(GRIN) [online database]
for this taxon

References: Flora of China http://www.efloras.org/florataxon.aspx?flora_id=2&taxon_id=242309519

Gene Pool 2 relative of *Cajanus cajan* (L.) Millsp.



Gene Pool Secondary relative of *Oryza glaberrima* and *Oryza sativa*

Perennial; clumped. Rhizomes short. Butt sheaths papery; pallid. Culms erect; 60-100 cm long; 2-3 mm diam. Culm-nodes constricted; pallid, or brown. Leaf-sheaths narrower than blade at the collar; keeled; smooth; glabrous on surface. Leaf-sheath oral hairs ciliate. Leaf-sheath auricles falcate. Ligule an eciliate membrane; 1-3 mm long; entire; truncate. Leaf-blades 10-25 cm long; 3-10 mm wide; glaucous. Leaf-blade surface smooth, or scabrous. Leaf-blade margins scabrous. Leaf-blade apex acuminate.

Panicle open; lanceolate; 10-25 cm long. Primary panicle branches ascending. Panicle branches angular; scaberulous. Spikelets solitary. Fertile spikelets pedicelled, comprising 2 basal sterile florets; 1 fertile florets; without rhachilla extension.

Basal sterile florets similar; barren; without significant palea.

Flower Lodicules 2; lanceolate; membranous. Anthers 6. Stigmas 2.

Fruit: Caryopsis with adherent pericarp. Disseminule comprising a floret.

Habitat:

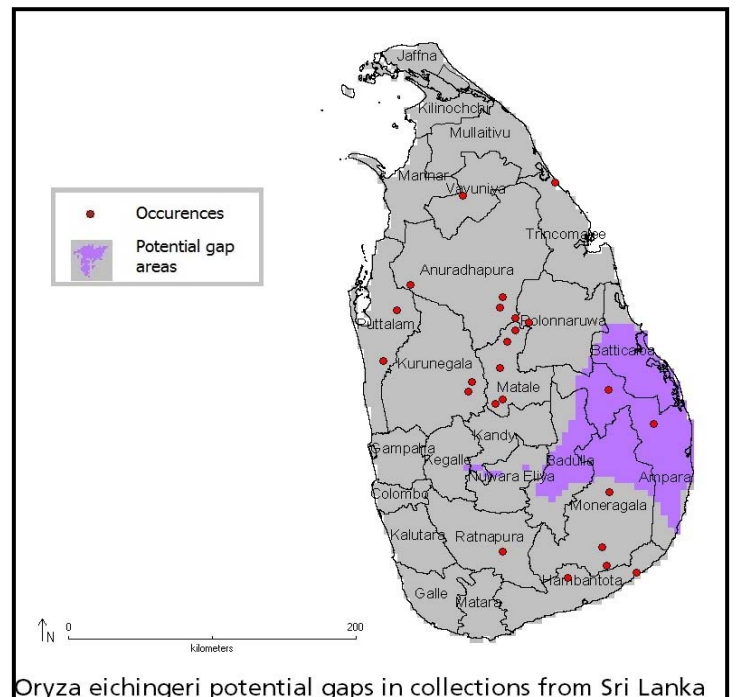
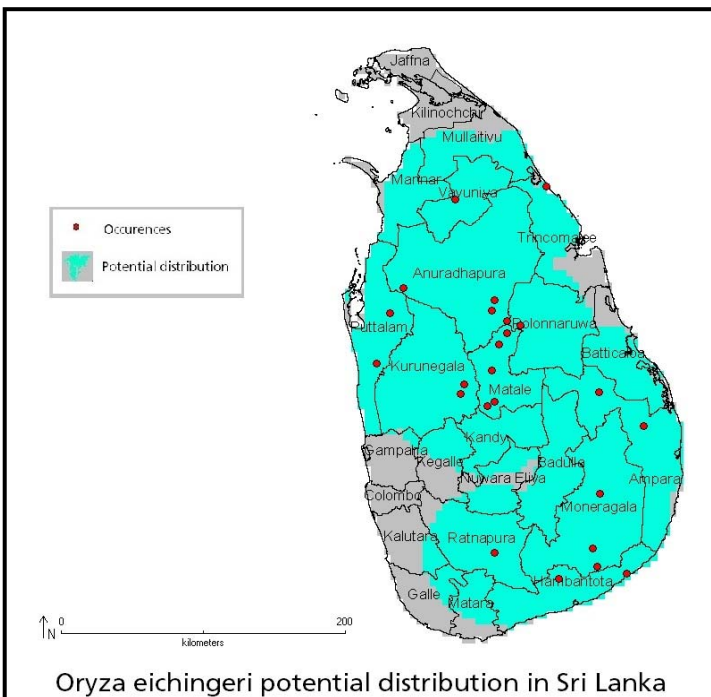
Found in undisturbed forest, gallery or evergreen forest, or forest margins. Grows in damp or flooded sites such as pools, water holds, marshy places, streams or riverbanks and beds, in ditches. Sandy or gray loamy clay soils. Shade or semi-shade.

Altitude: 100 - 1330 m

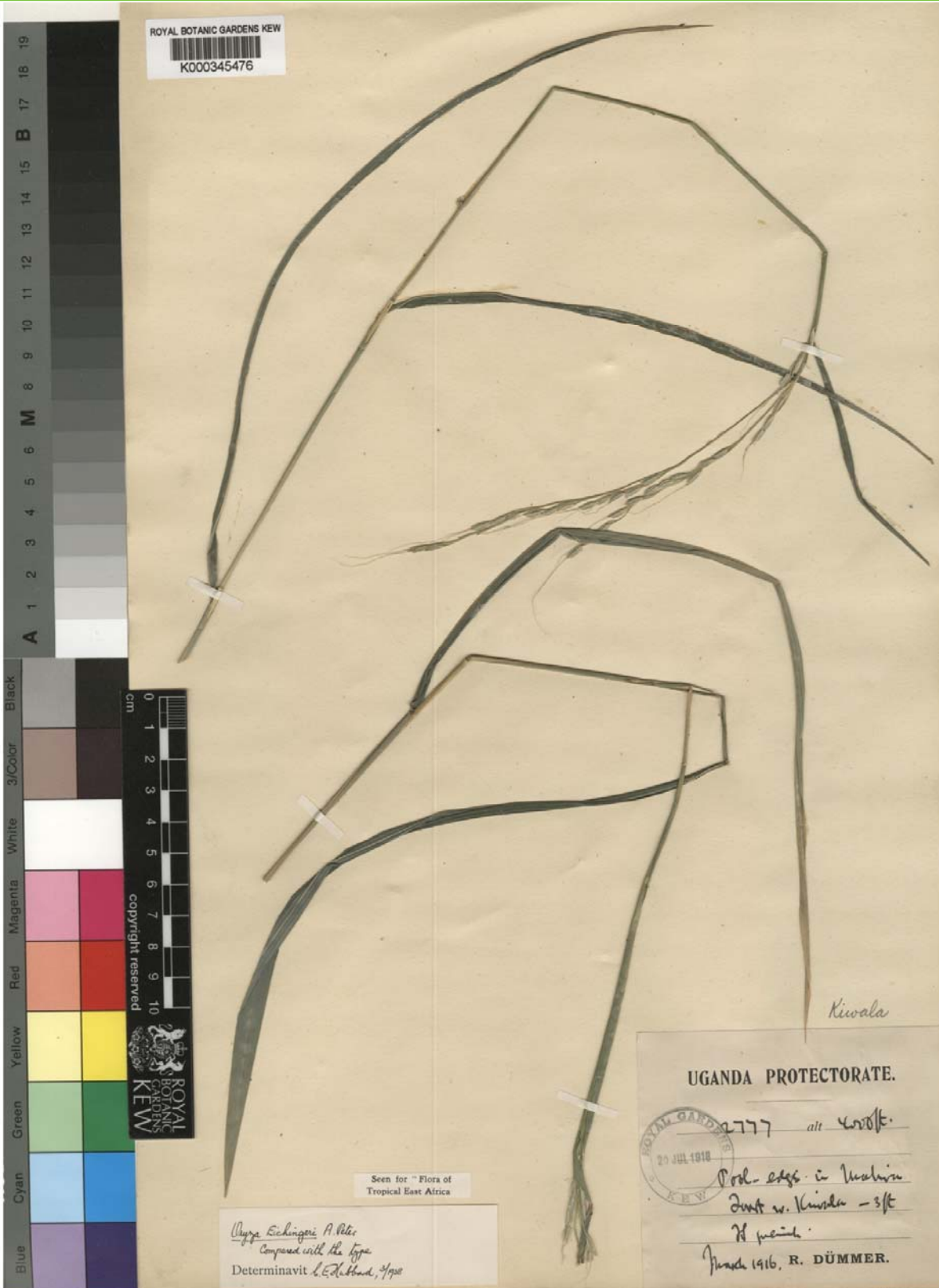
Distribution:

Central Africa Republic, Côte d'Ivoire, Democratic Republic of Congo, Kenya, Rwanda, Sri Lanka, Tanzania, and Uganda.

<i>Oryza eichingeri</i>	May be confused with: <i>Oryza punctata</i>
Culms 2 -3 mm diameter.	Culms 3-6 mm diameter.



References: Clayton, W.D., Vorontsova, M.S., Harman, K.T. and Williamson, H. (2006 onwards). GrassBase - The Online World Grass Flora. <http://www.kew.org/data/grasses-db.html>. [accessed 5th July 2013; 11:37 GMT]; IRRI Rice Knowledge Bank <http://www.knowledgebank.irri.org/extension/oryza-eichingeri-a-peter.html>



RBG Kew Herbarium specimen

No seed image available

Feb - Dec

All year

14

Perennial, loosely tufted or sometimes shortly stoloniferous. Culms erect or ascending, 30-70 cm tall, ca. 1.5 mm in diam. Leaf sheaths shorter than internodes, auricles ciliate; leaf blades thin, 5-20 × 0.6-2 cm, inrolled when dry, abaxial surface smooth, adaxial surface scabrid along veins, margins scabrid, base rounded, narrowed at insertion, apex acuminate; ligule 1-2 mm. Panicle narrow, erect, 3-15 cm; branches 2-5, inserted singly, 2-6 cm, unbranched, ascending, bearing few spikelets. Spikelets elliptic-oblong, 5-6.5 mm, length 2-3 times width, light green or gray; sterile lemmas narrowly lanceolate, slightly unequal, ca. 1 mm; fertile lemma irregularly granular, flanks sulcate, apex obtuse or shortly 3-toothed, awnless. Anthers 3.5-4.5 mm. Caryopsis brown.

Habitat:

Hill forests, on well drained soils and damp places by streams.

Distribution:

China, Cambodia, India, Indonesia, Laos, Malaysia, Myanmar, Philippines, Sri Lanka, Thailand

Altitude: 500 - 1000 m

<i>Oryza meyeriana</i> var. <i>granulata</i>	May be confused with: <i>Oryza meyeriana</i> subsp. <i>meyeriana</i>
It has longer, (6-)7-10 mm spikelets, with length 3-6 × width.	

Reported from
Sri Lanka, but
no localities
known

Oryza meyeriana var. *granulata* (Watt) Duist.



RBG Kew herbarium material

No seed image available

0.7 m

NE

All year

All year

Gene Pool 1B relative of *Oryza sativa* L and *Oryza glaberrima* Steud.

Annual, short to intermediate height (usually <2 m) grass; panicles usually compact, rarely open; spikelets large, 6-10.4 mm long and 1.9-3.4 mm wide, with strong awn (4-10 cm long); anthers 1.5-3 mm long.

Habitat:

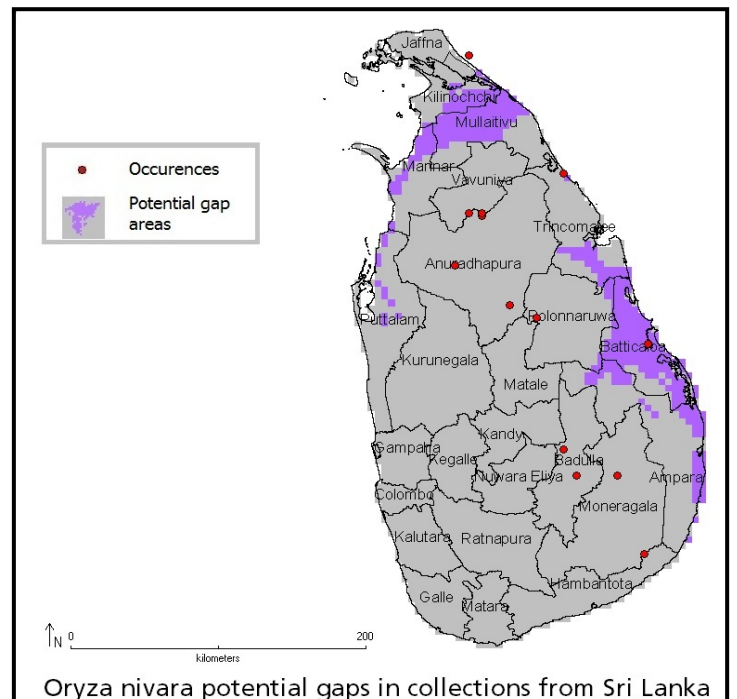
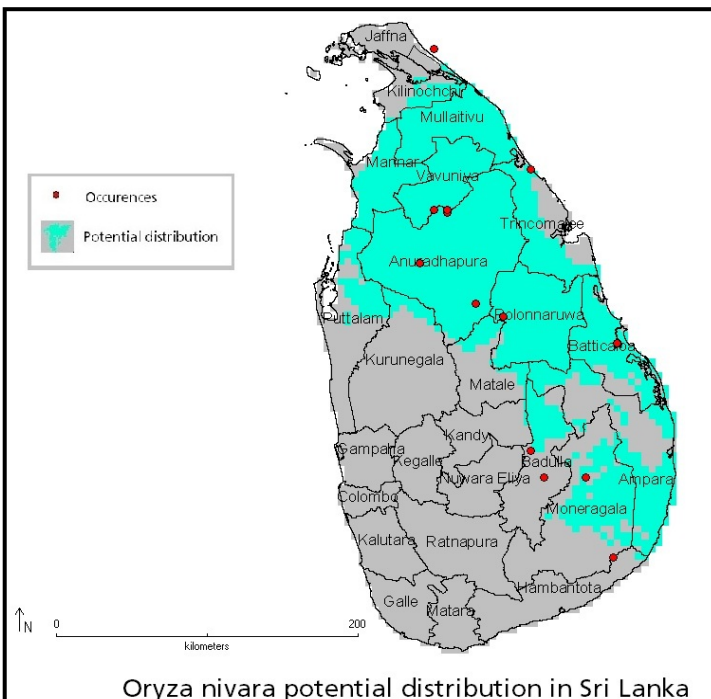
Found in swampy areas, at edges of ponds and tanks, beside streams, in ditches in or around ricefields. Usually grows in shallow water up to 0.3 m, seasonally dry; in open habitats.

Distribution:

Native to Bangladesh, Cambodia, India, Laos, Myanmar, Sri Lanka, Thailand and Vietnam.

Altitude: 0 - 700 m

<i>Oryza nivara</i>	May be confused with: <i>Oryza rufipogon</i>
Tufted herb, anthers <3mm. Annual.	Spreading herb with culms extending in deep water, nodal tillering. Anthers usually >3mm. Perennial.



References: Vaughan, D. (1994) The Wild Relatives of Rice- A Genetic Resources Handbook. IRRI.

Oryza nivara S.D.Sharma & Shastry Baill.

Gene Pool 1B relative of *Oryza sativa* L and *Oryza glaberrima* Steud.



Credit: IRRI Knowledge Bank

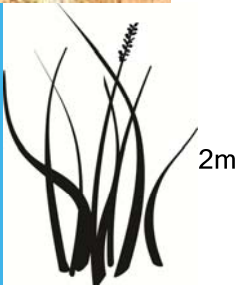
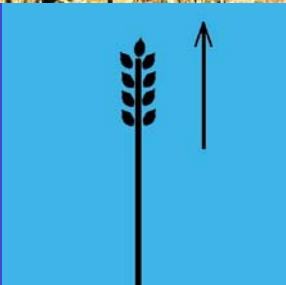


Credit: IRRI Knowledge Bank



Credit: IRRI Knowledge Bank

No seed image available



Sep - Dec

Sep - Dec

Gene Pool 2 relative of *Oryza sativa* L and *Oryza glaberrima* Steud.

Perennial. Culms erect or creeping and rooting at lower nodes, 1.5-3 m tall, 7-10 mm in diam. Leaf sheaths more than 3 times internode length, auricles inconspicuous; leaf blades thick, 30-50 × 2-3 cm, abaxial surface and margins scabrous, adaxial surface scattered villous, midrib stout, lateral veins inconspicuous, base narrowed, puberulous, apex acuminate; ligule 1-4 mm. Panicle loosely contracted, 30-50 cm, base often included in terminal sheath; branches 3-5 at lowest node, axils bearded, longest 10-25 cm, naked in lower half, apices of lowermost branches drooping. Spikelets broadly ovate-oblong, 4-5 mm, length 1.5-2 times width, yellowish green or tinged brownish black, deciduous; sterile lemmas linear-lanceolate, 1.5-2 mm, apex acuminate; fertile lemma papillose, keel and marginal veins with hard glassy hairs; awn 5-10(-25) mm, slender, scabrid. Anthers 1.5-2.5 mm. Caryopsis reddish brown

Habitat:

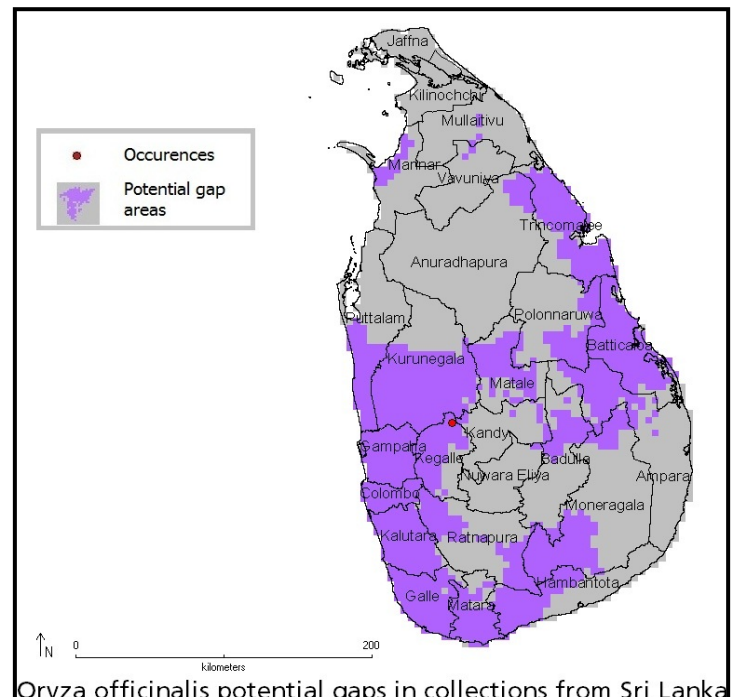
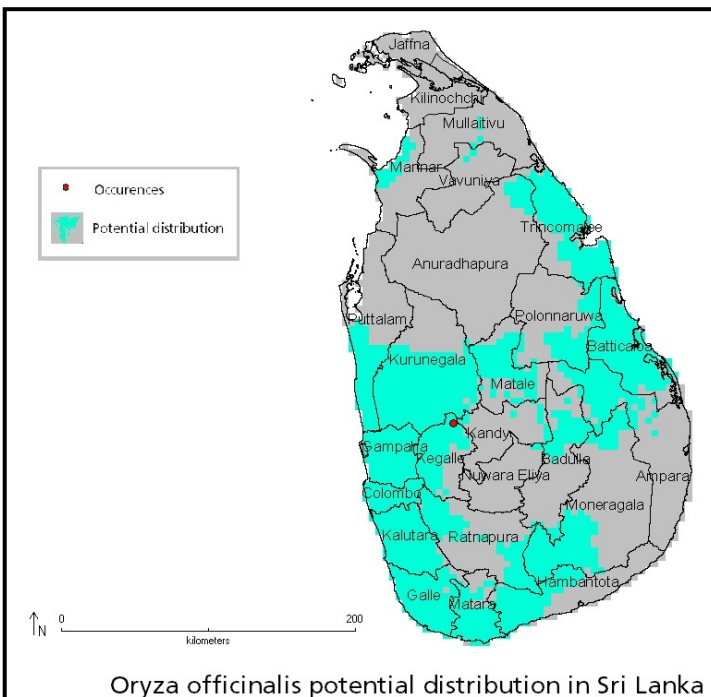
Low hills, alluvial plains, ditch banks.

Distribution:

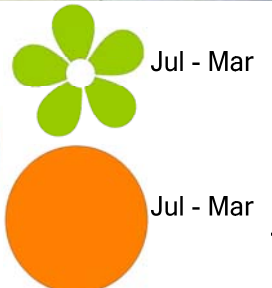
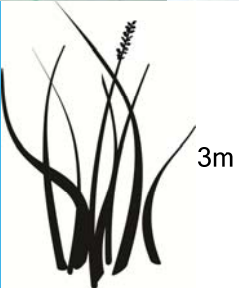
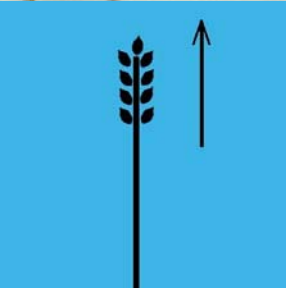
China, Bhutan, Cambodia, India, Indonesia, Malaysia, Myanmar, Nepal, New Guinea, Philippines, Sri Lanka, Thailand, Vietnam.

Altitude: 0 - 1000 m

<i>Oryza officinalis</i>	May be confused with: <i>Oryza minuta</i>
	Differs only slightly morphologically, the lowermost panicle branches having a shorter naked portion and ascending at the tip. It also has proportionately narrower spikelets with length 2-2.7 × width.

References: Flora of China http://www.efloras.org/florataxon.aspx?flora_id=2&taxon_id=200025785

Gene Pool 2 relative of *Oryza sativa* L and *Oryza glaberrima* Steud.



Gene Pool Secondary relative of *Oryza sativa* L. and *Oryza glaberrima* Steud.

Perennial, erect, and rhizomatous grass, 1-3 m tall; panicles open without whorled basal panicle branches; spikelets inserted near the base of lowest panicle branches; spikelets around 6.8 mm long and 2.2 mm wide with extenuated apiculus, often awnless; anthers 2.3-4 mm long.

Habitat:

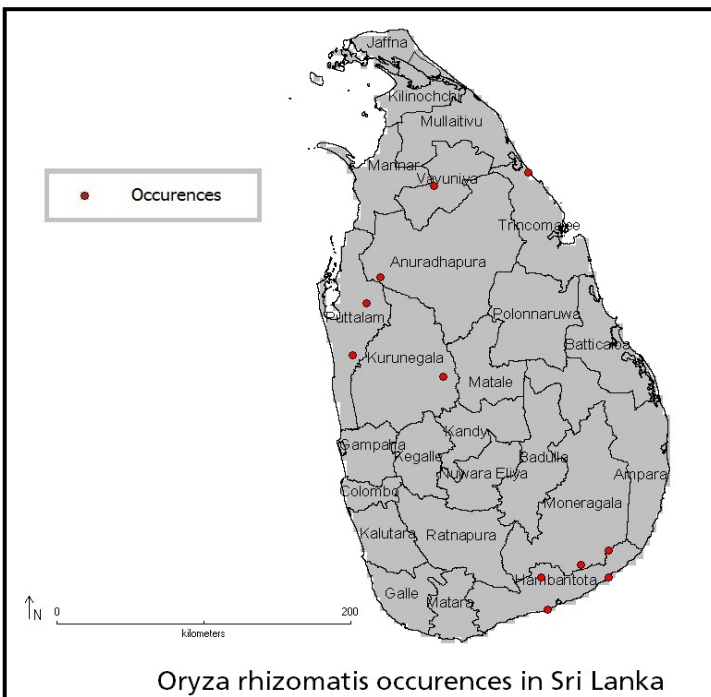
Found in tropical forest and open, tall scrub with grassy openings. Grows in swampy or periodically flooded areas, usually in full sun or partial shade.

Distribution:

Endemic to Sri Lanka.

Altitude: 5 - 170 m

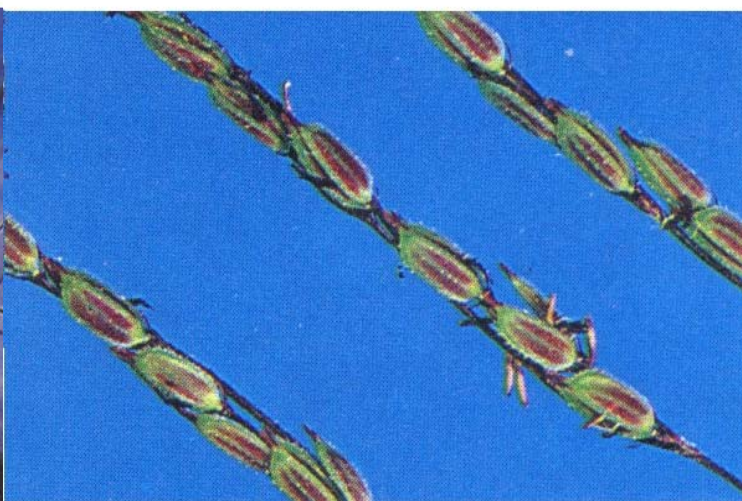
<i>Oryza rhizomatis</i>	May be confused with: <i>Oryza officinalis</i>
Spikelet length > 6mm with extenuated apiculus.	Spikelets <5.4 mm long.



All populations priority
for collection

No accessions from
Sri Lanka listed on
Germplasm Resources
Information Network
(GRIN) [online database]
for this taxon

References:



Credit: IRRI Knowledge Bank

Spikelets. Credit: IRRI Knowledge Bank



Rhizomes. Credit: IRRI Knowledge Bank

No seed image available

A simple black icon of a rice panicle on a stem, with a vertical arrow pointing upwards to its right, indicating growth or height.

A logo consisting of a dark green circle with the letters "NT" in white, and the word "PRELIM" in white below it. To the right of the logo are two circular icons: a green five-petaled flower and an orange circle. Both icons are labeled "Dec - May".

Herbs erect or creeping, sometimes woody at base, 50-70 cm tall, copiously armed with sturdy, needlelike, broad-based prickles 0.5-2 cm × 0.5-1.5 mm, pubescent with 7-9-rayed stellate hairs, overall glabrescent. Leaves unequal paired; petiole 2-3.5 cm, prickly, with sessile stellate hairs; leaf blade ovate-oblong, 4-9 × 2-4.5 cm, pubescent and prickly along veins, glabrescent, base subcordate or unequal, margin usually 5-9-lobed or pinnately parted, lobes unequal, sinuate, apex acute. Inflorescences elongate racemes 4-7 cm; peduncle unbranched, copiously armed. Pedicel ca. 1 cm. Calyx campanulate, ca. 1 cm in diam.; lobes oblong, pubescent, prickly. Corolla blue-purple, rotate, 1.4-1.6 × 2.5 cm; lobes ovate-deltate, 6-8 mm, densely pubescent with stellate hairs. Filaments ca. 1 mm; anthers ca. 8 mm. Style ca. 1 cm. Fruiting pedicel 2-3.6 cm, with prickles and sparse stellate hairs. Fruiting calyx prickly, sparsely pubescent. Berry pale yellow, 1.3-2.2 cm in diam. Seeds subreniform, ca. 1.5 mm in diam.

Habitat:

Sandy river beaches.

Distribution:

China, Afghanistan, India, S Japan, Malaysia, Nepal, Sri Lanka, Thailand, Vietnam; Africa, SW Asia, Pacific Islands

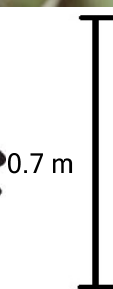
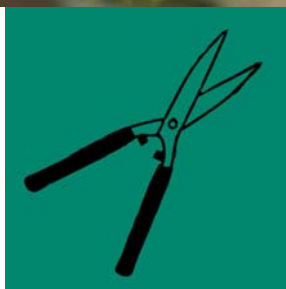
Altitude: 100 - 1300 m

<i>Solanum virginianum</i>	May be confused with: <i>Solanum violaceum</i>
Prickles straight and needle-like. Berry pale yellow.	Prickles recurved. Berry orange

Reported from
Sri Lanka, but
no localities
known



Gemma Toothill (c) Board of Trustees RBG Kew



Nov - May

Jun - Sep

Appendix - Synonyms

a

Taxon	Sheet	Synonyms
Ipomoea littoralis	1	Convolvulus littoralis Linnaeus; Convolvulus denticulatus Desrousseaux; Ipomoea denticulata (Desrousseaux) Choisy, non R. Brown.
Cajanus lineatus	2	Atylosia lineata Wight & Arn.
Cajanus trinervius	3	Atylosia candollei Wight & Arn.; Atylosia major Wight & Arn.; Atylosia trinervia (DC.) Gamble; Atylosia trinervia var. major (Wight & Arn.) Gamble; Cantharospermum trinervium (DC.) Taub.; Cantharospermum trineurum (DC.) Taub.; Collaea trinervia DC.; Odonia trinervia (DC.) Spreng.
Musa acuminata subsp. acuminata	4	Musa acuminata var. alasensis Nasution; Musa acuminata var. bantamensis Nasution; Musa acuminata var. breviformis Nasution; Musa acuminata var. cerifera (Backer) Nasution; Musa acuminata var. longipetiolata Nasution; Musa acuminata var. nakaii Nasution; Musa acuminata var. rutilipes (Backer) Nasution; Musa acuminata var. violacea Kurz; Musa acuminata var. zebrina (Van Houtte ex Planch.) Nasution; Musa brieiyi De Wild.; Musa cavendishii Lamb.; Musa cavendishii var. hawaiiensis N.G.Teodoro; Musa cavendishii var. pumila N.G.Teodoro; Musa cerifera (Backer) Nakai; Musa × paradisiaca var. pumila G.Forst.; Musa rhinozerotis Kurz; Musa rumphiana Kurz; Musa × sapientum var. pumila (N.G.Teodoro) Merr.; Musa simiarum Miq.; Musa simiarum var. violacea Kurz; Musa zebrina Van Houtte ex Planch.; Musa zebrina f. cerifera Backer; Musa zebrina f. rutilipes Backer
Musa balbisiana var. balbisiana	5	Musa dechangensis J. L. Liu & M. G. Liu; Musa lushanensis J. L. Liu; Musa luteola J. L. Liu; Musa paradisiaca Linnaeus subsp. seminifera (Loureiro) Baker; Musa seminifera Loureiro.
Eleusine indica	6	Agropyron geminatum Schult. & Schult.f.; Chloris repens Steud.; Cynodon indicus (L.) Raspail; Cynosurus ara Buch.-Ham. ex Wall.; Cynosurus indicus L.; Cynosurus pectinatus Lam.; Eleusine distachya Trin. ex Steud.; Eleusine distans Link; Eleusine distans Moench; Eleusine domingensis Sieber ex Schult.; Eleusine glabra Schumach.; Eleusine gonantha Schrank; Eleusine gouinii E.Fourn.; Eleusine inaequalis E.Fourn.; Eleusine indica var. major E.Fourn.; Eleusine indica var. monostachya F.M.Bailey; Eleusine indica var. oligostachya Honda; Eleusine indica var. sandaensis Vanderyst; Eleusine japonica Steud.; Eleusine macrosperma Stokes; Eleusine marginata Lindl.; Eleusine polydactyla Steud.; Eleusine rigidifolia E.Fourn.; Eleusine scabra E.Fourn.; Eleusine textilis Welw.; Juncus loureiroana Schult. & Schult.f.; Leptochloa pectinata (Lam.) Kunth; Paspalum dissectum Kniph.; Poa spicata Willd. ex Steud.; Triticum geminatum Spreng.
Sorghum nitidum	7	Andropogon serratus Thunb.; Holcus fulvus R. Br.; Holcus nitidus Vahl; Sorghum fulvum (R. Br.) P. Beauv. ex Rendle.
Sorghum propinquum	8	Andropogon propinquus Kunth
Solanum violaceum	9	Solanum chinense Dunal; Solanum indicum var. recurvatum C.Y. Wu & S.C. Huang; Solanum nivalomontanum C.Y. Wu & S.C. Huang

Appendix - Synonyms

b

Ipomoea cairica	10	Batatas cavanillesii (Roem. & Schult.) G. Don; Batatas senegalensis G. Don; Convolvulus cairicus L.; Convolvulus cavanillesii (Roem. & Schult.) Spreng.; Convolvulus limphaticus Vell.; Ipomoea cavanillesii Roem. & Schult.; Ipomoea funaria Larrañaga; Ipomoea heptaphylla Griseb.; Ipomoea pentaphylla Cav.; Ipomoea rosea var. pluripartita Hassl.; Ipomoea senegalensi Lam.; Ipomoea vesiculosa P. Beauv.
Cajanus albicans	11	Atylosia albicans (Wight & Arn.) Benth.; Cajanus wightii Wight & Arn.; Cantharospermum albicans Wight & Arn.
Cajanus rugosus	12	Atylosia rugosa Wight & Arn.; Cantharospermum rugosum (Wight & Arn.) Alston
Cajanus scarabaeoides	13	Dolichos scarabaeoides L.; Atylosia pauciflora (Wight & Arnott) Druce; Atylosia scarabaeoides (Linnaeus) Bentham; Atylosia scarabaeoides var. argyrophyllus Y. T. Wei & S. K. Lee; Cajanus scarabaeoides var. argyrophyllus (Y. T. Wei & S. K. Lee) Y. T. Wei & S. K. Lee; Cantharospermum pauciflorum Wight & Arnott; Cantharospermum scarabaeoides (Linnaeus) Baillon; Dolichos medicagineus Roxburgh; Dolichos minutus Wight & Arnott; Rhynchosia biflora Candolle; Rhynchosia scarabaeoides (Linnaeus) Candolle; Stizolobium scarabaeoides (Linnaeus) Sprengel
Oryza eichingeri Peter	14	Oryza collina (Trimen) S.D.Sharma & Shastri; Oryza glauca Robyns; Oryza latifolia var. collina (Trimen) Hook.f.; Oryza rhizomatis D.A.Vaughan ; Oryza sativa var. collina Trimen ; Oryza ubanghensis A.Chev.
Oryza meyeriana var. granulata	15	
Oryza nivara	16	
Oryza officinalis	17	Oryza latifolia Desvoux var. silvatica Camus; Oryza minuta Presl var. silvatica (Camus) Veldkamp.
Oryza rhizomatis	18	
Solanum virginianum	19	Solanum xanthocarpum Schrad.; Solanum surattense Burm. f.