Erythrina abyssinica

Lam. ex DC.

Fabaceae - Papilionoideae

red hot poker tree, lucky bean tree

LOCAL NAMES
Amharic (kuara,korch,korra); Arabic (dus); Bemba (mulunguti); English (Uganda coral,red-hot-poker tree,erythrina,flame tree,lucky bean tree,kaffir boom); Luganda (kiyirikiti,muirikiti,jirikiti,muyirikiti); Lunda (chisunga); Nyanja (mwale,mulunguti); Shona (mutiti); Swahili (muhuti,mjafari,mwamba ngoma,mbamba ngoma); Tigrigna (zuwawue,soaueh); Tongan (mulunguti); Trade name (lucky bean tree,red hot poker tree)

BOTANIC DESCRIPTION
Erythrina abyssinica is medium-sized tree, usually 5-15 m in height, deciduous, thickset, with a well-branched, rounded, spreading crown; trunk short; bark yellow-buff when fresh, otherwise grey-brown to creamy brown, deeply grooved, thickly corky and often spiny; when damaged the tree exudes a brown, gummy sap.

Leaves compound, trifoliolate, alternate; leaflets almost as broad as long, 5.5-15 x 6-14 cm, with the terminal leaflet the largest; lateral leaflets rather smaller than this, if 3 lobed then obscurely so, densely woolly when young, losing most of these hairs by maturity; midrib and main veins on the undersurface often bear scattered prickles.

Flowers spectacular, in strong, sturdy racemes on the ends of branchlets, orange-red, up to 5 cm long; calyx joined to form a tube, split along the under surface almost to the base and separating away into long, slender, distinctive lobes at the apex; calyx and standard petal striking scarlet to brick red.

Fruit a cylindrical, woody pod, 4-16 cm long, deeply constricted between the seeds, densely furry, light brown in colour, opening to set free 1-10 shiny, red seeds with a grey-black patch.

This species closely resembles E. latissima.

Erythrina comes from the Greek word ‘erythros’-red, alluding to the showy red flowers of the Erythrina species. The specific name means ‘from Ethiopia’.

BIOLOGY
In southern Africa, flowering occurs from July to November, and fruiting from November to March. In Zambia, flowering occurs before the new leaves appear from July to October, and pods appear between December and March. Flowers often appear on a bare tree. Pollination is by nectar-feeding birds. Seeds mature within 60 days of pollination, and they are dispersed by fruit-eating birds that mistake them for ripe berries.

Flowers (Saunders R.C.)

The calyx lobes are long and filamentous and a bright orange-red colour. (Ellis RP)

Detail of the unusual ”petals” which characterize this species. (Ellis RP)

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ECOLOGY
E. abyssinica is the most widespread species in Africa, found in savannahs throughout eastern and southern Africa. As with many trees in areas with frequent fires, the young trees establish a deep root system before stem growth. E. abyssinica grows well in most climates but not in dry or high areas. It does not grow in forests.

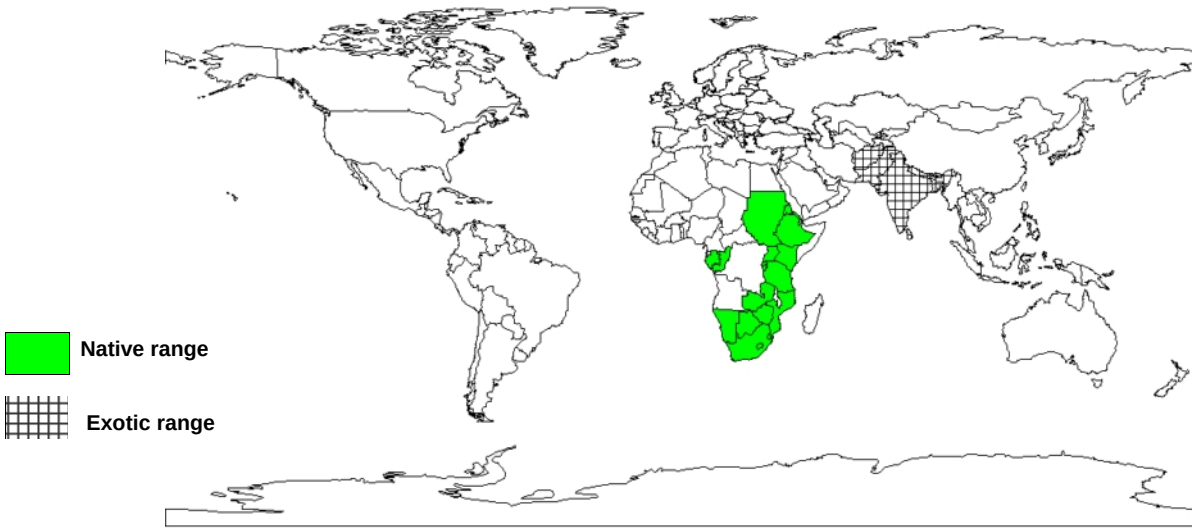
BIOPHYSICAL LIMITS
Altitude: 1 250-2 400 m, Mean annual temperature: 10-26 deg. C, Mean annual rainfall: 800-2 000 mm

Soil type: Grows best in well-drained soils of pH 3.5-5.4.

DOCUMENTED SPECIES DISTRIBUTION

Native: Botswana, Burundi, Central African Republic, Congo, Democratic Republic of Congo, Eritrea, Ethiopia, Gabon, Kenya, Lesotho, Mozambique, Namibia, Rwanda, South Africa, Sudan, Swaziland, Tanzania, Uganda, Zambia, Zimbabwe

Exotic: Afghanistan, Bangladesh, Bhutan, India, Nepal, Pakistan, Sri Lanka



The map above shows countries where the species has been planted. It does neither suggest that the species can be planted in every ecological zone within that country, nor that the species can not be planted in other countries than those depicted. Since some tree species are invasive, you need to follow biosafety procedures that apply to your planting site.

PRODUCTS
Fodder: The foliage is considered a good protein supplement for ruminants (cattle, sheep and goats) and has been used as a fodder source for rabbits and pigs.

Apiculture: The tree provides bees with forage.

Fuel: E. abyssinica trees may be cut for firewood.

Timber: The termite-resistant wood E. abyssinica is soft, greyish-white, non-durable, susceptible to fungal attack, and with a shot-silk effect. Although it is somewhat woolly to work, it does not split when nailed but has poor nail-holding ability. It has been used to make stools, toys, drums, utensils, mortars, beehives, pestles, boxes, picture frames, floors, shoes and for construction.

Tannin or dyestuff: The bark and roots yield useful dyes.

Poison: Seeds of E. abyssinica contain a curare-like poison that, if injected into the bloodstream, acts as an anaesthetic that may cause paralysis and even death by respiratory failure.

Medicine: Pounded parts are used in a steam form in Kenya to treat diseases such as anthrax, and the bark is boiled with goat meat for treating gonorrhoea. The bark of the green stem may also be pounded and then tied into a fine piece of cloth and the liquid from it squeezed into the eyes to cure inflammation of the lids. The bark may be roasted until black, powdered, and applied to burns and general body swellings. A decoction is taken orally as an anthelmintic and to relive abdominal pains. The roots are used to treat syphilis, and the leaves to cure skin diseases in cattle.

Other products: The seeds are used to decorate trinkets, bracelets and necklaces.

SERVICES
Erosion control: The species is used on stream banks and for soil conservation terraces.

Shade or shelter: E. abyssinica is grown as a shade plant in coffee plantations and grazing fields.

Nitrogen fixing: The roots of trees are infected by Rhizobia nodulate and fix atmospheric nitrogen.

Soil improver: Leaf fall in the dry season is a source of mulch.

Ornamental: The tree is a popular ornamental in the tropics and subtropics.

Boundary or barrier or support: E. abyssinica has the useful characteristic of sprouting from truncheons if cut just before flowering, and so can be used to make a live fence.

Intercropping: E. abyssinica is usually combined with annual crops, especially when it is grown in rotation with coffee or cocoa.

TREE MANAGEMENT
Young trees should be protected from heavy frosts until they are well established. Growth is slow. Pollarding and coppicing are suitable for E. abyssinica. Trees should not be pruned until they are 1 year old. Frequent pruning will reduce the competitive effects of hedgerows and increase the ratio of leaves to stems but will also increase labour costs and reduce total tree biomass production. With its soft wood, E. abyssinica is somewhat easier to prune than other species used in alley farming. It may be advisable to grow the trees with shade-tolerant crops, rather than imposing a severe pruning regime to favour shade-intolerant crops. As a shade tree, it can be established rapidly by planting large stakes, 2.5 m long and 8-10 cm in diameter. Stakes this size can produce a canopy of 3-4 m diameter in 6 months.

GERMPLASM MANAGEMENT
The seeds may be stored for long periods without losing viability if kept cool, dry and insect free. Seeds that have been damaged by insects should be discarded. Before storage, remnants of the pod should be removed and the seeds sun dried for 1 day. Storage should be in a cool, dry place. For long-term storage, seeds are kept in a low-temperature seed-storage facility (approximately 5 deg. C and 30-40 r.h.). On average, there are about 6800 seeds/kg.

PESTS AND DISEASES
Defoliating insects are a major problem for E. abyssinica. The tree is also attacked by a stem borer, and the wood is susceptible to fungal attack. Other insect pests include bruchid seed weevil and chrysomelid leaf beetle. Leaf galls have been observed on the tree.

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SUGGESTED CITATION

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