

## Some useful plants found in the Mukogodo Forest and the surrounding areas.

Botanical name	Local name	Population	Health	Uses
<i>Acacia nilotica</i>	Nkiloriti	Abundant	Some trees are harvested. In areas close to town stands have been burnt as charcoal. <b>Threatened</b>	The bark is used as a substitute for tealeaves. The dry seedpods are used to make tea. The sap of unripe pods is also applied to open wounds in livestock. The bark is mixed with soup and drunk to aid digestion after feasting on meat. The sap in the unripe pods is applied to open wounds in humans.
<i>Acacia drepanolobium</i>	Luwai	Uncommon	Existing species in good health.	The young galls are edible. The bark is boiled with soup and given to mothers after giving birth.
<i>Acacia senegal</i>	Il derkesi	Uncommon	Found in Kuri Kuri, only dry areas. No imminent threats	The resin is edible. The bark is boiled and used as a treatment for general stomach pain. Important bee fodder
<i>Acacia tortilis</i>	Il tepesi	Uncommon	Only found in dryer areas. <b>Threatened</b> by charcoal burners	The pods are edible. The roots and the bark are used to treat backache. The resin melted in water is used to treat infected eyes.
<i>Acacia brevispica</i>	Giri giri	Uncommon	Healthy where locally common.	The roots are boiled and the solution given to cows to expel the placenta. Important camel and elephant fodder.
<i>Acacia mellifera</i>	Oiti	Uncommon (once abundant)	Seriously <b>threatened</b> by charcoal burners.	The blossom produces nectar and is one of the most productive honey bearing Acacia's. The bark boiled in water is given as a purgative to cure malaria.
<i>Akocanthera schimperii</i>	Morijoi	Uncommon	Confined to forest edges	The roots are boiled to a sticky substance; this is applied to the arrow shaft as poison. The fruit are edible. Elephant and birds rely on the fruit.
<i>Aloe secundiflora</i>	Sukuroi	Uncommon	<b>Threatened</b> due to over harvesting of wild plants in other areas.	The main root is used as a fermenting agent in the local honey wine. The sap is used topically on burns and wounds. It is taken orally for general stomach pain.

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<i>Aspilia mossambicensis</i>	Laiyabasei	Uncommon	Forest edge plant	The roots are boiled in water; this is a cure for digestive problems in children. Leaves are crushed and applied to bleeding wounds, to stop the flow of blood.
<i>Asparagus falcatus</i>	Ltiadoi	Common	Forest and forest edge no threats seen	The swollen roots are edible. Leaves have a drawing effect on boils, thorns.
<i>Ajuga remota</i>	Menangi	Common perennial during the rains	Mainly found in rain ditches or disturbed ground	The leaves are soaked in water; this is used as a cure for malaria.
<i>Carissa spinarum</i> ( <i>Carissa edulis</i> )	Lamuriak	Uncommon	No threats seen	The roots are used as a general tonic and for aching joints. Fruit are edible.
<i>Commelina benghalensis</i>	Ngaiteteyai	Common	No threats	A revered plant used in all ceremonies where blessings are involved. The mucous in the fleshy stem is applied topically to open wounds.  The succulent stems and leaves are of high nutritional value to small stock
<i>Croton dichogamus</i>	Lakiridangai	Common	No threats seen	The root bark is used as a perfume mixed with ochre and sheep's fat. The branches are insect resistant and used for building. The roots are steeped in hot water as a cure for serious chesty cough. The same is used as a tonic.
<i>Croton megalocarpus</i>	Il merkwet	Common in specific areas in the forest	Over harvesting of the bark for herbal medicine is a potential threat.	The bark is used to cure malaria it reduces the fever. This is important bee fodder

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<i>Combretum molle</i>	Mararoi	Rare	<b>Threatened</b> due to elephant damage.	The bark and roots are use for backaches, (possible kidney problems) Elephant eat the roots for medicine.
<i>Balanites aegyptiaca</i>	Ngoswa	Rare	<b>Threatened</b> due to charcoal burning and elephant damage.	The fruit are edible. The resin is mixed with water for pneumonia and tuberculosis.
<i>Euclea divinorum</i>	Il kinyei	Abundant	No threats seen	The branches are used as a protector on long journeys. The roots are boiled and used as an emetic. A solution from the roots is used to cure mouth ulcers in babies. Root bark cures skin fungus when mixed with fat. In severe droughts the cattle will eat the foliage, as the tree is evergreen.
<i>Indigofera vohemarensis</i>	Songoyo	Uncommon	Found in damp places. No threat	The stem bark is used to make scented necklaces and bracelets.
<i>Ipomoea kituiensis</i>	Lokitengi	Abundant in some areas	A forest edge climber, no threat	The roots are boiled in water; this is taken to stop bleeding in early pregnancy.
<i>Juniperus procera</i>	Ntarakwai	Uncommon	<b>Threatened</b> due to overexploitation of the wood to make posts and for building. Fires have destroyed large areas of cedar caused by careless honey harvesting.	The bark is made into a tea for pregnant mothers who feel poorly. The same tea can be used for chest pains. Dead cedar is termite resistant this makes it a very useful wood. In the past it was used for fence posts, building material etc. The Mukogodo also use the wood for building, and firewood, it ignites very easily due to a high content of volatile oil/resin. When the tree is wounded it exudes a scented resin, this is chewed like gum. The trees are a vital habitat for wild swarms of bees. When a couple are getting married, meat will be given to them held together with cedar leaves as a blessing.

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<i>Lannea triphylla</i>	Lampirori	Uncommon	<b>Threatened</b> due to Elephant destruction, in some areas already extinct.	The fruit are edible; the young stem bark is used for rope. Older bark is a substitute tea and has appetite suppressant qualities.
<i>Lippia kituiensis</i>	Sinoni	Abundant		The leaves are crushed and inhaled to ease nasal congestion. The leaves are boiled and the solution applied to the skin with measles. Herbal tea
<i>Lycium shawii</i>	Loki	Uncommon		Roots boiled in sheep's fat, this decoction is given to pregnant mothers to prevent miscarriage. The leaves are used like spinach.
<i>Maerua tryphilla</i>	Latasha	Uncommon	Not threatened	The leaves are crushed and inhaled for sinusitis. The roots are boiled in milk and fat, this is for coughs and chest pain.
<i>Maytenus putterlickioides</i>	Laimurungai	Uncommon forest edge		The roots are made into a soup; this is used as a cure for rheumatoid arthritis.
<i>Myrothamnus flabellifolius</i>	Naisulan'nkek	Uncommon shallow soil, rocks		The dry leaves make an aromatic tea. The branches are used as a toothbrush.
<i>Myrsine africana</i>	Seketet	Uncommon	<b>Threatened</b> due to over harvesting of the fruit for herbal medicine.	The main use is anthelmintic. This is given to sheep and goats to get rid of worms. For use as an anthelmintic: the seeds are dried, then pounded to a fine powder, the appropriate amount is mixed with honey, milk or water and drunk. It is also used if someone sustains a serious injury, where blood clotting/oedema occurs, this helps to disperse the blood and get the circulation moving. The mixture can be taken as an appetizer, and general tonic. The Maasai/Samburu morans mix it with other herbs, this acts like a stimulant. Other tribes use it in the same way.

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<i>Mystroxydon aethiopicum</i>	Lodonganayoi	Uncommon		The older bark is made into tea. The fruit are edible.
<i>Olea europea ssp cuspidatus</i>	Lorien	Common in the forest only	<b>Threatened</b> due to charcoal burning and over exploitation of branches for fodder.	The dry wood is burnt and used to scour milk gourds as a sterilizing agent. The bark is made into a decoction and given as a drench to cows after birth. The bark is used as an anthelmintic. The branches are burn't and then used to clean out milk gourds, this is most popular among people who live near this species, it not only keeps the container clean but the smoke has a very pleasant smell. The young branches make good toothbrushes. The blossom produces nectar for the bees. The wood is very hard the grain is most attractive. It is a 'magic' tree and is used by a variety of tribes.
<i>Ocimum americanum</i>	Il korompole	Uncommon		The whole plant is aromatic; this is used as a brush to sweep the home. The flowering stems are used as a bee attractant in the hives. Bee fodder.
<i>Ocimum gratissimum</i>	Lemurran	Common forest edges		The leaves used to be chewed like tobacco. The leaves are steeped in hot water this is a cure for gaseous stomach and relieves the pain.
<i>Pappea capensis</i>	Kisikongo	Uncommon	Dry forest edge, <b>threatened</b> due to elephant damage	The fruit are edible.

Botanical name	Local name	Population	Health	Uses
<i>Psiadia punctulata</i>	Labai	Abundant in some areas		The branches are burnt and the smoke used as an insecticide. The stems are used to make arrows. The roots are boiled and given as a cure for malaria.
<i>Rhamnus staddo</i>	Il kokolai	Uncommon forest	<b>Threatened</b> due to overexploitation of herbal medicine	The bark mixed in a soup is a cure for colds. The roots boiled in water for malaria. The bark mixed in a soup is a cure for colds. The roots boiled in water for malaria.
<i>Rothea myricoides</i>	Makutikuti	Uncommon forest edge	<b>Threatened</b> due to overexploitation for herbal medicine	A concoction is made from the roots for venereal diseases. The same is used to cure tuberculosis. The smoke from the roots is inhaled for sinusitis.
<i>Rhus natalensis</i>	Lmisigiyoi	Common		The fruit are edible, they have a tart but refreshing flavour. Mukogodo people boil the roots in milk, and then the decoction is mixed with cream and given to babies with an upset stomach/. The Mukogodo people boil young leaves or roots in milk or cream, this is given to small children to heal sore stomachs. Roots boiled in water acts as a tonic for adults and children. This mix is also safe for pregnant mothers. The fruit are edible, a tart but refreshing flavour. The young stems are used for toothbrushes.

Botanical name	Local name	Population	Health	Uses
<i>Salvadora persica</i>	Sokotei	Common	<b>Threatened</b> due to over harvesting for building material (Northern Frontier District)	A root decoction is made for pregnant mothers, as a second choice if bleeding persists in early pregnancy. Fruit are edible. The young stems are used as toothbrushes, it also gives the mouth a freshness; the plant has known anti-bacterial properties. The roots are boiled and added to soup this is taken as a cure for malaria.
<i>Solanum incanum</i>	Ntulelei	Abundant		The taproot is chewed as a remedy for coughs. Juice from the fruit is squeezed onto stubborn wounds, in both stock and humans; it seems to act as a disinfectant allowing healing to take place. The roots are boiled in water; this is given to children who are constipated. The root can be chewed for the same purpose.
<i>Strychnos henningsii</i>	Tipilikwa	Uncommon		The stem and stem bark is commonly boiled together with soup as a general tonic for aching joints and fatigue. The bark crushed into a fine powder is used to apply to wounds on cattle/sheep/goats. The same remedy can be applied to humans. The main active ingredient in this species is strychnine together with numerous other alkaloids closely related. Strychnine is a powerful central nervous system stimulant.
<i>Vepris nobilis</i>	Ngilai	Abundant makes up a major percentage of the existing forest cover.		The Mukogodo make a decoction with the roots for mothers who have just given birth this helps to clean out the afterbirth. This tree is known for its tough hard wood a popular one for walking sticks and bows. Leaves are used as filler in house building; the strong smell acts like a repellent. The fruit are edible.

### **Vegetation sampling – Mukogodo Forest Reserve**

Plants grow in mixed communities that are typically dominated by a few species. It has long been recognized that different plant communities are characterised by different plant species associations. The composition of the vegetation changes as you move from place to place even in a small area there can be very different kinds of vegetation.

In the Mukogodo Forest the hills are well covered with large trees of varying species then within a very short distance outside the forested areas the ground is almost bare with little or no trees in some areas.

In order to understand the structure and species composition of the plant community within a particular site there are a number of simple standardised methods to measure change over time and to collect information about the plants growing in a particular place. By combining information from many different surveys over different seasons a clear picture of the nature, structure and diversity of the vegetation at particular site can be drawn.

### **Creating the vegetation profile**

In order to be more systematic rather than opportunistic, we chose to mark out a well defined area inside the forest reserve but right on the boundary with the community land within a close distance to the honey refinery. A plot 50m x 50m was marked out taking GPS positions in all four corners as well as a GPS position at each 25m mark.

The most important changes that we are looking for in monitoring this transect are the following:

- Reduction in canopy cover
- Fire frequency
- Charcoal kilns
- Change of bee fodder plants
- Elephant damage to vegetation
- Collection of herbal medicine
- General change to the existing vegetation

### **Methodology**

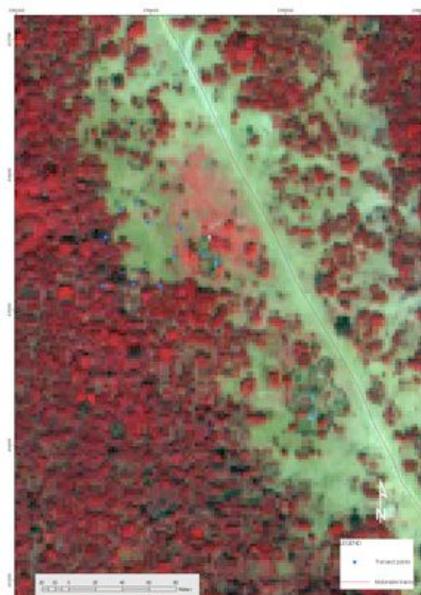
Once the plot was marked out, string was attached to the trees in all four corners as well as a slight scrape on the bark to leave a permanent impression.

Three people helped to count the species of plants within the plot boundaries including any plant directly on the boundary line.

Photographs were taken from the centre of the plot targeting all four sides of the plot, this adds an interesting method of monitoring change known as fixed-point photography (Applied Ethnobotany- Anthony B Cunningham). This method is not normally recommended for forests but knowing the speed of change in our forested areas in East Africa I would recommend that this method be applied as an extra tool for monitoring change in all areas of choice.

This particular site was chosen for the purpose of monitoring because of its close proximity to program activities concerning beekeeping.

View of the valley where the transect has been marked



GPS Co-ordinates for the Mukogodo transect

1	37N 0298269	UTM 0043820
2	37N 0298292	UTM 0043821
3	37N 0298312	UTM 0043820
4	37N 0298322	UTM 0043842
5	37N 0298327	UTM 0043862
6	37N 0298303	UTM 0043867
7	37N 0298282	UTM 0043877
8	37N 0298271	UTM 0043856

The transect lies inside the Mukogodo Forest Reserve, using the Forest boundary as a starting point. The blue dots are the transect boundaries.

### Plant species recorded in the plot

Tree species recorded	Vernacular	Number	Fruit/flowers	Shrubs/herbs recorded	Vernacular	Percentage	Fruit/flowers
<i>Acokanthera schimperi</i>	(Morijoi)	6	Fruit present	<i>Psiadia punctulata</i>	Labai	1%	Flowers present
<i>Croton dichogamus</i>	(Lakiridangai)	3	None	<i>Fuerstia africana</i>		0.1%	Buds present
<i>Croton megalocarpus</i>	(Merekwet)	12	Buds present	<i>Leucas sp.</i>		5%	Flowers present
<i>Euclea divinorum</i>	(Lchingei)	25	None				
<i>Erythroxylum fisheri</i>		22	None				
<i>Olea europea ssp cuspidatus</i>	(Olorien)	4	None				
<i>Tarenna graveolens</i>	(Il maasei)	1	None				
<i>Vepris simplicifolia</i>	(Ngilai)	74	None				

#### Threats to transect site:

##### Herbal medicine:

Croton trees are being stripped of their bark, this will probably get worse with time. The older trees, which have been harvested, do not heal as well as other species.

##### Charcoal:

The number of small kilns in the transect area are of concern considering the size of the forest reserve.

##### Elephant damage:

This year the Mukogodo Forest has had to endure high elephant pressure on the vegetation mainly due to the Uaso Nyiru river drying up as well as the increase in poaching to the North *and* in the Mukogodo Forest (14 poached elephant recorded 2010). The damage caused by large numbers of elephant confined to one area could in future destroy the forest if security does not improve in the North.

### Conclusion and recommendations

The transect site is in fairly good condition at present but the current trend of the local community using the forest reserve to burn charcoal is of enormous concern, this seems to be on and off depending on the months of the year. Also there are several homes that exist in the forest reserve whom are making use of the resources.

The site as well as the surrounding area holds a good stand of *Croton megalocarpus* this is important bee fodder.

To the South of the forest boundary towards the honey refinery there exists a large seasonal river with a very healthy population of *Acacia xanthophloea* trees I would strongly recommend that log hives are put up in these trees as a community enterprise.

**The Wild harvest of honey must be discouraged at all costs since the current trend is showing that this *now* unsustainable practice is affecting natural honeybee populations and the overall genetic diversity of honeybees, which originate in East Africa.**

**Traceability of honey bought from the community will be crucial in order to safeguard the forest from fires. This cannot be emphasised enough since forest fires caused by careless honey gatherers is seriously affecting all of the remaining forests in Samburu District as well as Mukogodo and Mt. Kenya Forests.**



Commelina bhengalensis (Enkatetaiyei)



Erythrina abyssinica (Loponi)



Ipomoea kituiensis (Lokitengi)

