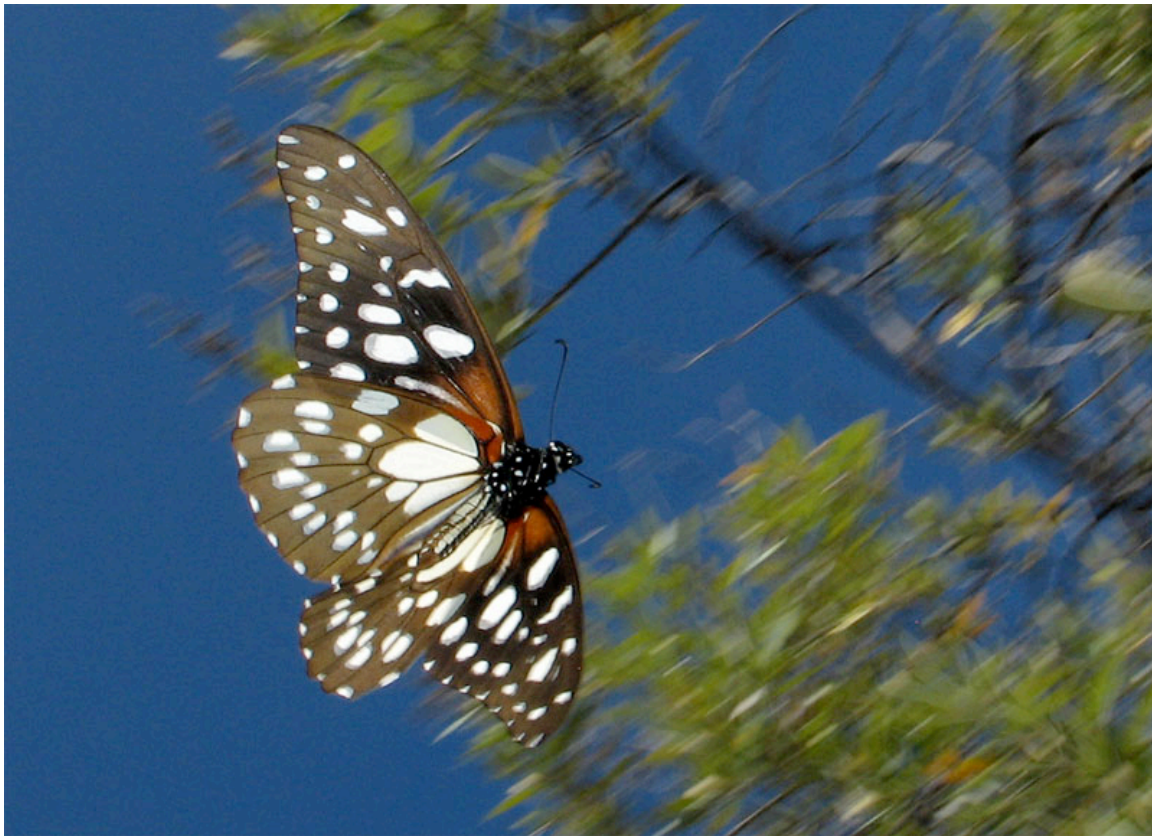


Biodiversity Survey EPK Estates, Nandi Hills, Kenya



Papilio rex, The King Swallowtail – Kenya's largest butterfly species.

FINAL REPORT

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BIODIVERSITY OVERVIEW

The indigenous forest patches of the Nandi Hills are an important area for biodiversity in Kenya. The forests are considered one of the 'IBAs' (Important Bird Areas) of Eastern Africa and two of these areas have been listed as IBAs: The North Nandi and the South Nandi Forests.

The preliminary survey has yielded a total of 891 species of native plants and animals (birds, butterflies and dragonflies) from the forest patches on the estates. This species tally is expected to rise significantly as the surveys continued and over 1000 species of flora and fauna are likely to be recorded from the target groups being studied with further monitoring over the longer term.

Surveys of the forests over the past year (2010) have yielded a checklist of 125 butterfly species, 47 dragonflies and damselflies, 247 bird species, 96 trees, shrubs and lianas, and 376 wildflowers and herbs.

The bird diversity so far recorded represents around 22 % of the total bird diversity of Kenya. This is a significant figure and includes many Western Kenya forest-dependent species such as the Black-and-White Casqued Hornbill (found in all the main forest patches on most of the estates). There is great potential to develop birding tourism at the Nandi EPK estates indigenous forests and wetlands.

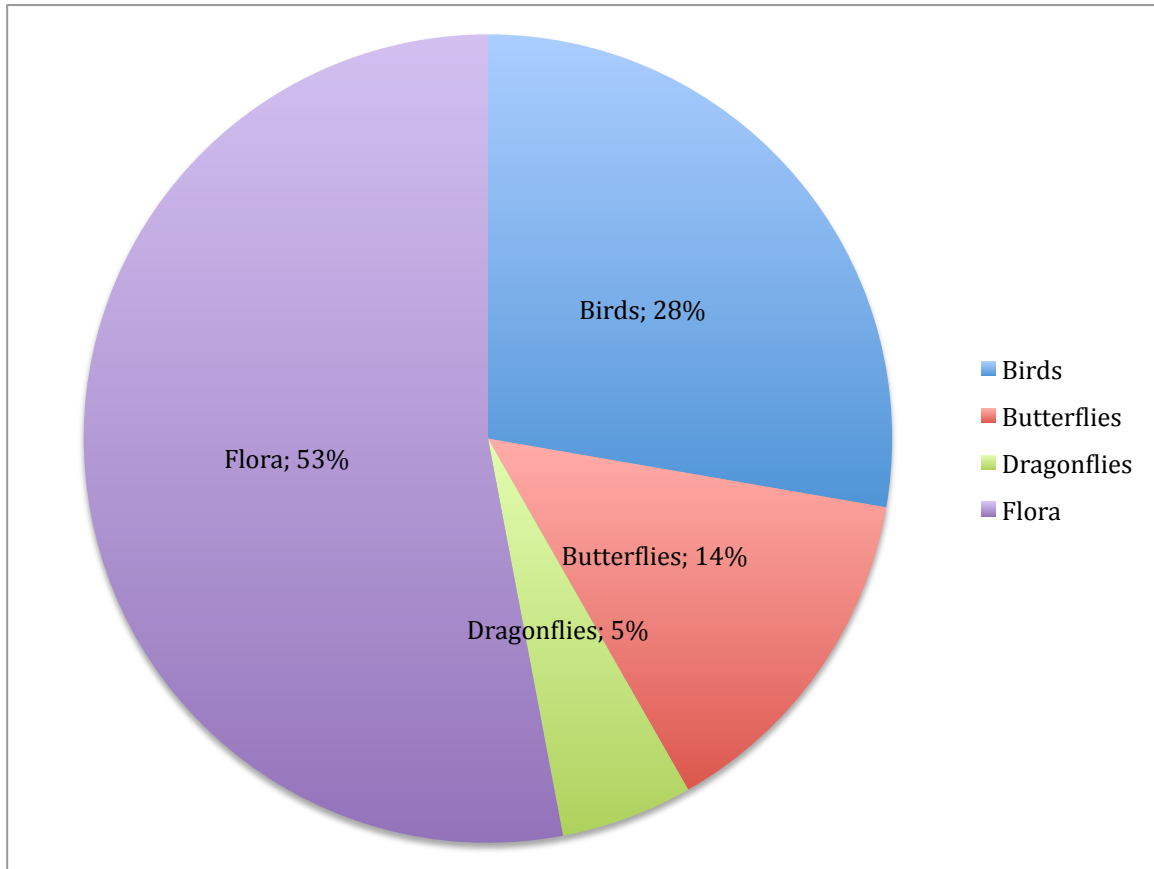
The butterfly figure of 125 represents about 15 % of the total Kenyan diversity. It is expected that these forests hold more diversity and the continuing surveys will yield a checklist of around 300 species. The forests of the EPK estates are an important site for butterfly diversity and include some of the rarer species known in Kenya, such as Anson's Charaxes (*Charaxes ansoni*) found along the trails to Kibabet.

The fauna of the forests is closely linked to that of the North Nandi Forest and the Western Mau Highland forest area for most of the higher altitude areas of the estates. The western estates, such as Sioi, have a fauna that is more typical of the rainforest, similar to that of Kakamega forest. For example, a butterfly that is typically only found in Kakamega forest, *Vanessa milca*, was found to be common at the Sioi forest patch.

Dragonflies and damselflies encountered represented about 37 % of the total known Kenya diversity. This is a significant number and indicates that the wetland and swamp areas are an important zone for continued protection and restoration.

The plant diversity represents about 8 % of the total plant diversity known from Kenya. Many of the plant species were typical of evergreen highland forest and the lower-altitude estates had species more allied to Kakamega Forest.

Below is a chart summarising the percentage distribution of the species encountered during the survey by the major groups:



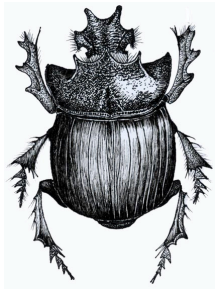
Setting priority areas for conservation and restoration

The following table highlights the estates that were deemed to be the most important and biodiverse areas for each of the major groups of plants and animals surveyed:

Taxon group	Estates
Butterflies	Kibabet, Chemomi, Sitoi, Kapsumbeiwa
Dragonflies	All wetlands, Kibabet, Kapsumbeiwa, Sitoi, Chemomi, Siret
Birds	All wetlands, Kibabet, Kapsumbeiwa, Sitoi, Chemomi, Siret
Flora	Kibabet, Kapsumbeiwa, Sitoi, Chemomi, Siret

It is recommended that these areas be given priority for protection and restoration. They hold significant areas of natural vegetation and biodiversity including many species that are restricted to Western Kenya.

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RESULTS OF THE SURVEY OF THE BUTTERFLIES

The survey of butterflies was conducted by walking through the forest along trails and transects as well as careful observation of insects along streams and rivers. Butterflies were identified by sight records for the case of common/well-known species. Limited netting was done using a hand-net of species that were less well-known or provided the basis for more interesting records. Photography of free-living individuals and recently captured individuals was also conducted as an aid to identification.

A total of 125 different butterfly species were observed during the survey. This figure represents about 15 % of the total Kenyan butterfly fauna. The butterflies observed came from five different families within the order Lepidoptera. This is a significant number of species for a forest area that is mostly fragmented. The butterfly fauna was primarily composed of central and western species. The butterfly fauna indicates that the range falls within the broader Nandi-Kakamega area of endemism.

Swallowtail butterflies (Papilionidae), which are the largest and among the most spectacular of Kenyan insects were well-represented in the forest. These included the largest butterfly in Kenya, the Regal or King Swallowtail (*Papilio rex*), which is a species typical of tall less-disturbed forest.

Whites and yellows (Pieridae) were also found to be common throughout the forest. The Brush-footed butterflies (Nymphalidae) were well-represented comprising almost half of the total butterfly diversity found during the survey. This large and diverse group included the fast-flying Charaxes or Emperor butterflies: The Green-Veined Charaxes was the most common. Large numbers of the were observed along forest trails. The rare Ansorges' Charaxes was seen along the trails to Kibabet and the purple mother of pearl butterfly, more typical of Kakamega forest, *Salamis temora*, was seen at Sitio.

The Blues and Coppers (Lycaenidae) were fewer than expected given the high diversity that is typical of this family. All of the lycaenids that were observed were fairly common species. Many of the rarer and more localised species of this butterfly family associate with ants, and are often only on the wing as adult butterflies for limited periods of time each year. Therefore, this is one butterfly family where more diversity is expected through longer-term and more focused monitoring.

Skippers (Hesperiidae) were fairly common and distributed throughout the forest and glades. As with the lycaenids, this is one group of butterflies where more species are likely to turn up through longer-term monitoring.

It is expected that further monitoring can raise the number of species of butterflies recorded to around 200-300 species.

Checklist of the Butterflies of the EPK Estates, Nandi Hills, Kenya:

	Scientific name	Common Name
1.	<i>Papilio rex</i>	Regal swallowtail
2.	<i>P. dardanus</i>	Mocker swallowtail
3.	<i>P. phorcas</i>	Green-Banded swallowtail
4.	<i>P. nobilis</i>	Noble swallowtail
5.	<i>P. mackinnoni</i>	MacKinnon's swallowtail
6.	<i>P. nireus</i>	Narrow green-banded swallowtail
7.	<i>P. demodocus</i>	Citrus swallowtail
8.	<i>P. jacksoni</i>	Jackson's swallowtail
9.	<i>Graphium polices</i>	Small striped swordtail
10.	<i>Catopsilia florella</i>	African emigrant
11.	<i>Eurema hecabe</i>	Common grass yellow
12.	<i>E. desjardinsi</i>	Angled grass yellow
13.	<i>Nepheronia thalassina</i>	Blue vagrant
14.	<i>Colotis ione</i>	Purple tip
15.	<i>C. euipe</i>	Orange tip
16.	<i>Belenois aurota</i>	Brown-veined white
17.	<i>Belenois thysa</i>	False dotted border
18.	<i>Belenois creona</i>	Common white
19.	<i>Leptosia alcesta inalcesta</i>	Wood white
20.	<i>Mylothris sagala</i>	Dusky dotted border
21.	<i>Mylothris agathina</i>	Eastern dotted border
22.	<i>Mimacraea marshalli</i>	Marshall's Acraea mimic
23.	<i>Baliochila fragilis</i>	The buff
24.	<i>Lachnocnema bibulus</i>	Woolly legs
25.	<i>Myrina dermaptera</i>	Lesser fig tree blue
26.	<i>Hypolycaena philippus</i>	Common hairstreak
27.	<i>Deudorix antalus</i>	Brown playboy
28.	<i>Lycaena phlaeas abboti</i>	Small copper
29.	<i>Anthene definita</i>	Ciliate blue
30.	<i>Anthene crawshawyi</i>	Crawshay's ciliate blue
31.	<i>Cupidopsis iobates</i>	Tailed meadow blue
32.	<i>Lampides boeticus</i>	Pea blue
33.	<i>Phylaria cyara tenuimarginata</i>	
34.	<i>Cacyreus lingeus</i>	Common bush blue
35.	<i>Leptotes pirithous</i>	Common zebra blue
36.	<i>Zizeeria knysna</i>	African grass blue
37.	<i>Zizina abtanossa</i>	Dark grass blue
38.	<i>Zizula hylax</i>	Tiny grass blue
39.	<i>Actizera lucida lucida</i>	Rayed blue
40.	<i>Actizera stellata</i>	Clover blue
41.	<i>Azanus jesous</i>	African babul blue

42.	<i>Eicochrysops hippocrates</i>	White-tipped blue
43.	<i>Euchrysops malathana</i>	Smoky bean cupid
44.	<i>Euchrysops osiris</i>	African cupid
45.	<i>Freyeria trochylus trochylus</i>	Grass jewel
46.	<i>Libythea labdaca</i>	African snout
47.	<i>Danaus chrysippus</i>	African queen
48.	<i>Tirumala petiverana</i>	African blue tiger
49.	<i>Amauris albimaculata</i>	Layman
50.	<i>Gnophodes betsimena</i>	Banded evening brown
51.	<i>Melanitis leda leda</i>	Common evening brown
52.	<i>Bicyclus safitza safitza</i>	Common bush brown
53.	<i>Henotesia perspicua</i>	Swamp patroller
54.	<i>Neocoenyrta gregorii</i>	
55.	<i>Ypthima asterope asterope</i>	Common three-ring
56.	<i>Ypthima impure paupera</i>	Impure ringlet
57.	<i>Charaxes varanes</i>	Pearl charaxes
58.	<i>Charaxes candiope</i>	Green-veined charaxes
59.	<i>Charaxes castor</i>	Giant charaxes
60.	<i>Charaxes brutus</i>	White barred charaxes
61.	<i>Charaxes pollux</i>	Black-bordered charaxes
62.	<i>Charaxes druceanus</i>	Silver barred charaxes
63.	<i>Charaxes cithaeron</i>	Blue spotted charaxes
64.	<i>Charaxes nandina</i>	Highland blue charaxes
65.	<i>Charaxes kirki</i>	Kirk's charaxes
66.	<i>Charaxes aubyni</i>	Aubyn's charaxes
67.	<i>Charaxes ansorgei</i>	Ansorge's charaxes
68.	<i>Neptis saclava marpessa</i>	Small spotted sailer
69.	<i>Neptis laeta</i>	
70.	<i>Neptis alta</i>	
71.	<i>Sallya umbrina</i>	
72.	<i>Byblia antavarta acheloia</i>	African joker
73.	<i>Eurytela dryope angulata</i>	Golden piper
74.	<i>Eurytela hiarbas lita</i>	Pied piper
75.	<i>Hypolimnas misippus</i>	Diadem
76.	<i>Salamis parhassus parhassus</i>	Forest mother-of-pearl
77.	<i>Salamis temora</i>	
78.	<i>Junonia oenone</i>	Dark blue pansy
79.	<i>Junonia hierta cebrene</i>	Yellow pansy
80.	<i>Junonia westermanni suffusa</i>	Blue spot pansy
81.	<i>Junonia sophia infracta</i>	Little commodore
82.	<i>Junonia natalica</i>	Natal pansy
83.	<i>Junonia terea</i>	Soldier commodore
84.	<i>Precis octavia</i>	Gaudy commodore
85.	<i>Precis antilope</i>	Darker commodore
86.	<i>Precis archesia</i>	Garden inspector

87.	<i>Precis tugela</i>	Eared commodore
88.	<i>Catacroptera cloanthe</i>	Pirate
89.	<i>Vanessa cardui cardui</i>	Painted lady
90.	<i>Vanessula milca</i>	
91.	<i>Lachnoptera ayresii</i>	Eastern blotched leopard
92.	<i>Phalanta phalanta aethiopica</i>	Common leopard fritillary
93.	<i>Acraea pharsalus</i>	
94.	<i>Acraea encedon encedon</i>	Enceodon acraea
95.	<i>Acraea encedana</i>	Pierre's acraea
96.	<i>Acraea esebria esebria</i>	Dusky acraea
97.	<i>Acraea lycoa</i>	
98.	<i>Acraea eponina</i>	Orange acraea
99.	<i>Acraea acerata</i>	Falls acraea
100.	<i>Acraea uvui</i>	Tiny acraea
101.	<i>Acraea alicia</i>	
102.	<i>Acraea cerasa</i>	Tree top acraea
103.	<i>Acraea asboloplintha</i>	Black-winged acraea
104.	<i>Acraea insignis insignis</i>	
105.	<i>Acraea neobule neobule</i>	Wandering donkey
106.	<i>Coeliades libeon</i>	Spotless policeman
107.	<i>Coeliades forestan</i>	Striped policeman
108.	<i>Coeliades pisistratus</i>	Two pip policeman
109.	<i>Celaenorrhinus galenus</i>	Orange sprite
110.	<i>Tagiades flesus</i>	Clouded flat
111.	<i>Eagris sabadius</i>	
112.	<i>Chondrolepsis teligsignata</i>	Snow horned skipper
113.	<i>Eretis lugens</i>	
114.	<i>Abantis paradisea</i>	Paradise skipper
115.	<i>Spialia dromus</i>	Dromus grizzled skipper
116.	<i>Metisella midas midas</i>	Golden sylph
117.	<i>Metisella medea medea</i>	
118.	<i>Acleros mackeenii</i>	Macken's skipper
119.	<i>Zophopetes dysmephila</i>	Palm tree nightfighter
120.	<i>Artitropa erinnys</i>	Bush nightfighter
121.	<i>Borbo fatuellus</i>	Foolish swift
122.	<i>Borbo detecta</i>	
123.	<i>Borbo borbonica borbonica</i>	Olive haired swift
124.	<i>Gegenes niso</i>	Plain hottentot
125.	<i>Gegenes hottentota</i>	Common hottentot



African mocker swallowtail or Flying Handkerchief (*Papilio dardanus*) visiting *Vernonia* flowers. This is a common butterfly around forest areas on all the estates.



An *Acraea* butterfly at Kapsombeiwa



The enigmatic *Ariadne* butterfly at Kapsumbeiwa forest



A Green-veined Emperor butterfly visiting dung on the road to Kibabet



This is *Junonia sophia*, the commonest butterfly in open areas near forest and the edges of tea fields



A skipper butterfly visiting a *Pavonia* flower for nectar

Dragonflies and Damselflies of the EPK Nandi Hills Estates

Dragonflies and damselflies (Order: Odonata) are common on the EPK Nandi estates associated with streams, wetlands and dams. A total of 47 species (32 dragonflies and 15 damselfies) were observed during the survey. Large numbers present at the dams and swamp edges suggest that these areas of wetland habitat are in good condition as these insects have aquatic larvae that are very sensitive to pollutants and disturbance.

CHECKLIST OF THE DRAGONFLIES

	Scientific Name	Common name
1	<i>Ictinogomphus ferox</i>	Tigertail
2	<i>Paragomphus genei</i>	Common hooktail
3	<i>Ceratogomphus pictus</i>	African clubtail
4	<i>Anax ephippiger</i>	Vagrant emperor
5	<i>Anax speratus</i>	Red emperor
6	<i>Anax imperator</i>	Blue emperor
7	<i>Aeshna ellioti</i>	Highland hawkler
8	<i>Anaciaeschna triangulifera</i>	Evening hawkler
9	<i>Phyllomacromia picta</i>	Darting cruiser
10	<i>Orthetrum caffrum</i>	White-lined skimmer
11	<i>Orthetrum chrysostigma</i>	Epaulet skimmer
12	<i>Orthetrum Julia</i>	Julia skimmer
13	<i>Nesciothemis farinosa</i>	Black-tailed skimmer
14	<i>Palpopleura lucia</i>	African black widow
15	<i>Acisoma panorpoides</i>	Grizzled pintail
16	<i>Diplacodes lefebvrii</i>	Black percher
17	<i>Crocothemis erythraea</i>	Broad scarlet
18	<i>Crocothemis sanguinolenta</i>	Little scarlet
19	<i>Brachythemis leucosticta</i>	Banded groundling
20	<i>Trithemis kirbyi</i>	Kirby's dropwing
21	<i>Sympetrum fonscolombii</i>	Nomad
22	<i>Philonomon luminans</i>	Barbet
23	<i>Trithemis annulata</i>	Violet dropwing
24	<i>Trithemis arteriosa</i>	Red-veined dropwing
25	<i>Trithemis furva</i>	Navy dropwing
26	<i>Trithemis donaldsoni</i>	Denim dropwing
27	<i>Trithemis stictica</i>	Jaunty dropwing
28	<i>Rhyothemis semihyalina</i>	Phantom flutterer
29	<i>Pantala flavescens</i>	Globe skimmer
30	<i>Tamea basilare</i>	Keyhole glider
31	<i>Urothemis edwardsii</i>	Blue basker
32	<i>Urothemis assignata</i>	Red basker

CHECKLIST OF THE DAMSELFLIES OF THE NANDI-EPK ESTATES

	Scientific name	Common name
1	<i>Phaon iridepennis</i>	Glistening demoiselle
2	<i>Platycypha caligata</i>	Dancing jewel
3	<i>Chlorocypha consueta</i>	Ruby jewel
4	<i>Lestes virgatus</i>	Smoky spreadwing
5	<i>Elattonaura glauca</i>	Common threadtail
6	<i>Ceriagrion glabrum</i>	Common citril
7	<i>Pseudagrion spernatum</i>	Powder sprite
8	<i>Pseudagrion sudanicum</i>	Blue-spotted sprite
9	<i>Pseudagrion sublacteum</i>	Riffle sprite
10	<i>Pseudagrion commoniae</i>	Mourning sprite
11	<i>Pseudagrion massaicum</i>	Maasai sprite
12	<i>Ischnura senegalensis</i>	Common bluetail
13	<i>Africallagma glaucum</i>	Swamp bluet
14	<i>Azuragrion nigradorsum</i>	Black-tailed bluet
15	<i>Agriocnemis pinheyi</i>	Pinhye's whip



The Dancing Jewel, *Platycypha caligata*, found by fast-flowing streams of lower-altitude estates at EPK Nandi.



The Globe Skimmer, *Pantala flavescens*, is a common migrant specie that makes use of all wetlands and dams at the Nandi EPK estates.



The Red-veined Dropwing, *Trithemis arteriosa* is one of the common dragonfly species by streams and dams in sunny areas.

Provisional Checklist of the Birds of the Nandi Hills EPK Estates Forests

1. Little Grebe
2. Great comorant
3. Long-tailed comorant
4. African darter
5. Little bittern
6. Cattle egret
7. Little egret
8. Great egret
9. Grey heron
10. Black-headed heron
11. Hamerkop
12. White stork
13. Yellow-billed stork
14. Black stork
15. Marabou stork
16. Sacred ibis
17. Hadada ibis
18. Glossy ibis
19. African spoonbill
20. Egyptian goose
21. White-faced whistling duck
22. Red-billed teal
23. African black duck
24. Black kite
25. Black-shouldered kite
26. Black-chested snake-eagle
27. Western banded snake-eagle
28. African marsh harrier
29. Eurasian marsh harrier
30. Montagu's harrier
31. Pallid harrier
32. African goshawk
33. Little sparrowhawk
34. African harrier hawk
35. Augur buzzard
36. Tawny eagle
37. African hawk-eagle
38. Bateleur
39. Long-crested eagle
40. Common kestrel
41. Lanner falcon
42. Helmeted guineafowl

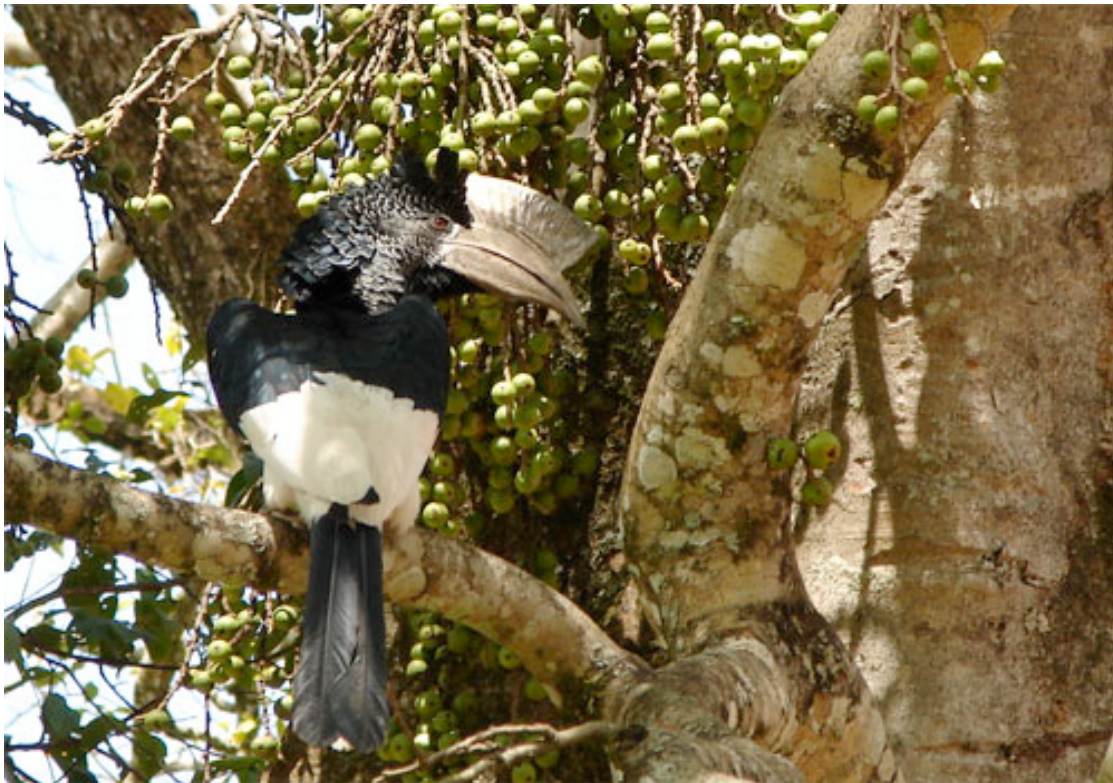
43. Crested francolin
44. Harlequin quail
45. Buff-spotted flufftail
46. African crake
47. Corncrake
48. Black crake
49. Red-knobbed coot
50. Common moorhen
51. Lesser moorhen
52. African jacana
53. Lesser jacana
54. Grey crowned crane
55. Black-bellied bustard
56. Black-winged stilt
57. Greater painted snipe
58. African wattled lapwing
59. Wood sandpiper
60. Common snipe
61. African green pigeon
62. Olive pigeon
63. Emerald-spotted wood-dove
64. Tambourine dove
65. Ring-necked dove
66. Red-eyed dove
67. Lemon dove
68. Brown parrot
69. Red-fronted parrot
70. Red-headed lovebird
71. Ross's turaco
72. Hartlaub's turaco
73. Great spotted cuckoo
74. Black-and-white cuckoo
75. African cuckoo
76. Red-chested cuckoo
77. Diederik cuckoo
78. White-browed coucal
79. African wood owl
80. Barn owl
81. African scops owl
82. Pearl-spotted owlet
83. Eurasian nightjar
84. Little swift
85. Eurasian swift
86. African palm swift
87. Speckled mousebird
88. Blue-naped mousebird

89. Narina trogon
90. Grey-headed kingfisher
91. Woodland kingfisher
92. Malachite kingfisher
93. African pygmy kingfisher
94. Little bee-eater
95. Cinnamon-chested bee-eater
96. Eurasian bee-eater
97. Blue-cheeked bee-eater
98. Broad-billed roller
99. Lilac-breasted roller
100. Green wood-hoopoe
101. White-headed wood-hoopoe
102. African hoopoe
103. Hemprich's hornbill
104. African grey hornbill
105. Abyssinian ground hornbill
106. Yellow-rumped tinkerbird
107. Red-fronted tinkerbird
108. Spot-flanked barbet
109. White-headed barbet
110. Double-toothed barbet
111. Greater honeyguide
112. Lesser honeyguide
113. Red-throated wryneck
114. Nubian woodpecker
115. Cardinal woodpecker
116. Grey woodpecker
117. Rufous-naped lark
118. Fischer's sparrow-lark
119. Rock martin
120. Banded martin
121. Red-rumped swallow
122. Mosque swallow
123. Rufous-chested swallow
124. Lesser striped swallow
125. Barn swallow
126. Wire-tailed swallow
127. Black saw-wing
128. White-headed saw-wing
129. African pied wagtail
130. White wagtail
131. Mountain wagtail
132. Grey wagtail
133. Yellow wagtail
134. Yellow-throated longclaw

135. Tree pipit
136. Black cuckoo-shrike
137. Grey cuckoo-shrike
138. Common bulbul
139. Yellow-whiskered greenbul
140. Slender-billed greenbul
141. White-starred robin
142. Cape robin-chat
143. White-browed robin-chat
144. Olive thrush
145. Little rock-thrush
146. Northern anteater chat
147. Cliff chat
148. Common stonechat
149. Northern wheatear
150. Isabelline wheatear
151. Pied wheatear
152. White-browed scrub-robin
153. Spotted morning-thrush
154. Dark-capped yellow warbler
155. African reed warbler
156. Great reed warbler
157. Sedge warbler
158. Olivaceous warbler
159. Garden warbler
160. Buff-bellied warbler
161. Willow warbler
162. White-browed crombec
163. Red-faced crombec
164. African moustached warbler
165. Black-faced rufous warbler
166. Rattling cisticola
167. Singing cisticola
168. Siffling cisticola
169. Tawny-flanked prinia
170. Grey-capped warbler
171. Gray-backed camaroptera
172. Yellow-breasted apalis
173. Black-collared apalis
174. White-eyed slaty flycatcher
175. Northern black flycatcher
176. Pale flycatcher
177. Chin-spot batis
178. African paradise-flycatcher
179. Silverbird
180. African blue flycatcher

181. White-bellied tit
182. African penduline tit
183. Yellow white-eye
184. Bronze sunbird
185. Golden-winged sunbird
186. Green-headed sunbird
187. Northern double-collared sunbird
188. Scarlet-chested sunbird
189. Variable sunbird
190. Collared sunbird
191. Common fiscal
192. Grey-backed fiscal
193. Lesser grey shrike
194. Tropical boubou
195. Northern puffback
196. Black-crowned tchagra
197. Sulphur-breasted bush-shrike
198. Grey-headed bush-shrike
199. Fork-tailed drongo
200. Piapiac
201. Pied crow
202. Cape rook
203. White-naped raven
204. African black-headed oriole
205. African golden oriole
206. Yellow-billed oxpecker
207. Red-billed oxpecker
208. Red-winged starling
209. Greater blue-eared starling
210. Violet-backed starling
211. Superb starling
212. Wattled starling
213. Rufous sparrow
214. Chestnut sparrow
215. Grey-headed sparrow
216. White-browed sparrow weaver
217. Black-headed weaver
218. Brown-capped weaver
219. Spectacled weaver
220. Baglafecht weaver
221. Holub's golden weaver
222. Red-billed quelea
223. Cardinal quelea
224. Red-headed weaver
225. Red-collared widowbird
226. Black bishop

- 227. Yellow bishop
- 228. Yellow-crowned bishop
- 229. Grey-headed negrofinch
- 230. Abyssinian crimsonwing
- 231. Red-headed bluebill
- 232. Red-cheeked cordon-bleu
- 233. Red-billed firefinch
- 234. African firefinch
- 235. Common waxbill
- 236. Crimson-rumped waxbill
- 237. Zebra waxbill
- 238. Bronze mannikin
- 239. Black-and-white mannikin
- 240. Pin-tailed whydah
- 241. Village indigobird
- 242. Brimstone canary
- 243. White-bellied canary
- 244. African citril
- 245. Yellow-rumped seedeater
- 246. Streaky seedeater
- 247. Cinnamon-breasted rock bunting



The Black-and-White Casqued Hornbill is common in all forest patches and a species that is typical of Western Kenya.

FLORA OF THE EPK ESTATES, NANDI HILLS, KENYA

RESULTS OF THE BOTANICAL SURVEY

The botanical survey yielded the highest species diversity with a total of 472 flora species recorded. These took the form of 97 trees, shrubs and lianas and for wildflowers and herbs: 309 dicotyldeon species and 67 monocotyledon species.

No red data (endangered) species of trees/shrubs/orchids/ferns were found within the general boundaries of the site. But there are several sites especially rich in orchids that should be protected – all trees that are bearing these epiphytes are worth protecting. In addition some species with great commercial value, such as the rare *Zanthoxylum gilleti* (African satinwood) were found – the one individual at the guesthouse should be monitored for seed, and when it seeds, these saved and planted.

Areas for rehabilitation of plant communities include all the areas around streams and wetlands as well as areas around forest patches that have been degraded over the years. The main off-site environmental influences that may negatively affect the future of the site's vegetation that was identified during the surveys was cutting of trees for firewood and limited burning of charcoal at some boundaries near Kibabet. It would be worthwhile to work with the communities in these areas to limit damage to the forest patches.

In general, the longer term management of the plant communities and biodiversity overall should consider the following:

- Continued restoration of indigenous forest areas through both planting of trees and allowing for natural regeneration.
- More focus by nurseries on production of indigenous tree seedlings especially of the following species: *Croton megalocarpus*, *Croton dicrostachys*, *Warburgia*, *Zanthoxylum gilleti* (African satinwood), all *Ficus* spp., *Cordia africana*, *Olea capensis* and *Prunus africana*.
- Working with communities near forest-edge areas that are being degraded from firewood collection.
- Working with adjacent communities to raise awareness about the biodiversity as a component of national heritage that is contained within the EPK Nandi estates indigenous forests.
- Develop a longer-term monitoring program for biodiversity in general.
- Map some of the more biodiverse areas in detail for future management and conservation
- Include biodiversity conservation as a component of overall estate management – there is an opportunity emerging to link this to carbon markets and other novel ventures to help support the conservation of these areas.

Trees, Shrubs and Lianas of the Nandi Hills EPK forests

FAMILY	GENUS	SPECIES
Cyatheaceae	<i>Cyathea</i>	<i>manniana</i>
Cupressaceae	<i>Juniperus</i>	<i>procera</i>
Podocarpaceae	<i>Podocarpus</i>	<i>latifolius</i>
Piperaceae	<i>Piper</i>	<i>capense</i>
Capparaceae	<i>Capparis</i>	<i>tomentosa</i>
Capparaceae	<i>Maerua</i>	<i>decumbens</i>
Polygonaceae	<i>Rumex</i>	<i>usambarensis</i>
Phytolaccaceae	<i>Phytolacca</i>	<i>dodecandra</i>
Balsaminaceae	<i>Impatiens</i>	<i>sodenii</i>
Proteaceae	<i>Faurea</i>	<i>saligna</i>
Proteaceae	<i>Protea</i>	<i>gaugedi</i>
Flacourtiaceae	<i>Oncoba</i>	<i>routledgei</i>
Flacourtiaceae	<i>Trimeria</i>	<i>grandifolia</i>
Canellaceae	<i>Warburgia</i>	<i>ugandensis</i>
Ochnaceae	<i>Ochna</i>	<i>holstii</i>
Myrtaceae	<i>Syzygium</i>	<i>cordatum</i>
Combretaceae	<i>Combretum</i>	<i>molle</i>
Rhizophoraceae	<i>Cassipourea</i>	<i>malosana</i>
Tiliaceae	<i>Grewia</i>	<i>bicolor</i>
Tiliaceae	<i>Grewia</i>	<i>similis</i>
Tiliaceae	<i>Grewia</i>	<i>tembensis</i>
Tiliaceae	<i>Triumfetta</i>	<i>tomentosa</i>
Sterculiaceae	<i>Dombeya</i>	<i>burgessiae</i>
Malvaceae	<i>Abutilon</i>	<i>maurintianum</i>
Malvaceae	<i>Hibiscus</i>	<i>calyphyllus</i>
Malvaceae	<i>Pavonia</i>	<i>urens</i>
Euphorbiaceae	<i>Bridelia</i>	<i>micrantha</i>
Euphorbiaceae	<i>Croton</i>	<i>dichogamus</i>
Euphorbiaceae	<i>Croton</i>	<i>macrostachys</i>
Euphorbiaceae	<i>Croton</i>	<i>megalocarpus</i>
Euphorbiaceae	<i>Euphorbia</i>	<i>candelabrum</i>
Euphorbiaceae	<i>Ricinus</i>	<i>communis</i>
Rosaceae	<i>Prunus</i>	<i>africana</i>
Caesalpiniaceae	<i>Caesalpinia</i>	<i>decapetala</i>
Caesalpiniaceae	<i>Pterolobium</i>	<i>stellatum</i>
Caesalpiniaceae	<i>Senna</i>	<i>didymobotrya</i>
Mimosaceae	<i>Acacia</i>	<i>abyssinica</i>
Mimosaceae	<i>Acacia</i>	<i>nilotica</i>
Mimosaceae	<i>Acacia</i>	<i>xanthophloea</i>
Mimosaceae	<i>Albizia</i>	<i>grandibracteata</i>
Mimosaceae	<i>Albizia</i>	<i>gummifera</i>
Papilionaceae	<i>Crotolaria</i>	<i>agatiflora</i>

Papilionaceae	<i>Craibia</i>	<i>brownii</i>
Papilionaceae	<i>Erythrina</i>	<i>abyssinica</i>
Papilionaceae	<i>Indigofera</i>	<i>arrecta</i>
Hamamelidaceae	<i>Trichocladus</i>	<i>ellipticus</i>
Moraceae	<i>Ficus</i>	<i>ovata</i>
Moraceae	<i>Ficus</i>	<i>ingens</i>
Moraceae	<i>Ficus</i>	<i>sur</i>
Moraceae	<i>Ficus</i>	<i>sycomorus</i>
Moraceae	<i>Ficus</i>	<i>thonningii</i>
Moraceae	<i>Ficus</i>	<i>vallis-choudae</i>
Celastraceae	<i>Maytenus</i>	<i>heterophylla</i>
Celastraceae	<i>Maytenus</i>	<i>undata</i>
Rhamnaceae	<i>Maesopsis</i>	<i>eminii</i>
Vitaceae	<i>Rhoicissus</i>	<i>tridentata</i>
Rutaceae	<i>Clausena</i>	<i>anisata</i>
Rutaceae	<i>Zanthoxylum</i>	<i>gilleti</i>
Rutaceae	<i>Calodendrum</i>	<i>capense</i>
Rutaceae	<i>Teclea</i>	<i>nobilis</i>
Meliceae	<i>Ekebergia</i>	<i>capensis</i>
Sapindaceae	<i>Allophylus</i>	<i>rubifolius</i>
Sapindaceae	<i>Dodonaea</i>	<i>angustifolia</i>
Meliantaceae	<i>Bersama</i>	<i>abyssinica</i>
Anacardiaceae	<i>Rhus</i>	<i>natalensis</i>
Anacardiaceae	<i>Schinus</i>	<i>molle</i>
Araliaceae	<i>Cussonia</i>	<i>spicata</i>
Araliaceae	<i>Polyscias</i>	<i>fulva</i>
Araliaceae	<i>Schefflera</i>	<i>abyssinica</i>
Ebenaceae	<i>Euclea</i>	<i>divinorum</i>
Loganiaceae	<i>Strychnos</i>	<i>henningsii</i>
Oleaceae	<i>Jasminium</i>	<i>floribundum</i>
Oleaceae	<i>Jasminium</i>	<i>fluminense</i>
Oleaceae	<i>Olea</i>	<i>capensis</i>
Oleaceae	<i>Olea</i>	<i>europaea</i>
Oleaceae	<i>Schrebera</i>	<i>alata</i>
Apocynaceae	<i>Carissa</i>	<i>edulis</i>
Apocynaceae	<i>Tabernaemontana</i>	<i>stapfiana</i>
Rubiaceae	<i>Pavetta</i>	<i>abyssinica</i>
Rubiaceae	<i>Psydrax</i>	<i>schimperiana</i>
Rubiaceae	<i>Vangueria</i>	<i>madagascariensis</i>
Compositae	<i>Tithonia</i>	<i>diversifolia</i>
Compositae	<i>Vernonia</i>	<i>brachycalyx</i>
Boraginaceae	<i>Cordia</i>	<i>africana</i>
Boraginaceae	<i>Cordia</i>	<i>monoica</i>
Solanaceae	<i>Solanum</i>	<i>incanum</i>
Verbenaceae	<i>Clerodendrum</i>	<i>myricoides</i>
Verbenaceae	<i>Lantana</i>	<i>trifolia</i>

Verbenaceae
Labiatae
Labiatae
Labiatae
Dracaenaceae
Graminae
Bignoniaceae

Lippia
Ocimum
Plectranthus
Tinnea
Dracaena
Arudinaria
Spathodea

javanica
suave
barbatus
aethiopica
afromontana
alpina
campanulata

WILDFLOWERS AND HERBACEOUS FLORA SPECIES OF THE EPK NANDI HILLS ESTATES

MONOCOTYLEDONS

FAMILY	GENUS	SPECIES
Typhaceae	<i>Typha</i>	<i>domingensis</i>
Typhaceae	<i>Typha</i>	<i>latifolia</i>
Araceae	<i>Arisaema</i>	<i>mildbraedii</i>
Alismataceae	<i>Alisma</i>	<i>plantago-aquatica</i>
Hydrocharitaceae	<i>Vallisneria</i>	<i>spiralis</i>
Najadaceae	<i>Najas</i>	<i>horrida</i>
Potamogetonaceae	<i>Potamogeton</i>	<i>octandrus</i>
Commelinaceae	<i>Commelina</i>	<i>diffusa</i>
Commelinaceae	<i>Commelina</i>	<i>africana</i>
Commelinaceae	<i>Commelina</i>	<i>lugardii</i>
Commelinaceae	<i>Commelina</i>	<i>benghalensis</i>
Commelinaceae	<i>Commelina</i>	<i>latifolia</i>
Commelinaceae	<i>Cyanotis</i>	<i>barbata</i>
Commelinaceae	<i>Cyanotis</i>	<i>longifolia</i>
Commelinaceae	<i>Cyanotis</i>	<i>foecunda</i>
Commelinaceae	<i>Murdannia</i>	<i>semiteres</i>
Zingiberaceae	<i>Aframomum</i>	<i>zambesiacum</i>
Dioscoreaceae	<i>Dioscorea</i>	<i>quartiniana</i>
Smilacaceae	<i>Smilax</i>	<i>anceps</i>
Asparagaceae	<i>Asparagus</i>	<i>asparagoides</i>
Asparagaceae	<i>Asparagus</i>	<i>racemosus</i>
Hypoxidaceae	<i>Hypoxis</i>	<i>villosa</i>
Hypoxidaceae	<i>Hypoxis</i>	<i>angustifolia</i>
Eriospermaceae	<i>Eriospermum</i>	<i>abyssinicum</i>
Asphodelaceae	<i>Kniphofia</i>	<i>thomsonii</i>
Asphodelaceae	<i>Bulbine</i>	<i>abyssinica</i>
Aloaceae	<i>Aloe</i>	<i>lateritia</i>
Anthericaceae	<i>Anthericum</i>	<i>angustifolium</i>
Anthericaceae	<i>Chlorophytum</i>	<i>camerooni</i>
Anthericaceae	<i>Chlorophytum</i>	<i>subpetiolatum</i>
Hyacinthaceae	<i>Albuca</i>	<i>abyssinica</i>
Hyacinthaceae	<i>Scilla</i>	<i>hyacinthina</i>
Amaryllidaceae	<i>Scadoxus</i>	<i>multiflorus</i>
Amaryllidaceae	<i>Crinum</i>	<i>macowanii</i>
Amaryllidaceae	<i>Cyrthanthus</i>	<i>breviflorus</i>
Colchicaceae	<i>Gloriosa</i>	<i>superba</i>
Colchicaceae	<i>Androcymbium</i>	<i>melanthioides</i>
Iridaceae	<i>Moraea</i>	<i>thomsonii</i>
Iridaceae	<i>Romulea</i>	<i>fischeri</i>
Iridaceae	<i>Aristea</i>	<i>angolensis</i>

Iridaceae	<i>Gladiolus</i>	<i>newii</i>
Xyridaceae	<i>Xyris</i>	<i>capensis</i>
Orchidaceae	<i>Holothrix</i>	<i>puberula</i>
Orchidaceae	<i>Habenaria</i>	<i>chlorotica</i>
Orchidaceae	<i>Habenaria</i>	<i>keniensis</i>
Orchidaceae	<i>Habenaria</i>	<i>altior</i>
Orchidaceae	<i>Platycoryne</i>	<i>crocea</i>
Orchidaceae	<i>Satyrium</i>	<i>fimbriatum</i>
Orchidaceae	<i>Disa</i>	<i>hirciconis</i>
Orchidaceae	<i>Disperis</i>	<i>reichenbachiana</i>
Orchidaceae	<i>Liparis</i>	<i>bowkerii</i>
Orchidaceae	<i>Bulbophyllum</i>	<i>cochleatum</i>
Orchidaceae	<i>Polystachya</i>	<i>spatella</i>
Orchidaceae	<i>Polystachya</i>	<i>cultriformis</i>
Orchidaceae	<i>Stolzia</i>	<i>repens</i>
Orchidaceae	<i>Eulophia</i>	<i>streptopetala</i>
Orchidaceae	<i>Eulophia</i>	<i>cucullata</i>
Orchidaceae	<i>Eulophia</i>	<i>horsfallii</i>
Orchidaceae	<i>Angraecum</i>	<i>erectum</i>
Orchidaceae	<i>Diaphananthe</i>	<i>rutila</i>
Orchidaceae	<i>Bolusiella</i>	<i>maudiae</i>
Orchidaceae	<i>Chaemangis</i>	<i>sarcophylla</i>
Orchidaceae	<i>Chaemangis</i>	<i>odoratissima</i>
Orchidaceae	<i>Rangaeris</i>	<i>amaniensis</i>
Orchidaceae	<i>Cyrtorchis</i>	<i>arcuata</i>
Orchidaceae	<i>Angraecopsis</i>	<i>breviloba</i>
Orchidaceae	<i>Tridactyle</i>	<i>furcistpes</i>

WILDFLOWERS AND HERBACEOUS FLORA SPECIES OF THE EPK NANDI HILLS ESTATES

DICOTYLEDONS

FAMILY	GENUS	SPECIES
Ranunculaceae	<i>Clematis</i>	<i>simensis</i>
Ranunculaceae	<i>Thalictrum</i>	<i>rhynocarpum</i>
Ranunculaceae	<i>Anemone</i>	<i>thomsonii</i>
Ranunculaceae	<i>Ranunculus</i>	<i>multifidus</i>
Ranunculaceae	<i>Delphinium</i>	<i>macrocentron</i>
Ranunculaceae	<i>Ceratophyllum</i>	<i>demersum</i>
Nymphaeaceae	<i>Nymphaea</i>	<i>nouchali</i>
Menispermaceae	<i>Stephania</i>	<i>abyssinica</i>
Menispermaceae	<i>Cissampelos</i>	<i>pareira</i>
Piperaceae	<i>Peperomia</i>	<i>tetraphylla</i>
Piperaceae	<i>Piper</i>	<i>capense</i>
Papaveraceae	<i>Argemone</i>	<i>mexicana</i>
Fumariaceae	<i>Fumaria</i>	<i>abyssinica</i>
Capparaceae	<i>Cleome</i>	<i>monophylla</i>
Capparaceae	<i>Cleome</i>	<i>schimperii</i>
Capparaceae	<i>Gynandropsis</i>	<i>gynandra</i>
Brassicaceae	<i>Erucastrum</i>	<i>arabicum</i>
Brassicaceae	<i>Raphanus</i>	<i>raphanistrum</i>
Brassicaceae	<i>Lepidium</i>	<i>bonariense</i>
Brassicaceae	<i>Capsella</i>	<i>bursa-pastoris</i>
Brassicaceae	<i>Rorippa</i>	<i>nasturtium-aquaticum</i>
Violaceae	<i>Viola</i>	<i>abyssinica</i>
Polygalaceae	<i>Polygala</i>	<i>petitiana</i>
Crassulaceae	<i>Crassula</i>	<i>alba</i>
Crassulaceae	<i>Crassula</i>	<i>schimperii</i>
Crassulaceae	<i>Kalanchoe</i>	<i>prittwitzii</i>
Crassulaceae	<i>Kalanchoe</i>	<i>densiflora</i>
Caryophyllaceae	<i>Drymaria</i>	<i>cordata</i>
Caryophyllaceae	<i>Stellaria</i>	<i>senii</i>
Caryophyllaceae	<i>Silene</i>	<i>gallica</i>
Caryophyllaceae	<i>Silene</i>	<i>burchelli</i>
Aizoaceae	<i>Zaleya</i>	<i>pentandra</i>
Polygonaceae	<i>Rumex</i>	<i>abyssinicus</i>
Polygonaceae	<i>Polygonum</i>	<i>convolvulus</i>
Polygonaceae	<i>Polygonum</i>	<i>nepalense</i>
Polygonaceae	<i>Polygonum</i>	<i>salicifolium</i>
Polygonaceae	<i>Polygonum</i>	<i>pulchrum</i>
Polygonaceae	<i>Oxygonum</i>	<i>sinuatum</i>
Phytolaccaceae	<i>Phytolacca</i>	<i>dodecandra</i>
Chenopodiaceae	<i>Chenopodium</i>	<i>opulifolium</i>

Chenopodiaceae	<i>Chenopodium</i>	<i>procerum</i>
Amaranthaceae	<i>Amaranthus</i>	<i>hybridus</i>
Amaranthaceae	<i>Cyathula</i>	<i>polycephala</i>
Amaranthaceae	<i>Aerva</i>	<i>lanata</i>
Amaranthaceae	<i>Achyranthes</i>	<i>aspera</i>
Amaranthaceae	<i>Gomphrena</i>	<i>celosioides</i>
Linaceae	<i>Linium</i>	<i>volkensis</i>
Geraniaceae	<i>Geranium</i>	<i>aculeolatum</i>
Geraniaceae	<i>Geranium</i>	<i>arabicum</i>
Geraniaceae	<i>Pelargonium</i>	<i>alchemilloides</i>
Oxalidaceae	<i>Oxalis</i>	<i>corniculata</i>
Balsaminaceae	<i>Impatiens</i>	<i>sodenii</i>
Balsaminaceae	<i>Impatiens</i>	<i>hochstetteri</i>
Onagraceae	<i>Oenothera</i>	<i>rosea</i>
Onagraceae	<i>Epilobium</i>	<i>salignum</i>
Onagraceae	<i>Epilobium</i>	<i>stereophyllum</i>
Thymelaeaceae	<i>Gnidia</i>	<i>glauca</i>
Nyctaginaceae	<i>Mirabilis</i>	<i>jalapa</i>
Passifloraceae	<i>Passiflora</i>	<i>subpeltata</i>
Curcubitaceae	<i>Mormodica</i>	<i>foetida</i>
Curcubitaceae	<i>Mormodica</i>	<i>friesiorum</i>
Curcubitaceae	<i>Lagenaria</i>	<i>abyssinica</i>
Curcubitaceae	<i>Coccinia</i>	<i>adoensis</i>
Curcubitaceae	<i>Peponium</i>	<i>vogelii</i>
Curcubitaceae	<i>Cucumis</i>	<i>ficifolius</i>
Curcubitaceae	<i>Zehneria</i>	<i>scabra</i>
Melastomaceae	<i>Dissotis</i>	<i>senegambiensis</i>
Hypericaceae	<i>Hypericum</i>	<i>annulatum</i>
Tiliaceae	<i>Triumfetta</i>	<i>brachyceras</i>
Malvaceae	<i>Hibiscus</i>	<i>vitifolius</i>
Malvaceae	<i>Hibiscus</i>	<i>fuscus</i>
Malvaceae	<i>Hibiscus</i>	<i>flavifolius</i>
Malvaceae	<i>Hibiscus</i>	<i>macranthus</i>
Malvaceae	<i>Hibiscus</i>	<i>cannabinus</i>
Malvaceae	<i>Kosteletzyka</i>	<i>adoensis</i>
Malvaceae	<i>Sida</i>	<i>ternata</i>
Malvaceae	<i>Abutilon</i>	<i>longicuspe</i>
Malvaceae	<i>Malva</i>	<i>verticillata</i>
Malvaceae	<i>Pavonia</i>	<i>patens</i>
Malvaceae	<i>Pavonia</i>	<i>urens</i>
Euphorbiaceae	<i>Phyllanthus</i>	<i>ovalifolius</i>
Euphorbiaceae	<i>Acalypha</i>	<i>psilostachya</i>
Euphorbiaceae	<i>Tragia</i>	<i>brevipes</i>
Euphorbiaceae	<i>Ricinus</i>	<i>communis</i>
Euphorbiaceae	<i>Clutia</i>	<i>abyssinica</i>
Euphorbiaceae	<i>Euphorbia</i>	<i>heterophylla</i>

Euphorbiaceae	<i>Euphorbia</i>	<i>depauperata</i>
Rosaceae	<i>Alchemilla</i>	<i>kiwuensis</i>
Rosaceae	<i>Rubus</i>	<i>schlefferi</i>
Caesalpinaceae	<i>Senna</i>	<i>septemtrionalis</i>
Caesalpinaceae	<i>Chaemacrista</i>	<i>usambarensis</i>
Caesalpinaceae	<i>Caesalpinia</i>	<i>volkensii</i>
Caesalpinaceae	<i>Pterolobium</i>	<i>stellatum</i>
Mimosaceae	<i>Mimosa</i>	<i>pudica</i>
Papilionaceae	<i>Tephrosia</i>	<i>holstii</i>
Papilionaceae	<i>Tephrosia</i>	<i>vogelii</i>
Papilionaceae	<i>Indigofera</i>	<i>nairobiensis</i>
Papilionaceae	<i>Indigofera</i>	<i>spicata</i>
Papilionaceae	<i>Sesbania</i>	<i>sesban</i>
Papilionaceae	<i>Aeschynomene</i>	<i>schimperii</i>
Papilionaceae	<i>Kotschya</i>	<i>africana</i>
Papilionaceae	<i>Zornia</i>	<i>setosa</i>
Papilionaceae	<i>Desmodium</i>	<i>repandum</i>
Papilionaceae	<i>Pseudarthia</i>	<i>hookeri</i>
Papilionaceae	<i>Alysicarpus</i>	<i>rugosus</i>
Papilionaceae	<i>Glycine</i>	<i>wightii</i>
Papilionaceae	<i>Vigna</i>	<i>schimperii</i>
Papilionaceae	<i>Vigna</i>	<i>parkeri</i>
Papilionaceae	<i>Vigna</i>	<i>frutescens</i>
Papilionaceae	<i>Vigna</i>	<i>vexillata</i>
Papilionaceae	<i>Dolichos</i>	<i>sericeus</i>
Papilionaceae	<i>Macrotylloma</i>	<i>axillare</i>
Papilionaceae	<i>Rhynchosia</i>	<i>minima</i>
Papilionaceae	<i>Eriosema</i>	<i>nutans</i>
Papilionaceae	<i>Eriosema</i>	<i>jurionianum</i>
Papilionaceae	<i>Crotolaria</i>	<i>agatiflora</i>
Papilionaceae	<i>Crotolaria</i>	<i>laburnifolia</i>
Papilionaceae	<i>Crotolaria</i>	<i>mauensis</i>
Papilionaceae	<i>Crotolaria</i>	<i>natalitia</i>
Papilionaceae	<i>Crotolaria</i>	<i>glauca</i>
Papilionaceae	<i>Crotolaria</i>	<i>lachnocarpoides</i>
Papilionaceae	<i>Crotolaria</i>	<i>pycnostachya</i>
Papilionaceae	<i>Crotolaria</i>	<i>brevidens</i>
Papilionaceae	<i>Crotolaria</i>	<i>keniensis</i>
Papilionaceae	<i>Crotolaria</i>	<i>axillaris</i>
Papilionaceae	<i>Crotolaria</i>	<i>recta</i>
Papilionaceae	<i>Argyrolobium</i>	<i>fischeri</i>
Papilionaceae	<i>Trifolium</i>	<i>simense</i>
Papilionaceae	<i>Trifolium</i>	<i>usambarensis</i>
Papilionaceae	<i>Antopetitia</i>	<i>abyssinica</i>
Papilionaceae	<i>Astralagus</i>	<i>atropilosulus</i>
Papilionaceae	<i>Colutea</i>	<i>abyssinica</i>

Papilionaceae	<i>Vicia</i>	<i>hirsuta</i>
Papilionaceae	<i>Lathyrus</i>	<i>hygrophilus</i>
Moraceae	<i>Dorstenia</i>	<i>barnimiana</i>
Urticaceae	<i>Girardinia</i>	<i>diversifolia</i>
Urticaceae	<i>Pilea</i>	<i>johnstonii</i>
Loranthaceae	<i>Plicosepalus</i>	<i>curvifolius</i>
Loranthaceae	<i>Plicosepalus</i>	<i>sagittifolius</i>
Loranthaceae	<i>Oncocalyx</i>	<i>sulfureus</i>
Loranthaceae	<i>Oncocalyx</i>	<i>fischeri</i>
Loranthaceae	<i>Englerina</i>	<i>woodfordiodes</i>
Loranthaceae	<i>Phragmanthera</i>	<i>usuiensis</i>
Loranthaceae	<i>Phragmanthera</i>	<i>dschallensis</i>
Viscaceae	<i>Viscium</i>	<i>triflorum</i>
Viscaceae	<i>Viscium</i>	<i>fischeri</i>
Vitaceae	<i>Cissus</i>	<i>quadrangularis</i>
Vitaceae	<i>Cyphostemma</i>	<i>serpens</i>
Vitaceae	<i>Rhoicissus</i>	<i>tridentata</i>
Umbelliferae	<i>Hydrocotyle</i>	<i>sibthorpioides</i>
Umbelliferae	<i>Centella</i>	<i>asiatica</i>
Umbelliferae	<i>Alepideae</i>	<i>penduncularis</i>
Umbelliferae	<i>Anthriscus</i>	<i>sylvestris</i>
Umbelliferae	<i>Torilis</i>	<i>arvensis</i>
Umbelliferae	<i>Agrocharis</i>	<i>incognita</i>
Umbelliferae	<i>Haplosciadium</i>	<i>abyssinicum</i>
Umbelliferae	<i>Cryptotaenia</i>	<i>africana</i>
Umbelliferae	<i>Pimpinella</i>	<i>hirtella</i>
Umbelliferae	<i>Oenanthe</i>	<i>palustris</i>
Umbelliferae	<i>Diplolophium</i>	<i>africanum</i>
Umbelliferae	<i>Peucedanum</i>	<i>aculeolatum</i>
Umbelliferae	<i>Peucedanum</i>	<i>linderi</i>
Umbelliferae	<i>Ferula</i>	<i>communis</i>
Oleaceae	<i>Jasminium</i>	<i>floribundum</i>
Oleaceae	<i>Jasminium</i>	<i>abyssinicum</i>
Apocynaceae	<i>Landolphia</i>	<i>kilimandjarica</i>
Asclepiadaceae	<i>Gomphocarpus</i>	<i>semilunatus</i>
Asclepiadaceae	<i>Gomphocarpus</i>	<i>stenophyllus</i>
Asclepiadaceae	<i>Pachycarpus</i>	<i>rhizophyllus</i>
Asclepiadaceae	<i>Stathmostelma</i>	<i>rhacodes</i>
Asclepiadaceae	<i>Pentarrhinum</i>	<i>insipidum</i>
Asclepiadaceae	<i>Margaretta</i>	<i>rosea</i>
Asclepiadaceae	<i>Dregea</i>	<i>schimperii</i>
Rubiaceae	<i>Psychotria</i>	<i>kirkii</i>
Rubiaceae	<i>Kohautia</i>	<i>coccinea</i>
Rubiaceae	<i>Oldenlandia</i>	<i>monanthos</i>
Rubiaceae	<i>Pentas</i>	<i>longiflora</i>
Rubiaceae	<i>Pentas</i>	<i>lanceolata</i>

Rubiaceae	<i>Pentas</i>	<i>pubiflora</i>
Rubiaceae	<i>Pentania</i>	<i>ouranogyne</i>
Rubiaceae	<i>Anthospermum</i>	<i>usambarensis</i>
Rubiaceae	<i>Spermacoce</i>	<i>princea</i>
Rubiaceae	<i>Galium</i>	<i>aparinoides</i>
Dipsacae	<i>Scabiosa</i>	<i>columbaria</i>
Compositae	<i>Ethulia</i>	<i>vernonioides</i>
Compositae	<i>Bothriocline</i>	<i>longipes</i>
Compositae	<i>Gutenbergia</i>	<i>cordifolia</i>
Compositae	<i>Erlangea</i>	<i>calycina</i>
Compositae	<i>Vernonia</i>	<i>auriculifera</i>
Compositae	<i>Vernonia</i>	<i>galamensis</i>
Compositae	<i>Vernonia</i>	<i>brachycalyx</i>
Compositae	<i>Vernonia</i>	<i>lasiopus</i>
Compositae	<i>Vernonia</i>	<i>wollastonii</i>
Compositae	<i>Vernonia</i>	<i>karaguensis</i>
Compositae	<i>Vernonia</i>	<i>purpurea</i>
Compositae	<i>Ageratum</i>	<i>conyzoides</i>
Compositae	<i>Mikania</i>	<i>cordata</i>
Compositae	<i>Dichrocephala</i>	<i>chrysanthemifolia</i>
Compositae	<i>Psiadia</i>	<i>punctulata</i>
Compositae	<i>Microglossa</i>	<i>pyrhopappa</i>
Compositae	<i>Nidorella</i>	<i>spartioides</i>
Compositae	<i>Conyza</i>	<i>hypoleuca</i>
Compositae	<i>Conyza</i>	<i>stricta</i>
Compositae	<i>Blumea</i>	<i>mollis</i>
Compositae	<i>Laggera</i>	<i>elatior</i>
Compositae	<i>Sphaeranthus</i>	<i>suaveolens</i>
Compositae	<i>Helichrysum</i>	<i>odoratissimum</i>
Compositae	<i>Helichrysum</i>	<i>globosum</i>
Compositae	<i>Helichrysum</i>	<i>nandense</i>
Compositae	<i>Gnaphalium</i>	<i>rubrifolium</i>
Compositae	<i>Sigesbeckia</i>	<i>abyssinica</i>
Compositae	<i>Aspilia</i>	<i>mossambicensis</i>
Compositae	<i>Acmella</i>	<i>calirhiza</i>
Compositae	<i>Guizotia</i>	<i>scabra</i>
Compositae	<i>Bidens</i>	<i>pilosa</i>
Compositae	<i>Bidens</i>	<i>cinerea</i>
Compositae	<i>Tridax</i>	<i>procumbes</i>
Compositae	<i>Galinsoga</i>	<i>parvifolia</i>
Compositae	<i>Tagetes</i>	<i>minuta</i>
Compositae	<i>Artemisia</i>	<i>afra</i>
Compositae	<i>Crassocephalum</i>	<i>montuosum</i>
Compositae	<i>Crassocephalum</i>	<i>vitellinum</i>
Compositae	<i>Solanecio</i>	<i>angulatus</i>
Compositae	<i>Senecio</i>	<i>hadiensis</i>

Compositae	<i>Emilia</i>	<i>discifolia</i>
Compositae	<i>Kleinia</i>	<i>squarrosa</i>
Compositae	<i>Notonia</i>	<i>petraea</i>
Compositae	<i>Notonia</i>	<i>abyssinica</i>
Compositae	<i>Cineraria</i>	<i>deltoidea</i>
Compositae	<i>Osteospermum</i>	<i>vaillantii</i>
Compositae	<i>Berkheya</i>	<i>spekeana</i>
Compositae	<i>Echinops</i>	<i>amplexicaulis</i>
Compositae	<i>Echinops</i>	<i>angustilobus</i>
Compositae	<i>Carduus</i>	<i>chamaecephalus</i>
Compositae	<i>Lactuca</i>	<i>inermis</i>
Gentianaceae	<i>Sebaea</i>	<i>grandis</i>
Gentianaceae	<i>Swertia</i>	<i>kilimandscharica</i>
Primulaceae	<i>Lysimachia</i>	<i>ruhmeriana</i>
Primulaceae	<i>Anagallis</i>	<i>pumila</i>
Campanulaceae	<i>Canarina</i>	<i>abyssinica</i>
Campanulaceae	<i>Wahlenbergia</i>	<i>virgata</i>
Campanulaceae	<i>Lobelia</i>	<i>holstii</i>
Boraginaceae	<i>Trichodesma</i>	<i>physaloides</i>
Boraginaceae	<i>Cynoglossum</i>	<i>lanceolatum</i>
Boraginaceae	<i>Cynoglossum</i>	<i>coeruleum</i>
Boraginaceae	<i>Lithospermum</i>	<i>afromontamum</i>
Solanaceae	<i>Solanum</i>	<i>nigrum</i>
Solanaceae	<i>Solanum</i>	<i>terminale</i>
Solanaceae	<i>Solanum</i>	<i>incanum</i>
Solanaceae	<i>Datura</i>	<i>stramonium</i>
Convolvulaceae	<i>Cuscuta</i>	<i>kilimanjari</i>
Convolvulaceae	<i>Convolvulus</i>	<i>sagittatus</i>
Convolvulaceae	<i>Ipomoea</i>	<i>oenotherae</i>
Convolvulaceae	<i>Ipomoea</i>	<i>involutrata</i>
Convolvulaceae	<i>Ipomoea</i>	<i>wightii</i>
Scrophulariaceae	<i>Halleria</i>	<i>lucida</i>
Scrophulariaceae	<i>Craterostigma</i>	<i>pumilum</i>
Scrophulariaceae	<i>Lindernia</i>	<i>whytei</i>
Scrophulariaceae	<i>Veronica</i>	<i>abyssinica</i>
Scrophulariaceae	<i>Alectra</i>	<i>sessiliflora</i>
Scrophulariaceae	<i>Sopubia</i>	<i>ramosa</i>
Scrophulariaceae	<i>Cynium</i>	<i>tenuisectum</i>
Scrophulariaceae	<i>Cynium</i>	<i>adonense</i>
Scrophulariaceae	<i>Striga</i>	<i>asiatica</i>
Lentibulariaceae	<i>Urticularia</i>	<i>livida</i>
Pedaliaceae	<i>Sesamum</i>	<i>angolense</i>
Acanthaceae	<i>Thunbergia</i>	<i>fischeri</i>
Acanthaceae	<i>Thunbergia</i>	<i>elliotti</i>
Acanthaceae	<i>Thunbergia</i>	<i>gibsonii</i>
Acanthaceae	<i>Thunbergia</i>	<i>alata</i>

Acanthaceae	<i>Brillantasia</i>	<i>owariensis</i>
Acanthaceae	<i>Hygrophila</i>	<i>spiciformis</i>
Acanthaceae	<i>Phaulopsis</i>	<i>imbricata</i>
Acanthaceae	<i>Mimulopsis</i>	<i>alpina</i>
Acanthaceae	<i>Acanthopale</i>	<i>pubescens</i>
Acanthaceae	<i>Ruellia</i>	<i>patula</i>
Acanthaceae	<i>Asystasia</i>	<i>gangetica</i>
Acanthaceae	<i>Dicliptera</i>	<i>colorata</i>
Acanthaceae	<i>Hypoestes</i>	<i>aristata</i>
Acanthaceae	<i>Hypoestes</i>	<i>triflora</i>
Acanthaceae	<i>Justicia</i>	<i>betonica</i>
Acanthaceae	<i>Justicia</i>	<i>flava</i>
Verbenaceae	<i>Verbena</i>	<i>bonariensis</i>
Verbenaceae	<i>Lippia</i>	<i>javanica</i>
Verbenaceae	<i>Clerodendrum</i>	<i>rotundifolium</i>
Verbenaceae	<i>Clerodendrum</i>	<i>myricoides</i>
Lamiaceae	<i>Ajuga</i>	<i>remota</i>
Lamiaceae	<i>Tinnea</i>	<i>aethiopica</i>
Lamiaceae	<i>Leonotis</i>	<i>nepetifolia</i>
Lamiaceae	<i>Leonotis</i>	<i>ocymifolia</i>
Lamiaceae	<i>Leucas</i>	<i>oligocephala</i>
Lamiaceae	<i>Leucas</i>	<i>masaiensis</i>
Lamiaceae	<i>Leucas</i>	<i>deflexa</i>
Lamiaceae	<i>Achyrospermum</i>	<i>schimperii</i>
Lamiaceae	<i>Salvia</i>	<i>coccinea</i>
Lamiaceae	<i>Salvia</i>	<i>nilotica</i>
Lamiaceae	<i>Satureia</i>	<i>abyssinica</i>
Lamiaceae	<i>Aeollanthus</i>	<i>repens</i>
Lamiaceae	<i>Pycnostachys</i>	<i>meyeri</i>
Lamiaceae	<i>Plectranthus</i>	<i>lactiflorus</i>
Lamiaceae	<i>Plectranthus</i>	<i>comosus</i>
Lamiaceae	<i>Plectranthus</i>	<i>assurgens</i>
Lamiaceae	<i>Plectranthus</i>	<i>pauciflorus</i>
Lamiaceae	<i>Plectranthus</i>	<i>edulis</i>
Lamiaceae	<i>Platostoma</i>	<i>africanum</i>
Lamiaceae	<i>Geniosporum</i>	<i>rotundifolium</i>
Lamiaceae	<i>Ocimum</i>	<i>gratissimum</i>
Lamiaceae	<i>Ocimum</i>	<i>kilimandscharicum</i>
Lamiaceae	<i>Orthosiphon</i>	<i>hildebrandtii</i>



The orchid *Eulophia horsfallii*, that grows at the edges of wetlands on Kapsumbeiwa.



The wild gladiolus, *Gladiolus newii*, at the Kibabet grasslands area – this is an important site for wildflowers especially terrestrial orchids.