COMMON GRASSES OF THE GREATER MARA ECOSYSTEM
Grasslands are often overlooked despite covering over 40% of the world’s landscape. From the humble beginnings of human agriculture to sustaining an array of wildlife, these unassuming plants are the silent architects of thriving ecosystems.

Grasses influence our daily lives by providing essential cereal crops, nourishment for livestock, the green carpets beneath our feet, a foundation for wildlife habitats and ecotourism, commercial seed production, and a wellspring of natural materials for construction, medicine, and spiritual practices.

One of the most remarkable traits of grasses lies in their resilience to defoliation. Through adaptations, they safeguard their growth points from grazing pressure, ensuring good regrowth after disturbances and grazing. This ability to bounce back not only sustains grazers but also fortifies the soil against erosion, underlining the symbiotic relationship between grasses and their grazers. This adaptation alone, underscores the success of grasses as one of the most abundant plant families on Earth, boasting over 10,000 species.

Welcome to the digital herbarium created by the Centre for Ecosystem Restoration-Kenya (CER-K), your guidebook to discovering the grasses that most commonly cover the greater Mara ecosystem. We have created this database to help foster a deeper understanding of the grasses that sway in the Mara breeze to empower restoration efforts and facilitate education and research initiatives in this ecologically significant region.
STRUCTURE OF GRASS

**Roots**
- Anchor the plant in the soil and absorb water and nutrients.

**Blade / Leaf**
- Captures sunlight and produces energy for the plant.

**Clumps / Stem**
- Can be hollow or fibrous but work to support the leaves, flowers and seeds as well as transport water and nutrients throughout the plant.

**Spikelet**
- Individual units of the inflorescence, each containing one or more flowers.

**Types of Inflorescence**
- Spikes
- Racemes
- Panicles
- Spikelets

Pay special attention to the arrangement and attachments of spikelets on the inflorescence, and then the characteristics of the individual structures.

**Node**
- The part of the plant where flowers are arranged in clusters and seeds develop.

**Internode**
- Stolon

**Rhizome**
- Anchor the plant in the soil and absorb water and nutrients.
<table>
<thead>
<tr>
<th>Question</th>
<th>YES</th>
<th>NO/NOT SURE</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Is there a deep, extensive root system with evidence of rhizomes or stolons?</td>
<td>Suggests a perennial grass that can propagate from both seed and vegetative structures.</td>
<td>Move to question 2</td>
</tr>
<tr>
<td>2. Are there visible signs of older stems of dead foliage that have died back during the dry season?</td>
<td>Likely a perennial grass as the foliage dies back during the dry season but the root system remains alive, ready to sprout new growth from the base once the rain returns.</td>
<td>Move to question 3</td>
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<tr>
<td>3. Is the grass growing in an area that has recently been disturbed or is undergoing initial colonisation?</td>
<td>Indicates an annual grass which often dominates disturbed habitats and establishes from dormant seed when the rain comes.</td>
<td>Move to question 4</td>
</tr>
<tr>
<td>4. Does the grass complete its life cycle within a single growing season, from growth to seeding to dying off?</td>
<td>Suggests an annual grass, relying on rapid growth and seeding to ensure seed dispersal before the next rainy season.</td>
<td>Likely a perennial grass that lives multiple years</td>
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</table>
PLANT SUCCESSION:
Is the gradual change in plant communities in an area following a disturbance such as fire, flooding, grazing or human activity. The progression of plants eventually restores the area to a stable ecosystem known as the climax community.

PIONEER STAGE:
Annual plants that are the first to colonise a disturbed area. They work to protect the bare ground from erosion, wind and sunlight and help to stabilise the soil.

SUB-CLIMAX STAGE:
Are weak perennial plants that take over from the pioneer plants. They offer denser coverage for soil that increases the moisture and organic matter in the soil.

CLIMAX STAGE:
Are weak perennial plants that take over from the pioneer plants. They offer denser coverage for soil that increases the moisture and organic matter in the soil.

GRASSLAND MANAGEMENT:
Grasslands are complex ecosystems where the composition and abundance of grass species can provide valuable insights into the health and condition of the environment. Grasses can be classified into different categories to better understand these dynamics based on their responses to grazing pressures and environmental conditions. These classifications help land managers assess the state of grasslands and implement appropriate management strategies to maintain biodiversity, soil health, and ecosystem balance.
**DECREASER:**

Flourishes in healthy grasslands but declines when under or overgrazed. Preferred by grazers due to their palatability, they are considered climax grasses and indicate good ecosystem health.

**INCREASER 1:**

These climax species are found in grasslands with low grazing pressure, which are unappetising to grazers. They can survive in degraded grasslands with minimal disturbance, but their presence indicates poor grassland conditions and lack of grazing management.

**INCREASER 2:**

It is found in areas that are overgrazed and commonly have low rainfall. They include pioneer and secondary species that produce numerous seeds and respond well to disturbances and intense grazing pressure.

**INCREASER 3:**

Dense and unappetising climax species are found in overgrazed areas and areas with higher rainfall. They outcompete other grasses as the palatable grasses have become weakened by grazing pressure. They benefit from light grazing and will suffocate if under-grazed.
**BLUESTEM GRASS**

*Andropogon distachyos*

**Habitat:** Open woodlands and mountain grasslands

**Elevation:** 1700 to 3000m

**Soil type:** Well-drained sandy or loamy soils – but can tolerate a wide range of soil conditions.

**Height:** 25 to 100 cm

**Open Leaf blade:**
The leaves are elongated, measuring between 7-20 cm in length and 1-5 mm in width

**Raceme Inflorescence:**
Consists of paired racemes that are at the end of the stem and measure between 4 - 14 cm. The spaces between the flower parts and stalk of flowers are stoutly linear to slightly club-shaped, with hairy margins and cub-shaped tips.

**Spikelet:**
The sessile spikelet (directly attached to the inflorescence) is between 6-16mm and has a prominent protrusion. The outer bract is lance-shaped with 7-11 evenly spaced nerves between ridges. The upper glume has an awn measuring 4-10mm, and the upper lemma (inner bract) is bilobed with an awn measuring 1.5 - 3xm long.

**Uses:**
- Used as a forage plant for livestock, which is of high value to the Maasai as they rely heavily on their livestock for sustenance and wealth.
**Stab Grass**

*Andropogon schirensis*

**Habitat:** Open Grasslands, woodlands and glades, rocky escarpments and hillsides

**Elevation:** 250–3000m

**Soil type:** Sandy, loamy and rocky soils.

**Height:**
40 – 200cm tall – often stands above other grasses and sometimes the base of the stem is covered with leftover fibrous material from old-leaf sheaths.

**Open Leaf blade:**
Leaves are flat, 9–70cm long, the ligule (a little flap where the leaf meets the stem is up to 2mm long with no auricles (ear-like extensions).

**Raceme Inflorescence:**
Consists of a pair of straight racemes at the end of the stem, creating a v-shape. They are purple or greenish colour when young, and as they mature, become straw-coloured and curved.

**Sessile Spikelet:**
Between 4.5 to 9 mm long each with a little wedge-shaped bottom part. The lower part is long and narrow with two sharp edges (dorsal keels) while the upper part is pointy. The lemma has two lobes almost halfway down, with an awn that is between 2 – 4 cm long

**Pedicel spikelet:**
Between 5–10 mm long

**Uses:**
- It is grazed by both livestock and wildlife, especially when it is young and other grasses are scarce, and can be harvested as fodder. Notably grazed by the endangered Jackson’s hartebeest.
ELEGANT TREE-AWN GRASS

Aristida adoensis

**Habitat:** Bushland and open grassland.

**Elevation:** 1300 - 2400m

**Height:** 20 - 60 cm tall.

**Open Leaf blade:**
Narrow leaves between 5 - 25 cm long, held close to the stem with margins that roll inwards.

**Panicle inflorescence:**
Looks like a spike that is 10-25cm. Green with reddish markings when young and gently curved. It browns and becomes tatty when mature.

**Spikelet:**
Enclosed by protective glumes and extend into long and stiff awns that divide into 3 stiff branches roughly 15 - 22mm long which cling to passer-by for seed dispersal.

**Uses:**
- An average to poor grazing grass as it is less palpable when mature but useful in drylands and semi-arid regions.
- A key pioneer species as seeds can travel long distances attached to soil, clothing or other surfaces.
  - Increaser 1 grass
Kenyan Three-Awn Grass
Aristida kenyensis

**Habitat:** Open Grasslands, woodlands and glades, rocky escarpments and hillsides

**Elevation:** 250–3000m

**Soil type:** Sandy, loamy and rocky soils.

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**Pedicel spikelet:**
Between 5–10 mm long

**Uses:**
- It is grazed by both livestock and wildlife, especially when it is young and other grasses are scarce, and can be harvested as fodder. Notably grazed by the endangered Jackson’s hartebeest.
Habitat: Thrives in grasslands, old cultivated areas and fallow lands.

Elevation: 0 - 2100 m

Height: 25 - 200 cm

Open Leaf blade:
Leaves are blue-green and 5 - 30 cm long.

Raceme Inflorescence:
Held up by a yellow stem, the inflorescence has 3-20 short racemes coming out of a central axis and are 2-8 cm long. They are brownish purple in colour and fade with age.

Spikelet:
Narrowly elliptic and between 3 - 4.5mm long with a slender, twisted awn between 10 - 20 mm long. Lower glume is firm and glossy, with a distinctive ‘pit’.

Uses:
- Average grazing as the grass has an aromatic taste that deters some animals; however, white rhinos enjoy the taste.
- The aroma comes from essential oils that the grass produces.
- It acts as a strong sub-climax grass and stabilises soil in overgrazed areas.
- Is considered an increaser 2 grass, and under heavy grazing and trampling, it produces a close sword despite its tufted appearance.
**TANNER GRASS**  
*Brachiaria arrecta*  
Perennial

**Habitat:** Most commonly round in higher-rainfall areas around the edges of wetlands or swamps. Can also be found in woodlands and forest edges.

**Elevation:** 400 - 2000 m

**Soil type:** Can tolerate saline and acidic soils in wetlands.

**Height:** 20 - 40 cm

**Open Leaf blade:**
Leaves are 5 - 25 cm long and up to 15 mm wide and form dense mats of lush, nutritious grass.

**Raceme Inflorescence:**
Made up of 4 - 15 racemes on coming out of the central axis, each bearing spikelets in 2 regular rows. Reddish in colour.

**Spikelet:**
Spikelets are round and smooth

**Uses:**
- A high-grazing grass is an important fodder for livestock and dairy cattle. The semi-aquatic Sitatunga antelope also graze it.
- Acts as a competitive sub-climax grass
- An increaser 2 grass, maintaining its presence and competitive ability in grazed areas.
**Habitat:** Open Grasslands, woodlands and glades, rocky escarpments and hillsides

**Elevation:** 250–3000m

**Soil type:** Sandy, loamy and rocky soils.

**Height:**
40 – 200cm tall – often stands above other grasses and sometimes the base of the stem is covered with leftover fibrous material from old-leaf sheaths.

**Open Leaf blade:**
Leaves are flat, 9–70cm long, the ligule (a little flap where the leaf meets the stem) is up to 2mm long with no auricles (ear-like extensions).

**Raceme Inflorescence:**
Consists of a pair of straight racemes at the end of the stem, creating a v-shape. They are purple or greenish colour when young, and as they mature, become straw-coloured and curved.

**Sessile Spikelet:**
Between 4.5 to 9 mm long each with a little wedge-shaped bottom part. The lower part is long and narrow with two sharp edges (dorsal keels) while the upper part is pointy. The lemma has two lobes almost halfway down, with an awn that is between 2 – 4 cm long

**Pedicel spikelet:**
Between 5–10 mm long

**Uses:**
- It is grazed by both livestock and wildlife, especially when it is young and other grasses are scarce, and can be harvested as fodder. Notably grazed by the endangered Jackson's hartebeest.
**Habitat:** Thrives in short grassland, roadsides, and overgrazed pastures, quickly taking over disturbed areas with low fertility. It also infiltrates arable land as a common weed.

**Elevation:** 0 - 2300 m

**Height:** 15 - 55 cm

**Open Leaf blade:**
The leaves are simple and grow alternately in two rows. They are short and narrow blades, usually 2 - 10 cm long and 3 - 5 mm wide. The tips of the blade are rounded and there is a small ridge along the centre of the leaf.

**Raceme Inflorescence:**
Bears 2 - 10 slender, purplish racemes, arranged in a digitate pattern on the top of the stem. The racemes are linear, 4 - 10 cm long and form a star-like cluster.

**Spikelet:**
2.5 - 3 mm and contain two florets. The lower floret is longer and has a fine, straight awn that extends between 12 - 25 mm. The upper floret is much smaller and bears a shorter awn approximately 6 mm long.

**Uses:**
- Is a pioneer plant in degraded areas and stabilising disturbed soils.
- It is grazed by wildlife and livestock, including white rhinos and warthogs, and can tolerate heavy grazing and trampling.
- Is an increaser 3 grass.
**Feather-top Chloris**

**Chloris virgata**

**Habitat:** Found in a variety of habitats including scattered tree grassland, bushland, and disturbed areas.

**Elevation:** 10 - 2000 m

**Height:** 50 - 60 cm

**Open Leaf blade:**
Leaf is open, flat and narrow, ranging from 10 – 30 cm long. It tapers at the end, has a rough margin and the leaf sheath is compressed.

**Spike Inflorescence:**
Made up of 5 - 12 digitate, spreading, feathery spikes, each between 2 - 10 cm long. The spikes are held open in a slightly fanned manner in younger plants and become denser and more compact as the plant matures.

**Spikelet:**
Each spikelet contains 2 – 3 florets. The lower glume is shorter while the upper glume is slightly longer. The lowest lemma has a cluster of hairs at its tip, along with an awn 5 - 15 mm long. The second lemma also has an awn between 5 - 12 mm long and the third lemma has no awn.

**Uses:**
- It is an important grazing grass for both livestock and wildlife, and it has an average grazing value.
- It is valued as a source of fodder in arid and semi-arid areas.
- It is a pioneer grass and is known for its ability to establish on bare ground rapidly.
- It is an increaser 2 grass.
Couch Grass
Cynodon dactylon

Habitat: Found on roadsides, old farmlands and weedy or trodden areas. It is widely used as a lawn grass.

Elevation: 0 - 2000 m

Height: 8 - 50 cm

Open or folded leaf blade:
Soft, short and narrow leaf blades, typically flat or sometimes folded, and usually 1 - 12 cm long and 2 - 4 mm wide.

Raceme Inflorescence:
4 - 6 Racemes arranged in a single whorl, each 2 - 8 cm long.

Spikelet:
Typically 2 - 2.5 mm long and lance shaped when seen from the side. They are usually light green in colour. Glumes are long and narrow with a single prominent vein running down their length. The lemma has a silky texture along its midrib.

Uses:
- Has a high grazing value and is considered an important grazing species for wildlife and livestock. Its dense mats are favoured by grazers that prefer short grasses.
- Is a pioneer species and can help stabilise soil and reduce soil erosion.
- Increaser 2 grass.
STAY TUNED FOR MORE GRASSES COMING