

GRASSES, SEDGES AND RUSHES OF THE UAE



Published by

Environment Agency – Abu Dhabi
PO Box 45553, Abu Dhabi, UAE

Download PDF version at: www.ead.ae

Copyright © 2019

Environment Agency - Abu Dhabi.

All rights reserved. No part of this publication may be reproduced, stored in a retrieval system or transmitted in any form or by any means, electronic, electrostatic, magnetic tape, mechanical, photocopying, recording, scanning or otherwise, without permission in writing from the publisher.

Citation

Al Mehairbi, M., Al Dhaheri, S., Sakkir, S.,
Soorae, P. S., Khan, S.B., Alzaabi, R. & Javed, S.

(2019) Grasses, Sedges and Rushes of the UAE
Environment Agency – Abu Dhabi, UAE
ISBN: 978-9948-38-881-4

Drawing and paintings by

Mohamed Al Mehairbi

Reviewed by

Dr. Shaikha Salem Al Dhaheri

CONTENTS

08

INTRODUCTION

10

NATIVE GRASSES

146

NATURALISED GRASSES

158

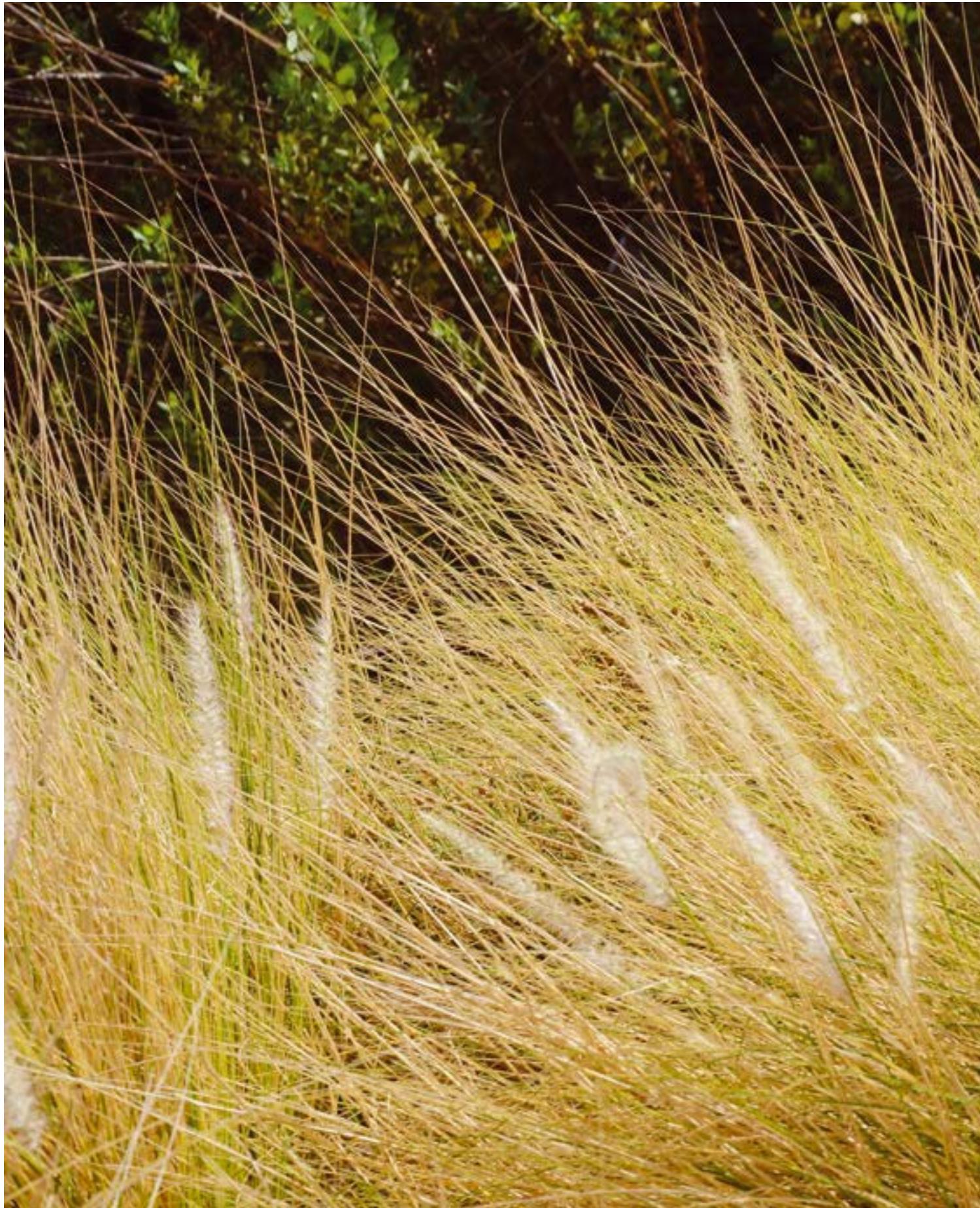
INTRODUCED GRASSES

191

GLOSSARY

194

REFERENCES



FOREWORD

BY DR. SHAIKHA
SALEM AL DHAKERI

SECRETARY GENERAL - ACTING,
ENVIRONMENT AGENCY - ABU DHABI

Grass is an important feature in both urban and rural landscapes in the United Arab Emirates (UAE) and plays a significant role in maintaining our environment by sequestering carbon, reducing soil erosion and stabilising sand dunes.

Found along seashores and on coastal sand dunes, gravel plains and even on megadunes formed on top of our mountains, grasses in the UAE comprise over 80 different species and provide vital support to natural ecosystems. An excellent source of protein, the grass also sustains several local wild and domestic grazing species, while grass seeds are a source of nutrition for smaller animals including rodents, hares and birds.

Developed by the Environment Agency – Abu Dhabi, the Grass Book captures the Emirate's native grasses through vivid paintings along with a description of each species and a distribution map. It aims to assist policy-makers, researchers, students and members of the public in learning more about one of the most important plant groups in the world.

I would like to thank everyone who has contributed to this great project, from the field work and data collection to the documentation. It is my hope that this research will drive interest in and raise awareness around this lesser-explored element of Abu Dhabi's unique flora, which has always been a crucial natural resource in our dry and arid desert environment.

INTRODUCTION

This is a Guide to the common native, naturalized and introduced grasses and grass like species of the United Arab Emirates (UAE). Researching grasses and grass like species in the UAE needs a lot of interest and many different habitats such as wadis, wetlands, gardens, gravel plains and the desert have to be monitored and it takes many years of dedication to understand the life cycle of these plants. I feel these grasses deserve to be shown to the public and to the country as a whole. This book is designed to show a color illustration of the various grass species which I personally sketched and painted.

These species are represented by the following families: Poaceae, Cyperaceae, Juncaceae and Typhaceae. Also displayed in the book is a brief description of the species, a distribution map showing the known range of these various species and hopefully this book will showcase the beauty and the variety of these species whose facts are little known. The target of this book is to give a better understanding of the grass species and when you see the drawing focus on the color and visualize the natural shape, and imagine how this grass behaves in the wind and how it would feel when touched. I have tried to keep the scientific terminology to a minimum so we can reach more of the general public.

This is the first book for the UAE which showcases the variety of 84 grass species.

HOW TO USE THIS BOOK:

The grass species are divided into three main sections namely native, naturalized and introduced. Native species are those that naturally occur within the UAE. Naturalized are those species that are from outside the UAE but can be found growing within the UAE in many locations. Introduced are those species that are non-native but with only single or few records within the UAE and these species have the potential to become naturalized.

There is also a drawing that shows the main parts of a grass as these are mentioned in the various species accounts.

For each species there is a description, distribution map and color plate to showcase the species.

Lastly we have a glossary which describes many of the technical and scientific terms used in the species accounts.



NATIVE GRASSES



LEMON GRASS

Cymbopogon communatus (Steud.) Stapf.

This is a perennial mountain grass, which has a unique crossed spikelet and grows to approximately 100 cm in height. A unique characteristic is the curling of leaves when the grass dries out. This species is found in mountainous areas of UAE mainly on Jebal Hafit and Northern Emirates. Two common uses of this grass are using it as fodder for livestock and mixing with mud to build traditional houses.

Origin: Native



LOCATION IN UAE

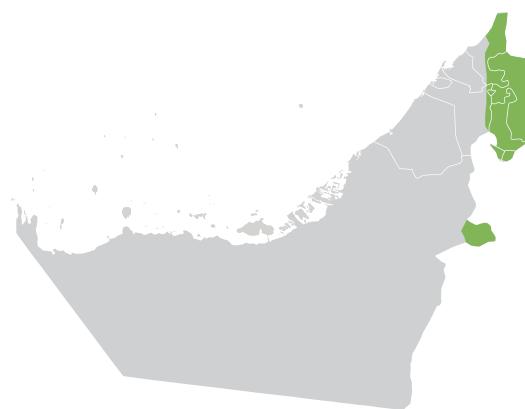


GERANIUM GRASS

Cymbopogon schoenanthus (L.) Spreng.

This is a perennial grass, which grow up to 100 cm in height. Unlike other species of Lemon grass, the leaves do not curl up when dry and the seeds are round and hairy with branched spikes. In UAE, it grows on mountain slopes and wadis at Jebal Hafit. This species also grows in rocky and sandy soil with low salinity and good drainage and is good for grazing. Propagation is by self-seeding. Seeds grow immediately after the rains.

Origin: Native





PAPPUS GRASS



PAPPUS GRASS

Enneapogon persicus Boiss.

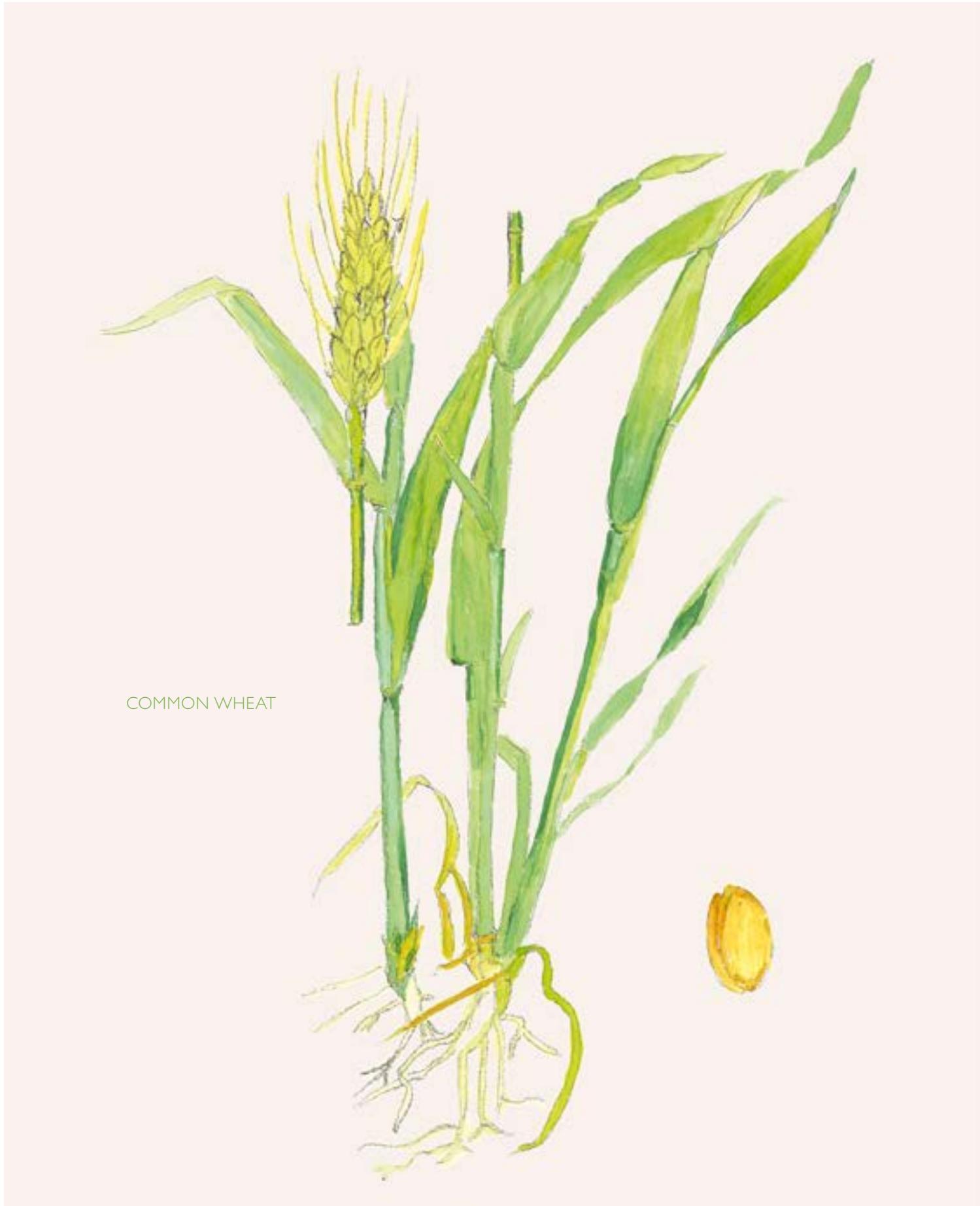
This is a desert perennial Mediterranean grass with its distribution in tropical and warm temperate areas. The grass can grow up to a height of 50 cm and the feathery spikelet produces hairy seeds. In UAE, the grass is rare, recorded only from Fujairah emirate, in mountain slopes and gravel plains. The grass looks very aesthetic in meadows. It is palatable for livestock and has high nutritive value.

Propagation is by self-seeding.

Origin: Native



LOCATION IN UAE

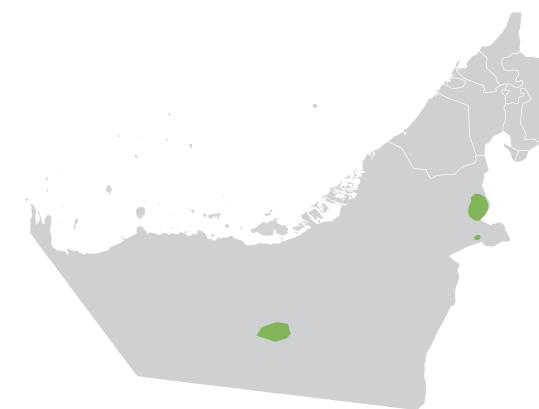


COMMON WHEAT

Triticum aestivum L.

This is a traditional species locally cultivated in the mountain steppe and grows up to height of about 40 cm. The variety of grass, which is cultivated locally, has long grains. The grass starts growing in October and November and needs to be irrigated until the seeds reaches its maturity. The significance of this grass is its highly nutritive grains, which are consumed by both humans and livestock. Propagation is by seeds.

Origin: Cultivated



LOCATION IN UAE

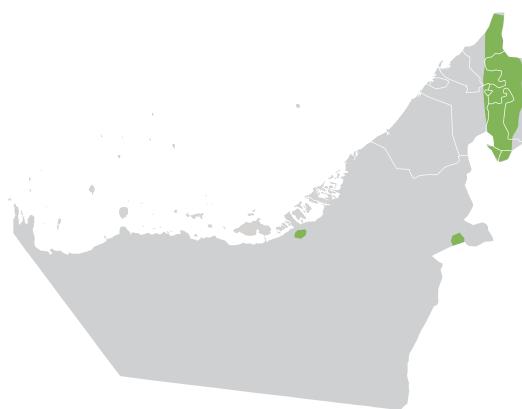


SOUTHERN CATTAI

Typha domingensis Pers.

It is a perennial plant of the family Typhaceae, growing up to 300 cm high. In the UAE, it grows in fresh water wadis, where there is run off water and in swampy areas. The leaf is smooth and leathery. It provides shelter for birds and other wildlife species. It also helps in purification of waterbodies and replenishes the water with oxygen, which can be beneficial for other small aquatic species. The species is less palatable. Propagation is by rhizome or seeds.

Origin: Native





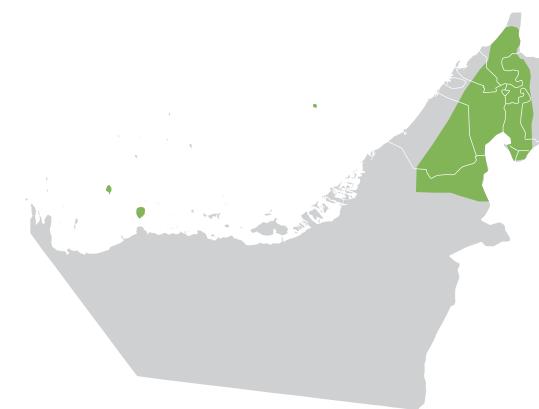
MEDITERRANEAN NEEDLE GRASS

Stipa capensis Thunb.

This annual grass can reach up to a height of 90 cm, grows especially in moist areas. The grass has a single spikelet having thick hairy leafy structure (bract or glumes enclosing long seeds). The grass grows well on mountain slopes and on stable sand sheets during spring. In the UAE, the grass is seen in the Northern Emirates and on offshore islands in Abu Dhabi, such as Dalma and Deenah islands.

The species is palatable before it is fully dried up. Propagation is by self-seeding.

Origin: Native



LOCATION IN UAE

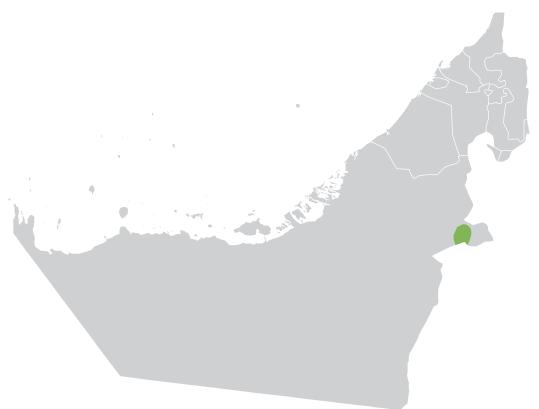


NINEAWN PAPPUS GRASS

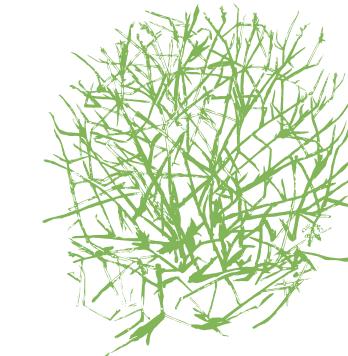
Enneapogon desvauxii P.beauv.

This is an annual or perennial meadow grass that grows to a height of 40 cm, with its distribution in the Mediterranean region. In the UAE, the species is rare, recorded only from wadis in Jebel Hafit. The spikelets are beautiful when it is in full bloom and are white in colour. The awned seeds have a crown like appearance. The grass grows well in loamy soil and tolerates drought. The species is a highly palatable species for livestock due to its silky texture. Propagated by self-seeding and by division of culms.

Origin: Native



LOCATION IN UAE



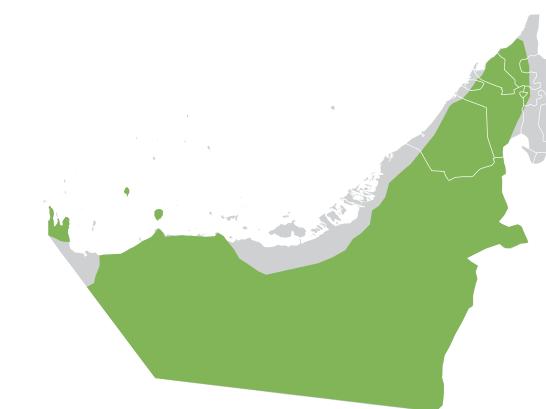
DESERT GRASS

Panicum turgidum Forssk.

This is a perennial grass which grows up to 120 cm in height, and in the past was widespread, but now this species is threatened by habitat loss and overgrazing. The grass is a good fodder grass as it has adequate dry matter to balance the nutritional requirement of the grazers. The species can resist drought and grows well in stable sand dunes and well-drained soils. This grass is an important part of the culture and tradition of UAE. Traditionally, in the UAE the hay was used as a trade (barter-system) crop in exchange for wood, coffee, etc.

Propagation is by self-seeding and division of culms.

Origin: Native



LOCATION IN UAE



BLUE PANIC GRASS

Panicum antidotale Retz.

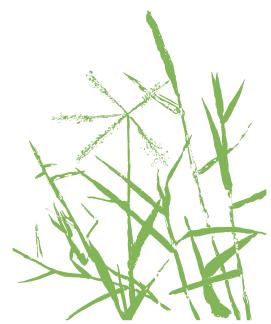
This is a perennial grass growing up to a height 300 cm. In UAE, this is a common grass found in, around oasis, and along roadsides. It is commonly known as the poor people's grass as it grows more commonly in oasis and especially in farms where the water has high salinity and where nothing else can easily grow. The species can withstand drought and extreme heat. It has a very deep root system and grows well in sandy soil. It also flourishes well at the start of summer when the temperature is not very high. Though it can grow well without fertilizers, a higher yield can be obtained by adding fertilizers. It resists insect attacks as it is poisonous when it is green but is a good fodder and highly nutritious when it is dry. The root has mycorrhiza which help the plant to fix atmospheric nitrogen. Propagation is by division of culms and dispersal of seeds by grazing animals.

Origin: Native



LOCATION IN UAE

BERMUDA GRASS



BERMUDA GRASS

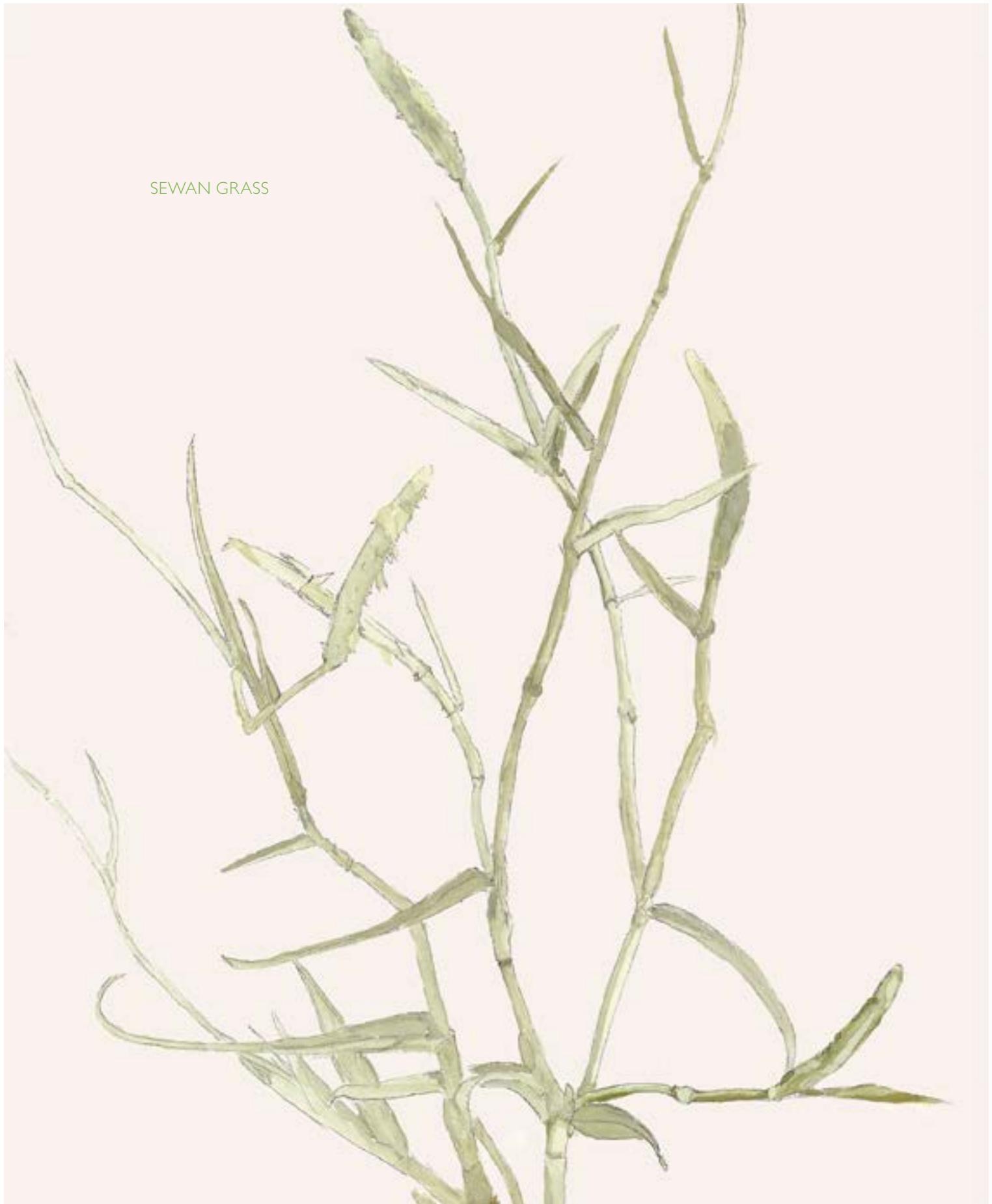
Cynodon dactylon (L.) Pers.

This perennial grass grows to a height of 30 cm with widespread distribution globally. This fine grass grows commonly around oases near Liwa and Al Ain region of the UAE. This is an aggressive species, which competes with crops, and other native species. The grass remains dormant during unfavourable conditions but never dies off and the rhizome can grow 50 cm deep into the soil. The species can withstand high salinity of up to 12g/litre. The grass is highly palatable, in both green and dry conditions, but it does not produce high yield. Propagation is by seeds and by division of the rhizome.

Origin: Native



LOCATION IN UAE

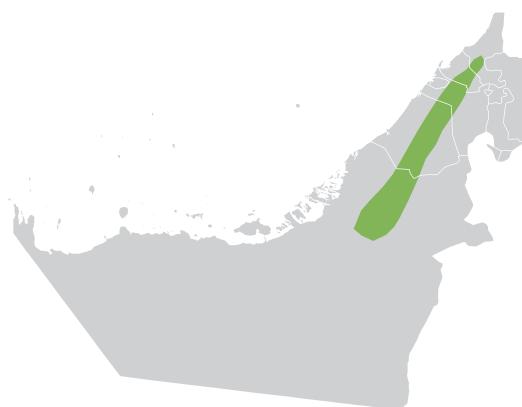


SEWAN GRASS

Lasiurus scindicus Henrard.

This is a perennial grass, which reaches a height of about 160 cm and is used as hay when it reaches 15 cm. This grass species is recorded from sand sheets along the coastal areas stretching from Abu Dhabi to the Northern Emirates. It is a good fodder species being rich in dry matter and highly tolerant to drought and wind. The roots have a rhizosheath, which can fix atmospheric nitrogen and help the roots to retain moisture and the plant provides shelter for other annual plant species by acting as windbreaker. This species propagates only by self-seeding.

Origin: Native



LOCATION IN UAE



RICE GRASS

Piptatherum holciforme (M.bieb.) Roem. & Schult.
Syn: *Oryzopsis holciformis* (M.bieb.) Hack.

This is a perennial grass that grows up to 80 cm. It is usually found growing in wadis near water, and in the UAE, the species is rare and recorded only from Wadi Wurrayah. It has branched spikelets which have a pyramid shape. Seeds are small and round, similar to oats. It is good green fodder grass and propagates by self-seeding.

Origin: Native



LOCATION IN UAE



HALFA GRASS

Desmostachya bipinnata (L.) Stapf.

This is a perennial grass that grows up to 150 cm high and has a deep rhizome, with strong roots. In the UAE, the species is rare and recorded from Kalba in the Northern Emirates. Leaves are rigid, flat or folded with curved tips. Spikes are hollow with feather-shaped spikelets. It resists grazing by small browsers, but provides good fodder for camels. It grows well in brackish water, around sabkhas. It also grow in wasteland and farms and the seeds grow with the flush of fresh water from wadis. In general, the plant is aggressive in the field and is used for stabilize sand dunes in coastal areas.

Propagation is by seeds.

Origin: Native



LOCATION IN UAE



COGON GRASS

Imperata cylindrica (L.) Raeusch.

This is a perennial halophytic grass with a height of up to 100 cm. In the UAE, it is common in sabkhas, low sandy soils along the coast, but in recent times, has become rare due to drought and habitat loss. Leaves are tough, pointed and sharp and resist browsing by small animals. The single spike is rich in pollen, which attracts bees. It is a good species for stabilizing sand dunes and is resistant to salt spray from ocean wind. It has a deep rooting system with underground rhizome that form a colony. Propagation by division of culms is easier than by seeds.

Origin: Native



LOCATION IN UAE



HALOPYRUM GRASS

Halopyrum mucronatum (L.) Stapf.

This is a perennial halophytic grass that grows in coastal white sand habitats and grows up to 100 cm. In coastal area, during high tides, the grass get flooded by seawater. This is the only known species from the genus *Halopyrum*. In the UAE, it is found on coastal white sand sheets from Abu Dhabi to the Northern Emirates. It forms long spreading rhizome, which can grow to several meters, and form colonies. It also provides a good habitat for coastal birds. The grass is high in dry matter and has tough leaves, which are resistant to small browsers, but favoured by camels. This grass can stabilize sand dunes in coastal areas. Propagates by self-seeding and by rhizomes.

Origin: Native



LOCATION IN UAE



PAN DROPSEED



PAN DROPSEED

Sporobolus ioclados (Trin.) Nees

This is a perennial halophytic grass that grows up to 100 cm in height and it has long spreading rhizomes. In the UAE, the species used to be common along the coast, but is now at threat due to habitat loss and coastal development. This coastal species grows more inland and is found in salty depressions. It is resistant to wind and drought and is not a good fodder species.

The species propagates by self-seeding.

Origin: Native



LOCATION IN UAE



CANARY GRASS

Phalaris canariensis L.

This is an annual winter grass, reaches a height of 30 cm. Originally this is a native of the Mediterranean region. In UAE, it is rare and found growing along with wheat plants in the mountain areas of Rus Al Jibal. In places like India, it is considered a weed species, as it competes with cultivated wheat. It is a good fodder plant, with a similar protein content as Alfalfa, but has a higher fat content.

This species propagates by self-seeding.

Origin: Native



LOCATION IN UAE



BLACK GRASS



BLACK GRASS

Alopecurus myosuroides Huds.

This is an annual steppe meadow grass which grows up to 15 cm and is quite rare known only from Ruus Al Jibal. It has very narrow spikes before it flowers, and at the time of fruiting, the spikes looks like candles. The morphology of the plant varies depending on water availability and is favoured by animals when the grass is green during winter months. It has the highest protein content compared to other grasses and propagates by self-seeding.

Origin: Native



LOCATION IN UAE



WILD OATS

Avena fatua L.

This is an annual winter grass that grows up to 120 cm in height. The difference of this from normal oats is that the seeds are smaller and dark brown in color. Its distribution range extends to China, Himalayas and Tibet. In the UAE, the grass is recorded from the mountains of the Northern Emirates. It is a fast growing species, especially in winter, and a favourable species for grazing.

The grass propagates via seeds and self-seeding in the wild.

Origin: Native



LOCATION IN UAE



WIRE GRASS

Ochthochloa compressa (Forssk.) Hilu.

This is a perennial grass that grows to a height of 40 cm, but in the desert, the growth is very much reduced and it appears wire-like. In the UAE, this grass is rare, recorded only from the Mezyad area in Al Ain. It has star shaped spikes with 4-6 branches and is quite resistant to drought. It is a favourable grazing species, due to a high amount of dry matter. This species spreads by rhizomes and grows well in loamy, rocky sand. It propagates by rhizomes and by self-seeding.

Origin: Native



LOCATION IN UAE

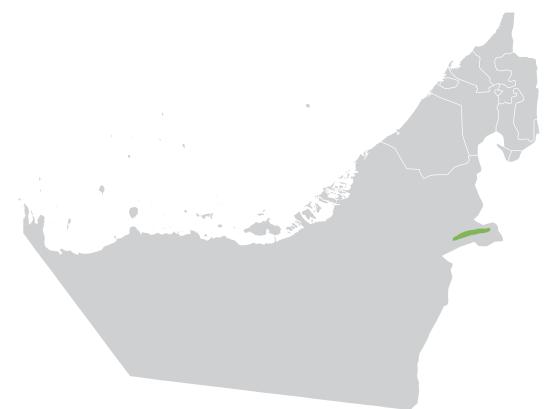


BEARDED SPRANGLETOP

Leptochloa fusca (L.) Kunth

This is a semi-aquatic perennial grass that grows in and around water and up to a height of 120 cm. In the UAE it is recorded from Al Ain region. The grass is highly resistant to weather conditions and salinity and can be found around sabkhas and swampy areas. The stem is erect with branches spreading in all directions. The seeds are small and look like brown rice. It is a good fodder species in new growth, and became stiff as it matures and has a high dry matter content. It propagates by seeds and division of culms.

Origin: Native



LOCATION IN UAE



BLACK BOGRUSH



BLACK BOGRUSH

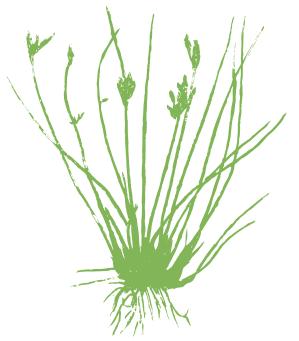
Schoenus nigricans L.

This is a perennial sedge species that grows in and around fresh water with a height of 60 cm. It has creeping rhizomes. It tolerates a wide variety of climatic conditions, and can grow in many soil types, and acts as a shore edge stabilizer and water purifier. It is a good source of fodder, being rich in dry matter and minerals. Propagates by seeds and division of culms.

Origin: Native



LOCATION IN UAE



RUSTY SEDGE

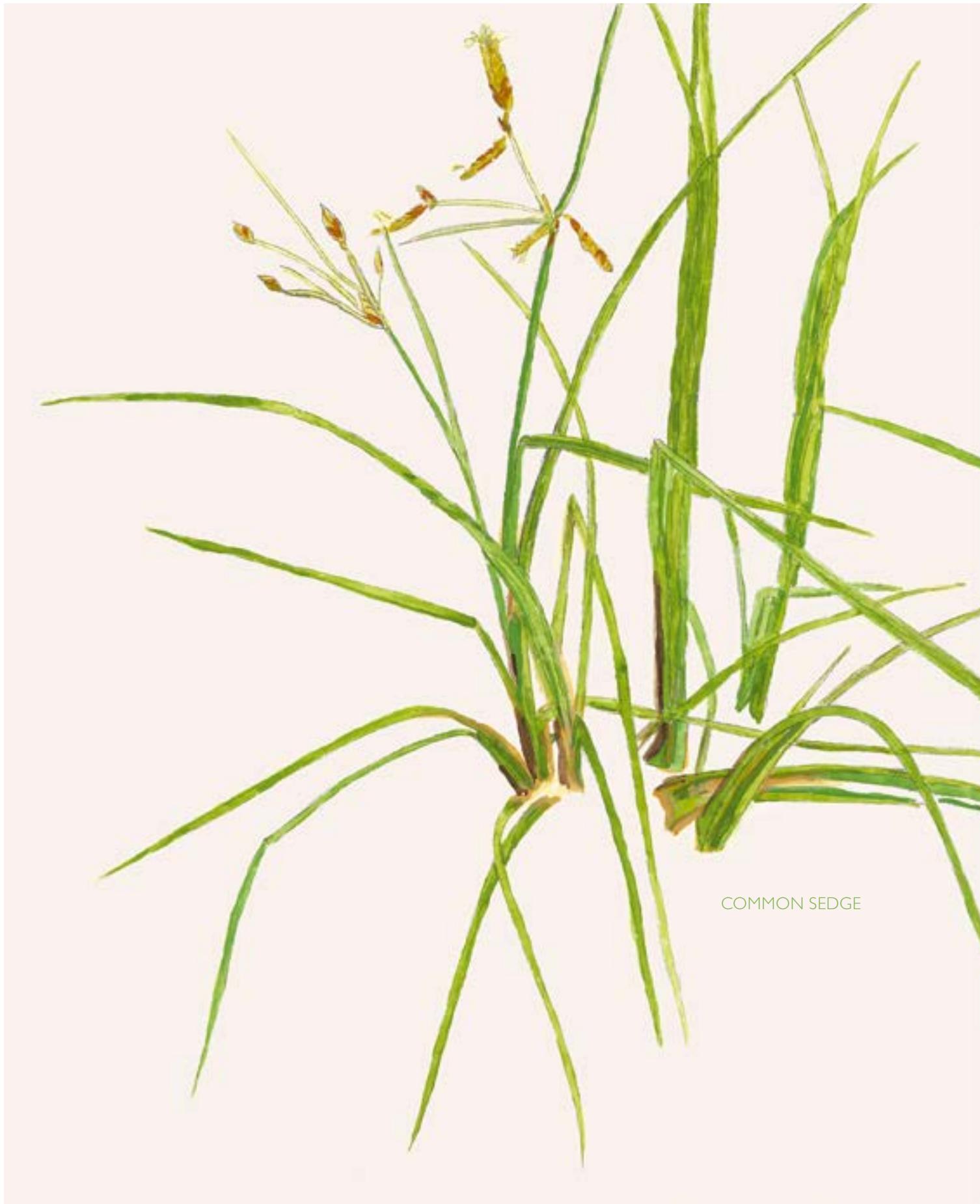
Fimbristylis ferruginea (L.) Vah

This is a perennial sedge species that grows to a height of 50 cm. It has a dense growth at the base, with a slender and long stem, long round and pointed leaves. In the UAE, the species is locally common in Abu Dhabi in wet and disturbed areas including sand dunes, gardens, plantations, shaded areas and sidewalks. It used to be the only available fodder species during the summer months, in the past, when other species had been used up for grazing. It is a good green fodder, which supply a balanced diet to the animal, and propagates by self-seeding.

Origin: Native



LOCATION IN UAE



COMMON SEDGE

Cyperus conglomeratus Rottb.

This perennial sedge species grows to a height of 50 cm. It has a widespread distribution in the UAE, where it is the dominant species of loose sand dunes. Also found in depressions in sand dune habitats, where moisture is available. The leaves can roll up to form channels to collect water from fog and is more adaptable to the desert climate when compared to other species of this genus. The roots have rhizosheath and the heart of the plant is edible and is a good fodder species.

Propagates by self-seeding.

Origin: Native



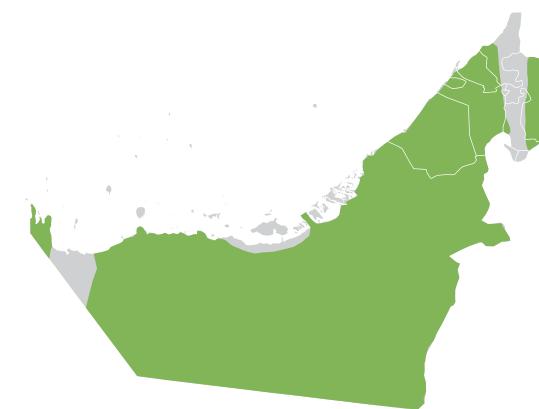


DROP SEED GRASS

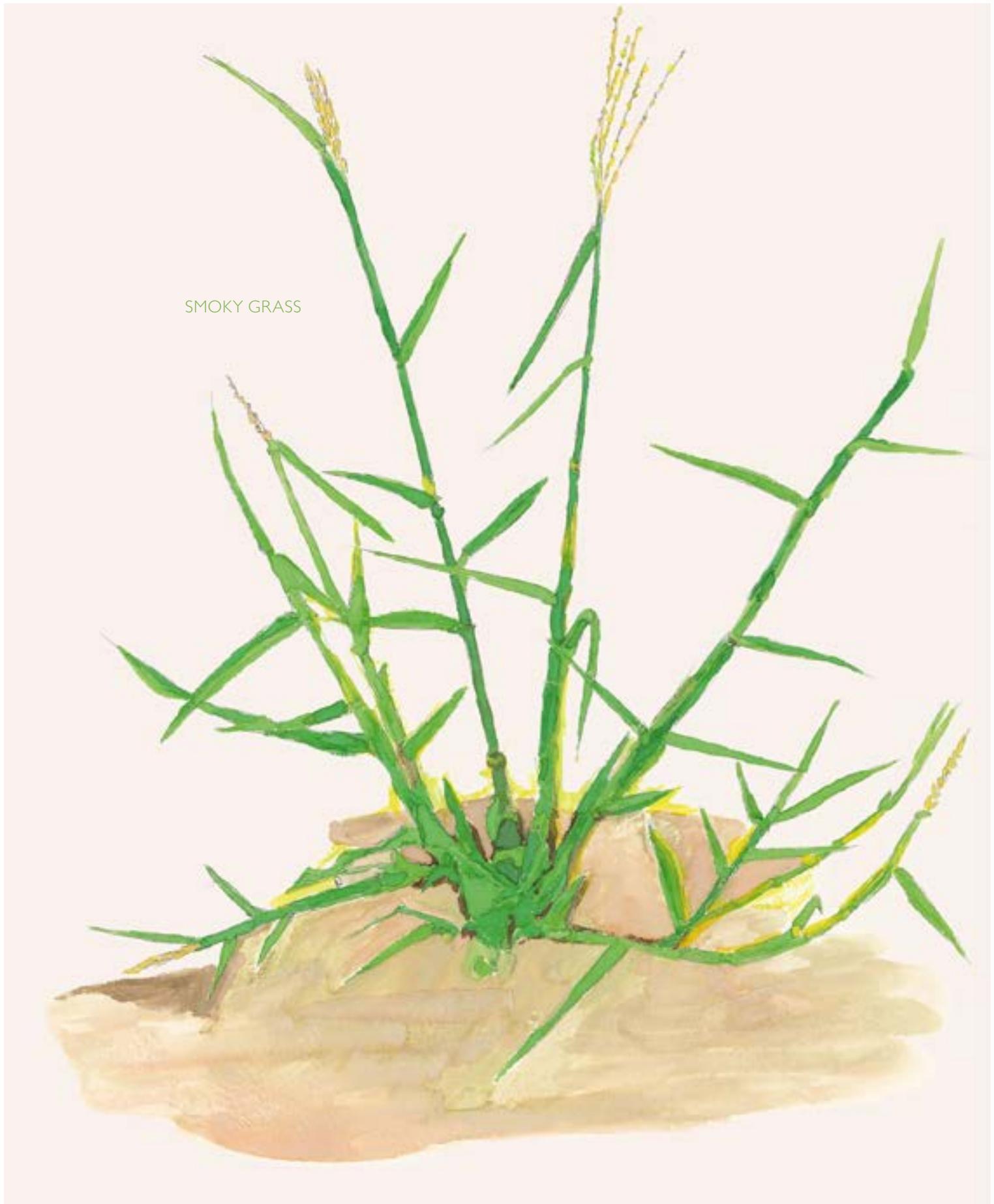
Sporobolus spicatus (Vahl) Kunth.

This is a perennial halophytic species that grows to a height of 30 cm with sharp leaf tips, which makes it unfavourable for grazing. The species is aggressive in nature and it has a widespread distribution in the UAE. It mainly grows in wet areas and the grass has a single spikelet with rich pollen grains, which attract bees in summer months when there are few plants in the flowering stage. It propagates by self-seeding and via its rhizomes.

Origin: Native



LOCATION IN UAE

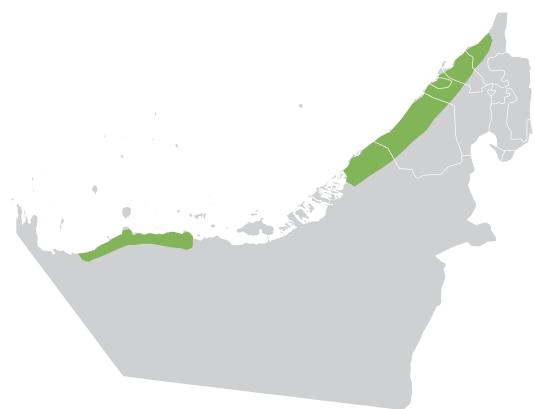


SMOKY GRASS

Coelachyrum piercei (Benth.) Bor.

This is a perennial grass that grows to a height of 45 cm and it has a slow growth rate. In the UAE it is recorded from Samha in Abu Dhabi and also in Dubai and it usually grows near the coast. It is an indigenous species and one of UAE's important grass species with oval spikelets. This species is also used to make carpets and grows well near plantations when irrigated with treated water. The Desert truffle (*Tirmania nivea*) can be seen in the same habitat and the presence is an indicator of healthy habitat. It is a good green fodder grass and propagates by self-seeding and division of culms.

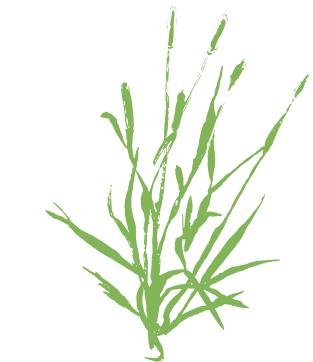
Origin: Native



LOCATION IN UAE



YELLOW FOXTAIL

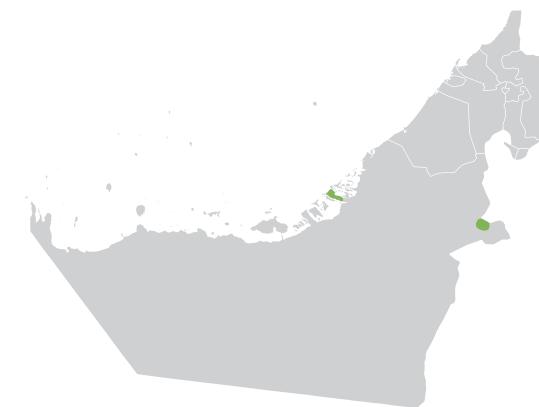


YELLOW FOXTAIL

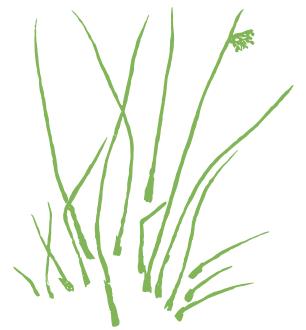
Setaria pumila (Poir.) Roem. & Schult.

This is an annual grass that grows up to a height of 95 cm. In the UAE the species is recorded only from Al Ain from disturbed habitats, oasis, gardens and plantations. The spikelets are like cat tails being cylindrical in shape with small seeds favoured by small seed-eating birds. In some parts of the world the species is considered as invasive. The species can be used both as green fodder and/or dried to make hay. It propagates by self-seeding.

Origin: Native



LOCATION IN UAE



RUSHES

Juncus socotranus (Buchenau) Snogerup.

This is a perennial grass like plant which can reach up to 120 cm in height and grows mostly submerged in fresh-water. In the UAE the species was recorded from the Northern Emirates. The stem is erect and rigid and the fruit is like a capsule filled with small seeds, that opens when it rains, and thus the seeds are dispersed with the water-flow. It also provides a habitat for small fishes and is a good fodder plant. Propagation is by self-seeding or by division.

Origin: Native



LOCATION IN UAE



NEEDLE GRASS

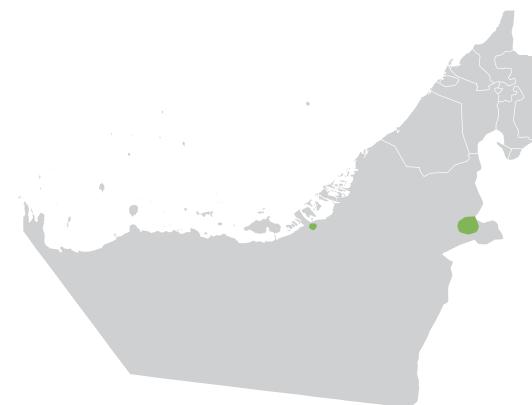


NEEDLE GRASS

Triraphis pumilio R.Br.
Syn: *Triraphis nana* (Nees) Hack.

This is an annual grass which grows up to 30 cm in height. In the UAE, the grass is rare and is known from Jebal Haft area in the gravel plains. It has a silky and fine characteristics and is a short steppe grass, with triangular shaped leaves which are broader at the base. It has a round spike with needles and the seeds are small and covered with minute hairs. It propagates by self-seeding.

Origin: Native



LOCATION IN UAE



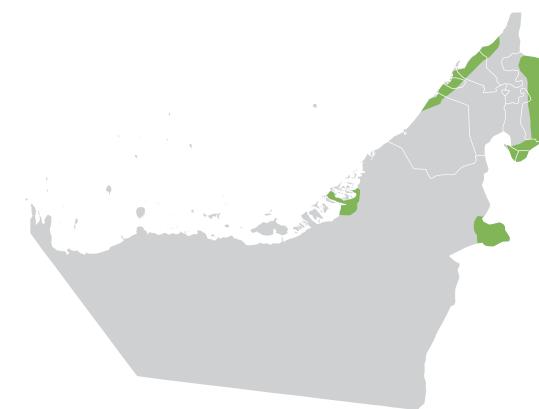
ANNUAL RABBITSFOOT GRASS

Polypogon monspeliensis (L.) Desf.

This is an annual winter grass, which grows up to 100 cm in height. The grass grows as perennial near water streams and the spike is single with hairy seeds. In the UAE the species is widespread and is common near water especially in gardens, plantations and disturbed habitats. A good fodder plant flourishes soon after the rains. The plant can be browsed directly by livestock when it is green.

Seeds are very light and small, and easily dispersed by wind. Propagates by self-seeding.

Origin: Native



LOCATION IN UAE



BRISTLE GRASS

Pennisetum divisum (Forssk. ex J.F.Gmel.) Henrard.

This is a perennial grass that grows up to 150 cm and it is an indigenous and traditional grass of the UAE with a widespread distribution in stable sand dunes. The stem is stiff with a single spike and in earlier times when other grasses were available, only the young stem tip was favoured by camels. However, the whole plant is preferred these days because of the increased herd size and non-availability of other fodder crops. Though the growth is slow, the plant does not require much care if it is grown in gardens. It can resist wind and hence grown as wind barrier. It propagates by self-seeding and division.

Origin: Native



LOCATION IN UAE



PENNISETUM GRASS

Pennisetum sp.

This is a perennial grass that reaches up to 100 cm in height. In the UAE, it is recorded from Wadi Tarabat in Jebal Hafit, where it grows in the loamy gravel in the wadis. The leaves are light green. This grass can resist drought, it is good for restoration and is used as an ornamental in gardens. It is a good fodder grass, which supplies a balanced diet, as it has a medium dry matter content. Animals browse it when it is green. Propagation is by self-seeding and division.

Origin: Native



LOCATION IN UAE



TETRAPOGON GRASS

Tetrapogon villosus Desf.

This is a short perennial meadow grass, which reaches a height of about 60 cm. The leaves are dense at the base of the culm, flat, rolled and rigid. It has a single spike with hairy spikelets. In the UAE, the species is rare, recorded only from Jebel Hafit, grows in gravelly soil, mountain slopes and wadis. It is a good fodder grass but at threat due to draught. It propagates by self-seeding and division of culms.

Origin: Native



LOCATION IN UAE

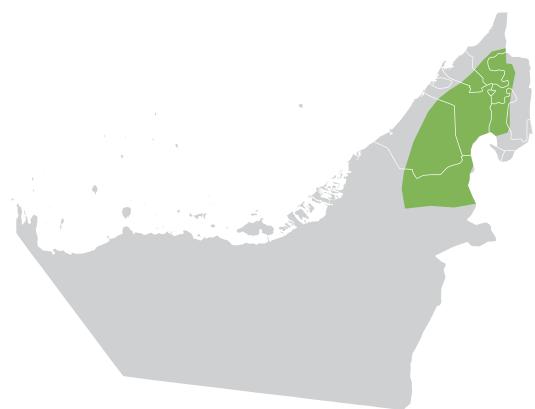


COMMON NEEDLE GRASS

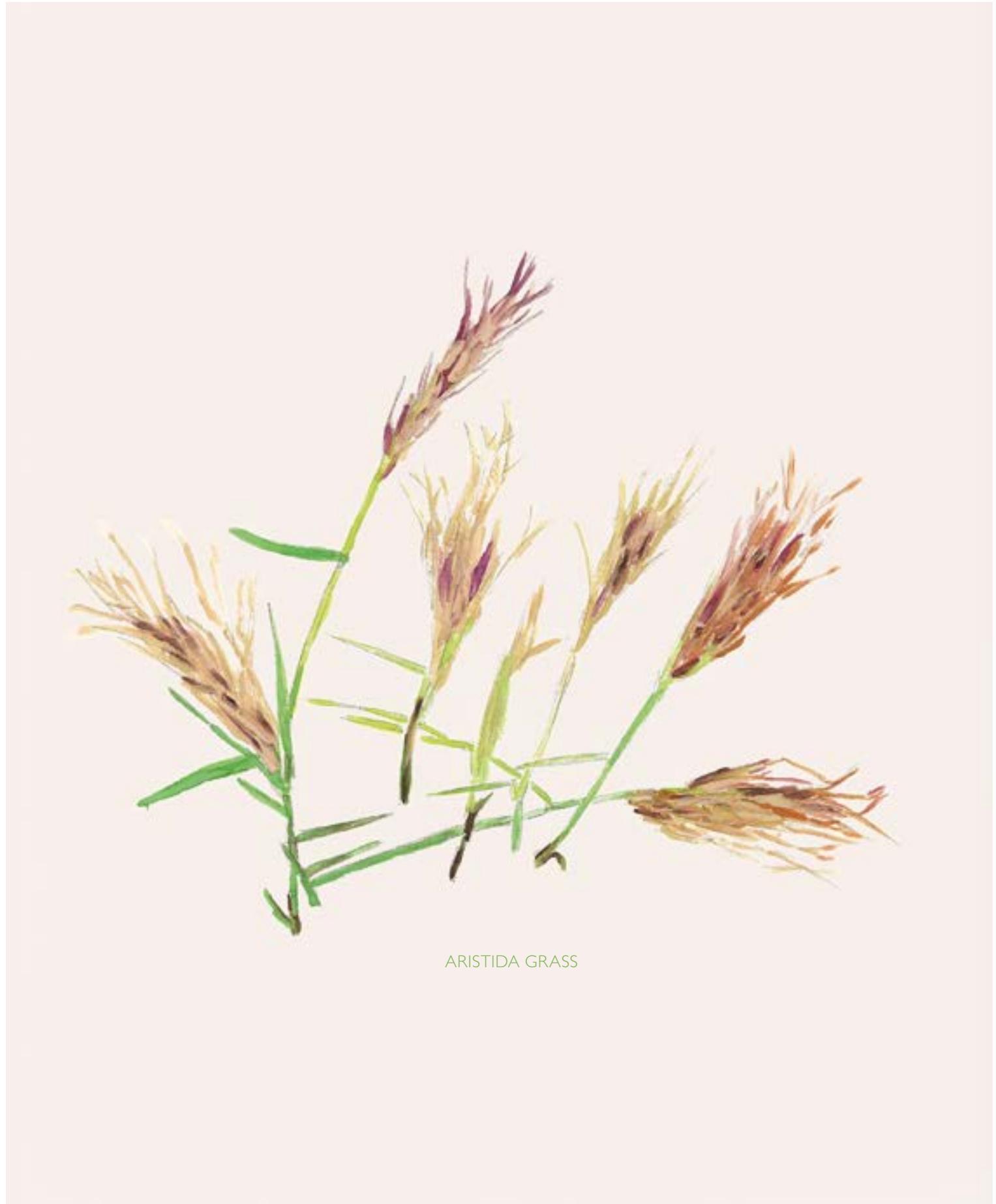
Aristida adscensionis L.

This is an annual or perennial grass that can reach up to 100 cm in height. In the UAE it is recorded from Jebal Hafit and Northern Emirates. The presence of a high dry matter content and high protein make the species palatable for livestock. It is silky looking in appearance at initial stages before it matures and can be grazed both when green and dry. It has bristled seeds which are dispersed by animals and wind. Propagates by self-seeding.

Origin: Native



LOCATION IN UAE



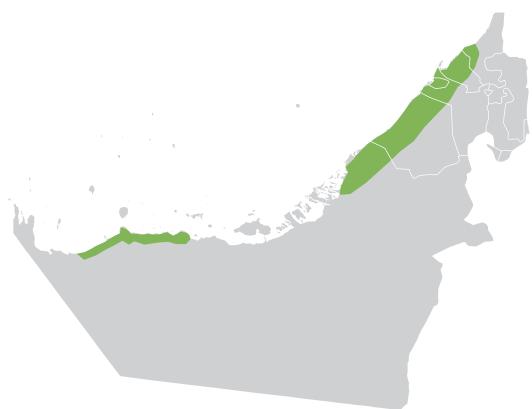
ARISTIDA GRASS

Aristida abnormis Chiov.

This is an annual meadow grass that can reach up to 60 cm in height. In the UAE, it is widespread along the coastal areas. The plant has a reddish colour due to the cold wind from the sea. The spikelets are branched. Seeds are long pointed and bristled. The grass can be grazed both when green and dry. Animals and wind disperse the bristled seeds.

Propagates by self-seeding.

Origin: Native



LOCATION IN UAE



MEMPHIS GRASS

Cutandia memphitica (Spreng.) Benth.

This is an annual grass that can reach up to 30 cm in height. In the UAE, it is recorded only from the coastal areas of the Northern Emirates in sandy soil. The spikes are divided at right angles and prostrate when the plants are young and grows upright as the plant matures. In winter, the plant appear as a red colour due to cold wind. The plant is at threat due to urbanization.

Propagates by self-seeding.

Origin: Native



LOCATION IN UAE





MANGROVE GRASS

Aeluropus lagopoides (L.) Thwaites

This is a perennial grass that can reach up to 30 cm in height and spreads via rhizomes. The plants are dominant species in wet sabkha and brackish areas. In UAE, this grass is recorded from wet areas, in oasis from Abu Dhabi and Northern Emirates. The plant is soft when the water is fresh and as salinity increases the tip of the leaves become spiky. It is a good balanced fodder when grown in brackish and less saline water. It propagates by self-seeding and cutting.

Origin: Native



LOCATION IN UAE

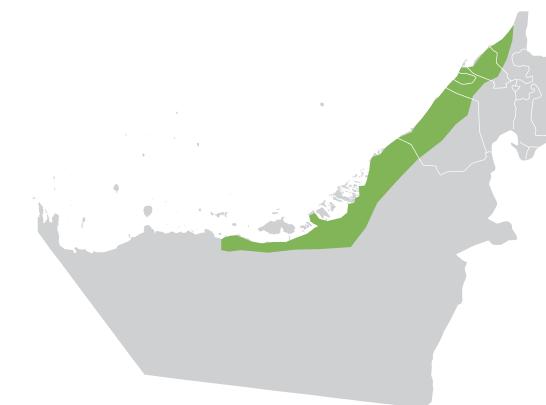


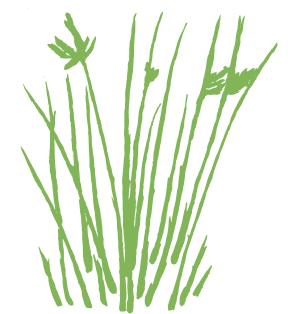
DWARF SEDGE

Cyperus arenarius Salzm. ex Steuds.

This is a perennial sedge that can reach up to 30 cm in height. The species has a cosmopolitan distribution and in the UAE it is a common species on Abu Dhabi island. It is a characteristic species of the natural habitat of Abu Dhabi. It has deep rhizomes and the leaves are cylindrical and twisted with an aggressive growth. It is a good balanced summer fodder and grazed when the plants are green. It also provides a habitat for birds. Propagates by self-seeding.

Origin: Native





SMOOTH FLAT SEDGE

Cyperus laevigatus L.

This is a perennial sedge that can reach up to 15 cm in height. The stem arises from creeping rhizomes and the leaves are fine, cylindrical and grow parallel. It is a very common species worldwide, and grows in swamps, depressions, along the coast in fresh and brackish water. In the UAE, the species is recorded from Abu Dhabi coastal areas and Meliha inland in the Northern Emirates. This species provides a balanced nutrition with high minerals, but is palatable only in summer. It propagates by self-seeding and rhizomes.

Origin: Native



LOCATION IN UAE

INDIAN LOVEGRASS



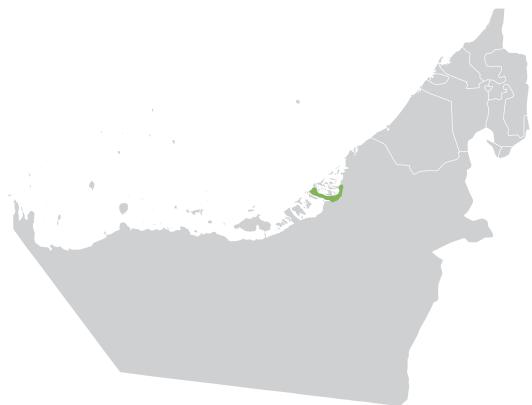
INDIAN LOVEGRASS

Eragrostis pilosa (L.) P.Beauv.

This is an annual summer meadow grass that grows up to 15 cm in height. The grass competes with other lawn grass occupying the space between grasses. In the UAE, it is recorded from Abu Dhabi Island in urban areas. The plant can resist overgrazing because of its small size.

The seeds are very fine, small and dispersed by wind (as dust). It propagates by self-seeding.

Origin: Native



LOCATION IN UAE



MEDITERRANEAN LOVEGRASS

Eragrostis barrelieri Daveau.

This is an annual summer grass that grows up to 80 cm in height. The spike is pyramid in shape and wavy. It grows well in all types of soil. It is an early season grass with fast growth and grows well in shallow soil, and responds well to rain. In the UAE, it is widespread near the coast as well as the mountains. It is a good green fodder which can be grazed in both green and dry conditions and provides a balanced nutrition to livestock. It propagates by self-seeding.

Origin: Native



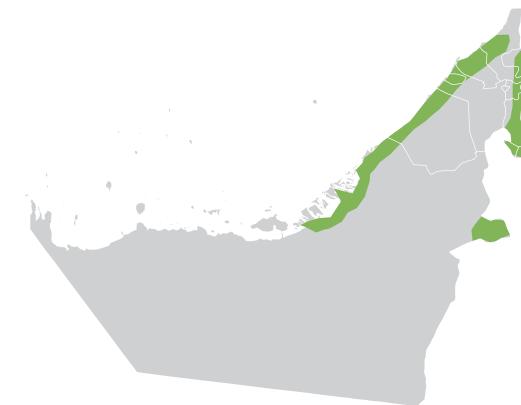


STINK GRASS

Eragrostis ciliaris (All.) Janch.

This is an annual summer grass that grows up to 40 cm in height. It has a feathery spike which is pyramid shaped. In the UAE the species is recorded from Abu Dhabi and Northern Emirates in disturbed areas, farms, roadsides, crevices on rocks, plantations and gardens in all soil types. The seeds are red, small and round resembling sand particles and are dispersed by wind. It is a good green fodder species and is grazed in both green and dry conditions. Propagates by self-seeding.

Origin: Native



LOCATION IN UAE



CANE GRASS

Eragrostis papposa Desf. ex Roem. & Schult. Steud.

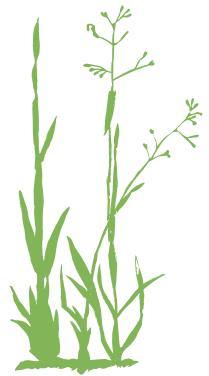
This is an annual/perennial grass that reaches up to 40 cm in height. It is very rare in the UAE and recorded from Abu Dhabi in urban areas and Hajar Mountains. It grows in all soil types preferably clay and rocky soils and is a good fodder species which can be grazed in the start of the growing season. It is a potential species to provide richness and diversity for browsing.

Propagates by self-seeding.

Origin: Native



LOCATION IN UAE



CLOVE GRASS

Sphenopus divaricatus (Gouan) Rchb.

This annual grass grows up to 30 cm in height. The spike is conical with two spikelet's resembles cloves. The seeds have two wings. In the UAE it is rare and recorded from Al Khazna area and Hajar Mountains. The leaves are red in colour most of the time. It is a potential meadow species under favourable climatic conditions. Propagates by self-seeding.

Origin: Native



LOCATION IN UAE



COMMON REED

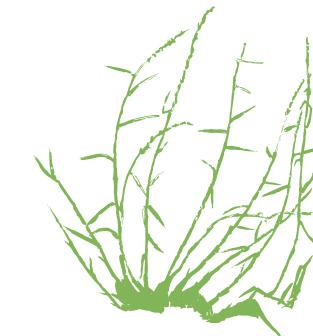
Phragmites australis (Cav.) Trin. ex Steud.

This is a perennial bamboo like grass which grows up to 400 cm in height. The grass is usually seen higher on the beach above the mangrove zone and in inland flooded areas so it does not compete with the mangrove for its survival. This grass is an indicator for brackish water. It is a widespread species distributed in the UAE wetlands. It also provides an important habitat for birds, purifying water, adding oxygen to stagnant water. Propagates by self-seeding and spreads by rhizomes.

Origin: Native



LOCATION IN UAE

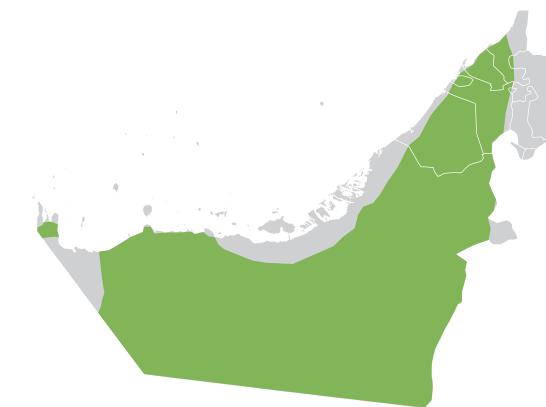


SWORD-LEAVED HELLEBORINE GRASS

Centropodia forsskali (Vahl) Cope.

This is a perennial/annual grass which can reach up to 30 cm in height and is a short grass with a claw like spike. It is widespread in the sand dunes and can grow in loose as well as stable sands in the UAE. The root has a rhizosheath, and is one of the toughest grasses which resists severe wind, drought, heat and grow in little rainfall. It can produce seeds even when the plant is 10 cm long. Propagates by self-seeding only when it rains.

Origin: Native



LOCATION IN UAE



PURPLE FALSE BROME

Brachypodium distachyon (L.) P.Beauv

This is a annual grass which reaches up to 40 cm in height. In the UAE the species is known from Rus Al Jibal in the Nortern Emirates. The spikelets overlap from two sides with hair like awns at the tip. The genus has many synonyms which are confusing. It is a good meadow grass and good for natural browsing. Studies on its bio-fuel properties proved that sugar component in the grass can be converted to alcohol. The growth rate is fast. Propagation is by self-seeding only.

Origin: Native



LOCATION IN UAE



GOLDEN TOP GRASS

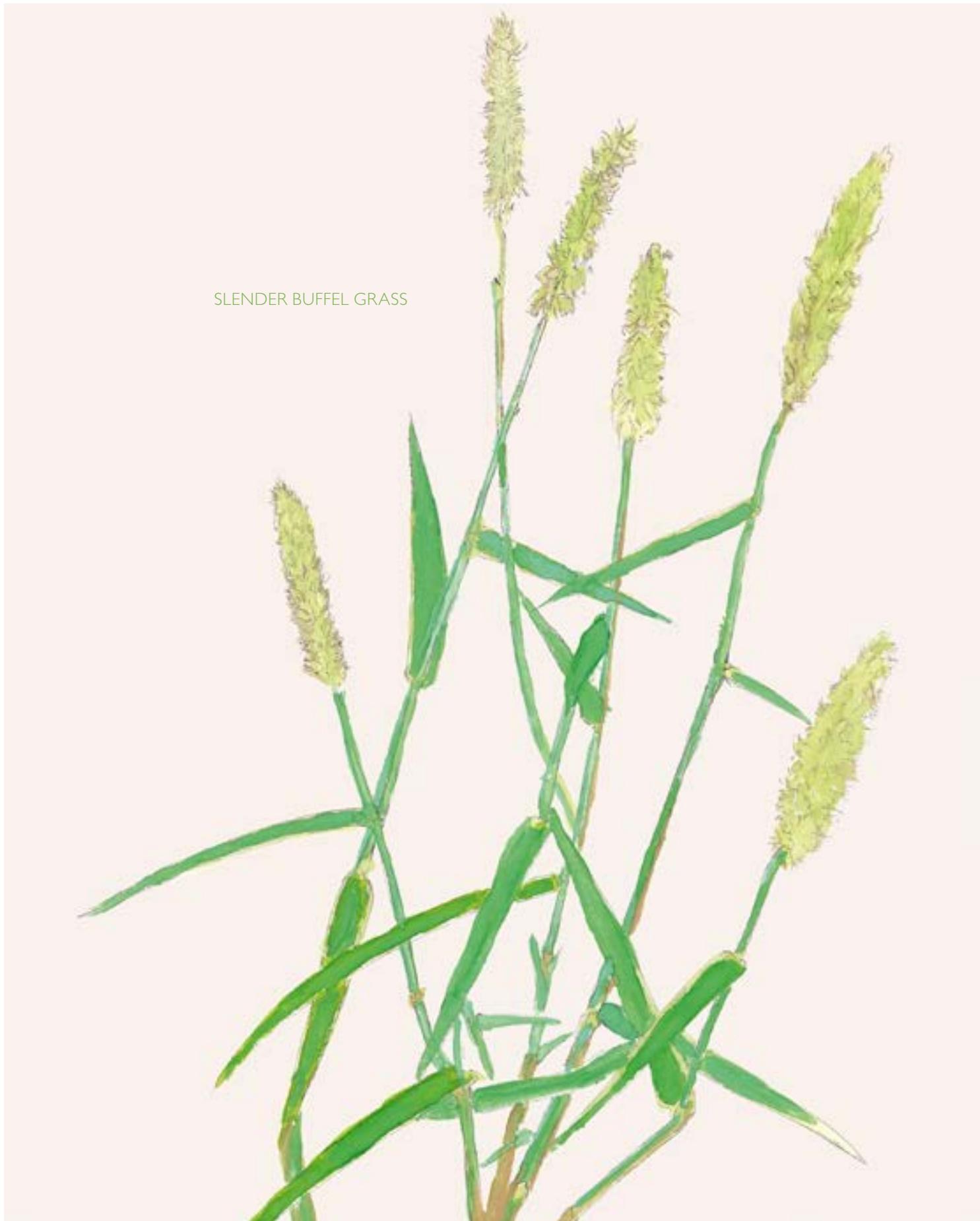
Lamarckia aurea (L.) Moench.

This is an annual Mediterranean winter grass, which reaches up to 40 cm. It spreads in a colony and adds beauty to the natural landscape with its single spike and wide leaves. This is a rare species and known only from Rus al Jibal in the UAE and gives more diversity to pasture land. It propagates by self-seeding only.

Origin: Native



LOCATION IN UAE



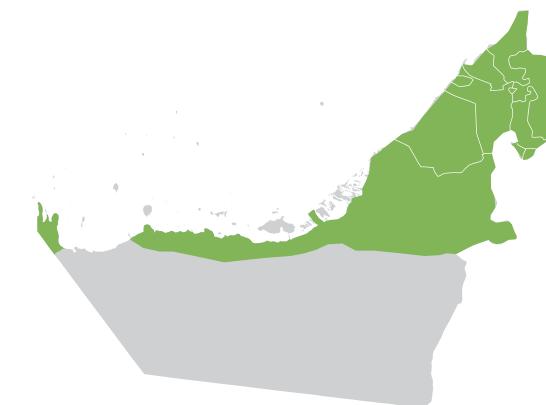
SLENDER BUFFEL GRASS

Cenchrus pennisetiformis Steud.

This is a perennial grass reaches up to 80 cm in height. The spike has long bristles which unite at the base to form a cup with clustered spikelets. In the UAE it is found in the stable sand sheets in Abu Dhabi and Northern Emirates. The species has a widespread distribution in the semi desert area and is common in savannahs worldwide. The slow growth rate gives the plant a high concentration of nutrition and resistance to draught. It is a highly palatable species when fed dry.

Propagates by self-seeding.

Origin: Native



LOCATION IN UAE



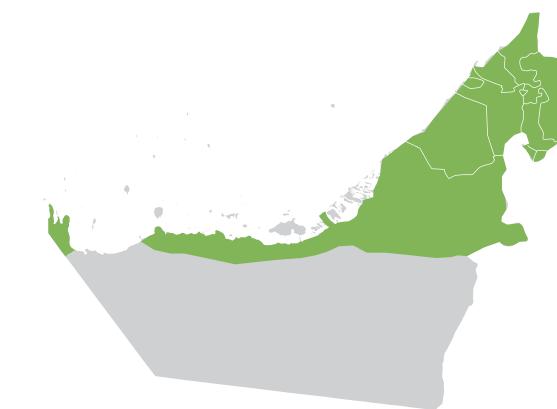
BUFFEL GRASS

Cenchrus ciliaris L.

This perennial common grass reaches a height of up to 100 cm. It has a slow growth with low economic value and yields in four months, when compared to Rhodes grass, which produces monthly yield. This species also cannot resist salinity and has a medium nutritive value and used as dry fodder. In the UAE, it is recorded from the stable sand sheets in Abu Dhabi and Northern Emirates.

Propagates by self-seeding.

Origin: Native



LOCATION IN UAE



BIRDWOOD GRASS

Cenchrus setiger Vahl.

This perennial grass reaches up to 80 cm in height and is the most salt tolerant of all the *Cenchrus* species. It grows in all soil types such as volcanic, rocky and alkaline and can resist drought. It has a high protein content and can be browsed when green. In the UAE, it has been recorded from Al Ain, Eastern coast and Rus Al Jibal. Propagation is by self-seeding.

Origin: Native



LOCATION IN UAE



STALKED BUR GRASS



STALKED BUR GRASS

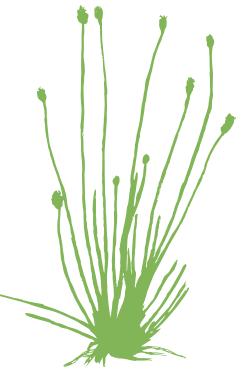
Tragus racemosus (L.) All.

This is an annual or perennial indigenous grass, grows up to a height of 30 cm having widespread distribution globally. It has a single spike with a drill shaped fruit which is encapsulated. In the UAE, it is rare, seen in red sand dunes from Al Ain to the Northern Emirates. As the plants are rare, they are not a significant species for grazing. It propagates by self-seeding.

Origin: Native



LOCATION IN UAE



BENT SPIKERUSH

Eleocharis geniculata (L.) Roem. & Schult.

This is a perennial sedge that grows up to 60 cm in height. The spike is fine with spikelets in dense round heads enclosing black seeds. In the UAE the species grows in semi-aquatic habitat in wadis, in the Hajar Mountains and in some coastal areas. Small browsers graze the plant, due to the soft stems. It provides shelter for water birds. It propagates by self-seeding and grow by division.

Origin: Native





ENGLISH MEADOW GRASS



ENGLISH MEADOW GRASS

Poa annua L.

This is an annual winter grass that grows up to a height of 30 cm and is a silky fine grass. This species is rare in the UAE and can be found in the red sand dunes between Al Ain and Northern Emirates. It is a highly palatable grass with a high protein content and can be browsed when it is green.

The species is distributed globally and used as a mix-seed in lawns. Propagates by self-seeding

Origin: Native



LOCATION IN UAE



ELEPHANT GRASS

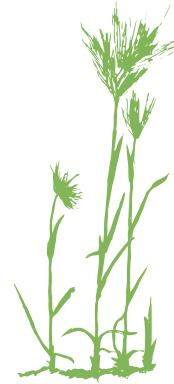
Pennisetum purpureum Schumach.

This is a perennial grass, which flourishes in winter, and grows up to 300 cm in height. The plant looks like a reed, but is not hard as reeds. It has a single spike, which is cylindrical and has the same morphology of pearl millet. The leaves are long and pointed with serrated margins and a traditional cultivated grass used in agriculture. The grass is cut and fed to the animals when it is in a dry condition. It produces a high yield in winter and is the fastest growing grass which sprouts in three days. The grass requires fresh water and a non-saline soil. In the UAE it is seen in agriculture practices and is also usually grown as a green fence around cultivated areas, providing shelter for other agricultural crops from the wind. It propagates from cuttings.

Origin: Native



LOCATION IN UAE



BROME GRASS

Bromus madritensis L.

This is an annual winter Mediterranean grass, which grows up to 50 cm in height. This is a rare grass in the UAE, which is seen only in Hajar Mountains and Rus Al Jibal. The spike looks like a broom and has a reddish appearance in cold weather. It is invasive in the USA and Australia as the seeds are small, dispersed by wind and animals. This grass can grow in shallow soil and it has short roots and produces flowers and fruits when the plant reaches a height of 10 mm. The growth is slow when it is cold and it flourishes well in spring weather. It is a good fodder grass, as it is very fine, rich in protein and palatable. Propagates by self-seeding.

Origin: Native



LOCATION IN UAE



GREAT BROOM

Bromus diandrus Roth.

This is an annual winter Mediterranean meadow grass, which grows up to 90 cm in height. This is a rare grass in the UAE which is seen only in the Hajar Mountains in steppe agriculture. The spike looks like a broom and it is longer than *Bromus madritensis*. The seed is long with awns and the plant becomes red when facing the wind. The plant is a good fodder when it is green.

Propagates by self-seeding.

Origin: Native



LOCATION IN UAE



COMMON NUT SEDGE

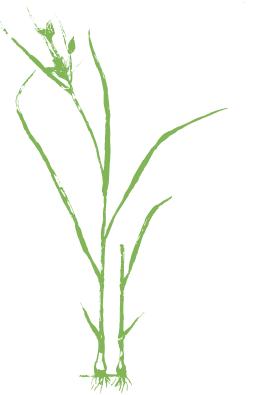
Cyperus rotundus L.

This is a perennial aggressive sedge with a cosmopolitan distribution; it reaches up to a height of 60 cm. Its leaves are long and bright green and grows in wet areas, agricultural land and shows a rapid growth when fertilizers are applied. It also damages other agricultural crops via its rhizomes which can even penetrate through date trees. The underground rhizome can reach up to 4 m, deep in sandy soil and has nodes, which never die off. The plant is not palatable for animals and is not good for browsing. It propagates by self-seeding and rhizomes.

Origin: Native



LOCATION IN UAE



SEA CLUBRUSH

Bolboschoenus maritimus (L.) Palla.

This is a perennial sedge, which reaches up to 80 cm in height. Its leaves are long and bright green and the spikelets are pale brown and egg shaped with pointed tips. The sedge is aquatic, and grows near swampy ground near brackish water, with a limited distribution only in Abu Dhabi, Al Ain, Ras al Khaimah and Fujairah. It has underground root tubers with nodes and the plant is not favoured for grazing. It propagates by self-seeding and rhizome.

Origin: Native



LOCATION IN UAE

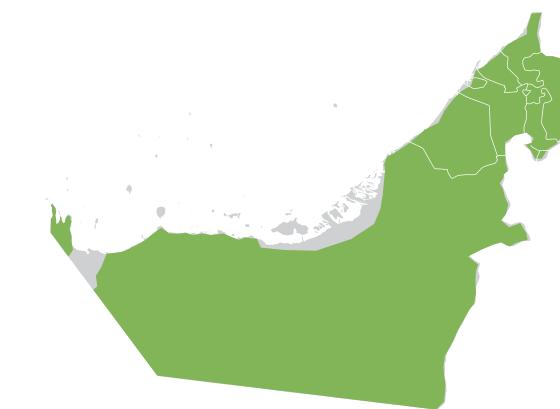


PLUMOSE TRIPLE-AWNED GRASS

Stipagrostis plumosa Munro ex T. Anderson.

This is a perennial indigenous grass that grows only with rainwater and reaches a height of 40 cm. The leaves are fine and silky in the younger stage and the plant sweeps with the wind and grows as a meadow grass. The spikelets are feathery with long seeds and are dispersed by wind. This species mainly grows in gravel, sand sheets or between stable sand dunes and has widespread distribution in the UAE. It is a favourable grass for browsing when green. Propagates by self-seeding.

Origin: Native



LOCATION IN UAE



ALPINE HAIR GRASS

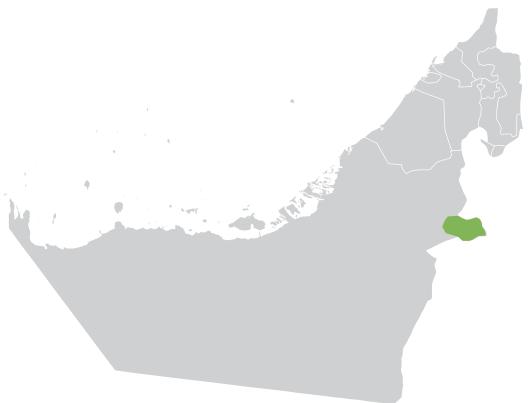


ALPINE HAIR GRASS

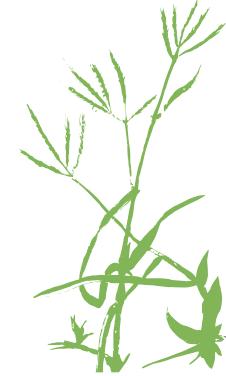
Deschampsia media (Gouan) Roem. & Schult.

This perennial grass grows up to a height 50 cm. In the UAE, the grass is very rare and recorded only in Al Ain, from the red sand dunes area and flourishes well in winter. The leaves are narrow and grey green with spikes that are pyramid in shape with long seeds. Since it is rare, the species is not available for grazing. Propagates by self-seeding.

Origin: Native



LOCATION IN UAE

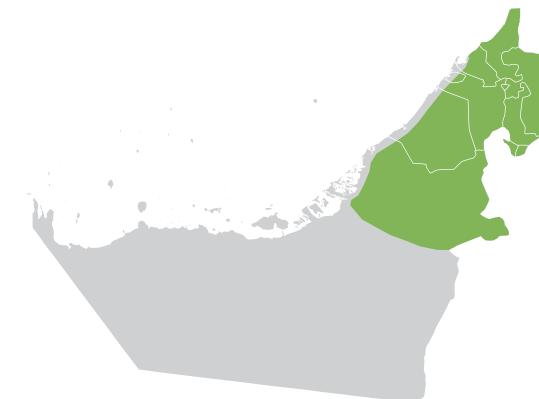


MARVEL GRASS

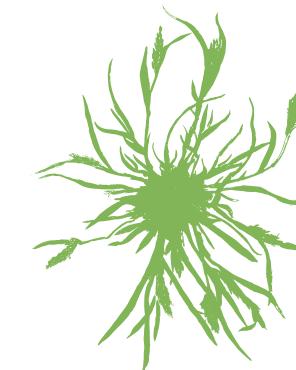
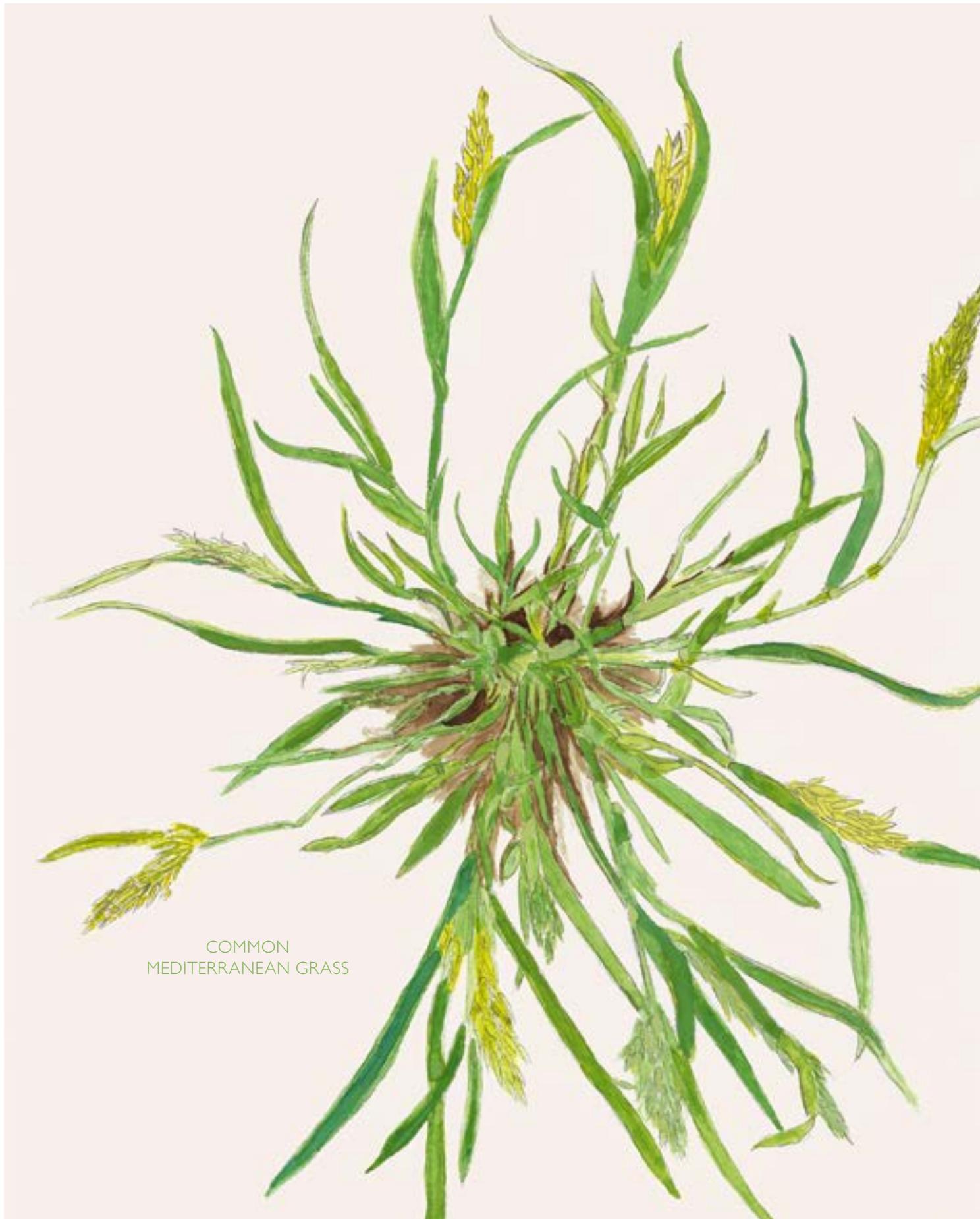
Dichanthium annulatum (Forssk.) Stapf.

This is a perennial grass that grows up to a height 180 cm. Leaves are flat which are rolled, ending in pointed tip. The spikelets are crowded in pairs. In the UAE it has widespread distribution in Al Ain and Northern Emirates. It grow in well-drained soils and is one of the fastest growing indigenous grass in the UAE. The leaf has high content dry matter and is grazed when green. The plant has a potential for restoration and can enrich our meadows with a high diversity. It propagates by self-seeding and grows when there is natural rainfall.

Origin: Native



LOCATION IN UAE

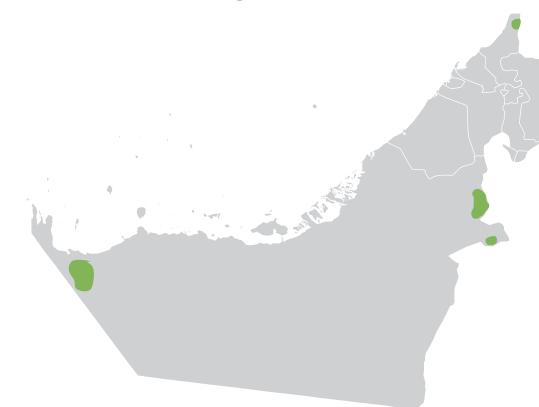


COMMON MEDITERRANEAN GRASS

Schismus barbatus (L.) Thell.
Syn: *Festuca barbata* L.

This is an annual grass with prostrate growth and grows up to 40 cm. In the UAE, it grows near Sabkha Matti and Al Hayer in Al Ain. The leaf is narrow, green and looks like silky hair and becomes reddish brown when it matures and the spikelets have long overlapping seeds. This grass can grow in harsh areas such as sand and gravel areas and the harsh climate of Sabkha Matti. It is good for grazing with a high dry matter. Propagates by self-seeding.

Origin: Native



LOCATION IN UAE



RAVENNA GRASS

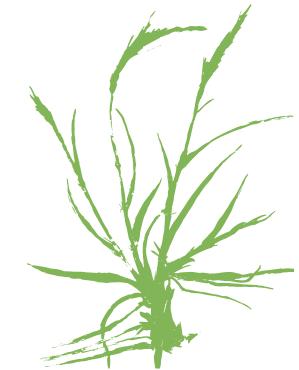
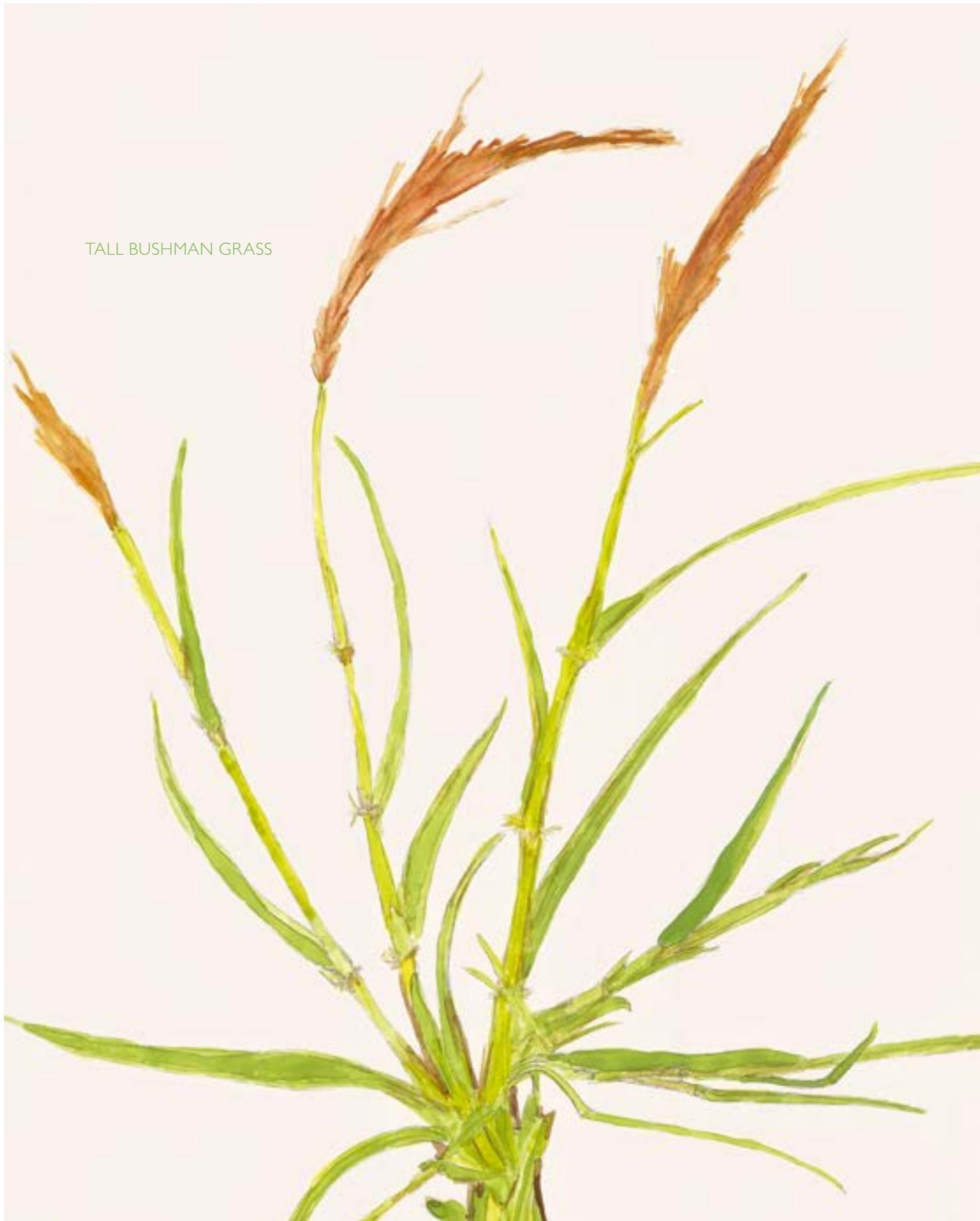
Saccharum ravennae (L.)

This is a perennial grass that grows up to a height of 300 cm. The plant grows in wadis which is an indicator of presence of water. The leaves are flat, long with sharp edges and the spikelets have a pyramid shape and are feathery in appearance. The plant is used as an ornamental in the USA and is invasive in the UK. In the UAE the species is under threat due to overgrazing and urbanization. It is not favourable for browsing because of the sharp edges, and is browsed at times when other grasses are not available. It propagates by self-seeding and division.

Origin: Native



LOCATION IN UAE



TALL BUSHMAN GRASS

Stipagrostis ciliata (Desf.) De Winter.

This is a perennial grass that grows up to 80 cm in height. The leaf is rolled and remains green in the dry season. In the UAE it is very rare and recorded from Fujairah, in gravel plains. It has a feathery spikelet with branched hair-like appendages. It is good for grazing but not easily found. Propagates by self-seeding only when it rains.

Origin: Native



LOCATION IN UAE



TRICHOLAENA GRASS

Tricholaena teneriffae L.f. Link.

This is a perennial grass which grows up to 90 cm in height. In the UAE, it is recorded from the Hajar Mountains and Al Ain. The leaves are flat or rolled with a sharp tip. It's a good fodder species when grazed green. It propagates by self-seeding.

Origin: Native



LOCATION IN UAE



NATURALISED GRASSES



BROWNTOP MILLET

Brachiaria ramosa (L.) Stapf.

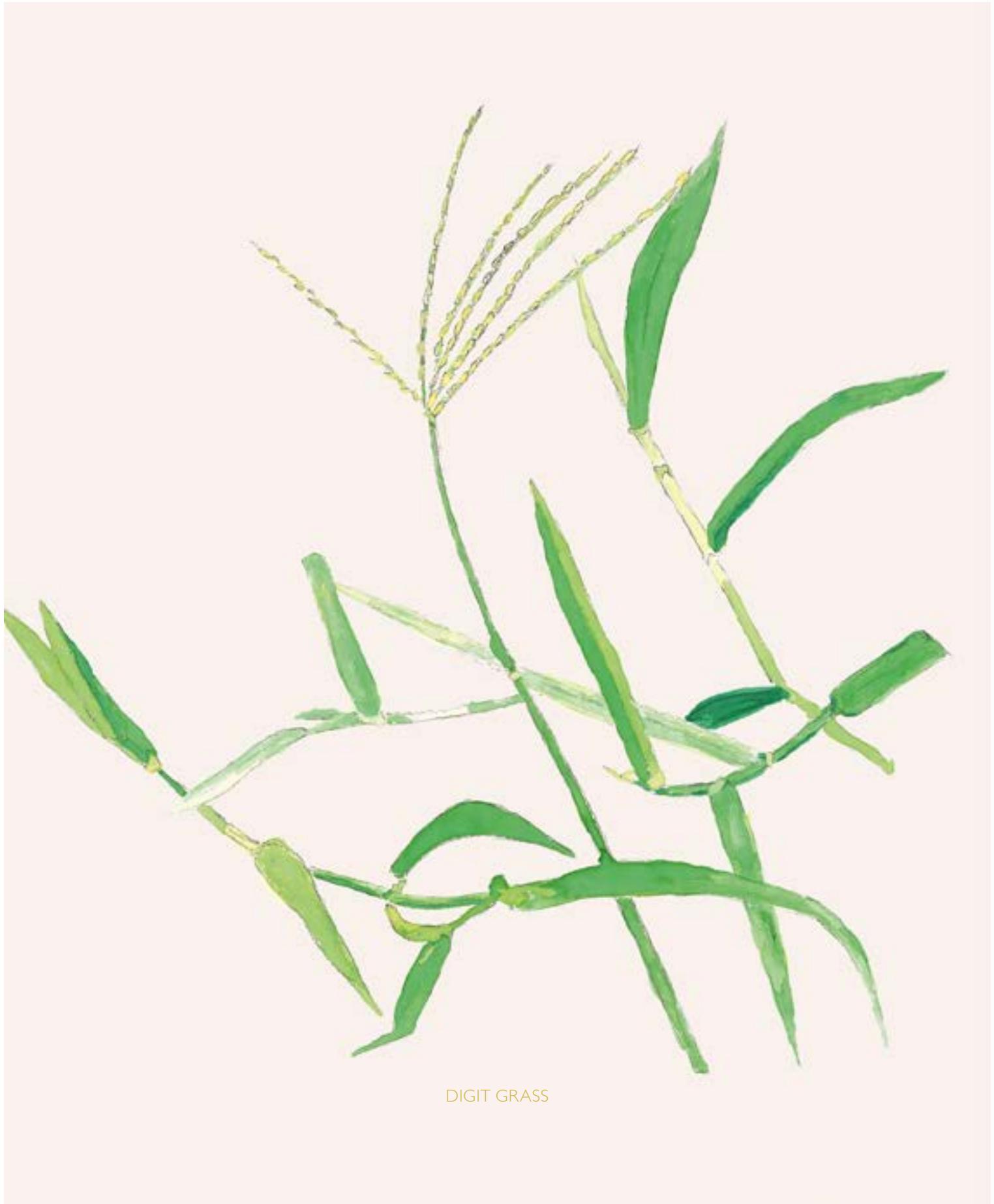
This is an annual grass, which grows up to 70 cm in height. The genus Brachiaria has a worldwide distribution, from tropical Africa to Asia, with both annual and perennial species. In the UAE, this species is recorded in Jebal Hafit area in Al Ain region. The spikelets are seen in pairs and the seeds are round and small. This species is good for grazing even when the plants are green.

Propagation is by seeds.

Origin: Naturalised



LOCATION IN UAE



DIGIT GRASS

Digitaria eriantha Steud.

This is an annual or perennial grass that grows up to a height of 100 cm. In UAE, the species is rare and is only recorded from Liwa. The grass grows prostrate and spreads by rhizome growing on the surface of the soil. It has a deep rooting system and can withstand both heat and drought. The spikelet radiates from a single point. The seeds are long with bristles, which are sticky. It flourishes well in the summer months and produces seeds year round. It is a suitable fodder grass both in green and dry conditions. The grass becomes blue-green in color under heat stress. Propagation is by self-seeding and by cuttings.

Origin: Naturalised



LOCATION IN UAE



ASIAN CRAB GRASS



ASIAN CRAB GRASS

Digitaria bicornis (Lam.) Roem. & Schult.

This is an annual or perennial grass that grows to a height of 60 cm. The species is widespread in the UAE in disturbed areas such as wastelands, roadsides, etc. The species is similar to *D. eriantha* and is a good summer fodder grass flourishing well during the summer months. Propagation is by self-seeding and/or by cuttings.

Origin: Naturalised



LOCATION IN UAE



JUNGLE RICE

Echinochloa colona (L.) Link.

This is a perennial grass that grows up to 30 cm in height, and has a weedy nature, and flourishes well in the summer months. In the UAE this species is common in gardens, plantations, disturbed habitats, roadsides and wet areas. It has dense branched spikes, with five spikelets, that attract small birds, which feed on the small seeds. This is a good grazing species with a high protein content.

It grows well in all types of soil and propagates by self-seeding.

Origin: Naturalised



LOCATION IN UAE





INTRODUCED GRASSES



ZOYSIA GRASS

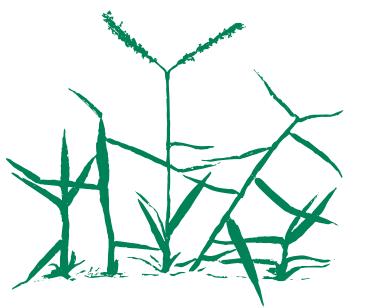
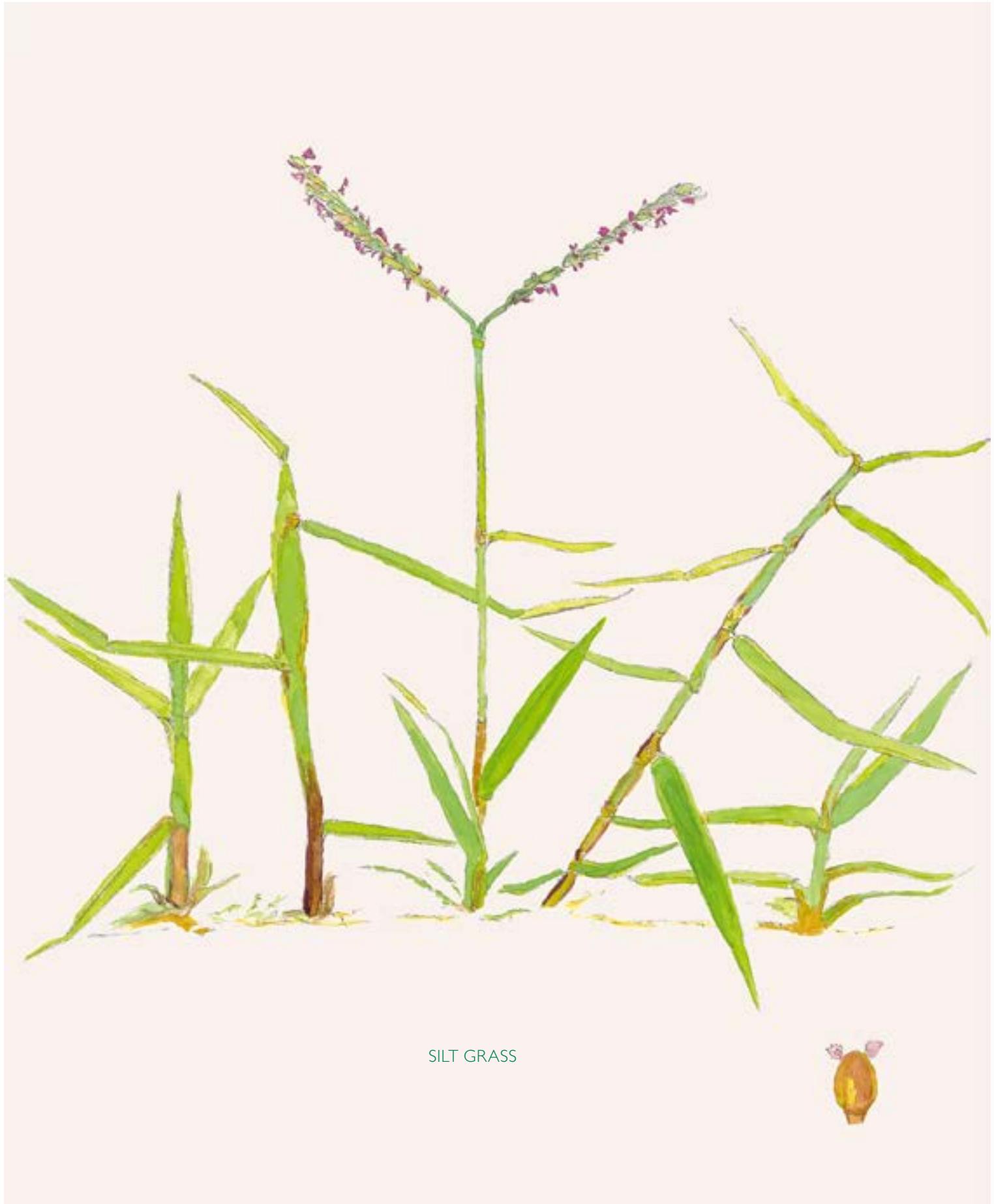
Zoysia tenuifolia Thiele.

This is an introduced species, commonly used as ornamental lawn grass. This is one of shortest grass and grows up to 3-10 cm in height. The grass has been introduced in to the UAE from Japan. The grass grows very slow and forms a spongy dense carpet. When it is dry and under high saline conditions, the end of the leaves become sharp and pointed to resist the coastal winds. The species can adapt well to the extreme weather conditions and propagates by spreading on the soil surface. Thus this grass can be grown by growing parts of the plant in the soil as the seeds are expensive.

Origin: Introduced



LOCATION IN UAE

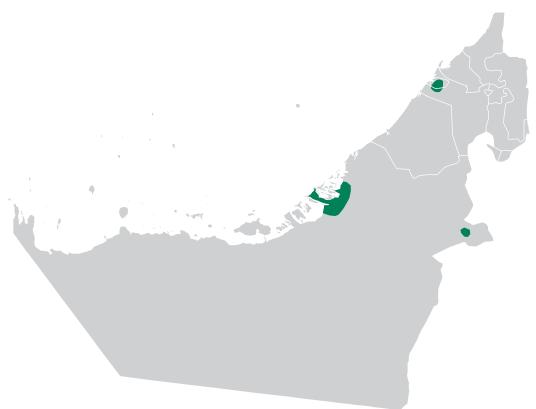


SILT GRASS

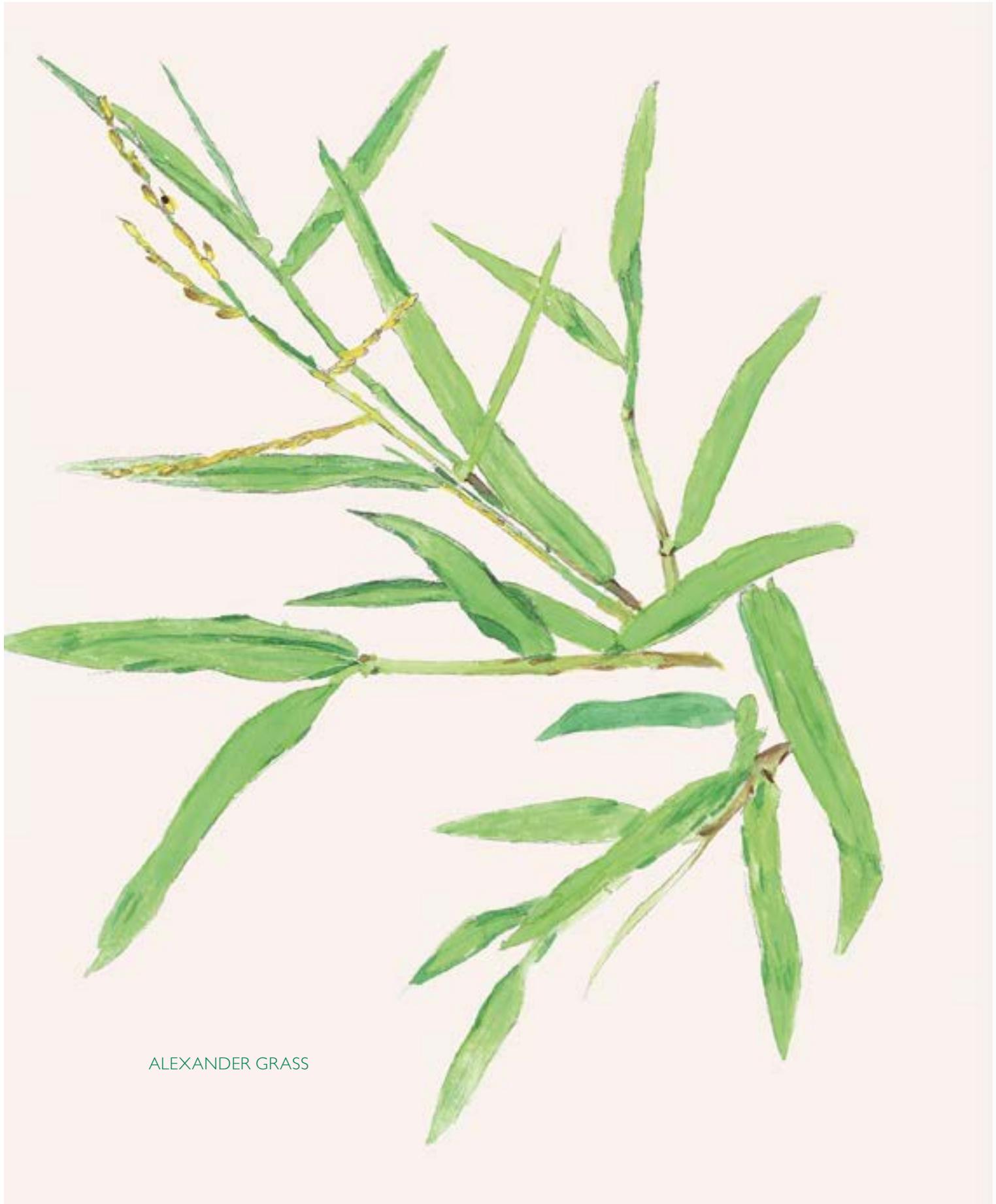
Paspalum vaginatum Sw.

This is an introduced perennial grass grows up to a height of 30 cm. The species is widespread and used as ornamental plant in gardens and lawns due to its toughness and its ability to withstand high soil and water salinity . The distinguishing feature of the grass is its thick and juicy stems. It can grow in inland desert oasis and the growth of this grass can be controlled and it does not have an invasive nature. The grass is less palatable and can resist overgrazing. It spreads by its rhizomes and stolons.

Origin: Introduced



LOCATION IN UAE

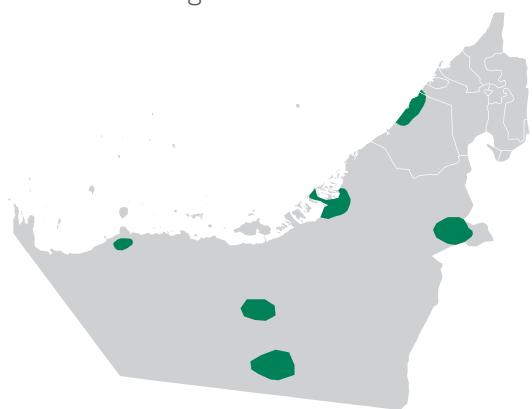


ALEXANDER GRASS

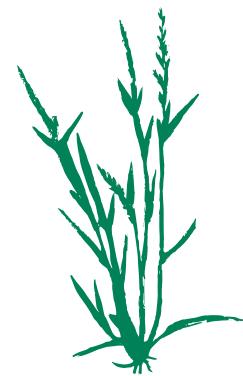
Brachiaria plantaginea (Link) Hitchc.

This is a perennial grass that grows to a height of 30 cm, with a creeping rhizome. This is globally widespread and has been introduced into the UAE for ornamental purpose for its beautiful green foliage. It can grow well in shaded places and can grow in all soil types including poor sandy soils. The grass can resist drought and salinity and flourish well in the hot summer months. The spikelet is pointed with seven awns. The mycorrhiza present in the root help to fix nitrogen and aid in water absorption. The grass does not grow aggressively and has high palatability making it suitable for grazing. Propagation of this species is by seeds and cuttings and can be irrigated with a drip or sprinkler.

Origin: Introduced



LOCATION IN UAE

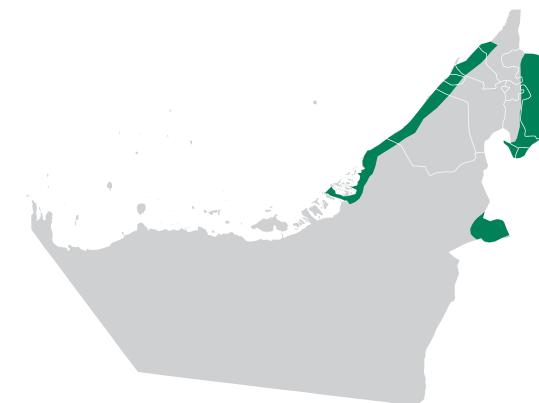


ANNUAL RYEGRASS

Lolium rigidum Gaudin.

This is an annual grass that grows up to 100 cm in height and it belongs to the same genera as Rye grass. This grass is originally from the Mediterranean region. In the UAE, the species is found in plantations and gardens during the winter months. The seed is long and single with a short alternating spikelet. The growth rate depends on water availability and is a good fodder plant with a high protein content. Propagates by seeds.

Origin: Introduced





ITALIAN RYEGRASS



ITALIAN RYEGRASS

Lolium multiflorum Lam.

This is a perennial grass that flourishes well in the winter months and grows up to 100 cm in height. In the UAE, the species is found in plantations and gardens and as an escapee seen in disturbed areas, fields and roadsides. They are used for ornamental purpose due to their shiny and attractive foliage and is a good green fodder plant with a high protein content. The species is also not poisonous and does not cause bloat problems in livestock. Seeds are also eaten by ducks and geese. Propagation is by self-seeding.

Origin: Introduced



LOCATION IN UAE



JOHNSON GRASS

Sorghum halepense (L.) Pers.

This is an annual or perennial grass if it is cut for fodder. It can grow up to 200 cm in height and has a small red coloured fruit. In the UAE, the grass is traditionally cultivated in the Hajar Mountains and Al Ain oasis. It is used as fodder only when dry, if consumed green, it can cause bloat in livestock. When it is green, it has hydrogen cyanide, which makes it poisonous. Propogation is by sowing seeds.

Origin: Introduced





RHODES GRASS

Chloris gayana Kunth.

This is an annual grass that grows to a height of up about 200 cm and flourish well in the winter months. It is native to Africa and is naturalized in many parts of the world. It is a widespread cultivated species across the UAE. This grass can cut and be made in to hay 12 times in the life cycle of the plant. It has a good economic value as it produces a high yield and can be used as fodder when it is green or when dried. It can withstand salinity up to 14g/litre. Propagation is by sowing seeds. It can withstand salinity up to 14g/litre. Propagation is by sowing seeds.

Origin: Introduced



LOCATION IN UAE



SMALL CARPET GRASS

Arthraxon hispidus (Thunb.) Makino.

This is a perennial winter grass that grows up to 50 cm and spreads up to 100 cm under shades. The grass is native to East Asia. In the UAE it has been recorded from Abu Dhabi Island. The leaves are broad unlike other grasses. This is an alien grass species that was introduced into the country along with other ornamentals plants. It has long spikes and inhabits wet areas. Propagates by self-seeding and division.

Origin: Introduced



LOCATION IN UAE



CRIMSON FOUNTAIN GRASS

Pennisetum setaceum (Forssk.) Chiov.

This is a perennial ornamental grass that grows up to 100 cm with a dense growth and a single spike. This is an escapee from gardens to wadis and is invasive in some parts of the world such as Yemen and Spain. In the UAE this species is mainly seen in urban areas and it can also be seen as escapee in wadis on Jebel Hafit. The leaves rigid with rolled edges and can resist grazing. It propagates by self-seeding and division of culm.

Origin: Introduced



LOCATION IN UAE



RED FOUNTAIN GRASS

Pennisetum setaceum 'Rubrum'

This is a perennial ornamental red grass that grows up to 100 cm in height. It flourishes well in winter months and the grass is not aggressive and cannot withstand heat. The leaves are flat and red with a single spike. In the UAE the species is mainly seen in urban areas as cultivated species and needs good care and need to be trimmed every 4 months. Propagation is only by division.

Origin: Introduced



LOCATION IN UAE



GIANT REED

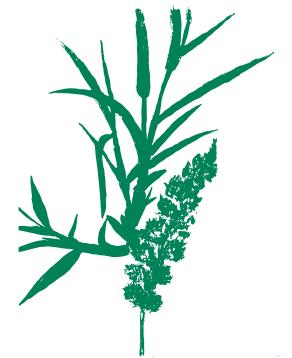
Arundo donax L.

This is a perennial bamboo like grass that grows up to 600 cm in height. This plant can withstand heat and drought and unlike the common reed, which grows in water, this giant reed need moist soil for its growth. It has feathery spikelets and the stem can be used for building and as a fuel source in the future. In the UAE it is found in Abu Dhabi, Ruwais and Hajar Mountains. It also grows in gardens and it is a good fodder species with high content of dry matter. Propagation is by division of rhizomes and by self-seeding.

Origin: Native



LOCATION IN UAE



SOUTHERN SANDBUR

Cenchrus echinatus

This perennial grass reaches up to a height of 40 cm. In the UAE, it is seen mainly in urban areas, waste land and plantations. It is also recorded from Abu Dhabi Island. It has a single spike with spiny bristles. It is a harmful species besides highly invasive as it can kill small browsers as the spiny spikelet's can penetrate the skin and eyes. One way to control this species is by burning mature plants, especially in the seeding stage before dispersal. It propagates by self-seeding.

Origin: Introduced



LOCATION IN UAE

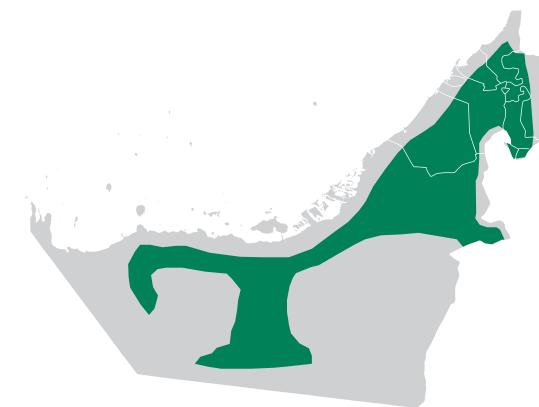


HOOKED BRISTLE GRASS

Setaria verticillata (L.) P.Beauv.

This is an invasive annual grass that can reach up to 40 cm in height. In the UAE it is seen mainly in urban areas, disturbed areas and plantations. It is recorded from Abu Dhabi Island and in the Northern Emirates where it has a widespread distribution. The plant is introduced into the country through the import of organic fertilizer from Pakistan. One way to control the species is by burning mature plants, especially in the seeding stage before seed dispersal. It propagates by self-seeding.

Origin: Introduced



LOCATION IN UAE

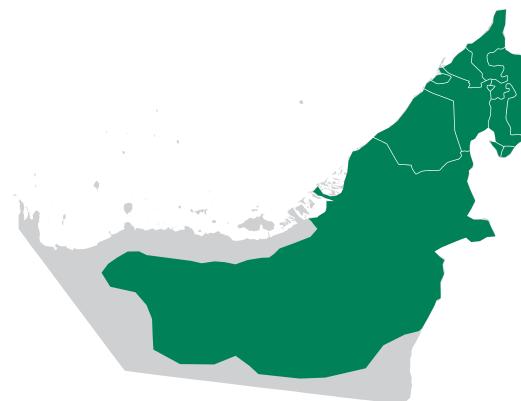


EGYPTIAN CROWFOOT GRASS

Dactyloctenium aegyptium (L.)

This is an annual invasive grass that grows up to 30 cm in height. This is a problematic species in gardens and in agriculture. In the garden, when it is dry it gives the appearance of unpleasant dry patches between other perennial grass. It grows in all types of soil, even along the coastal sands. The plant is a good fodder species but secondary because of its low yield. In the UAE, it has a widespread distribution in agricultural fields, gardens, urban areas and sidewalks. It propagates by self-seeding.

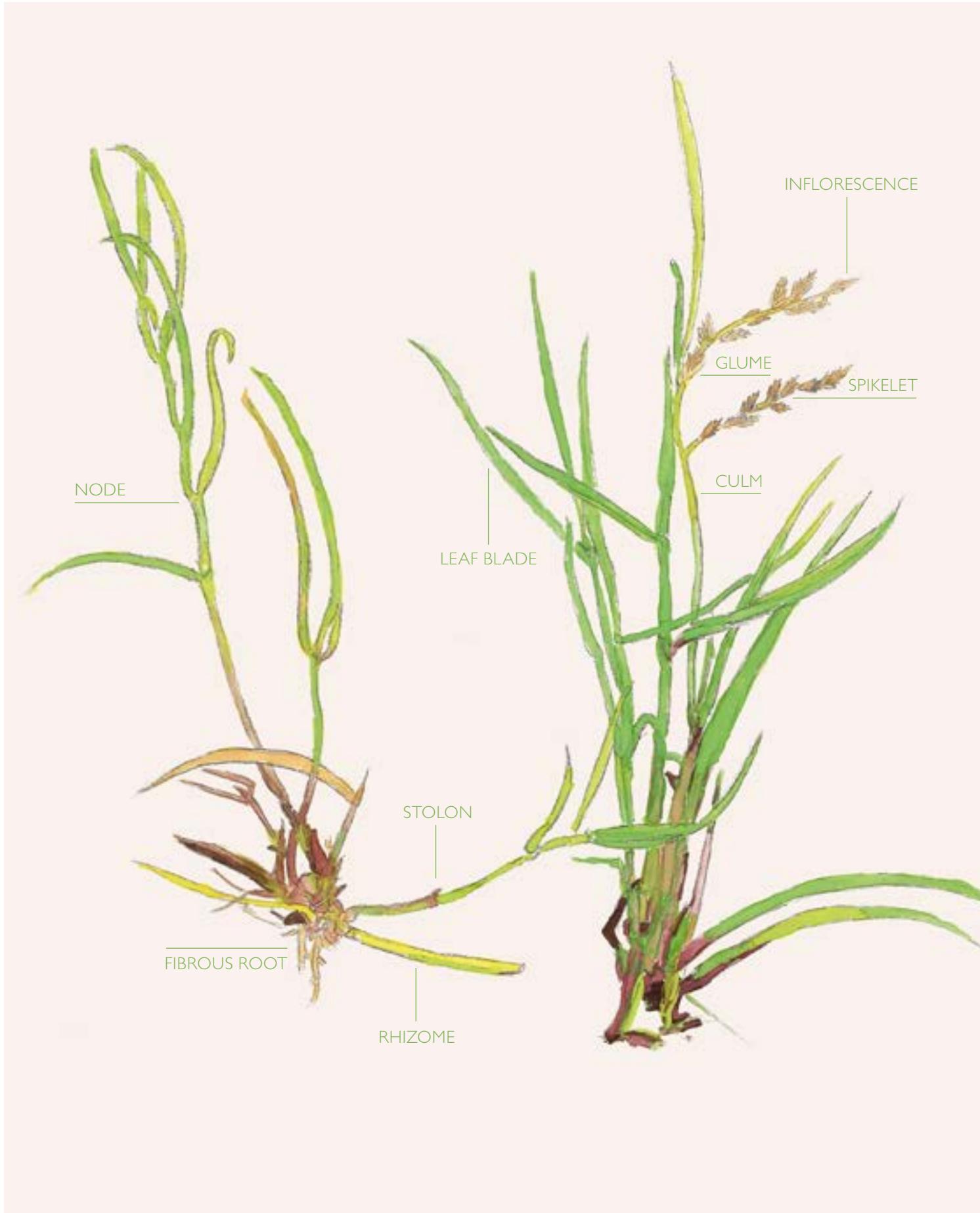
Origin: Introduced



LOCATION IN UAE







GLOSSARY

1. Annual - Living for a single year.
2. Awn - A bristle usually terminating a structure or on the end of glumes.
3. Blade - The part of the leaf above the sheath.
4. Bract - A reduced leaf structure, includes the floret structures of glumes, lemma, and palea.
5. Bristle - A stiff, slender appendage.
6. Bulb - Underground storage organ.
7. Creeping - Spreading just under the surface of the soil.
8. Culm - The stem of grass plant that terminates in an inflorescence
9. Floret - A small flower.
10. Glume - A pair of bracts at the base of a spikelet.
11. Grain - The fruit of most grasses which is used for food or for stock-feed.
12. Inflorescence - The flowering part of a plant.
13. Introduced - Species which have been brought into UAE.
14. Loamy soil - Mixture of sand, silt and some clay.
15. Mycorrhiza - A beneficial association between a fungus and the roots of a plant.
16. Native - Species, which originated in UAE.
17. Node - Region on a stem where leaves and branches are produced.
18. Panicle - A type of inflorescence composed of several racemes.
19. Pedicel - The individual stalk of a spikelet.
20. Peduncle - The stalk of an inflorescence.
21. Perennial - Living more than one year.
22. Propagation - Multiplication of plants by seed or by vegetative means.
23. Prostrate - Growing flat
24. Self-seeding - Plants drop their capsules or seeds at the end of the season. In most cases, the seeds need nothing more than the soil they fall onto, relying on natural seasonal changes to germinate and grow.
25. Stolon - An above ground modified reproductive stem.
26. Rhizome - An underground stem
27. Rhizosheath - The roots are covered in hairs to which fine sand adheres creating a flited appearance.
28. Rhizophore - Specialised part of the stem bearing rhizoids.
29. Spike - An inflorescence having individual spikelets without stalks, attached directly to the unbranched rachis (main axis).
30. Spikelet - In grasses, a small spike, consisting of one or more florets attached to a small central axis, together with the basal bracts called glumes.



REFERENCES

- Brown G., Sakkir S. (2004a) The vascular plants of Abu Dhabi Emirate. Internal Research Report, Environmental Research and Wildlife Development Agency, Abu Dhabi, 36 pp.
- Collenette S (1999) Wild Flowers of Saudi Arabia. National Commission for Wildlife Conservation and Development, Riyadh, 799 pp. IUCN (2013) IUCN Red List of Threatened Species, Version 2013.1. International Union for Conservation of Nature. <http://www.iucnredlist.org>. Accessed on 2017-1-22.
- Jongbloed MVD (2003) The Comprehensive Guide to the Wild Flowers of the United Arab Emirates. Environmental Research and Wildlife Development Agency, Abu Dhabi, 576 pp.
- Karim FM, Fawzi NM (2007) Flora of the United Arab Emirates United Arab Emirates University, Al Ain, UAE, 502 pp.
- Western AR (1989) The Flora of the United Arab Emirates University of Al Ain, Abu Dhabi, UAE, 88 pp.

Tel. 02 6934444
customerhappiness@ead.ae
www.ead.ae

