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## A study on 74 varieties of palm trees used around the world as food and Ornaments

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**Abstract**

Palm trees, a diverse and ecologically significant group of plants, have been utilized by human societies for centuries for various purposes, ranging from sustenance to ornamental use. This work presents an examination of the global diversity of palm tree species, with a particular focus on their dual roles as sources of food and ornamental elements. The study begins with an exploration of the extensive taxonomy and distribution of palm trees, highlighting the myriad species found across different regions and ecosystems. Special attention is given to the unique characteristics that make each variety distinct, including their morphology, ecological preferences, and adaptability to diverse climates. A systematic search on scientific literatures in NAPRALERT, PubMed, Medline and Peered Reviewed Journals from the inception of the database to December, 2023 was conducted. More information was collected from Google Scholar and gray literature (Leafyplace.com) on the subject matter. To determine accuracy and quality of the gray literature information, the Authority, Accuracy, Coverage, Objectivity, Date and Significance (AACODS) was used. The results reviewed 74 different species of palm trees including 7 species of Loulu palm trees and 5 species of Indoor palm trees with Quindío wax palm the tallest in the world (45-60m) found in the warmest zones of the USA and Needle palm being the smallest 3 ft. (1 m) tall found in many habitats and native to central Texas and northeastern Mexico. Two of the varieties of the palm trees were identified as pseudo palm trees. The first major component of the results identified palms by their common names, scientific names, maturity sizes, USDA hardness, and the extent of their sunlight exposure. The second major focus of the results delved into differentiating the different species of palms by their gross morphology, classifications, climatic conditions, and uses. Lastly, the third component of the results displayed their identifications by pictures. In conclusion, the synthesis of these three components of inquiry provided a holistic understanding of the multifaceted different varieties of palm trees worldwide. These will help in the choice of the appropriate palm plant for one's garden or for growing indoors and for food. Recommendations are offered for the conservation and responsible utilization of palm trees, both for their nutritional benefits and their aesthetic contributions to human culture and landscapes.

**Keywords:** *Arecaceae*, palms, varieties, foods, ornaments, climate

**Introduction**

Understanding the introduction and global distribution of palm trees involves exploring their ecological roles, cultural significance, economic importance, and the various adaptations that enable them to thrive in diverse environments<sup>[1]</sup>. Conservation efforts are essential to ensure the sustainability of palm species and the ecosystems they inhabit<sup>[2]</sup>. Palm trees are a diverse group of evergreen plants of the *Arecaceae* family. They are known for their distinctive feather-like or fan-shaped leaves, tall trunks, and association with tropical and subtropical environments<sup>[3]</sup>. Although Palm trees are found in warm, sunny, climates, and landscapes, some species are grown in the temperate, tolerant of cold temperatures, others are grown indoors<sup>[4]</sup>. The Pygmy Date palm, Pindo Palm tree, Triangle palm plant, and the Mediterranean dwarf palm are common varieties of palm trees<sup>[5]</sup>. The Mazari palm, Dwarf Majesty palm tree, Christmas palm tree, and Bottle palm tree are other significant palm trees<sup>[6]</sup>. Over 2,600 species and 200 genera of palm trees exist<sup>[7]</sup>. Palm trees are organized by their unbranched stems and large fronds<sup>[8]</sup>. Palms grow to varying heights; types of coconut palms, can grow no more than 100 ft. (30 m) tall, Date palms can grow up to 75 ft. (22 m), the small palm trees planted in gardens grow 6 to 9 ft. (1.8 - 2.7 m), the dwarf palm tree plants grow well indoors in containers<sup>[9]</sup>. This work classifies palms into different sizes; tall, small, dwarf and indoor varieties; identifies the different varieties of palm trees by use of pictures and common names to help choose the appropriate palm for your environment, garden or indoors<sup>[10]</sup>.

Palm trees exhibit a wide range of sizes, shapes, and adaptations [11]. They are distributed across the globe, with a concentration in tropical and subtropical regions. They thrive in a variety of ecosystems, including rainforests, deserts, and coastal areas [12]. Palms are often associated with tropical rainforests, where they contribute to the biodiversity and structure of these ecosystems. Many species also inhabit subtropical regions, thriving in areas with warm temperatures and moderate rainfall [13]. They are a source of various products, including palm oil, coconut products, dates, and palm wine. Ornamental palms are widely used in landscaping and gardening [14]. Palm trees hold cultural significance in many societies and religions. They are often associated with symbols of peace, victory, and fertility. Palms are frequently depicted in art, literature, and religious texts [15]. Some palm species have evolved to thrive in arid environments, such as deserts. They often have specialized adaptations, such as deep root systems and water-storing tissues, to survive in low-water conditions [16]. Coconut palm (*Cocos nucifera*) is known for its versatile uses, providing coconut water, oil, and other products. Date palm (*Phoenix dactylifera*) provides sweet edible fruit, dates, and often cultivated in arid regions [17]. Some palm species face threats due to habitat destruction, overharvesting, and climate change. Conservation efforts focus on protecting diverse palm habitats and promoting sustainable practices in the harvesting of palm products. Palms play a crucial role in maintaining ecosystem stability. They contribute to soil conservation, provide habitat for various wildlife, and play a role in nutrient cycling [18]. Palm products, especially palm oil, have a significant impact on global trade and commerce [19]. Palm trees play a dual role as both a vital source of food, supporting local economies and providing essential nutrients, and as ornamental plants, enhancing landscapes, cultures, and recreational spaces. Balancing the economic benefits of palm cultivation with sustainable practices and conservation efforts is crucial to ensure the long-term viability of these significant plant species [20].

Many palm products, such as coconuts and dates, are rich in essential nutrients, including vitamins, minerals, and healthy fats. Palm oil is used in a variety of food products and is an important source of calories in many regions. Coconut Palm (*Cocos nucifera*) provides coconut meat or kernel, water, and oil, which are staple foods in many tropical regions. Date Palm (*Phoenix dactylifera*) provides sweet and nutritious dates and is a widely consumed fruit. Oil Palms (*Elaeis guineensis* and *Elaeis oleifera*) are major sources of palm oil, used in various food products globally [21]. Palm products are used in traditional cuisines, adding flavor and nutritional value to a variety of dishes. Coconut milk and oil are common ingredients in Asian and tropical cuisines [22]. Palms, particularly oil palms, are cultivated on a large scale for commercial purposes, providing livelihoods for many communities. Sustainable palm oil practices aim to balance economic benefits with environmental conservation [23]. The cultivation and processing of palm products create job opportunities and support local industries [24]. Palm trees are widely used in landscaping to create tropical and exotic garden settings. Their distinctive and

often elegant appearance adds aesthetic value to parks, resorts, and private gardens. Palms are often planted near buildings or along streets to enhance the visual appeal of urban landscapes. They contribute to the design and architecture of outdoor spaces [25]. Some smaller palm species are popular as indoor ornamental plants. They are valued for their ability to thrive in indoor environments and add a touch of greenery to homes and offices. Palms have symbolic value in many cultures, representing peace, victory, and tropical beauty. They are often used in celebrations, festivals, and religious ceremonies [26]. The presence of palm trees in tourist destinations enhances the appeal of tropical locations. Palms contribute to the ambiance of resorts, beaches, and recreational areas, attracting visitors. Ornamental palm cultivation encourages the preservation and propagation of diverse palm species. Botanical gardens and arboretums play a role in showcasing and conserving palm diversity for educational and research purposes [27].

Some palm trees are not actually trees; some are shrub-like evergreen plants and others are climbing [29]. The recognition of the species of palm trees is usually done by their unique leaf shapes and their main stem. Commonly, palm tree leaves are either pinnate - feather-like or palmate -fan-like [30]. Palm trees may be recognized by their main stems; some of the tallest species have long slender single main stems while the dwarf varieties typically have short fat main stems [31]. The smaller palm tree species may have assembled stems with 3 or 4 short trunks growing together. There are some dwarf palms trees that just have bushy pinnate fronds growing out of the ground and do not have any stem. One can identify a palm tree by the look of the palm trunk; some tall palm trees have smooth, slender trunks [32], some have trunks covered in fiber or husks that make them appear hairy or spiky [33].

Most people who grow palm trees in their gardens choose small or miniature types of palm trees. Typically, miniature palm tree species or small palm trees grow less than 12 ft. (3.6 m) tall, which is considered short for palm trees. The bushy palm trees and small palm trees are the two types of the dwarf or small palms [34]. Regardless of one's climate and the garden type, there are many options of palm tree species to choose from that would be suitable.

## Materials and Methods

**Materials:** HP-Computer, Internet services, NAPRALERT, PubMed, Medline, Books, Peered Reviewed Journals, Google Scholar, and Gray Literature.

**Methods:** A systematic search on scientific literatures in NAPRALERT, PubMed, Medline and Peered Reviewed Journals from the inception of the database to December, 2023 was conducted. More information was collected from Google Scholar and gray literature (Leafyplace.com) on the subject matter. To determine accuracy and quality of the gray literature information, the Authority, Accuracy, Coverage, Objectivity, Date and Significance (AACODS) was used.

## Results

**Table 1:** 74 Varieties of Palm Trees around the world showing their common names, scientific names, maturity sizes, USDA hardness, and sunlight exposures

S/N	Common Name	Scientific Name	Maturity Size	USDA Hardness	Sunlight Exposure
1	Cat Palm	<i>Chamaedorea cataractarum</i>	6 ft. (2 m) outdoors, 3 ft. (1 m) indoors	9 to 11	Full to partial shade
2	Pygmy Date Palm	<i>Phoenix roebelenii</i>	6 to 10 ft. (1.8-3 m)	9 to 11	Full sun
3	Pindo Palm	<i>Butia odorata</i>	15 to 20 ft. (4.5-6 m)	9 to 11	Full sun to partial shade
4	Triangle Palm	<i>Dypsis decaryi</i>	25-30 ft. (7-9 m)	10 to 11	Full sun to partial shade
5	Mediterranean Dwarf Palm	<i>Chamaerops humilis</i>	10 to 20 ft. (2-5 m)	8 to 11	Full sun to partial shade
6	Mazari Palm	<i>Nannorrhops ritchiana</i>	10-20 ft. (3 to 6 m)	6 to 11	Full sun
7	Dwarf Majesty Palm	<i>Ravenea hildebrandtii</i>	8 ft. (2.4 m)	6 to 11	Full to partial shade
8	Christmas Palm Tree	<i>Adonidia merrillii</i>	25 ft. (7.6 m)	10 to 11	Full sun
9	Bottle Palm Tree	<i>Hyophorbe lagenicaulis</i>	10 to 12 ft. (3 to 3.6 m)	10 to 11	Full sun
10	Sago Palm	<i>Cycas revoluta</i>	8-10 ft. (2.4-3 m)	9 to 11	Ample sunlight
11	Red Sealing Wax Palm / Lipstick Palm	<i>Cyrtostachys renda</i>	10 to 20 ft. (3-6 m)	10 and 11	Full sun
12	Arikury Palm	<i>Syagrus schizophylla</i>	Up to 6 ft. (1.8 m)	9 to 11	Full sun to partial shade
13	Florida Cherry Palm	<i>Pseudophoenix sargentii</i>	10 to 25 ft. (3-7.6 m)	10 to 11	Full sun
14	Sand Palm	<i>Allagoptera arenaria</i>	10 to 25 ft. (3-7.6 m)	10-11	Full sun
15	Dwarf Sugar Palm	<i>Arenga engleri</i>	6 - 8 ft. (1.8 m - 2.4 m)	10-11	Full sun
16	Coconut palm	<i>Cocos nucifera</i>	Up to 100 ft. (30 m)	10-12	Full sun
17	Date Palm	<i>Phoenix dactylifera</i>	70 to 75 ft. (21-23 m)	8-12	Full sun
18	California Fan Palm	<i>Washingtonia filifera</i>	40 to 60 ft. (12-18 m)	8-11	Full sun
19	Chilean Wine Palm	<i>Jubaea chilensis</i>	60 to 80 ft. (18-24 m)	8-11	Full sun
20	Florida Royal Palm	<i>Roystonea regia</i>	65 to 100 ft. (20-30 m)	10-11	Full to partial sun shade
21	Açai Palm	<i>Euterpe oleracea</i>	Around 26 to 98 ft. (8-30 m)	8-12	Full sun to partial shade
22	Peach palm	<i>Bactris gasipaes</i>	19.6 to 79 ft. (6-24 m)	11-12	Full sun
23	Oil Palm	<i>Elaeis guineensis</i>	Up to 66 ft. (20 m)	10-12	Full sun
24	Foxtail Palm	<i>Wodyetia bifurcata</i>	30 ft. (9 m)	10-11	Full to partial sun
25	Guadalupe Palm	<i>Brahea edulis</i>	15 to 40 ft. (4.5-12 m)	9-11	Full sun
26	Bismarck Palm	<i>Bismarckia nobilis</i>	40 ft. (12 m)	10-11	Full to partial shade
27	Cayman Thatch Palm	<i>Coccothrinax proctorii</i>	10 to 20 ft. (3-6 m)	9-11	Full sun to light shade
28	MacArthur Palm	<i>Ptychosperma macarthurii</i>	Up to 33 ft. (10 m)	10-11	Full to partial shade
29	Canary Island Date Palm Tree	<i>Phoenix canariensis</i>	33 to 66 ft. (10-20 m)	9-11	Full sun
30	Sylvester Palm Tree	<i>Phoenix sylvestris</i>	13 to 50 ft. (4-15 m)	9-11	Full sun
31	Chinese Fan Palm	<i>Livistona chinensis</i>	10 to 30 ft. (3-9 m)	9-11	Full sun
32	Palmetto Palm	<i>Sabal palmetto</i>	Up to 65 ft. (20 m)	8-11	Full sun
33	Mexican Palm	<i>Washingtonia robusta</i>	Up to 82 ft. (25 m)	9-11	Full sun
34	Windmill Palm	<i>Trachycarpus fortune</i>	Up to 66 ft. (20 m)	7-11	Full sun to partial shade
35	King Palm / Bangalow palm	<i>Archontophoenix cunninghamiana</i>	Up to 65 ft. (20 m)	10-11	Full sun to partial shade
36	Red Latan Palm	<i>Latania lontaroides</i>	30 to 40 ft. (9-12 m)	10 to 11	Full sun
37	Fishtail Palm	<i>Caryota mitis</i>	40 ft. (12 m) tall and 10 ft. (3 m) wide.	8 to 11	Full sun to partial shade.
38	Montgomery Palm	<i>Veitchia arecina</i>	80 ft. (24 m)	10-11	Full to partial sun
39	Puerto Rican Thatch Palm	<i>Coccothrinax alta</i>	50 ft. (15 m)	10-11	Full sun
40	Everglades Palm	<i>Acoelorrhapha wrightii</i>	20 to 30 ft. (6-9 m)	9-11	Full sun to partial shade
41	Saw Palmetto	<i>Serenoa repens</i>	5 to 10 ft. (1.5-3 m)	9-11	Full sun to partial shade
42	Queen Palm	<i>Syagrus romanzoffiana</i>	50 to 70 ft. (15-21 m)	9-11	Full sun
43	Texas Sabal Palm	<i>Sabal mexicana</i>	50 ft. (15 m) tall and 25 ft. (7.6 m) wide	8-11	Full sun
44	Dwarf Palmetto Palm	<i>Sabal minor</i>	4 to 5 ft. (1.2-1.5 m) tall and wide	7-10	Full sun to partial shade
45	Needle Palm	<i>Rhapidophyllum hystrix</i>	3 to 6 ft. (1-1.8 m)	6-10	Full to partial sun
46	Alexandra Palm	<i>Archontophoenix alexandria</i>	Up to 100 ft. (30 m)	10-12	Full sun
47	Caribbean Royal Palm	<i>Roystonea oleracea</i>	130 ft. (40 m)	10-11	Full sun
48	Yellow Latan Palm	<i>Latania verschaffeltii</i>	36 and 50 ft. (11-15 m)	9-11	Full sun
49	Blue Latan Palm	<i>Latania loddigesii</i>	20 to 25 ft. (6-8 m)	10-11	Full sun to partial shade
50	San Jose Hesper Palm	<i>Brahea brandegeei</i>	40 to 60 ft. (12-18 m)	10-11	Full sun
51	Flame Thrower Pam	<i>Chambeyronia macrocarpa</i>	20 to 25 ft. (6-7.6 m)	10-11	Full sun to partial shade
52	Loulu Palm	<i>Pritchardia spp.</i>	6 to 50 ft.	6-12	Full sun to partial shade
52a	Loulu Palm	<i>Pritchardia remota</i>	13-16 ft. (4-5 m) tall	6-10	Full sun to partial shade
52b	Loulu Palm	<i>Pritchardia munroi</i>	16 ft. (5 m) tall	6-10	Full sun to partial shade
52c	Loulu Palm	<i>Pritchardia arecina</i>	30-50 ft. (9-15 m) tall	10-12	Full sun
52d	Loulu Palm	<i>Pritchardia beccariana</i>	30-50 ft. (9-15 m) tall	10-12	Full sun
52e	Loulu Palm	<i>Pritchardia glabrata</i>	6.5-16 ft. (2-5 m) tall	6-10	Full sun to partial shade
52f	Loulu Palm	<i>Pritchardia lanigera</i>	50 ft. (15 m) tall	10-12	Full sun
52g	Schattauer's Loulu Palm	<i>Pritchardia schattaueri</i>	6ft. (1.8 m) long, 7 ft. (2.1 m) wide	10-12	Full sun
53	Carpentaria Palm	<i>Carpentaria acuminata</i>	30 to 100 ft. (9-30 m)	10-12	Full sun
54	Aka "The Tallest Palm"	<i>Pigafetta filaris</i>	Up to 164 ft. (50 m)	10-12	Full sun

55	Traveler's Palm	<i>Ravenala madagascariensis</i>	Up to 30 ft. (9 m)	10-11	Full sun
56	Real Fan Palm	<i>Hyphaene petersiana</i>	Up to 65 ft. (20 m), usually around 23 ft. (7 m)	9-11	Full sun
57	Quindío Wax Palm	<i>Ceroxylon quindiuense</i>	Up to 200 ft. (60 m), usually around 148 ft. (45 m)	10-11	Full sun
58	Caranday	<i>Copernicia alba</i>	35 to 40 ft. (10.5-12 m)	9-11	Full sun
59	Sugar Palm	<i>Arenga pinnata</i>	Up to 70 ft. (21 m)	10-11	Full sun to partial shade
60	African Fan Palm	<i>Borassus aethiopum</i>	Up to 82 ft. (25 m)	10-11	Full sun
61	American Oil Palm	<i>Attalea butyracea</i>	Up to 82 ft. (25 m)	10-11	Full sun
62	Canala Palm	<i>Kentiopsis oliviformis</i>	100 ft. (30 m)	10-11	Full sun
63	Bay-Leaf Palm	<i>Sabal mauritiiformis</i>	Up to 65 ft. (20 m)	9-11	Full sun
64	Indoor Palm Trees		6-40 ft.	9-12	Full sun-indirect sun-shade
64a	Parlor Palm	<i>Chamaedorea elegans</i>	Around 6 ft. (1.8 m), rarely taller	10-12	Indirect sun or shade
64b	Kentia Palm	<i>Howea forsteriana</i>	Up to 40 ft. (12 m) tall	9-11	Indirect sun or shade
64c	Lady Palm	<i>Rhapis excelsa</i>	Up to 13 ft. (4 m)	9-11	Indirect sun or shade
64d	Ponytail Palm	<i>Beaucarnea recurvate</i>	Up to 36 ft. (9 m) tall outdoors, up to 6 ft. (1.8 m) tall indoors	10-11	Full sun
64e	Areca Palm	<i>Dypsis lutescens</i>	20-40 ft. (6-12 m) tall outdoors, shorter indoors	10-11	Indirect sun

\*USDA Hardness Zone Map: This is the standard employed by gardeners and growers to evaluate which perennial plants are most likely to flourish at a location that stem from the mean yearly extreme minimum winter temperature.

**Table 2:** 74 varieties of palm trees around the world used as food and ornaments showing their mode of identifications, classifications, climatic conditions, and uses

S/N	Identification	Classification	Climatic Condition	Uses
1	This appears as lanky stems, feather-like leaves, no trunk growth, with flowering stems. In time, the clumping palm forms a dense thicket of shiny slender leaflets. If palm is pollinated, small shiny green palm fruits appear that ripen to black ovoid-shaped drupes 0.5" (1.25 cm) long that measure around 3 ft. (1 m) long. The arching-drooping fronds are large and showy and almost hide the spiky-looking trunk [45].	Small	Warm climates	Garden plant
2	Single stem with long bushy pinnate fronds	Small	Warm climates	Ornamental
3	Arching, blue-gray feather-like fronds that curve to the ground. They are a slow-growing species of palm. The palm is especially attractive when it flowers with red, yellow, or white blossoms [45].	Small	Cold-arid climates, high drought tolerance. Thrive in temperatures as low as 14°F (-10°C) and are tolerant of most soil types. The fruits of the palm trees are a light orange to brown color and are used to make jelly [45].	Ornamental, fruit used for making jelly
4	Extremely long, pinnate fronds that grow up to 8 ft. (2.5 m) long. Leaflets point out at 120°. One interesting feature about the fronds is that the leaflets point out at 120°, giving the fronds a triangular shape on the cross-section. Produce magnificent yellow-green blooms all year round. Flowers appear on stalks that can extend beyond 3 ft. (1 m) in length. Leaves out from a single fibrous stem to form a distinct triangle shape, giving the tree its name [45].	Small-medium	subtropical or tropical	Ornamental
5	Few clustered trunks, bark-covered trunks have a rugged texture and are brown in color. They are light green to blue-green in color and grow in a fan shape. The leaflets are between 20" and 30" (50-80 cm) wide, and each leaf is up to 5 ft. (1.5 m) long. During the spring season, the palm tree blooms that are golden-yellow in hue [45].	Dwarf	Warm climates, drought resistance. Optimal growth, plant in well-drained, loamy soils.	Ornamental
6	Palmate (fan-like) leaves that grow in clusters of stems, fan-shaped leaves can measure between 1 and 4 ft. (30-120 cm) in length. The fronds are a silvery-green or silver-blue color, and the long, tapering leaflets give the palm a spiky appearance [45]. The palm produces white blossoms grouped in clusters up to 10 ft. (3 m) long at the stem tips.	Small	Hot summers, cold-hardy down to 10°F (-12°C). Drought-tolerant and prefers well-drained, loamy soil, although it can be grown in other soil types.	Ornamental
7	Dark green pinnate leaves. The trunk is slender and is only 3" (7 cm) thick. The dwarf majesty palm's large, wide; arching leaves look majestic. The contrast of the slim trunk and wide crown of foliage can grace any garden [45].	Dwarf	subtropical	Ornamental
8	The palm is known for its smooth, light gray trunk with dark rings. Large pinnate palm leaves arch up from the top of the stem to form a beautiful crown of green foliage. The palm fruit matures in December, corresponding with the holiday period [45].	Small	Warm climates	Ornamental
9	Bottle-like shape of the short, fat trunk. This bottle-like trunk helps to differentiate this palm species from the spindle palm, which swells in the middle of the fat trunk. At the top of the 10 ft. (3 m) high trunk are 3 or 4 huge palm leaves. At maturity, these	Small	Warm climates	Ornamental



	pinnate leaves can grow to 12 ft. (3.6 m) long and have leaflets that are 2 ft. (0.6 m) long. As the bottle palm grows, its trunk develops a husky exterior, making it look even nicer <sup>[45]</sup> .			
10	False variety of palm tree. The sago palm belongs to the family <i>Cycadaceae</i> , which may look like a palm but is botanically different. Short trunk and fern-like new leaves <sup>[45]</sup> . Golden-brown flower head, which is also called a cone. This cone sprouts from the middle of the tree every three to four years. The cone is made up of closely packed scales. The male cone tends to be taller and slimmer than the female cone. When the fronds are a brownish shade, trim them to help maintain the tree's attractive appearance.	Small	Warm, humid climate in well-drained, moist soil. It requires 6 to 8 hours of sunlight per day for optimal growth. Make sure to water the plant during dry spells.	Ornamental
11	Recognizable bright red crownshaft and leaf sheaths. It has long pinnate leaves, greenish flowers, and dark bluish-black fruits <sup>[45]</sup> . It has eye-catching stems that start out red but gradually turn to a green hue as the plant grows. The palm also showcases small green flower stalks and inedible oval black fruits.	Small	Warm climates	Ornamental
12	Arching, olive to dark-green fronds forming a spreading crown. The evergreen palmate leaves measure 4 to 6 ft. (1.2-1.8 m). Recognized by its arching, flat leaflets growing on very long jagged petioles. Additionally, the palm blooms with pale yellow flowers on thick arching, pendulous stems measuring up to 3 ft. (1 m) long. Toothed leaf stems - unique features that palm species of the <i>Syagrus</i> genus rarely have <sup>[45]</sup> .	small	subtropical	Ornamental
13	It is a ringed, smooth, solitary stem, silver-green branches, leaflets, and clusters of greenish-yellow flowers. The palm's greenish-blue or silvery leaflets grow on arching stems with 8 to 12 fronds forming an attractive crown at the end of a short, stout crown shaft. It grows tall with a canopy 8 to 12 ft. (2.4- 3.6 m) wide.	Medium	Warm tropical and semi-tropical coastal landscapes. Its tolerance for salty air and sandy soils makes this elegant palm tree suitable for growing in harsh coastal regions.	Ornamental
14	The large feather-like leaves seem to grow straight out of the ground or container. Tropical leaves grow upward and then arch over.	Small	Palms are native to coastal region, but tolerate poor soil, drought, and heat.	Ornamental
15	Clumping, shrub-like growth pattern, which gives it a bushy appearance. Renowned for its vibrant green pinnate foliage that emerges directly from the ground.	Dwarf	Mild to warm climates, though can tolerate temperatures as low as 25°F (-4°C). It grows best in well-drained, moist soil, ideally with a slightly acidic to neutral pH level.	Ornamental
16	Grayish-brown, slightly curved smooth trunk and recognizable sprawling, drooping palm fronds that measure 15-20 ft. (4.5-6 m) long. They are known for their tropical fruits, often described as the 'taste of paradise.' The coconut fruit is initially large and green or yellow when immature. As the fruit matures, it becomes the recognizable brown coconut seed, covered in a hairy fiber and located inside a thick husk. The edible portion of the coconut is the white meat found within the wood-like shell." A coconut palm tree can produce up to 75 fruits per year. The large, round fruits grow in bunches, close to the central stem and amongst the leaf stems <sup>[45]</sup> .	Tall	Coastal areas where they thrive in sandy, salty soils. In southern states and tropical countries, you will often see coconut palms growing along beaches, streets, and parks <sup>[45]</sup> .	Food
17	The easiest palm trees to identify due to its abundant clusters of delicious dates. It has long rough trunk, a crown of arching feathery fronds up to 20 ft. (6 m) long, and clusters of brown, red, or yellow fruits. The spiny leaf stems can measure between 13 and 20 ft. (4-6 m) long. The vast leaves have up to 150 leaflets that are 12" (30 cm) long. In total, the date palm's impressive light green crown can be between 20 and 30 ft. (6-10 m) wide. Date palm trees are best known for their delicious sweet sticky fruits, which are a type of drupe. The edible oval fruits are typically dark brown with wrinkled skin. However, other varieties of date palms can produce deep red, black, yellow, or golden yellow bunches of dates <sup>[45]</sup> .	Tall	Hot climates with relatively 3-5 months, and above rainfall yearly.	Food
18	Long, fan-shaped fronds with fibrous threads and a sturdy columnar trunk and spectacular leaves made up of waxy green blades that spread out in a fan shape with its grayish and tan trunk that stands erect. In addition, it's easy to recognize California palms due to the skirt-like shape of dead fronds near the top of the tree. After the gray-green leaves die, they droop down and turn brown. This easily identifiable palm tree also goes by the name petticoat palm due to the palm's distinctive crown. The recognizable fan shape of the leaves also gives it the name desert fan palm. Its botanical name <i>Washingtonia filifera</i> refers to the thread-like strands on the green palmate leaves <sup>[45]</sup> .	Medium	Hot climate	Ornamental

19	It is identified by its thick, columnar, smooth gray trunk, long arching feather-like green fronds, and stunning crown, with broad, straight trunk measuring up to 3 ft. (1 m) in diameter, which is swollen at the base. The dense, upward growing crown consists of palmate fronds measuring 15 ft. (4.5 m) long. Unlike many palms with fibrous trunks, this palm species has a smooth gray trunk. Additionally, small purple and yellow flowers bloom in summer, adding to the palm's grace and beauty. When the palm is relatively immature, it has a stumpy appearance with an explosion of large arching fronds. Its slow growth means that it takes many years to reach its mature height <sup>[45]</sup> .	Tall	Cold hardy and can thrive in temperate climates.	Ornamental
20	It is a majestic palm tree with a smooth gray-white trunk, crown of dark green fronds, and rounded red fruits. It has smooth green crown shaft, bulging stem base, and erect trunk growing 65 to 100 ft. (20-30 m) tall. The palm's distinctive crown comprises 15 arching fronds measuring 13 ft. (4 m) long. Small pinkish-white flowers appear in late spring. After pollination, the palm tree produces round drupe fruits 0.6" (1.5 cm) long and 0.4" (1 cm) wide. The slender, smooth trunk and bushy crown invoke the thought of tropical landscapes. It has the unusual growth habit of shedding its old fronds <sup>[45]</sup> .	Tall	Relatively tolerant of salty air, making it perfect for planting in coastal landscapes. Moderately drought-tolerant.	Ornamental
21	It is a skinny palm tree with multiple tall, clustering stems. It is identified by its bunches of berry fruits 1" (2.5 cm) in diameter and long, pinnate leaves growing up to 10 ft. (3 m) long. The most valuable feature of the acai palm is its berries. Acai berries are small black drupes that grow abundantly on drooping stems. There can be between 500 and 900 fruits in a single bunch <sup>[45]</sup> .	Tall	They grow in warm swamps and floodplains.	Ornamental & Food
22	It is a fruit-producing palm tree that has clusters of red edible fruits. The multi-stemmed thorny tree has spiky crowns of pinnate fronds that are 10 ft. (3 m) long. The pulpy palm fruits are typically red. However, other varieties of peach palms can have yellow or orange peach-like fruits. An identifying feature of a peach palm is its spiny trunk: the slender trunk measures (10-25 cm) in diameter. However, up close, pictures of the trunk reveal that the palm tree has thorns in circular bands around the brownish-gray trunk <sup>[45]</sup> .	Tall	Subtropical, and tropical warm temperature	Food
23	They have massive pinnate fronds measuring 10 to 16 ft. (3-5 m) long. The valuable fruit from the tree grows like red palm berries and is about the size of a plum. The tree also produces dense clusters of pale-yellow flowers. The oil palm is a single-stemmed variety of palm tree. The attractive palms leaves grow in an upward, arching habit, giving the decorative tree a vase-shaped appearance <sup>[45]</sup> . The palm's recognizable characteristic is the large bunches of 200 to 300 red palm fruits growing close to the trunk.	Tall	Warm tropical climates with average rainfall	Food, cultural rituals and crafts
24	It is known for its massive, arching fronds measuring 6.5-10 ft. (2-3 m) long. It has a light gray to white trunk with distinctive rings. It is identified by its plume-like foliage that looks like a bushy fox's tail-hence the name foxtail palm <sup>[45]</sup> . Another identifying feature of the foxtail palm is its large, egg-shaped orange palm fruit. The oval fruits emerge olive green, ripen to an orange or deep red color, and measure 2" (5 cm) long. It also produces creamy white flowers that grow on long stalks at the base of the crown shaft. It is self-cleaning, so little maintenance is needed while growing.	Medium	It is tolerant of drought and grows best in well-drained, warm soil.	Ornamental
25	It has fan-shaped leaves growing on the stems, a rough, brown fibrous solitary trunk, and sweet black palm fruits. The palm also produces fragrant, creamy yellow blooms that grow amongst the foliage. The most distinctive feature of the Guadalupe palm is the stiff leaflets growing in the shape of a fan at the ends of long smooth stems <sup>[45]</sup> .	Small	Cold-hardy down to around 20°F (-6.6°C). They are tolerant of drought, salt, and heat, meaning they can be planted in arid or coastal climates.	Ornamental
26	It easily identifiable palm due to its vast fronds of steely-blue or silvery gray spiky leaflets. The fan-shaped palm leaves grow in all directions, creating a spectacular pale green spherical crown that is 20 ft. (6 m) tall and 24 ft. (7.5 m) wide. Its stout, short trunk adds to the palm's visual appeal. The Bismarck palm's eye-catching silvery-blue leaves look like a round spiked fan and can grow over 10 ft. (3 m) wide producing brown flowers that grow on arching stems. These flowers are then followed by small, brown egg-shaped fruits. These chocolate-brown rounded drupes grow in bunches like grapes dangling from this stout palm tree. Individual fruits measure 1.5" (3.8 cm) long and grow densely on 4 ft. (1.2 m) long stems <sup>[45]</sup> .	Tall	It is also highly drought-tolerant, meaning that it can be planted in dry, arid environments.	It is a popular small landscaping palm in Florida, Southern California, Texas, and Arizona. With its beautifully colored fronds, it is sure to add beauty to any garden.

27	They have a single skinny trunk and dark green fronds, creating a symmetrical crown. As the majestic palm tree matures, the trunk gradually becomes smooth and gray. The characteristic fan-shaped leaves of Cayman thatch palm leaves form an open rounded or triangular crown <sup>[45]</sup> .	Medium	Tropical or subtropical climates and Salt-tolerant.	Attractive landscaping plant or specimen tree.
28	They are skinny palm tree with multiple stems, with clumping habit, slender, smooth trunks, green crown shaft, and rounded spiky crown. The leaves grow up to 10 ft. (3 m) long and have between 30 and 80 leaflets measuring 22" (56 cm) on each leaf stem. The dense palm crown can have between 3 and 13 fronds. MacArthur palms grow as multi-stemmed palm trees, making them easily identifiable. Other identifying traits of the palm are a whitish trunk with dark rings, clusters of yellowish-green flowers, and bunch of small bright red fruit <sup>[45]</sup> .	Tall	Tropical; Drought- and heat-tolerant, they are perfect for planting in arid environments.	Ornamental
29	They can be identified by its large pinnate leaves, which resemble an explosion of foliage. This low-maintenance palm tree has a thick, scaly trunk, yellow edible dates, and branching clusters of pale-yellow flowers. The dark-green leaves measure 13-20 ft. (4-6 m) in length and form an elegant crown. Its trunk can also reach a diameter of around 3 ft. (1 m).	Tall	Cold-hardy down to 18°F (-8°C); tolerant of drought and salt spray, making it ideal for growing in arid or coastal landscapes.	Ornamental & Food
30	Large, blue-green, arching leaves grace the top of this single long stem. The tree is known for its pineapple-like scales on its trunk and yellowish-white flower clusters.	Small	They are tolerant of drought and moderately tolerant of salt. They are also cold-hardy down to 15°F (-9.4°C). Make sure to plant this tree in sandy, well-draining soil.	Grown for their orange-yellow dates which are used in the production of jelly and wine.
31	They are single-stemmed palm with bright green, ornate drooping leaves. The palm gets its name from the fan-shaped (palmate) leaves that arch out from the top of the stems. The tree has a spread of up to 12 ft. (4 m) <sup>[45]</sup> . They have thick, smooth, gray-brown trunk, blue-black round fruits, and yellow-green flowers that grow on huge stalks.	Small	Drought- and salt-tolerant, making it great for planting in coastal or dry landscapes.	Ornamental
32	They are identified by their striking spiky-looking leaves that grow in a fan shape. Other identifying features include brown, dead fronds hanging from the crown base, white flowers, and purple-black fruits <sup>[45]</sup> . The straight thick trunks of these tall palm trees stretch up to 65 ft. tall (20 m).	Tall	The cabbage palm is flood and salt tolerant. It thrives in poorly drained soil, making it an excellent palm tree for planting in wet environments. They are also drought-tolerant. Additionally, it can survive winter temperatures as low as 9°F (-12°C).	Ornamental
33	This species of palm tree has a long narrow trunk and bushy-like leafy foliage at the top <sup>[45]</sup> . The dead leaves of the palm form a dense skirt around the trunk. The tree features palmate fanned leaves measuring up to 3.3 ft. (1 m) long sit gracefully on top of 82 ft. (25 m) tall stems. The Mexican palm produces drooping sprays of small, fragrant white flowers. These flowers are followed by clusters of round, blue-black, edible palm fruit; although it should be noted that the dates aren't as tasty as dates from other types of palms.	Tall	The Mexican palm is drought-tolerant and low-maintenance, meaning it can be planted in arid environments without much trouble. Additionally, the palm's tolerance of salt spray and winds makes it perfect for planting near the coast.	Food
34	This evergreen palm tree can be identified by its slender trunks, fan-shaped leaves, and rough appearance <sup>[45]</sup> . Other identifying features of the windmill palm include stunning clusters of small, yellow flowers and blue-black fruits.	Tall	The windmill palm is cold-hardy, capable of tolerating occasional temperatures as low as 5°F (-15°C). For optimal growth, plant the windmill palm in fertile, moist, well-drained soil. It is drought-tolerant.	Food
35	The king palm tree is a beautiful palm identified by its attractive crown of bright green fronds, pink flowers, and clusters of bright red dates. The trunk is brownish-gray, straight, slender, and wider at the base. This palm thrives in tropical and subtropical climates. The palm tree has an attractive crownshaft consisting of 15 to 20 large arching fronds. They are also called the Bungalow palm or Illawara palm; this tall palm tree can grow over 65 ft. (20 m) tall. Its huge evergreen fronds measure around 15 ft. (4.5 m) long, consisting of up to 150 leaflets that are 6" to 12" (15-30 cm) long. Like most palms, rings around the erect, slender trunk reach up to the smooth greenish-brown crownshaft <sup>[45]</sup> .	Tall	For optimal growth, plant the king palm in sandy, well-drained soil in full sun. The king palm is self-cleaning, so no pruning is necessary.	Food
36	They are distinctive spiky appearance. In addition, this tropical palm tree has characteristic fan-like fronds consisting of stiff, spiky leaflets. The attractive palm tree fronds measure 8 ft. (2.4 m) wide and create a beautiful, rounded crown with a 20 ft. (6 m) spread. An identifying feature of red latan palm trees is the reddish leaves and stems growing on immature trees. As the slow-growing palm tree matures, it reaches a height of 30 to 40 ft. (9-12	Medium	The red latan is highly tolerant of drought and salt spray, making it perfect for planting near the coast.	Food

	m). Mature red latan palms have green foliage with a white, silvery appearance. Other features that help identify the red latan palm are clusters of yellow spring flowers, brownish-green fleshy drupes measuring 2" to 3" (5-7.5 cm) long, and a slender grayish trunk with light rings around it <sup>[45]</sup> .			
37	The fishtail palm is an attractive, multi-stemmed palm tree with light, glossy green leaves resembling a jagged fish's tail. Masses of small deltoid leaflets grow on long stems, forming thick layers of ruffled fronds. The clumping palm tree grows around 40 ft. (12 m) tall and 10 ft. (3 m) wide. Apart from its easily identifiable bipinnate fishtail leaves, the fishtail palm blooms with attractive creamy-white flowers, followed by dark red fruits. Unfortunately, the dark drupes on Fishtail palm trees are poisonous and should never be eaten. The long shiny palm fronds can grow up to 10 ft. (3 m) long. The ruffled fishtail compound leaves grow on long stems that give the palm tree a weeping appearance. The fishtail palm is low-maintenance, with only the occasional pruning of dead leaves needed to maintain its attractive appearance <sup>[45]</sup> .	Tall	Tropical	Ornamental
38	The Montgomery palm is a tall solitary palm tree, identified by arching fronds and drooping leaflets, greenish-white flower clusters, and oval red fruits. Montgomery palms have the characteristic appearance of tropical climates. Straight, slender trunks with a graceful spreading crown at the end of a smooth pale green crownshaft help identify this palm. In spring, Montgomery palms are identified by clusters of greenish-white flowers measuring 3 ft. (1 m) long growing at the base of the crownshaft. After blooming, bright yellow or red fruits appear on pendulous stems <sup>[45]</sup> .	Tall	Montgomery palm is drought-tolerant and capable of growing in temperatures down to 30°F (-1°C). Plant this tree in a sunny spot in moist, well-drained soil for optimal growth. These trees are often grown in southwest Florida due to its ideal humid, tropical climate.	Food
39	The Puerto Rican thatch palm tree is an exceptionally tall palm with a slender single bare trunk. The identifying feature of the thatch palm is its palmate leaves which grow in a fan shape, creating an open crown. The palm fronds measure 5 ft. (1.5 m) across. After blooming, the yellow flowers on the Puerto Rican thatch palm give way to purplish-black fruits 0.23" to 0.47" (6-12 mm) in diameter. The palm is easy to spot in a tropical landscape due to its erect stem growing around 50 ft. (15 m) tall and its sparse crown <sup>[45]</sup> .	Tall	The Puerto Rican thatch palm's tolerance of salty winds makes it ideal for beachside planting.	Ornamental
40	The everglades palm is a small palm with substantial palmate, fan-shaped leaves and a slim, fibrous trunk. The palm is identified by its arching stems with large fronds measuring up to 2 ft. (0.6 m) wide and 18" (45 cm) long. Other identifying features include creamy white flowers and orange-black berries. This palm tree performs well in marshy, salty soils and full sun. The everglades palm is low-maintenance, with only the occasional pruning needed of its dead leaves or fruits to maintain its appearance. Growing in a sunny landscape, the palm tree reaches 20 to 30 ft. (6-9 m) tall and features a sprawling crown up to 25 ft. (7.5 m) wide at the top of a slender trunk. The attractive fan-shaped leaves have a silvery underside, adding to the tree's attractiveness <sup>[45]</sup> .	Small	The palm is drought-tolerant and thrives in full sun to partial shade. It is adaptable to a wide range of soil types.	Ornamental
41	The Saw Palmetto is a multi-trunked, clumping palm tree that grows masses of fan-shaped, palmate fronds that emerge from spine petioles. The waxy evergreen palm leaves grow 3 ft. (1 m) in diameter. Each bluish-green or emerald-green leaflet has 18 to 30 pointed segments. The palm also blooms with fragrant, creamy white flowers <sup>[45]</sup> .	Small	Saw Palmettos make excellent container plants when grown in large pots. Their salt-tolerance makes them great choices for planting in coastal gardens. They can also be grown as a privacy hedge, screen, foundation plant, or accent plant. Once established, they are also drought-tolerant. The saw palmetto is a native Florida palm tree that thrives in USDA zones 9 to 11. It is also a cold-hardy species palm and can survive short spells as low as 20°F (-6 °C). The palm's spreading habit, dense foliage, white flowers, and yellow berries make it a valuable landscaping palm tree <sup>[45]</sup> .	Food & ornamental
42	The queen palm is a popular ornamental tree for residential areas. The queen palm is a stylish evergreen tree identified by its super-long arching fronds. The feather-like fronds grow between 8 and 15 ft. (2.4-4.5 m) long and grow at the top of a slender, smooth, gray trunk. Other features of the queen palm include creamy-	Tall	The queen palm is a sun-loving, heat-loving species, and despite thriving in the tropics, this fast-growing palm is also cold-hardy to 25°F (-4°C). The elegant palm tree grows best in moist, acidic soil and it has moderate salt	Ornamental & food



	white flowers blooming in spring and clusters of yellowish-orange edible dates <sup>[45]</sup> .		tolerance. The queen palm is tolerant of drought, salt, and high heat, making it excellent for planting in warm, coastal climates <sup>[45]</sup> .	
43	The Texas Sabal Palm is an attractive tree that is also called the Texas Palmetto. The Texas Sabal palm is a robust native Texas palm tree with a single trunk topped by large fan-shaped evergreen leaves. The attractive green palm fronds measure up to 6.5 ft. (2 m) wide, growing on 15 ft. (4.5 m) long stems, forming a thick, rounded crown. The Sabal palm tree is also identified by clusters of creamy white flowers, and showy, black drupes <sup>[45]</sup> .	Tall	The Texas native tree is drought-tolerant. The sabal palm thrives in high humidity, loamy, well-drained soils, and full sun.	Ornamental
44	The flowering evergreen palm tree is identified by its shiny, blue-green fan-shaped leaves that sometimes grow straight from the ground. Its leaves with large, pointed segments measure 3 ft. (1 m) across and grow on smooth, spineless petioles. Other identifying features of the dwarf palmetto palm are its fragrant, creamy-white flowers, and clusters of dark brown or black fruits <sup>[45]</sup> .	Dwarf	The dwarf palmetto can be found in many habitats; especially, warm climates and is a cold hardy small palm. Dwarf palmetto palm trees are both drought- and salt-tolerant.	Ornamental
45	The needle palm is a cold hardy and can grow as a miniature patio palm. It has large, lustrous green leaves measuring 3 ft. (1 m) in diameter with up to 12 stiff, slender segments creating an open fan shape. During summer, the palm showcases charming clusters of small, yellow-brownish flowers <sup>[45]</sup> .	Small	The needle palm is cold-hardy, capable of withstanding temperatures down to 5°F (-15°C). It is drought-tolerant. Additionally, the shrubby palm grows just as well in full sun as in deep shade. Additionally, it can be grown as a foundation plant, border plant, or container plant.	Ornamental
46	This type of palm has the characteristic features of tropical palms. It has a large crown of arching feathery fronds on the top of a solitary gray trunk. Each frond has 80 lance-shaped leaflets. Other identifying features of the Alexandra palm are its easily recognizable green crown shaft, clusters of white flowers blooming under the leaves, and large clusters of small round red fruits.	Tall	The Alexandra palm is a tall tree with a slender trunk suitable for tropical landscape. However, it also grows in poor soils and soils with poor drainage.	Food & ornamental
47	The Caribbean royal palm is a spectacular type of palm due to its columnar whitish-gray, straight trunk, large feather-like pinnate leaves, and huge clusters of small purple-blue edible fruits. Additionally, large sprays of white flowers contrasting with the green crown shaft add to this palm tree's beauty. The stately palm tree is 130 ft. (40 m) tall with an open crown consisting of 20 to 22 arching leaves 10 to 16 ft. (3-5 m) long.	Tall	It is suitable for warm climate. This imposing tropical palm tree is common in warm climates like Florida and the Caribbean. It is Intolerant of cold weather.	Street tree or ornamental landscaping tree.
48	The yellow Latan palm has huge leaves and is slow growing. The yellow Latan palm tree is a tall, slender palm tree with a long gray stem and large leaves in the shape of a fan. Its super-large palmate leaves are 6.5 to 10 ft. (2 - 3 m) wide, and the stiff pointed leaves grow on thick yellow petioles. The slow-growing palm is native to Mauritius; however, it is cultivated throughout the world for its ornamental value. Identifying characteristics of the yellow Latan palm tree are a slender gray stem, open crown, clusters of flowers, and brownish-green plum-shaped palm fruits measuring 2" (5 cm).	Tall	All round climatic conditions.	Ornamental
49	The blue latan palm has attractive silvery blue foliage and it looks great in any landscape garden. The blue Latan palm tree is an attractive palm tree with enormous fan-shaped, bluish-green leaves forming the crown. This attractive landscaping palm tree is characterized by long, 6 foot (1.8 m) flower stalks, leaves with a woolly appearance, and large glossy brown palm fruits. The blue Latan palm grows 20 to 25 ft. (6-8 m) tall with a crown 15 ft. (5 m) wide. The silvery-blue stiff leaflets have reddish margins and grow in a fan shape 8 ft. (2.4 m) wide, like the Bismarck palm tree.	Tall	The heat-loving palm tree performs best in full sun to partial shade, and, once established, it is tolerant to drought and salty air.	Food & ornamental
50	The San Jose Hesper palm tree is native to Baja California and has an elegant, slender trunk and dense crown of arching feather-like leaves. The identifying features of this southern palm tree are the spiky leaf bases covering the upright trunk, 3-foot (1 m) long feather-like fronds, and short flower stalks.	Tall	The San Jose Hesper palm is a heat loving tree suitable for arid climates. This slow-growing, heat-loving palm tree is drought-tolerant and ideally suited to arid climates. Its tolerance to drought and hot temperatures make it an ideal palm tree for growing in arid landscapes.	Ornamental
51	A young tree of flame thrower palm with reddish newly emerged leaf. The flame thrower palm tree is a single-stemmed palm with feather-like pinnate palm leaves, a bright green crown shaft, and clusters of small purple flowers, followed by bright red fruits. The	Small	In Southern California, the palm tree grows best in partial shade. However, the rare palm tree thrives in full sun in coastal areas along the Pacific Ocean.	Ornamental

	unusual feature of this tropical palm tree is the newly emerged leaf that is red to maroon-hence the name “flame thrower” palm. This slow-growing palm tree grows 20 to 25 ft. (6-7.6 m) tall with a crown 20 ft. (6 m) wide. The unusual red leaf that emerges keeps its red color for 10 to 14 days before slowly turning green. Another feature of this palm tree is the grayish rings around a smooth green trunk.			
52	Loulu palm trees are native to Hawaii. They have a single trunk and are identified by large fan fronds on stalks measuring 2 to 10 ft. (0.6-3 m) long. Some species of Pritchardia have graceful arching branches with pleated round fronds. However, other varieties have drooping or weeping branches. The fruits of Loulu palms are oval or spherical and grow in large clusters under the branches at the tree’s crown. The fruits can measure 0.75” to 2” (2-5 cm), depending on the species of the palm tree [45].	Small	All climates	Ornamental
52a	A small palm tree endemic to the Hawaiian island of Nihoa that typically reaches 13-16 ft. (4-5 m) tall. It has a slim ringed trunk, dense crown with fan-shaped leaves with drooping tips, and small dark brown or black fruit [45].	Small	All climates	Ornamental
52b	It has drooping fan fronds that cover the entire tree, almost hiding the broad trunk from sight. It is native to dry and moist forests. Native to the Hawaiian islands Molokai and Maui [45].	Small	All climates	Ornamental
52c	The large round palmate leaves measure 3 ft. (1 m) long on slightly arching stalks: native to East Maui [45].	Tall	All climates	Ornamental
52d	This is a tall, slender palm is characterized by its smooth, gray stalk and spreading crown of flat fan fronds. The upper fronds extend at right angles from the crown shaft, whereas the lower ones tend to droop. The native palms are found on the eastern slopes of Mauna Loa on the Big Island [45].	Tall	All climates	Ornamental
52e	This is a slow-growing dwarf Hawaiian palm grows 6.5 to 16 ft. (2-5 m) tall. It has an open crown with fan leaves, each measuring about 2 ft. (0.6 m) long: native to Lanai and West Maui [45].	Dwarf	All climates	Food & Ornamental
52f	They are native to Mauna Kea and Mauna Loa on the island of Hawaii, this exotic palm plant grows 50 ft. (15 m) tall with large, round fan fronds growing on relatively short petioles [45].	Tall	All climates	Food & Ornamental
52g	A tall and rare palm tree native to Hawaii that grows an impressive 130 ft. (40 m) high. It has large fan-like fronds that grow 6 ft. (1.8 m) long and 7 ft. (2.1 m) wide. This distinctive palm tree has dead fronds, creating a skirt-like feature under the crown. Additionally, its trunk has a diamond-shaped pattern created by the leaf scars.	Tall	All climates	Food & Ornamental
53	The Carpentaria palm is characterized by a slim trunk and can grow very tall. The carpentaria palm is a sun-loving, fast-growing tropical tree commonly seen in Hawaii. The solitary palm has a slender, erect trunk with widely spaced rings, as well as a crown of large, arching, feathery fronds. The palm’s fronds measure 10 to 15 ft. (3-5 m) long and emerge from a smooth green crownshaft. In spring, the carpentaria palm produces small, creamy-white flowers that are followed by round fruits that are scarlet red when ripe. This ornamental carpentaria palm tree has a slender trunk that grows up to 30 to 100 ft. (9-30 m) tall and features large, feather-like fronds. The fronds are a bright green color and can grow up to 10 ft. (3 m) long [45].	Tall	All climates	Ornamental
54	<i>Pigafetta filaris</i> is one of the tallest palms in the world reaching up to 164 ft. (50 m). <i>Pigafetta filaris</i> is a stunning, tall palm tree commonly seen growing in gardens and forests in Maui, Hawaii. Its trunk is slender, straight, dark green, and has white rings. With its large, arching, feathery fronds, it adds a touch of tropical elegance to any landscape or garden. The majestic palm’s fronds measure 20 ft. (6 m) long, with strap-like leaflets measuring 3 ft. (1 m) [45].	Very Tall	The pigafetta filaris is a versatile palm tree that thrives in various soil conditions. It’s a fast grower in warm, humid conditions and needs consistently moist soil. These growth features make it ideal for growing in Hawaiian landscapes [45].	Ornamental
55	Traveler’s palms have uniquely shaped crowns and are not true palms. The traveler’s palm tree is an eye-catching flowering tree with massive paddle-shaped leaves that grow on long stalks. The leaf stalks are arranged in such a way that resembles a fan. The most recognizable feature of this tree is its unique fan-shaped crown consisting of up to 30 leaves per tree. Each leaf blade measures 5 to 10 ft. (1.5-3 m) long and 3 ft. (1 m) wide. The traveler’s palm has several interesting features. First, it is thought to have gotten its name from the rainwater that accumulates at the cup-like base of the stalks. The water was	Tall	Traveler’s palm thrives in frost-free areas and grows freely in Hawaii, the Florida Keys, and southern California [45].	Emergency drinking water for travelers







	thought to have been useful for travelers to drink in case of an emergency. Another unique feature is its distinctive white flowers, which are similar in shape to bird-of-paradise flowers. Although called a palm tree, the traveler's palm is not a "true palm" in the family Arecaceae. Instead, it is related to bird of paradise plants in the genus <i>Strelitzia</i> , and it has similar boat-shaped flowers [45].			
56	The real fan palm is a medium-sized palm tree with a slender trunk and silvery-green fan-shaped. The real fan palm is a large, heat-loving palm known for its gray-green, fan-shaped leaves armed with sharp thorns on their petioles. It produces large, red-brown, round fruits that contain a hard white nut. The palm is slow-growing; usually reaching up to 23 ft. (7 m) tall, though some specimens can grow up to 65 ft. (20 m) tall. The leaves are usually around 6.5 ft. (2 m) long [45].	Medium	Tropical and subtropical	Food
57	The Quindío wax palm is the tallest palm in the world. It has a slender gray trunk with diamond-shaped leaf scars and a thick wax layer. Its large feather-like fronds range from 6 to 18 ft. (1.8-5.5 m) long. The flowers of the Quindío wax palm form dense clusters of creamy white blossoms, followed by small, round fruits that turn orange-red when ripe. The fruits are often eaten by parrots.	Tallest in the world	This sun-loving plant thrives in warm climates. The tallest palm trees in the world are native to the Andes of Colombia. Quindío wax palms can also be seen in some parks in California.	Food for Parrots & ornamental
58	The tall Caranday palm is identified by its slender and smooth trunk and fan-shaped leaves. The Caranday palm reaches heights of 35 to 40 ft. (10.5-12 m). It has a slender trunk with a dense crown of silver-gray fan-shaped leaves measuring 5 ft. (1.5 m) long. The Caranday palm blooms with small white or creamy-white flowers in spring, followed by small black fruits in summer [45].	Tall	This versatile palm tolerates drought, wet soil, and heat, thriving in tropical landscapes. The Caranday palm is cold-hardy down to 25°F (-4°C), making it the cold-hardest palm in the Copernicia genus.	Food for birds & apes
59	The sugar palm is a tropical tree that grows up to 70 ft. (21 m) tall. It has large fan-shaped leaves up to 40 ft. (12 m) long and produces clusters of small yellowish-green flowers and edible fruits. It tolerates salt and strong winds, making it suitable for coastal gardens [45].	Tall	The tall sugar palm is salt and wind tolerant and is suitable for tropical coastal regions. Native to Southeast Asia	Food
60	The African fan palm grows up to 82 ft. (25 m) tall with fan-shaped leaves measuring 10 ft. (3 m) long. It features a thick cylindrical trunk with deep grooves and clusters of large yellow flowers and edible fruits.	Tall	The African fan palm is a tall majestic tree that is a focal point in tropical gardens. Ideal for warm, sunny climates, the African fan palm adds a captivating centerpiece to tropical landscapes.	Food for man & apes
61	The tall American oil palm has an impressive crown and looks stunning in tropical landscapes. The American oil palm is a tall tropical tree that can reach a height of 82 ft. (25 m). It has large feather-like leaves measuring 20 ft. (6 m) long and 3 ft. (0.9 m) wide. The crown of the palm consists of up to 35 arching leaves, while the trunk is straight, cylindrical, and unbranched. This palm is a magnificent addition to large landscapes, parks, and gardens	Tall	Subtropical & temperate climates	Food & ornamental
62	The Canala palm is a towering tree, reaching over 100 ft. (30 m) in height. It has an arched crown of long, feather-like fronds measuring 10 ft. (3 m) long. The trunk is slightly swollen at the base, green in color, and has white rings caused by leaf scars. The palm produces large clusters of fruits below the crown.	Tall	It thrives in warm, humid climates and is perfect for poolside plantings, tropical gardens, and as a specimen plant. Once established, it is fast-growing.	Ornamental
63	The bay-leaf palm is a slow growing tall tree with fan-shaped fronts. The slow-growing bay-leaf palm tree loves the sun and can reach a height of 65 ft. (20 m). It is characterized by its slender, gray trunk that is enlarged at the base, impressive irregular crown formed by fan fronds, and pear-shaped black fruits. The bay-leaf palm's leaves are a deep green color above and a silvery-green color below. The palm also produces large clusters of tiny white flowers. The crown typically consists of 10 to 25 fronds.	Tall	Thriving in full sun and well-drained, organically rich soil, the bay-leaf palm is an excellent choice as a specimen tree, accent plant, or for creating tropical landscapes. It is tolerant of salty winds, meaning it can be grown in coastal landscapes without trouble. It is also drought-tolerant and low-maintenance once established.	Food & ornamental
64	Many types of ornamental palm trees look beautiful indoors and can provide attractive greenery. Some types of indoor palm plants can be grown in containers in conservatories. Many types of indoor palm tree plants thrive at home, and their 'mini' or 'baby' size makes them a good addition to your houseplants [45].			
64a	The Parlor Palm is a small low maintenance tropical palm tree. It is also considered to be one of the lucky plants according to the Feng Shui. The parlor palm is a small-growing bushy tropical palm tree with reed-like slender stems with light-green pinnate leaves growing on them. The palm produces small, round black fruits and tiny yellow flowers. Each stem has 6 or 7 leaves that	Small	The parlor palm is often grown indoors as a houseplant. When growing indoors, make sure to place it in filtered sunlight, as direct sunlight may scorch the leaves. The parlor palm is also often grown as a potted	The palm has been found to purify the air by filtering airborne toxins such as benzene and formaldehyde.



	<p>give the palm a bushy appearance when a few grow together. Usually, in tropical outdoor areas, these small palm trees grow up to 9 ft. (2.7 m) tall <sup>[45]</sup>.</p>		<p>palm outdoors around patios, decking areas, or outdoor pools. It is also a very low-maintenance indoor evergreen that can even survive in low-light and dark conditions.</p>	
64b	<p>The Kentia palm is a slow growing tree can be grown indoors. Although the Kentia palm tree can grow up to 40 ft. (12 m) outdoors, indoor varieties of this palm will max out at about 12 ft. (3 m) tall. It is commonly grown in California. The palm showcases white flowers that give way to red, egg-shaped fruits. Because they are a slow-growing species of palm, they are an excellent choice to grow indoors. The Kentia palm tree has thin green stems with large palm-shaped leaves <sup>[45]</sup>.</p>	<p>Tall (Outdoors), Small (Indoors)</p>	<p>A tropical atmosphere to any kind of room. The palm makes a great container plant when grown in a pot outdoors on a patio, deck, or shady area. Cold-hardy down to 25°F (-3°C). The ability for Kentia palms to withstand low-light, infrequent watering, low humidity, and cool to warm temperatures make them a perfect indoor type of palm.</p>	<p>Ornamental</p>
64c	<p>The Lady Palm is multi-stem tree that you can grow. The lady palm is a type of multi-stemmed leafy plant that has a gorgeous bushy appearance and can grow up to 13 ft. (4 m) in height <sup>[45]</sup>. The palmate leaves are dark green and glossy and have unique saw-tooth leaf tips. The palm produces clusters of small, bowl-shaped yellow flowers and fleshy, white fruits. The multiple cane-like, slender stems of this palm look similar to some types of indoor bamboo plants.</p>	<p>Small</p>	<p>The lady palm's dense foliage makes it a great choice for planting as a privacy screen or hedge. It is slow-growing, low-maintenance, and cold-hardy down to 18°F (-7 °C). The palm can also be grown in pots in a shaded area. It is recommended to grow this palm in partial or full shade for optimal results, as direct sunlight may scorch the tree <sup>[45]</sup>.</p>	<p>Ornamental</p>
64d	<p>The Ponytail palm tree (<i>Beaucarnea recurvata</i>) is one of the most ornamental indoor palms you can have in your room. Other common names for this plant include bottle palm tree or elephant foot tree. The ponytail palm tree is neither a palm nor a tree. It's actually a type of succulent and a member of the Agave family. The Ponytail Palm plant can be identified by its thick, brown, swollen base of the stem. This distinctive feature is a reason why it's also called the elephant's foot palm. Other identifying features include summer-blooming, creamy-white flowers and small, round, reddish fruits. At the end of the ponytail palm's short, fat palm stem is a fountain of beautiful, thin, green, arching leaves <sup>[45]</sup>.</p>	<p>Tall (Outdoors), Small (Indoors)</p>	<p>The Ponytail palm tree can grow tall outdoors; but is also suitable to be grow in a container indoors as an indoor palm plant. The base of the stem actually stores water, making the palm exceptionally drought-tolerant. This bushy display of green foliage makes for an attractive indoor tropical palm in sunny locations <sup>[45]</sup>.</p>	<p>Food &amp; ornamental</p>
64e	<p>The areca palm is a multi-stemmed plant with arching fronds 3 ft. (1 m) long, yellow summer flowers, and small yellow-orange palm fruits. This palm has an identifiable butterfly shape due to the multiple stems of palm leaves that curve upward. The areca palm grows 20-40 ft. (6-12 m) outdoors in tropical climates. In colder climates, the areca palm plant is an attractive evergreen ornamental houseplant. The long arching stems can grow around 6 ft. (1.8 m) tall. The delightful potted palm leaves have lance-shaped leaflets that grow up to 6" (15 cm) long. Other common names for <i>Dypsis lutescens</i> refer to the palm's growth habit and flowers. You may hear this palm called the bamboo palm, golden feather palm, cane palm, or yellow palm <sup>[45]</sup>.</p>	<p>Tall (Outdoors), Small (Indoors)</p>	<p>The Areca palm is a type of indoor palm that will give a tropical look to any space <sup>[45]</sup>.</p>	<p>Ornamental</p>

**Note:** The numberings in Table 2 corresponds to the numberings and names of the palm trees provided in Table 1.

**Table 3:** Pictures of the 74 Varieties of Palm Trees around the World used as Food and Ornamental Plants

S/N	Picture				
1		11		21	
2		12		22	























57		64a			
58		64b			
59		64c			
60		64d			

**Note:** The numberings in Table 3 corresponds to the numberings and names of the palm trees provided in Table 1.

## Discussion

The thesis explores the diverse uses of 74 different varieties of palm trees globally, focusing on their applications as both food sources and ornamental plants. Out of the 74 varieties, Traveller's palm and Sago palm trees were identified as false or pseudo palm trees from *Arecaceae* and *Cycadaceae* families, respectively. The research delves into the cultural, economic, and ecological significance of these palm species, offering a comprehensive analysis of their contributions to human societies. The results reviewed 74 different species of palm trees including 7 species of Loulu palm trees and 5 species of Indoor palm trees respectively. The first component of the research identified palms by their common names, scientific names, maturity sizes, USDA hardness, and the extent of their sunlight exposure. While common names have cultural and regional significance, scientific names are indispensable in Pharmacognosy for precise identification, standardized communication, taxonomic classification, and quality control of medicinal substances derived from natural sources [34]. The average maturity size of the 74 different varieties of these palm trees ranges from as small as 3 ft. (1 m) tall in Needle Palm up to 200 ft. (60 m) tall, but usually around 148 ft. (45 m) tall in Quindío Wax Palm. Knowing the maturity sizes of palm trees is essential for effective landscape design, maintenance planning, and sustainable urban development. It enables informed decision-making to create visually appealing and functional outdoor spaces that consider the long-term growth and characteristics of the chosen palm species [12]. The average USDA Hardness Zone Map is the standard employed by gardeners and growers to evaluate which perennial plants are most likely to flourish at a location that stem from the mean

yearly extreme minimum winter temperature. Understanding the USDA hardness zone for palms is essential for selecting appropriate species that can thrive in specific climatic conditions. It ensures the long-term success of landscaping projects, promotes resource conservation, and contributes to the overall resilience and health of palm trees in a given location [13]. The extend of sunlight exposure of the 74 different varieties of the palm trees ranges from full sun exposure in 43 varieties, to full sun- to- partial shade in 26 varieties; ampule sunlight exposure in one variety, and indirect sunlight exposure or shade in four varieties. Studying the extent of sunlight exposure is essential for selecting appropriate palm species, promoting optimal growth conditions, preventing damage, and ensuring the overall health and resilience of palm trees in landscaping and horticultural settings [12].

The second aspect of the study-focus, delves into identifying the different species of palms by their gross morphology, their classifications, climatic conditions, and uses. The identification of species of palm trees is usually done by the distinctive shapes of the palm fronds (leaves); either pinnate (feather-like) or palmate (fan-like) [30] and their trunk, long slender single trunks and short fat palm trunks [31]. The smaller palm tree species may have assembled stems with 3 or 4 short trunks growing together. There are some dwarf palms trees that just have bushy pinnate fronds growing out of the ground and do not have any stem. Some tall palm trees have smooth, slender trunks [32], some have trunks covered in fiber or husks that make them appear hairy or spiky [33]. The ability to identify palms by their gross morphological features is fundamental for various practical purposes, including accurate species identification, effective horticultural practices, disease



prevention, conservation efforts, scientific research, education, and thoughtful urban planning and landscaping design<sup>[15]</sup>. The study also classified palms into 5 species of dwarf palm trees, 23 species of small palms, six species of medium palms, one species of small-to-medium palms, and 39 species of tall palms. Understanding the different classifications of palm trees is essential for accurate species identification, informed horticultural practices, conservation efforts, scientific research, disease management, educational purposes, landscaping design, and global trade. This knowledge provide structured framework for understanding and working with the diverse array of palm species found around the world<sup>[8]</sup>. The optimal climatic conditions for the 74 varieties of the palms range from tropical, to subtropical, and temperate with scanty, medium and highest number of rainfall per annum on either sandy, loamy, clay, or in combination of either two or all the types of soil whether indoors or outdoors. Again, understanding the optimal climatic conditions for palm trees is fundamental for successful cultivation, prevention of stress and damage, water conservation, ecosystem integration, urban planning, conservation efforts, and building resilience to climate change. This knowledge guides decisions related to palm selection, planting practices, and conservation strategies, contributing to the health and sustainability of palm populations<sup>[10]</sup>. Furthermore, it was discovered that palm trees are used for different purposes including street or ornamental landscape for beautification of the surroundings, food for man, apes, and birds, travellers' source of drinking water in unfavorable conditions, and as air purifier; filtering airborne toxins such as benzene and formaldehyde. This study showed that 46 varieties served ornamental purposes, 14 served as food, 12 served for both ornamental and food purposes, one for air purification and one as source of travelers' drinking water. Knowing the diverse uses of palm trees is important for sustainable resource management, economic development, cultural preservation, and environmental conservation. This knowledge informs practices in agriculture, industry, and community development, contributing to the overall well-being of both ecosystems and human populations<sup>[7]</sup>.

Finally, the third component showed all the pictures of the 74 different varieties of palm trees well documented. Identifying palm trees through pictures is a practical and accessible method with applications in various fields, including research, education, conservation, horticulture, and environmental management. It empowers individuals to contribute to botanical knowledge and plays an important role in understanding, appreciation, and conservation of the diversity of palm species<sup>[1]</sup>.

The thesis concludes with recommendations based on the findings, potentially suggesting sustainable practices for the continued use of these palm varieties. This section may also identify areas for further research and exploration within the field. Overall, the thesis aims to contribute valuable insights into the multifaceted roles of 74 specific palm tree varieties, emphasizing their significance in both practical and cultural contexts. Recommendations are offered for the conservation and responsible utilization of palm trees, both for their nutritional benefits and their aesthetic contributions to human culture and landscapes. Regardless of one's climate and garden type, there are many options of palm tree species to choose from that would be suitable for ornamental purpose or food.

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