PRESERVATION THROUGH PROPAGATION
Conserve Cycads by Growing Them -- 35 Ideal Landscape Species

- Sun Loving ☀ Shade Loving or Half Sun/Half Shade 🌞?
- Heat and/or Cold Tolerant ° (some plants are both)
- Leaf Length and Spread: Compact, Medium or Large?
- Growth Rate and Ultimate Plant Size
- Climate: Subtropical, Mediterranean, Temperate? Dry or Moist?
- Leaves -- Straight or Arching?
- Ocean-Loving, Salt-Tolerant, Wind-Tolerant
Ceratozamia

- 16 named + several undescribed species
- Native to Mexico, Guatemala & Belize
- Name originates from Greek *ceratos* (horned), and *azaniae*, (pine cone)
- Pinnate (feather-like) leaves, lacking a midrib, and horned, spiny cones
- Shiny, darker green leaves arching or upright, often emerging red or brown
- Less “formal” looking than other cycads
- Prefer Shade ½ - ¾ day, or afternoon shade
- Generally cold-tolerant.
Ceratozamia -- Suggested Species

*Ceratozamia mexicana*
Tropical looking but cold-tolerant, native to dry mountainous areas in the Sierra Madre Mountains (Mexican Rockies). Landscape specimen works well with water features, due to arching habit. Prefers shade, modest height, with a spread of up to 10 feet. Trunk grows to 2 feet tall. Leaflets can be narrow or wider (0.75-2 inches).
Ceratozamia latifolia

Rare Ceratozamia named for its broad leaflets. Native to cloud forests of the Sierra Madre mountains of Mexico, underneath oak trees. Emergent trunk grows to 1 foot tall, 8 inches in diameter. New leaves emerge bronze, red or chocolate brown, hardening off to bright green, semiglossy, and grow to 6 feet long. They are flat lance-shaped, asymmetric, and are broadest above middle, growing to 10 inches long and 2 inches wide.
**Ceratozamia -- Suggested Species**

**Ceratozamia hildae**

**Bamboo Cycad**, native to deciduous oak cloud forests of Mexico, at altitudes of up to 1 mile above sea level. Cold-tolerant, down to 15 degrees Fahrenheit. The only cycad with clustered leaflets, forming bow-tie-shapes on lime-green leaves. Trunk creates multiple offsets, resulting in a clumping habit. Partial shade, medium-sized, trunk growing to 1.5 feet tall, and leaves to 6 feet long. Warm, moist and sheltered location with good drainage.
Cycas Species that are Sun-Loving and Cold-Tolerant

- Narrow leaflets
- Medium sized
- Tighter smaller symmetrical leaves
- Many native to desert and arid climates
- Generally cold-tolerant
**Cycas** **Species** that are **Sun-Loving** and **Cold-Tolerant**

**Cycas angulata**

🌟 😎 ▲

Very robust growth habit with keeled ("Veed") leaves.

Greyish-colored leaflets long, narrow, and semi-glossy, arranged at a low angle to the rachis.

Leaves grow to 8 feet long.

Fast growers in hot arid climates.
Cycas Species that are Sun-Loving and Cold-Tolerant

*Cycas revoluta* ☀️ ☀️ ☀️ ☀️
(Sago Palm)

Classic “rare tropical” well-established in gardens and commercial landscapes.
Quite cold-tolerant, able to survive temperatures as low as 15 degrees Fahrenheit.
Attractive keeled leaves
Multi-trunkng ability
Excellent xeriscape plant with tropical look.
Cycas Species that are Sun-Loving and Cold-Tolerant

Cycas panzhihuaensis

😊 ☀ 😊 🔴

Native to the Sichuan and northern Yunnan Provinces of China.
Relatively unknown outside China until recently.
Produces a lovely blue-gray-green flush of leaves over time with chestnut red-brown trunk.
Very cold-hardy, as it grows in an environment with very cold and often frosty winters.
Candelabra-like leaf effect
Cycas Species that are Sun-Loving and Cold-Tolerant

Cycas taitungensis 😊☀️😊 ▲

Similar form to Sago Palm, with longer, broader and flatter leaflets.

A vigorous grower. Grows bigger and faster than Sago.

Quite cold-tolerant, able to survive temperatures as low as 15 degrees Fahrenheit.

Rarely shows nutritional deficiencies.

Resistant to scale & mealy bugs.

An ideal xeriscape plant.

Very high salt water tolerance.
Cycas Species that are Shade-Loving, Moderately Cold-Tolerant and Uncommon

- Wider leaflets
- Medium sized to longer leaves
- Cold tolerant to about 25° Fahrenheit
- Native to higher altitudes in sub-tropics
- Attractive blue iridescence in several species
Cycas: Shade-Loving, Cold-Tolerant and Uncommon

*Cycas thouarsii* 😊😊△

One of the largest and fastest-growing cycads, reaching over 30 feet tall, with a trunk up to 18 inches in diameter, producing offsets along its length. It generates up to 40 leaves at a time, each up to 10 feet long. Native to Madagascar, the Comoros and Seychelles Islands, and the East Coast of Africa. May be the oldest living Cycad, at 140 million years. Can handle temperatures down to 27 F.
Cycas: Shade-Loving, Cold-Tolerant and Uncommon

*Cycas litoralis* 🐰 🌿

Southeast Asian cycad named for its native coastal habitat. Adapts well to coastal landscapes.

Features numerous glossy, sickle-shaped bright green leaves with pale undersides.

While not currently classified as threatened, its global population is in jeopardy.
Cycas: Shade-Loving, Cold-Tolerant and Uncommon

*Cycas petraea/ Cycas sp. Wilailak 😊😊▲

Grow in Thailand's coldest mountains, not far from the border with Laos.

Similar species with trunk growing to about 10+ feet tall.

Leaves are short and flat with dark green, very glossy and waxy leaflets on either side of a fairly long petiole.
Cycas Species that are Shade-Loving, Cold-Tolerant and RARE

- Wide multipinnate or bipinnate leaflets
- Medium sized to longer leaves
- Cold tolerant
- Native higher altitudes
Cycas Species: Shade-Loving, Cold-Tolerant & RARE

*Cycas debaoensis* 😊😊

Graceful, striking, ultra-rare plant

Native only to disappearing habitat in small areas in Southern China

Endangered and regarded as the most desirable in the Cycas genus.

Distinguished by—and prized for—its unusual multipinnate leaves.

Grows in mixed evergreen and deciduous forest on steep limestone slopes.

Can reach 8+ feet in height
**Cycas Species: Shade-Loving, Cold-Tolerant & RARE**

**Cycas bifida 😊😊**

Distinctive “split” leaflets are glossy, thin-textured, and long, growing on long leaves.

Native to central and northern Vietnam, where once abundant populations are now very depleted.

Wild habitat is low, scrubby but dense woodland, steep limestone outcrops, and sandy or loamy soils.
Dioon Species that are Sun-Loving and Cold-Tolerant

- Narrow leaflets
- Small-medium sized
- Tight symmetrical leaves
- Many native to desert and arid climates, and high altitudes
- Generally cold-tolerant and can tolerate high heat
**Dioon angustifolium** 🌞

Named for its narrow leaflets, as "angusti" is Latin for "narrow." Compared to Dioon edule, Dioon angustifolium has finer, bluer leaflets. Leaves emerge a bright orange-red color before fading to a bluish-green. Single or multi-trunked, leaflets arrayed at 180° angle to rachis. Native to Sonora Desert. Very cold-tolerant and heat-tolerant.
Dioon edule

Flat-leafed, sun-loving plants popular for their tolerance of heat and cold. Attractive, stiff, blue- to gray-green colored leaves. Native to Mexico. Full sun exposure will cause a more blue leaf color. Separate ecotypes include “Queretaro Blue”, “Rio Verde” and “Palma Sola”
**Dioon Species** that are **Sun-Loving and Cold-Tolerant**

*JURASSIC GARDEN*

*Dioon califanoi* 🌞❄️

Native to the Mexican state of Oaxaca, and known for its characteristic keeled (deeply V-ed) arching leaves, gray to gray-green and stiff. Tolerates full sun, poor soil and can survive with very little water. Also tolerates frost.
Dioon Species that are Shade-Loving & Subtropical

- Wide, spiny leaflets
- Medium-large sized – “Tree Dioons”
- Flat leaflets at 180° on rachis
- Native to subtropical climates
- Not extremely cold-tolerant (leaves burn below freezing)
Encephalartos from South Africa for Half-Day/Coastal Sun

- Wide, long leaflets, dynamic growth once established
- Medium-large sized – The Giants of South Africa + a few mid-sized
- Half-day shade in arid climate, full sun in humid or subtropical climate
- Native to climates that are cool in winter, hot in summer
- Cold-tolerant (can handle into the teens Fahrenheit)
Encephalartos from South Africa for Half-Day/Coastal Sun

Encephalartos altensteinii

Robust, tall growing species known as the Eastern Cape Giant. Trunk can reach over 15 feet tall; deep green glossy leaves grow to 6+ feet. Leaflets held in a V-shape. Distinguished from other large green species by straight leaves, broad, well-spaced leaflets with 1-3 prickles or fewer on each margin, and basal leaflets not reducing to spines. Often lacks other species' woolly fuzz in the crown around newly emerging leaves. Native to coastal areas of the Eastern Cape Province in South Africa. The best big green cycad for Southern California & desert southwest.
Encephalartos natalensis

A beautiful, all season, evergreen cycad with deep green leaves. The Natal Giant Cycad is relatively quick-growing palm-like cycad with an erect stem. Grows up to 20 ft. in height, with leaves up to 10 ft. long. Spiny-toothed leaflets more prominent on younger plants. Native to Natal and Zululand, South Africa. Prefers filtered sun.
Encephalartos From South Africa for Half-Day/Coastal Sun

Encephalartos senticosus 😊😊▲
Native to northern KwaZulu-Natal in South Africa and adjacent Swaziland. Habitat is dry scrub on rocky slopes or cliffs. Medium-sized, with 6-foot long leaves that are dark green and glossy. Prefers a lightly shaded position. Cold-tolerant.
**Encephalartos transvenosus “Modjaji Giant” 😊😊▲**

Tallest of the South African cycads, growing to 40 feet (over 100s of years). Dark olive-green leaves grow to 8 feet long, usually straight, with slight curving near the outer edge. Leaflets are straight with a slight curve at the ends. The Modjadji Cycad grows well in both direct sun and filtered light.
Encephalartos From Central Africa for Half-Day/Coastal Sun

Encephalartos gratus  Encephalartos kisambo  Encephalartos whitecockii

**The Green Giants of Africa**

- Wide, long leaflets, long leaves 12-18 feet
- Large sized – The Giants of the Cycad World
- Half-day shade in arid climate, full sun in humid or subtropical climate
- Native to climates that are tropical and sub-tropical
- Cold-tolerant to 30° -- Prefer coastal climate or protection inland
Encephalartos from South Africa
Blue/Blue-Green Sun Lovers

- *Encephalartos arenarius*
- *Encephalartos horridus*
- *Encephalartos lehmannii*
- *Encephalartos trispinosus*

🌟 The Classic Blue Cycads of South Africa

- Short and often spiny leaflets, leaves 4-5 feet
- Blue-gray to blue-green in color
- Full sun in all but the hottest of desert climates
- Native to climates that have a distinct winter chill
- Cold-tolerant to the teens Fahrenheit
Encephalartos from South Africa
The Classic Blue/Blue-Green Cycads of South Africa

Encephalartos arenarius

The Alexandria Cycad; native to coastal sand dunes of South Africa. Medium sized, with leaves growing to 6+ feet, either erect or reclining.

Prefers light shade or moderate sun and should be protected from hard frost.

Distinguished by the slightly dull silver or grey sheen of its adult leaves, and its gracefully lobed leaflets. Some forms have coloring that is more distinctly blue.
Encephalartos from South Africa
The Classic Blue/Blue-Green Cycads of South Africa

Green ▲  Encephalartos horridus

The leading plant from the famous group of blue cycads from South Africa.
Small-to-medium-sized, trunk growing to 3 feet tall with 4-5 ft. long leaves
Some plants form a clump with multiple stems.
Hard, sharply pointed, blue-gray erect leaves are stunning in a garden setting.
Very attractive among succulents, as an accent plant, or planted with low green shrubs to provide contrast.
Encephalartos from South Africa
The Classic Blue/Blue-Green Cycads of South Africa

😊 ☀️ ▲ Encephalartos lehmannii

Also known as the Karoo cycad
The hardiest and most drought resistant of the cycads of southern Africa.
Extremely blue in color.
Clumping, medium-sized, growing to 6 feet tall. Leaves reach up to 5 feet.
Prefers full sun but is frost tolerant.
Encephalartos from South Africa
The Classic Blue/Blue-Green Cycads of South Africa

**Encephalartos trispinosus**

Bushman's River Cycad - The most variable in form and color among the famous blue cycads from South Africa.

Small-to-medium-sized, growing to 3 feet in height, often clumping with up to 6 stems.

Blue-green, pointy, erect leaves are quite striking in a garden setting.

Prefers a sunny location and is frost tolerant.
Australian Specimens—
Lepidozamia and Macrozamia

- Longer spineless leaves, leaves 6-8 feet
- Arching procumbent growth habit
- Prefer shade but can handle sun in coastal climates
- Native to climates that have a distinct winter chill
- Cold-tolerant to the teens Fahrenheit
Zamias from the Americas -- Mostly Subtropical

- Small to medium size
- Clumping growth habit with subterranean trunks
- Informal appearance
- Prefer shade but can handle sun in coastal climates
- Native to mostly subtropical climates