

## TEXAS HIGHWAYS--MOODY GARDENS--MALLORY

On Galveston Island, discover  
the marvels of land, sea, and sky at...

### **the PYRAMIDS of Moody Gardens**

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sounds, and surprises await at...

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On Galveston Island, have a lark,  
or linger and learn at...

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**Story and photos by Randy Mallory**

You gaze from a diver's perspective at a glistening school of rainbow runners in the Aquarium Pyramid. Then--wow!--a sand tiger shark glides by directly overhead.

You peek through a curtain of roots hanging curiously from tall ficus trees in the Rainforest Pyramid. Then--swish!--a saffron finch flits by in a blur of brilliant yellow.

You delicately move the hand-controller of the docking simulator in the Discovery Pyramid. Then--hurrah!--the space shuttle successfully connects with the international space station...and you feel like a virtual astronaut.

Inside the three pyramids of Moody Gardens, a fascinating world (no, make that universe) of sights, sounds, and surprises await at every turn.

Some visitors--particularly parents with excited youngsters--frolic through exhibits as if on a lark. They come away with fond memories of waddling penguins, hatching butterflies, and Martian landscapes. Slower-paced visitors linger and learn. They study the pyramids' flora and fauna and go hands-on at interactive space exhibits. They come away with a keener awareness about the nature of land, sea, and sky.

Both visitor styles--the tortoise and the hare--can reach the same finish line, says Moody Gardens executive director John Zendt. "It's all about education. We believe every visit to Moody Gardens can teach about nature and how to conserve and protect the environment. There's no place else in Texas to get this kind of experience."

As you leave the mainland via the arching Interstate 45 causeway and descend onto Galveston Island, look to your right for Moody Gardens. It's hard to miss. Its glass pyramids--the clear Rainforest Pyramid, the blue Aquarium Pyramid, and the copper-colored Discovery Pyramid--shimmer at water's edge like giant gemstones waiting to be found.

The three pyramids prove the most sparkling of a host of Moody Gardens attractions, which represent an investment of some \$300 million. Other attractions include a six-story IMAX 3D Theater, a rollicking IMAX Ridefilm Theater, Palm Beach (replete with freshwater lagoons and a yellow submarine for kids), and The Colonel paddlewheel boat (offering a relaxed ride on Offatts Bayou). There's also a 303-room luxury hotel, a 60,000-square-foot convention center, 25 acres of lush semi-tropical gardens, a walking/biking track, volleyball courts, and picnic areas. The total package on the 242-acre site makes Moody

Gardens one of the state's premiere convention and vacation destinations, attracting more than 1.5 million visitors annually.

And, appropriately, it all began with hope. In the early 1980s, the son of local philanthropist Robert L. Moody sustained a head injury in a car accident. Animal-assisted therapy sparked his recovery which, in turn, spurred the Moody family to create Hope Therapy in 1984 to help others. Today, Moody Gardens' internationally-recognized therapeutic program offers rehabilitative horseback riding (hippotherapy) and horticulture therapy to disabled or injured clients. Visitor ventures such as the pyramids provide financial support for Hope Therapy.

### **Follow the Tuna**

The largest and newest Moody Gardens venture--the 13-story-tall Aquarium Pyramid--opened last summer to showcase a whopping 1.5 million gallons' worth of watery wonders. One of the world's largest aquariums, it engulfs visitors with more than 10,000 marine animals (260 species) from four realms--the North Pacific, the South Pacific's great Barrier Reef and Coral Sea, the frigid edge of the Antarctic, and the warm Caribbean. These sea creatures came to Galveston from zoo breeding loans, local field collecting, and, mostly, from licensed tropical fish collectors.

To see all the animals, follow the tuna--tuna-shaped signs which direct you to exhibits. Walkways wrap around the four main aquariums, which run as deep as 20 feet, allowing above- and below-water viewing. Seven-inch-thick clear acrylic walls offer the vivid experience of observing underwater life from a diver's eye view.

In the North Pacific, playful fur and harbor seals dive from a rocky shore. A kelp forest sways in briny seawater kept at 55 to 65 degrees Fahrenheit. The

neighboring South Pacific harbors a tide pool with brightly-colored sea anemones and sea urchins, plus a coral reef inhabited by more than 120 species.

Not surprisingly, the rocky shores, the kelp, and the coral--dead ringers for the real thing--are artificial, explains Aquarium Pyramid director Doug Kemper. "The aquarium environment necessitates man-made materials such as cement, vinyl, and polyurethane. For example, without strong sunlight, as you find in nature, it's nearly impossible to grow and maintain live coral or kelp."

Details of aquarium design hardly matter to visitors streaming through an underwater tunnel into the dome of the massive Caribbean exhibit. There, surrounded by seawater except for where they stand, people watch spellbound as 4,000 fish swim in all directions. Some fish--such as blue runners and Bermuda chubs--run in schools, just as in the ocean. Others--such as snappers, eels, and seabass--seem forever on the lurch for food. The exhibit's three sand tiger sharks (the largest is 7 feet long) easily lord over the scene.

Crowd interest surges when volunteer scuba divers splash into the tank for scheduled daily feedings. A communications system allows divers to educate onlookers about species being fed.

Nearby, three touch tanks provide a feel--literally--of starfish, crabs, sea urchins, and stingrays. Dotted throughout the pyramid, 29 small aquariums, called jewel tanks, highlight exotics such as seahorses, jellyfish (shown hypnotically under blacklight), and angelfish.

The hands-down stars, however, of the Aquarium Pyramid are 42 King and Rockhopper penguins. They waddle around the icy South Atlantic exhibit and swim in waters hovering at 40 degrees. "Penguin Power," aquarium director Kemper calls it: "People love these magnificent creatures that walk upright like little tuxedo-clad citizens." In fact, they're native Texans! In 1998 aquarium staff traveled to South Georgia Island in the Antarctic to collect penguin eggs by

permission of the British and Falkland Islands governments. The eggs, incubated and hatched on Galveston Island, yielded penguins now approaching two years of age. "They may begin breeding soon," adds Kemper, "so we're putting pebbles in the exhibit which they will use for nests."

### **Butterflies, Unfold!**

Next door, newborns of another species take flight inside the 10-story-tall, Rainforest Pyramid. This Texas-sized terrarium houses a full acre of rainforest, complete with hundreds of diverse plants (including primitive palms, broad-leafed ferns, and twisting vines)--plus exotic tropical fish, birds, and butterflies. General curator Pat Sharkey says the butterfly breeding program remains a high-flying attraction.

Each week, butterfly farms in Costa Rica, the Philippines, and Malaysia ship butterfly pupae to Moody Gardens. Mounted in a hatching hut near the pyramid's center, the pupae metamorphose into tropical butterflies after 10 days or so...right before visitors' eyes. People watch in awe twice daily as naturalists release newly-emerged butterflies. It's a chance for visitors to ask questions and learn about the pyramid's 30 to 45 butterfly species--including Blue Morpho, Scarlet Mormon, Zebra Longwing, and Gulf Fritillary.

Nature-lovers also seem awed by the pyramid's colony of 56 Egyptian fruit bats housed behind glass in a 300-square-foot bat cave. Staff biologists create a "reverse light cycle" using dim light by day and bright light by night. With days and nights switched, the nocturnal creatures fly about, feed on fruit, and groom themselves during times when visitors can observe their habits.

The rainforest has evolved considerably since opening in 1993, says horticulture manager Gary Outenreath. The upper canopy (comprised of the highest trees in the forest) now soars 60 feet high, reaching the pyramid's growth limits. Perhaps most conspicuously, a single curtain ivy plant has grown 85 feet,

branching out prolifically across the canopy. The Brazilian relative of the grape sends down aerial roots which hang across the pyramid like mysterious curtains. No wonder the pyramid's 1,500 plant specimens flourish--computers create a seasonless climate of 88 degrees and 88 percent humidity, and horticulturists make sure they thrive.

Horticulturist Outreach has been amazed, in fact, at the success of their biological control plan. "We can't spray chemicals to control damaging insects and diseases, because they would kill our butterflies and fish," he explains. "So, for instance, we use peat moss to control certain fungi and snails, and parasitic wasps to control various scales and cockroaches. We've created a natural balance that's healthy."

### **Extraterrestrial Sights**

In 1991 Moody Gardens set its educational sights on the stars. That's when it opened the Discovery Pyramid in collaboration with NASA's Johnson Space Center in Houston. Its aim? To help visitors fathom the realities of space exploration...and learn about extraterrestrial resources along the way.

To that end, Moody Gardens engaged 100 NASA scientists and engineers to design challenging exhibits that entertain as well as educate, says Douglas Goforth, Discovery Pyramid manager. Forty of the pyramid's 50 exhibits are interactive, he adds, equipped with the latest NASA simulation technology.

At the docking trainer visitors control the same computer simulation used by astronauts to practice docking the U.S. space shuttle with the Russian space station Mir. At mission control workstations guests use computer touch screens to navigate through key space shuttle operations. And in the big-screen Shuttle Theater they watch live coverage of space shuttle missions (and, once underway, construction of the International Space Station) via satellite uplinks to NASA-TV.

A walk-in replica of the International Space Station's habitation module shows how residents will bathe, sleep, and eat in space. A plant growth chamber and harvest box actually produce edible vegetation in a closed environment, the same as on the space station. And by lying down inside a half-size mockup of the X-38 lifeboat, visitors sense how crew members might return home in case of emergency aboard the space station.

One of the newest Discovery exhibits, "Destination: Mars," features a working model of a Mars habitat. Through a large picture window, would-be astronauts survey a simulated Martian landscape. Using a tele-robotics video system, they guide a rover craft across the rocky terrain collecting rock and soil samples. Inside, they examine actual Mars surface rocks in a NASA glovebox. They also measure reflected light with a spectrometer, check their vital signs, and plan surface operations on a Mars map table.

But how will astronauts get to Mars? A Discovery exhibit points to a speedy new way--the Franklin Chang-Diaz VASMIR rocket. This proposed design--tried successfully in a laboratory vacuum--turns hydrogen into hot plasma and uses a magnetic field as an engine for maximum thrust. Scientists think it can shorten a one-way trip to Mars from 224 days (with traditional chemical rockets) to 160 days with the plasma rocket.

Kids who want to sleep on "Mars" can sign up for "Starry, Starry, Night." The program lets kids (elementary through high school) overnight in the Discovery Pyramid to learn more about space life and complete fun projects such as making their own constellations.

Moody Gardens offers learn-and-do sleepovers at the other two pyramids as well, says education curator Kelly Drinnen. The Aquarium Pyramid's "Night on the Reef" studies how marine animals adapt to changing conditions. The

Rainforest Pyramid's "Creatures of the Night" explores the rainforest by flashlight in search of sleeping wildlife.

Night or day, young or old--exploring the pyramids of Moody Gardens becomes an adventure in learning. For most people, the experience also poses crucial questions about planet Earth and beyond. One minute, you're surrounded by natural delights. The next, you're wondering how the environment will fare in the new millennium.

"There are many issues we as a society need to address, and one important place you can learn about them is here at Moody Gardens," notes Aquarium Pyramid director Doug Kemper. "We hope the beauty of this place will stimulate thought and appreciation for nature, and that will have an impact when environmental decisions have to be made."

A quote from Senegalese conservationist Bab Dioum, posed as a sort of environmental epilogue at the Aquarium Pyramid's exit, puts the mission another way: "In the end, we will conserve only what we love, we will love only what we understand, we will understand only what we're taught."