# THE MOST POPULAR REVERED FLOWER OF THE CLASSIC MAYA CIVILIZATION

# SACRED WATERLILY ECO-SYSTEMS OF GUATEMALA

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# UNRESOLVED MYSTERY OF MAYA RELIGION?

WHY? WHY WAS THE WATERLILY?

THE MOST POPULAR **REVERED FLOWER** 

OF THE CLASSIC MAYA CIVILIZATION?

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A VISUAL FEAST FOR YOUR EYES: ACRED WATERLILY **ECO-SYSTEMS OF** GUATEMALA



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**Recent in-depth research on Waterlily eco-systems**, 2000 to today

### WATERLILY ECO-SYSTEMS IN GUATEMALA, CENTRAL AMERICA

WATERLILY ECO-SYSTEM, ARROYO PUCTE, BENDS IN THE RIVER (FLOWERS ON SUR

WATERLILY ECO-SYSTEM, ARROYO PUCTE, DEEP IN THE RIVER (MOST PLANTS DEEP

NOT ALL WATER LILY FLOWERS BLOOM ABOVE THE WWATER: Some waterlily plants flower BELOW. Fully underwater

- **FLOWERS BLOOMING UNDERWATER**
- BUDS READY TO BLOOM UNDERWATER
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WILTED FLOWERS BUT PETALS BEGINNING TO ROT

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# **INTRODUCTION**

ALSO AT MAYA SITES ALMOST EVERYWHERE, INCLUDING GUATEMALA.

UNDERWATERWORLD.



I STILL VIVIDLY REMEMBER ONE RESEARCH TRIP, WE HAD PEOPLE FROM NATIONAL GEOGRAPHIC AND YALE UNIVERSITY ON THIS BOTANICAL EXCURSION TO THE AR-ROYO PUCTE, A TRIBUTARY OF THE RIO DE LA PASION.

## THE WATERLILY FLOWER IS POTENTIALLY THE MOST COMMONLY PICTURED FLOWER IN ALL OF CLASSIC MAYA ART, ESPECIALLY AT PALENQUE AND COPAN, BUT

### During the late 1970's and early 1980's I did research on waterlily flowers AND PLANTS OF GUATEMALA FOR MY PHD DISSERTATION ON THE SURFACE OF THE

I HAD BEEN STUDYING WATERLILIES FOR MANY YEARS AND AS THE LECTURER FOR THIS FLORA AND FAUNA FIELD TRIP I COMMENTED ON MY OBSERVATION THAT MANY OF THE FLOWERS BLOOMED UNDERWATER. SOPHIE DOBZHANSKY COE, WIFE OF YALE PROFESSOR MICHAEL COE, WAS VERY KNOWLEDGEABLE IN PLANTS AND ANIMALS. PLUS SHE IS A CAPABLE FOOD HISTORIAN. BOTH WERE WITH ME ON THIS REMOTE JUNGLE RIVER. SHE POINTED OUT THAT THE FLOWERS WERE "DYING AND LOWERING THEMSELVES UNDERWATER AS THEY WILT AND DIE."

BUT I HAD NOTICED TWO KINDS OF FLOWERS UNDERWATER, THE WILTED ONES, AND ALSO THE FRESH ONES.



SO I FELT THAT THE ARROYO PUCTE WAS PERHAPS A UNIQUE ECO-SYSTEM (DUE TO ITS DEPTH AND DUE TO THE FACT IT WAS NOT MUDDY, BUT VERY CLEAR WATER). I DOUBT MANY BOTANISTS HAVE BEEN ON THIS RIVER (WHICH IS RICH IN MORE THAN JUST WATER-LILIES: IT ALSO HAS SACRED 4-PETALED FLOWERS, LIKE THE FLOWERS PAINTED ON BOWLS AND VASES IN THE TIKAL TOMB WHICH I DISCOVERED IN 1965).

# Arroyo Pucte, Underwater

**ONTERRI** 

So I set out on what has now been how waterlily flowers bloom, hc formed.

THE WATERLILY IS NOT ONLY PROBABLY THE SINGLE MOST FREQUENTLY SHOWN PLANT IN THE ART OF THE MAYA, BUT ALSO THE WATERLILY IS POTENTIALLY EDIBLE. BUT WHAT PART? FLOWER? PAD? SEED POD? AND WHAT ARE THE EFFECTS?

SINCE I HAD A FAIRLY GOOD IDEA WHAT THE EFFECTS MAY BE, I MUST ADMIT I HAVE NEVER EATEN, SMOKED, INGESTED, SNUFFED OR OTHERWISE SAMPLED ANY PART OF





### So I set out on what has now been a 40+ year odyssey to learn more about how waterlily flowers bloom, how they die, and how the seed pods are

THE PLANT. BUT I DEFINITELY DO LEARN FROM PEOPLE WHO HAVE (PLUS THE HUNDREDS OF SCULPTURES AND PAINTINGS IN MURALS AND POTTERY).

I HAVE ALSO LEARNED ENOUGH ABOUT THE ACTUAL WATERLILY TO RECOGNIZE THAT SOME PLANTS CALLED "WATERLILY" IN BOOKS ON THE MAYA ARE MISTAKEN IDEN-TIFICATIONS. SO IT REALLY DOES HELP TO SPEND DAY AFTER DAY LITERALLY WAIST DEEP (OR SOMETIMES NECK DEEP) OUT IN REMOTE SWAMPS.

I HAVE ENJOYED EVERY MINUTE, EVERY HOUR, EVERY DAY. SOME DAYS I AM OUT OF THE BOAT, WADING IN THE SWAMP, FOR UP TO SIX HOURS PER DAY LEARNING MORE ABOUT THESE REMARKABLE ECO-SYSTEMS.

SINCE MY PHD DISSERTATION IS STILL AVAILABLE AS A COFFEE TABLE BOOK, AND SINCE IT ALREADY HAS ILLUSTRATIONS OF THE WATERLILY IN MAYA ART, I DECIDED TO FOCUS THE NEW SERIES OF PUBLICATIONS ON THE ACTUAL FLORA AND FAUNA OF THE ECO-SYSTEMS.

I SAW MY FIRST MAYA WATERLILY IN THE 1960'S, TAKING A CANOE RIDE TO SAYAX-CHE, EL PETEN, GUATEMALA. THERE WAS NO ROAD SO AT PASO SUBIN YOU HAD TO FIND A CANOE AND HITCH A RIDE TO THE RIO DE LA PASION AND THEN REACH THE VILLAGE OF SAYAXCHE.

THEN I EXPERIENCED WATERLILIES AT LAKE YAXHA DURING THE 1970'S, WHILE WORKING AT YAXHA. ONE RESULT OF LIVING IN A TREE HOUSE AT YAXHA FOR FIVE YEARS WAS BEING ABLE TO CREATE THE PARQUE NACIONAL YAXHA-SACNAB. I FEEL HONORED TO HAVE HELPED SAVE THIS FRAGILE ECO-SYSTEM. BULLDOZERS HAVE LITERALLY OBLITERATED MOST OF THE NATURAL ECO-SYSTEMS OF ALL SURROUNDING AREAS (FOR CATTLE RANCHES AND MORE RECENTLY FOR PLANTING THOUSANDS OF AFRICAN PALM OIL TREES).

THE MOST EXCITING RESULTS OF THE DECADES OF RESEARCH WAS TO FIND SEV-ERAL AREAS WHERE THE ENTIRE PLANT IS UNDERWATER AND HENCE TO FIND SEV-ERAL PLANTS WHICH DO INDEED BLOOM UNDERWATER. WE MADE FIELD TRIP AFTER FIELD TRIP TESTING THE BEST EQUIPMENT TO RECORD THESE REMARKABLE BOTANI-CAL SITUATIONS UNDERWATER. WE EVEN USE A TRIPOD UNDERWATER.



ALTHOUGH WE STILL NEED A BETTER UNDERWATER CASE FOR OUR FULL-SIZE CAN-ON AND NIKON CAMERAS, WE WERE ABLE TO GET ABSOLUTELY REMARKABLE UNDER-WATER VIEWS IN ONE OF THE RIVERS. IT IS SO REMOTE WE HAVE TO CAMP OUT IN THE SWAMP, ON ISLANDS, IN TENTS, DAY AFTER DAY.



WHAT YOU SEE HERE ARE SAMPLES. AS SOON AS FUNDING IS AVAILABLE FROM A CONSIDERATE INDIVIDUAL, A CORPORATION, OR A FOUNDATION, WE CAN FINISH THE LAST NEEDED FIELD SEASON OUT IN THE SWAMPS WITH BETTER EQUIPMENT, AND MOST IMPORTANTLY, WE CAN TAKE NOTES ON EVERYTHING WE HAVE LEARNED SO ALL THIS KNOWLEDGE WILL BE AVAILABLE.

THE NEWEST DIGITAL TECHNOLOGY CAMERA SYSTEM, PHASE ONE IQ260, WOULD HELP US IMMENSELY, IF IT COULD BE DONATED: 60 MEGAPIXELS. PLUS OUR TEAM OF DIGITAL IMAGERS AND BOOK LAYOUT DESIGNERS WOULD ACHIEVE FASTER PRO-DUCTION IF THEY HAD THE NEW GENERATION APPLE AND DELL COMPUTERS, PLUS UPDATED VERSIONS OF SOFTWARE.

PLUS OUR COVERAGE OF WATERLILY ECO-SYSTEMS WOULD BE GREATLY HELPED IF A FAMILY OR CORPORATION WITH A HELICOPTER COULD PROVIDE US OPPORTUNI-TIES TO ACCOMPLISH AERIAL PHOTOGRAPHY OF THE THREE MAIN WATERLILY AREAS: CANAL DE CHIQUIMULILLA (MONTERRICO), ARROYO PUCTE (RIO DE LA PASION), and Rio San Pedro Martyr, plus water areas such as Polochic and Golfo Dulce (Izabal) and Lake Yaxha (El Peten).

THIS BOOK IS AN EXAMPLE OF SHEER DEDICATION TO LEARNING THE BACKGROUND OF WHY DID A CIVILIZATION SELECT THIS FLOWER, THIS PLANT, AS THEIR MOST-SHOWN IMAGE, ESPECIALLY IN SUPERNATURAL COSMOLOGICAL RENDITIONS OF THEIR MYTHICAL WORLDS FOR LIFE AFTER DEATH.

WE WISH TO BRING TO YOU OUR OVER 40 YEARS RESEARCH, AND ESPECIALLY, TO SHARE WITH STUDENTS AND SCHOLARS EVERYTHING WE HAVE LEARNED. IT IS NOT REALISTIC FOR EVERY MAYANIST OR EVEN EVERY BOTANIST TO SPEND THE NUMBER OF YEARS IN THESE REMOTE AREAS (I FIRST VISITED GUATEMALA AT AGE 17). PLUS WE WANT TO BRING TO THE WORLD THE NATURAL BEAUTY OF THESE REMARKABLE PLANTS.

AND SINCE SO MANY PEOPLE AROUND THE WORLD ENJOY DIVING AND SO MANY MILLIONS LIKE TO DO FLOWER PHOTOGRAPHY, WE INCLUDE TIPS AND HELP ON HOW TO ACCOMPLISH THE SAME KIND OF PHOTOGRAPHY WHICH WE PRODUCE IN THIS BOOK.





IT TOOK US SEVERAL DECADES TO REACH THE PRECISION OF HIGH-RES PHOTOGRAPHS WHICH WE NOW SPECIALIZE IN. BUT SINCE WE ARE NON-COMMERCIAL, AND SINCE OUR GOAL IS TO HELP PEOPLE WHO WISH TO LEARN, WE ARE MORE THAN WILLING TO SHARE OUR ACCUMULATED KNOWLEDGE.

WE ALSO ANTICIPATE THAT PEOPLE WILL WANT TO EXPERIENCE GUATEMALA FOR THEMSELVES, SO WE IDENTIFY CLEARLY WHERE WE FOUND AND PHOTOGRAPHED ALL THE FLOWERS. PLUS WE PROVIDE THE NAMES OF THE LOCAL GUIDES WHO CAN TAKE YOU TO PRECISELY THE SAME LOCATIONS. THIS IS VOLUME I. VOLUME II COVERS THE CREATURES ASSOCIATED WITH THESE WA-TER LILIES: THE TURTLES AND ESPECIALLY THE BIRDS AND CROCODILIANS (ESPECIALLY CAYMANS ON THE PACIFIC SIDE OF GUATEMALA).

# WATER BIRDS





# CAIMANS





VOLUME III COVERS THE PORTIONS OF THE ICONOGRAPHY OF THE SURFACE OF THE UNDERWATERWORLD WHICH IS BASED ON REEFS AND THE OPEN SEA: MARINE TURLES, SHARKS, STINGRAYS, CONCH SHELLS, AND MUCH MORE.



DOING RESEARCH TO BRING THE WORLD SUCH A THOROUGH VIEW OF GUATEMAlan eco-systems is exciting. Remember, the Maya (and Teotihuacan and MIXTEC AND TOLTEC AND AZTEC AND THEIR NEIGHBORS) ALL KNEW ABOUT THE TWO OPEN OCEANS. THE SEASHELLS THAT I DISCOVERED IN THE TOMB OF THE JADE JAGUAR, BURIAL 196 AT TIKAL, PROBABLY CAME FROM LOWER CENTRAL AMERICA. Spondylus shells are key features of the burial outfit of kings in the 9th CENTURY AT TIKAL.



SEUM.

WE HOPE YOU ENJOY THE SAMPLE PHOTOGRAPHS. THE ACTUAL BOOK WILL BE COF-FEE TABLE SIZE AND MANY MORE PAGES, PLUS TEXT, BIBLIOGRAPHY, ETC.

### YOU CAN SEE THE RECONSTRUCTION OF THIS TOMB IN MY HARVARD THESIS, AND THE TOMB OF HIS FATHER OR BROTHER IN THE TIKAL MUSEUM AND NATIONAL MU-

# WATERLILY ECO-SYSTEM, Canal de Chiquimulilla

















# WATER LILY ECO-SYSTEM, Tule swamps

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# WATERLILY ECO-SYSTEM, ARROYO PUCTE, BENDS IN THE RIVER (FLOWERS ON SURFACE)





![](_page_23_Picture_0.jpeg)

# WATERLILY ECO-SYSTEM, ARROYO PUCTE, DEEP IN THE RIVER (most plants deep underwater)

![](_page_24_Picture_2.jpeg)

![](_page_25_Picture_0.jpeg)

![](_page_26_Picture_0.jpeg)

# FLOWERS BLOOMING UNDERWATER

![](_page_27_Picture_2.jpeg)

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# BUDS READY TO BLOOM UNDERWATER

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#### BUDS ABOVE THE SURFACE: THE NORMAL FLOWERING PATTERN

P.S.





### FLOWERS BREAKING THROUGH A PAD TO REACH THE SUN

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### FRESH BUT FULLY OPEN FLOWERS WITH NECTAR IN CENTER













#### MATURE FLOWERS SEEN FROM THE SIDE















### MATURE FLOWERS VIEWED DIAGONALLY







### COMPARATIVE DISPLAY OF THE CENTRAL AREA OF THE FLOWERS







FLOWERS BEING VISITED BY INSECTS









## WILTED FLOWERS BUT STILL COMPLETE





# WILTED FLOWERS BUT PETALS BEGINNING TO ROT

WWW Prover 11





# "FOUR-PETALED" MAYA STYLIZED FLOWER DESIGN INSPIRATION






# FLOWERS WITHDRAWING UNDERWATER TO DIE





### SEED POD BEGINNING TO APPEAR AS PETALS AND SEPALS WILT





# SEED POD IN GOOD CONDITION BUT PETALS GONE





# SEED POD ROTTED OR NIBBLED BY TURTLES AND/OR FISH





# SEED POD BASE





# SEED POD CUT OPEN TO SHOW SEEDS AND INSIDE PATTERN





# WATERLILY STEMS





# WATERLILY AND AIR BUBBLES (AND HOLLOW STEMS)







WATERLILY PADS FROM ABOVE





WATERLILY PADS FROM BELOW, MOST FROM ARROYO PUCTE





### VARIATIONS IN RED AND GREEN COLORATION UNDERNEATH







# PHOTOGRAPHING WATERLILIES IN LOW-WATER SWAMPS





# WHAT DIGITAL CAMERA EQUIPMENT IS RECOMMENDED?

Nikon



# PHOTOGRAPHING WATERLILIES UNDERWATER





DID THE MAYA, OR AZTEC, SMOKE WATERLILY PLANTS?

DID MESOAMERICAN PRIESTS USE WATERLILY AS A DRUG?

IS THE WATERLILY A HALLUCINOGENIC FLOWER?

WHAT PART OF THE WATERLILY DO YOU EAT?

DO YOU EAT IT, SNUFF IT, OR INJECT IT?

DO YOU MIX IT WITH TOBACCO, OR TAKE IT STRAIGHT?

> WHY? WHY WAS THE waterlily?

THE MOST POPULAR SANCTI-HED FLOWER OF THE CLASSIC MAYA CHILIZATION?

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