CHAA CREEK NATURAL HISTORY CENTRE

NATURAL & CULTURAL HISTORY OF WESTERN BELIZE

PROGRAM OVERVIEW

Teacher's Introduction

The world is getting smaller each day. Improved transportation and telecommunications continue to bring us closer to our global neighbors and to see them with clarity never before possible. As we've become more informed about the world as a whole, we've increasingly realized that crisis such as over population; ozone depletion and rain forest destruction affect us all. Today's students are increasingly aware of their connection to the world's biosphere.

The Chaa Creek Curriculum introduces students to a parcel of rain forest in western Belize, Central America. Belize has a low population density, a stable political climate and a wealth of natural resources, including the largest barrier reef in the Western Hemisphere. The country has turned to ecotourism as its main means of income generation and set a sizable percentage of its land aside as reserves. Chaa Creek is one such reserve. Here, an area of reclaimed milpa (cornfields) is being allowed to regenerate its original forest cover.

Curriculum Goals:

- To **Build** a basic understanding of the Natural and Cultural Diversity of Belize.
- To **Empower** students to seek solutions to the problems they see in both their local and global community.
- To **Foster** communication between Belizeans and visiting students and teachers.

Components:

The curriculum focuses on the unique plants and animals of the Chaa Creek Nature Reserve and the surrounding areas and the ancient people of Belize and Mesoamerica; the Mayas. It is divided into two main sections.

A.) Archaeology & Maya History

> ***The Chaa Creek Maya***
> This first section gives an overview of the ancient Maya and the archeological process, using the Chaa Creek sites as examples.

B.) Basic ecological concepts and Natural History

> ***Our Diverse Natural History***
> This section gives an overview of the geography, soils and geology of the Chaa Creek Nature Reserve. It highlights a few of our common plant and animal species and emphasizes the ecological processes, which continue to shape the secondary-growth of the reserve.

Time Allocated:

The curriculum provides two alternatives:

A.) Archaeology & Natural History

This alternative provides for a three-day experiential learning program and encompasses a five-day stay in Belize. This course has been abbreviated from the latter five-day Flora, Fauna & the Maya and encompasses more archaeological theory than natural history concepts. However, the activities and trips offer an effective

and dynamic learning instrument through, which natural history is studied. Archaeology and natural history is addressed at a general student population, which has a keen interest in Belize, the rainforest and ancient civilizations. The archaeology and natural history program is fun, informative and brief.

B.) Flora, Fauna & The Mayas

This course, which includes a seven day stay in Belize and a five-day experiential learning program, offers a challenge to student groups who have a greater interest in the ecology of the tropical rainforest. It includes a closer analysis of the natural sciences and provides adequate time, field exercises and resources to allow every student success.

ARCHAEOLOGY & THE MAYA
FIELD EDUCATION PROGRAM

Course Objectives:

- To **Cultivate** respect and appreciation for the natural and cultural history of Belize through education.
- To **Study** the sub-tropical ecosystem and the ancient people of Belize.

Course Outline

Session Titles

First Session	-	Archaeology & The Mayas
Second Session	-	The Chaa Creek Ancient Maya Community
Third Session	-	Natural History of a Sub-Tropical Forest

First Session: **Archaeology and the Ancient Mayas**

Objective: To provide a basic understanding of archaeology and the Maya civilization and lay the foundation for the future session.

Topic: Introduction to Archaeology and the Maya of Mesoamerica.

Components:

1. What is Archaeology
2. The Maya
    a) Mesoamerica
    b) Natural Resources
    c) Intellectual Culture
    d) Social Organization
    e) Time and Evolution of the Maya civilization
        1) Pre Classic
        2) Classic
        3) Post Classic
        4) The decline of the Classic Maya
        5) The Mayas Today

***Second Session*:** **The Chaa Creek Maya and their sites**

Objective: To provide students with data on archaeological sites. Thus they can correlate and apply the theory and field information.

***Topic*:** The Maya of Chaa Creek and their sites.

Components:

1. Background on the Chaa Creek Maya
    a) Location

b) Historical Context
2. The Chaa Creek Maya Sites
    a) Stelae
    b) Tunchilen
    c) Plantain
    d) Tzacal
    e) Family Farmer house mound

***Third Session*: <u>Natural History of a Sub-Tropical Forest</u>**

***Objective*:** To teach students about the diversity of the forest.

***Topics*:** Flora, Fauna and the physical environment of Chaa Creek

Components:

1. Geologic History
2. Climate
3. Soils
4. Forest
    a) softwood & Hardwood trees
    b) palms
    c) vines
    d) shrubs
    e) epiphytes
5. Microhabitats
    a) Pastureland
    b) Secondary growth forest
    c) Riparian forest
6. Birds
    a) "Birds Without Borders" – A neotropical migratory research project supported by the Foundation for Wildlife Conservation and the Zoological Society of Milwaukee County
7. Mammals
    a) Howler Monkey Relocation Project
8. Reptiles & Amphibians
9. Invertebrates

FLORA, FAUNA & THE MAYA
FIELD EDUCATION PROGRAM

<u>Course Objectives:</u>

- To **Cultivate** respect and appreciation for the Belizean natural and cultural history through education.
- To **Facilitate** students with an understanding of the natural and cultural history of western Belize, with emphasis on archaeology, the Maya, and the sub-tropical forest.
- **<u>Course Outline:</u>**

Session Titles

First Session	-	Archaeology & The Maya
Second Session	-	The Chaa Creek Ancient Maya Community
Third Session	-	The Physical environment
Fourth Session	-	The Sub-tropical forest
Fifth Session	-	Wildlife of Belize

Note: Day one and two are the same as the three-day Education Program. Please refer to the topics: <u>Introduction to Archaeology and the Maya</u> and <u>The Chaa Creek Maya Sites</u> above for further information.

***Third Session*: <u>The Physical Environment</u>**

Objective: To teach students how these physical environmental conditions regulate the forest ecosystem and furthermore how it is the greatest determinant of its diversity.

Topic: The Physical environment of the Chaa Creek Nature Reserve

Components:

1. Geologic History
    a) Belize's Evolution
2. Soil
    a) Limestone Chemistry Test
3. Climate
    a) Weather conditions at the Chaa Creek Nature Reserve

***Fourth Session:* <u>Sub-Tropical Forests</u>**

***Objectives*:** To teach students about our local flora and enable them to distinguish sub-tropical vegetation and observe the diversity.

***Topic*:** The Sub-Tropical Ecosystem and the Flora of the Chaa Creek Nature Reserve.

Components:

1. Sub-Tropical Forest structure & Diversity
    a) Hardwood & softwood trees
    b) Epiphytes
    c) Palms
    d) Shrubs
    e) Vines
2. Habitat Types within the Chaa Creek Nature Reserve
    a) secondary growth forest
    b) riparian forest
    c) open pastureland

***Fifth Session: Wildlife* <u>of Belize</u>**

***Objective*:** To satisfy student interest in wildlife and teach important information on these creatures.

***Topic*:** The Organisms in a Riparian Hardwood Forest.

Components:

1. Wildlife in a Riparian Hardwood forest
    a) Vertebrates
2. Birds
    a) "Birds Without Borders" - species identified within 5 miles of Chaa Creek
3. Mammals
    a) Howler Monkey Relocation Project
4. Reptiles & Amphibians
5. Invertebrates
    a) Blue Morpho Butterfly Farm
    b) Chaa Creek Nature Reserve

INSTRUCTORS

Dr. Rosita Arvigo – Director, Ixchel Tropical Research Foundation
Ms. Sharon Matola – Director, The Belize Zoo & Tropical Education Center
Mr. Martin Meadows – Wildlife Biologist & Environmental Consultant

Mr. Kimo Jolly – Environmental Engineer and Consultant
Mr. Mario Teul – Project Coordinator, "Birds Without Borders"

Chaa Creek Naturalist Guide Staff
The above list of instructors may change due to prior commitments by the instructors or other mitigating circumstances. All substitutions will be filled with equally qualified and experienced educators.

FIELD EDUCATION PROGRAM VENUES

CHAA CREEK NATURE RESERVE
Located within the rolling limestone foothills of the Maya Mountains, this 330-acre private nature reserve is situated along the verdant banks of the beautiful Macal River. Starting with a comprehensive ecological and natural history orientation at the Chaa Creek Natural History Centre, students will be guided along miles of well-maintained trails through riverine and broadleaf tropical forest, abundant with palms, orchids, bromeliads, epiphytes and tropical hardwood trees. The reserve provides an excellent habitat for the "Birds Without Birds" neotropical migrant research station and 247 species of birds have been recorded to date. Toucans, motmots, parrots, hummingbirds, flycatchers & trogons are just a few of the birds found within the reserve.

CHAA CREEK NATURAL HISTORY CENTRE
Chaa Creek Natural History Centre has been designed to create awareness and an understanding of the local environment. On one hand it provides a comprehensive introduction to the history and geography of Belize while on the other it provides visual displays of archaeology artifacts, butterflies, moths, insects and amphibians found within the various habitats of the Chaa Creek Nature Reserve and the Cayo District.

The Centre maintains a well-stocked reference library, which includes archives of scientific studies conducted in Belize, a complete set of topographic maps, as well as others that depict the geologic makeup and environmental habitats found within the country. There is also a large collection of tropical butterflies and insects. An interactive area focuses on the life cycles of forest inhabitants and the fragility of their ecosystems. Cultural artifacts and exhibits complete the Centre's displays.

CHAA CREEK BUTTERFLY FARM
The iridescent blue *Morpho peleides* butterfly is bred and exhibited at the Chaa Creek Butterfly Farm. The eggs, five instars, pupae and adult blue morphos will be shown to the students as their metamorphosis and life cycle is explained. The students will also witness "Belizean Blues" miraculously emergence from their pupae and take flight as adults.

CHAA CREEK ARCHAEOLOGY PROGRAM
The Chaa Creek Archaeology Program, an ongoing co-operative effort between the Belize Archaeology Department and Dr. Richard Leventhal of U.C.L.A.'s Xunantunich Project, has recorded over 70 Maya sites with four major plaza groups all within the Chaa Creek Nature Reserve. Experience a "Day in the Life of a Maya" as your guide unravels the ancient mysteries of that long-lost civilization. Learn how the ancient Maya lived and farmed the forests as your walk the trails that track through their history.

MACAL RIVER
The Macal River borders the Chaa Creek Nature Reserve on the east and creates an interface zone of riverine and fresh water microhabitats. The Macal River is a major branch of the Belize River watershed, which is the largest watershed in Belize.

IXCHEL TROPICAL RESEARCH STATION
Adjacent to the Chaa Creek Nature Reserve, Ixchel Tropical Research Foundation conducts continual research into the medicinal uses, cultivation, preservation and development of tropical plants. Dr. Rosita Arvigo will lecture on tropical plants and their uses and guide the students through the "Rainforest Medicine Trail".

BELIZE BOTANICAL GARDENS
The Belize Botanical Gardens, located upstream from the Chaa Creek Nature Reserve, contains a collection of over 4,000 plants and trees. Over 160 species of native Belizean orchids are found in the Garden.

BELIZE ZOO

The Belize Zoo offers students a chance to see and study the native birds and animals of Belize in natural habitat enclosures.

EL PILAR RESERVE FOR MAYA FLORA & FUANA

North of the Maya village of Bullet Tree Falls on the Mopan River lies the El Pilar Reserve for Maya Flora & Fuana and "El Pilar" itself, the largest ancient Maya center in the Belize River valley. Under the direction of Dr. Annabelle Ford of the University of California – Santa Barbara, this nine square kilometer reserve has been protected so that the ancient forests with its myriad plants and animals, along with the traditional cultural practices of its indigenous people, may be preserved and once again flourish. The reserve lies along the western border of Belize and the 75-acre archaeology site, which dates back to 450 BC extends into Guatemala. The site is primarily unexcavated and covered in "high bush" (Ramon trees towering over 100 ft.) with an abundance of bird life, jungle foliage and traditional medicinal plants. The gently rolling trails meander through 25 courtyards and plazas with temples that reach 65 feet in height and remain hidden by the verdant forest of time forgotten.

CAHAL PECH

Just above the town of San Ignacio are the ruins of Cahal Pech, a Maya city which was settled by 1000 BC and reached its height in the Pre-Classic (300 BC-250 AD). The site includes courtyards, residential buildings, pyramids, ball courts, stelae and an impressive pyramid 77 feet high. The Cahal Pech Archaeological Museum exhibits a magnificent treasure of Mayan artifacts found within Belize.

XUNANTUNICH

Xunantunich, meaning maiden of the rock in Maya, rises above the jungle across the Mopan River from the village of San Jose Succotz. Its largest pyramid, El Castillo, offers an impressive view of the surrounding countryside and sports a large exposed plaster frieze on its eastern side. This structure, at approximately 40 meters (130 feet) is the second tallest ancient and modern structure in Belize.

SPECIALISED CURRICULUMS

The above curriculum may be modified to meet specialised interests or group requirements. It may also be limited or expanded upon in scope of material content and length of presentation.