85th Anniversary

BCI

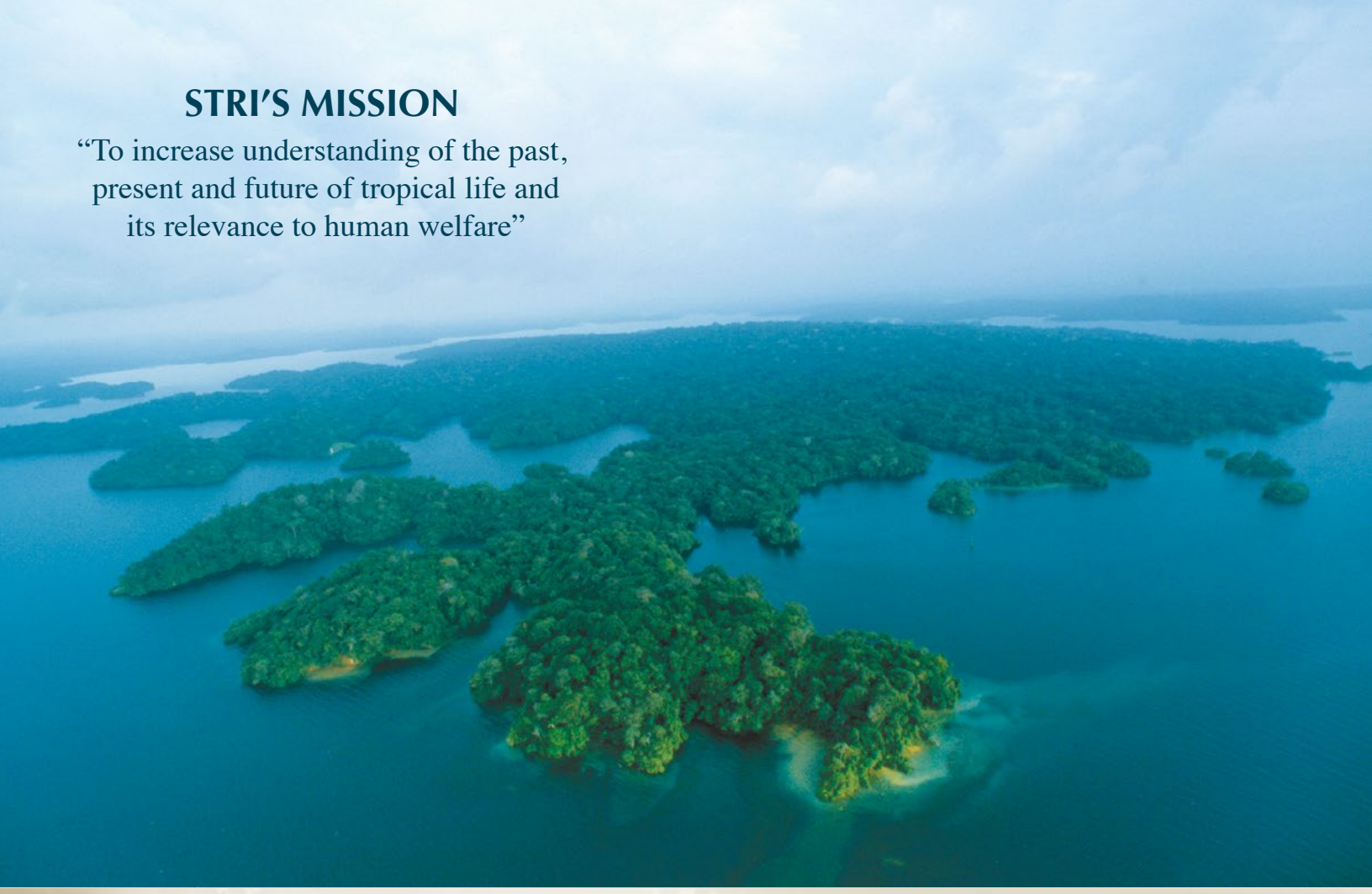
History and Research

Smithsonian Tropical Research Institute

stri.si.edu

STRI'S MISSION

"To increase understanding of the past, present and future of tropical life and its relevance to human welfare"



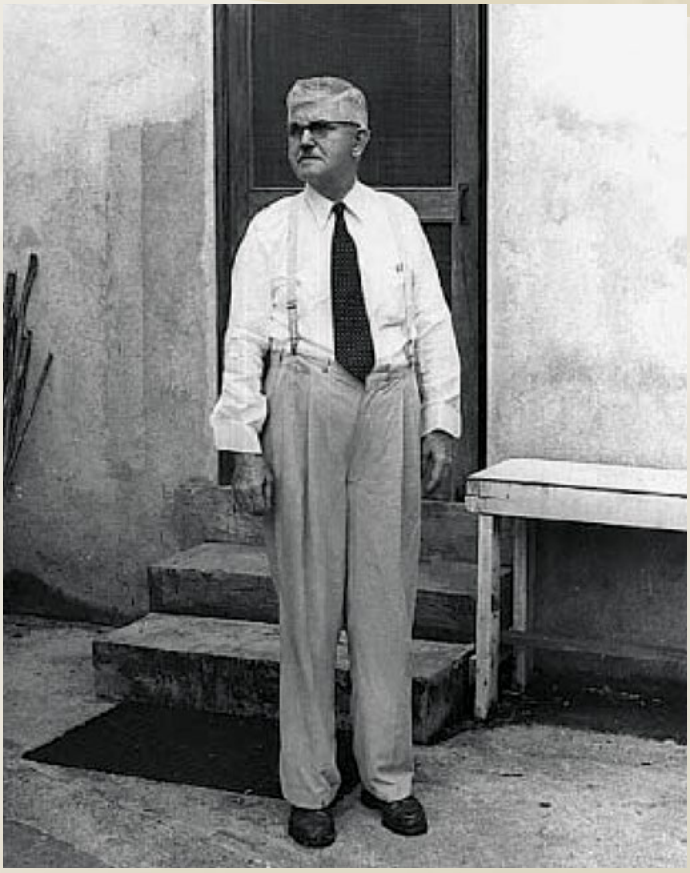
Barro Colorado Island (or "BCI") was created when the rising waters of Gatun Lake separated it from the mainland following the completion of the Panama Canal in 1914. Its value lies, in part, on the length of time this forested island has been under continuous study. Past research has built a foundation for modern studies. History has made BCI what it is today.

Entomologist James Zetek was the first to recognize the island's scientific potential. After securing permission from the Panama Canal authorities, Zetek built a small frame laboratory and began studying the forest in the surrounding area. He was joined at first by mostly amateur naturalists, followed by professionals shortly thereafter. The island quickly became recognized as a reputable field station. In 1923 all of Barro Colorado Island's 3,609 acres (1,500 hectares) were named an official nature preserve for scientific use by the U S Canal Zone Governor, Jay Morrow. One year later the reserve was opened as the Barro Colorado Island Biological Laboratory, privately run by the Institute for Research in Tropical America and privately funded by Thomas Barbour and other wealthy benefactors from the United States, some of whom used the facility.

In 1940 the U.S. Congress placed the island under federal control and renamed it the Canal Zone Biological Area (CZBA).In 1946 the CZBA was turned over to the Smithsonian Institution. For over 30 years, from 1923 until his retirement in 1956, James Zetek was the only full-time employee. He was replaced by Carl Koford as the CZBA' s resident naturalist and manager.

Koford's stay was short. He was suceeded in 1957 by Martin Moynihan, a well-qualified zoologist with field research experience in animal behavior and evolution. He proved to be an excellent choice and made many positive changes which increased opportunities for research. He persevered until his ideas were acted upon by the Smithsonian in Washington. Even so, it was not until 1966 that the CZBA became the Smithsonian Tropical Research Institute, a much larger entity of which Barro Colorado is only one part. In 1974, Moynihan stepped down and recommended Ira Rubinoff as his successor.

Barro Colorado Island's unique location and history have made it what may be the most intensively studied piece of tropical forest in the world, the setting for innovative research in a variety of fields, which has produced many exciting scientific "firsts," a few of which are described in this booklet.



JAMES ZETEK

BARRO COLORADO'S FIRST MANAGER

Entomologist James Zetek came to Panama to work for the Canal Commission in 1911 to study the mosquito that carries Yellow Fever. He spent the rest of his life in Panama. Although mosquitoes were his specialty, he was very interested in both plants and animals. Between 1916 and 1918, Zetek was a professor of natural sciences at Panama's Instituto Nacional. He realized that Barro Colorado was a unique wild area worth saving for scientific study. He gradually gained support for this idea, not only from scientists, but also from Panama's President and the Governor of the U.S. Canal Zone.

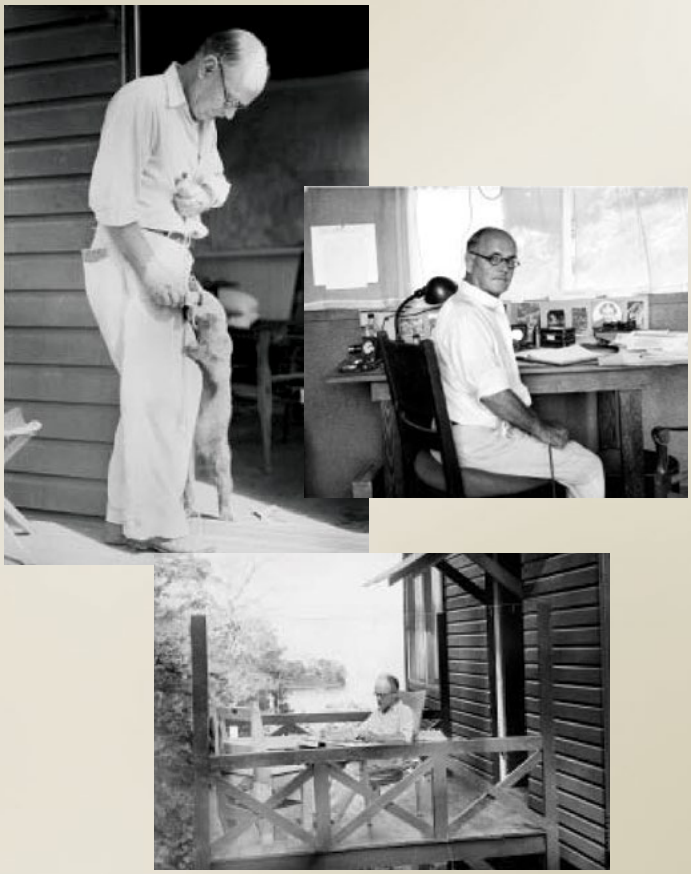
From the time the Barro Colorado Biological Station opened in 1923 until Zetek retired in 1956, he was the sole manager of Barro Colorado. In the early years, he was responsible for finding private funding from individuals, corporations, and foundations and for using the money wisely and well. He deserves wide recognition for his contributions to science and science education in Panama.

FRANK M. CHAPMAN

NATURALIST & WRITER

Frank Chapman's first interest was in birds. He went to work at the American Museum of Natural History in New York when he was only 22 and stayed with the museum for 50 years. He first came to Panama in 1912. Between then and 1935 he carefully observed the plants and animals of Panama, publishing numerous books and articles about nature and the way it was being studied by the naturalists of that time. He lived on Barro Colorado Island for part of each year, observing its plants and animals for 15 years. He called his home on the island his "tropical air castle." Many of his visits to BCI were spent in his own cottage called "Chapman House."

He published two books about his research in Panama; the first, *My Tropical Air Castle: Nature Studies in Panama*, in 1929 and in 1938, his second, *Life in an Air Castle: Nature Studies in the Tropics*. These two books described the wonders of the tropical forest in language the ordinary reader could understand. Both were best sellers. He was perhaps the most influential individual in the group of well-known naturalists who established BCI's reputation as the premier location for the study of tropical plants and animals.



PAUL C. STANDLEY
BOTANIST

Paul Standley, a botanist with the Smithsonian Institution, first came to Panama in 1923 at the request of Jay Morrow, Governor of the Canal Zone, in order to prepare a book listing the plants along the Panama Canal. He returned to Panama in 1925 to concentrate on the plants found on Barro Colorado Island. A first listing of 611 species of plants was published in 1927. A second book containing an expanded list of 1259 species, *The Flora of Barro Colorado Island,* was published in 1933 by Harvard University. This book was very detailed. Each plant was listed by its scientific name, the name of the collector and a description of the plant itself. Because of Standley's and others studies, Barro Colorado Island may be the best described area of equal size in all of tropical America. Standley also wrote the definitive book listing the plants along the Canal. He continued his study of tropical plants in a number of Central American countries for 30 more years, publishing a series of books describing the plants of Yucatan, British Honduras, Costa Rica and Guatemala, all of which are still used as references today. He died in Honduras in 1963.

ALFRED GROSS
ORNITHOLOGIST

Alfred Gross studied birds on Barro Colorado for many years. One of the birds he studied was the Hick's Seedeater. In 1925 he did not see any Hick's Seedeaters. In 1927 he found them on the island in large numbers. He saw them along the shoreline feeding on the seeds of the tall grasses that grew there and nesting. Since 1927 other seed-eating birds have been seen in the clearings around the buildings, but only in small numbers. The Hick's have been seen in ever increasing numbers since 1927. By 1949 many Hick's were seen both along the lake and near the labs. One female made a nest high in a tree close to lab building that was just at eye level inside the building and so the nesting behavior could be studied with ease. The Hick's is a small bird which only sings in the daytime. Their song is somewhat like that of the Indigo Bunting.

C. RAY CARPENTER

HOWLER MONKEYS IN THE FIELD

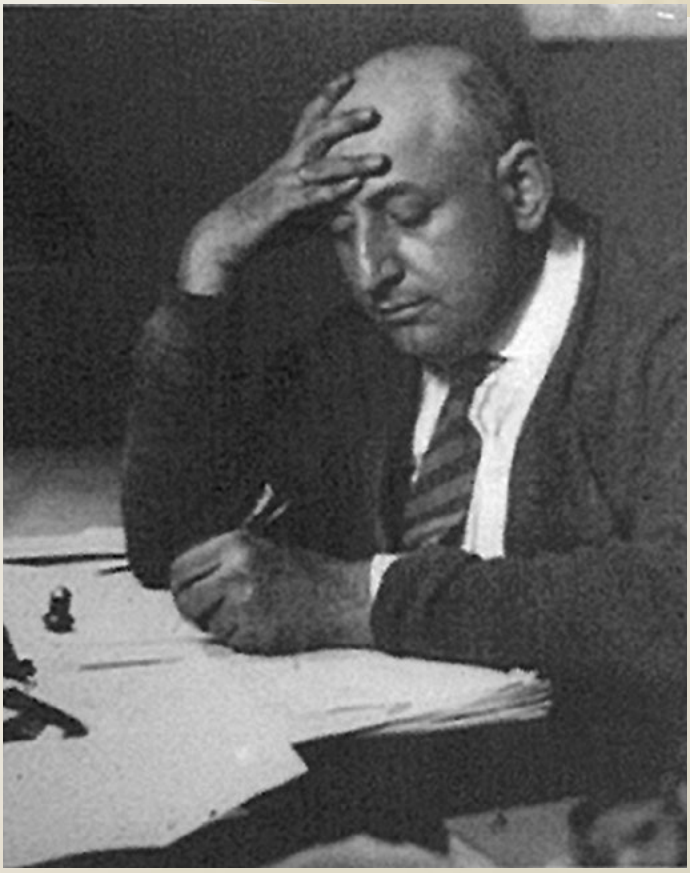
Ray Carpenter studied the howler monkey population on BCI in great detail, including the relationships between individuals and their environment. He carried out what were at the time, 1931 to 1933, the first thorough, in-depth studies of howler monkey social behavior under natural conditions. He observed relationships, not only between the sexes but also between mature and immature individuals. He also painstakingly examined the manner of life, conditions, and qualities of howler social behavior. In addition, he scrutinized the similarities and differences in behavior of howlers and other primates, including humans. Carpenter's method of study set the standards for all subsequent field studies of primates. He had the opportunity and the ability to conduct continuing, well-planned, careful, patient, observations for many days and weeks at a time. His data on Howlers were unparalleled at that time.

THEODORE C. SCHNEIRLA

SOCIAL BEHAVIOR OF ANTS

One trail on Barro Colorado is named for Theodore C. Schneirla, an expert in animal behavior who was associated with both New York University and the American Museum of Natural History. He made his first trip to BCI in 1932 where he conducted important original studies, the first of their kind, related to the development of the social organization of army ants, that is, how ants interact with each other in their colony. His findings radically changed previous ideas about the ways ants organize their complicated societies through the use of control mechanisms.

His work had a fundamental impact on three important areas of animal psychology and behavior. And so it is very fitting that army ants can often be seen along the trail that is named for Schneirla.



PHIL RAU

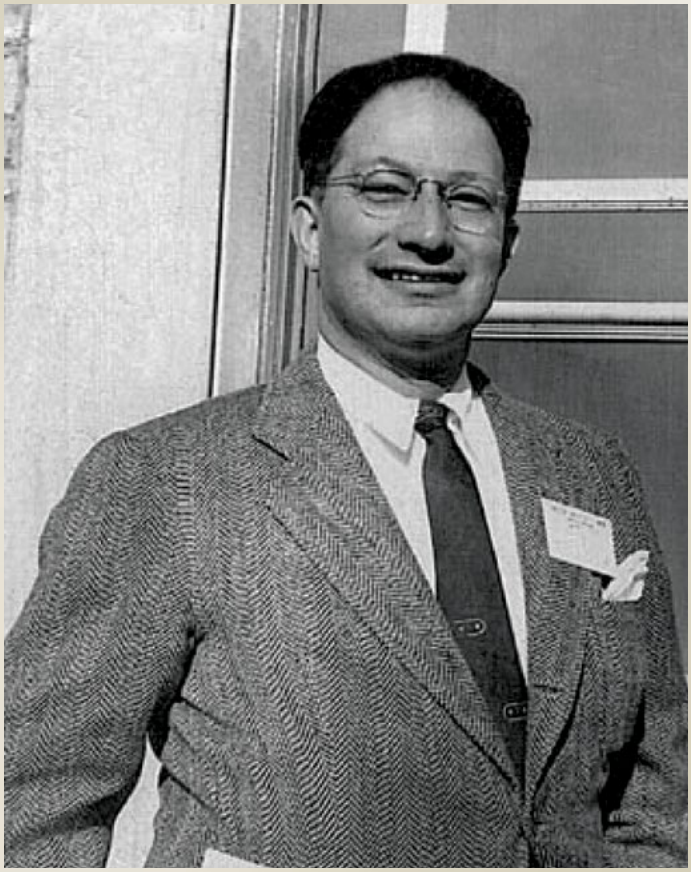
BEES AND WASPS

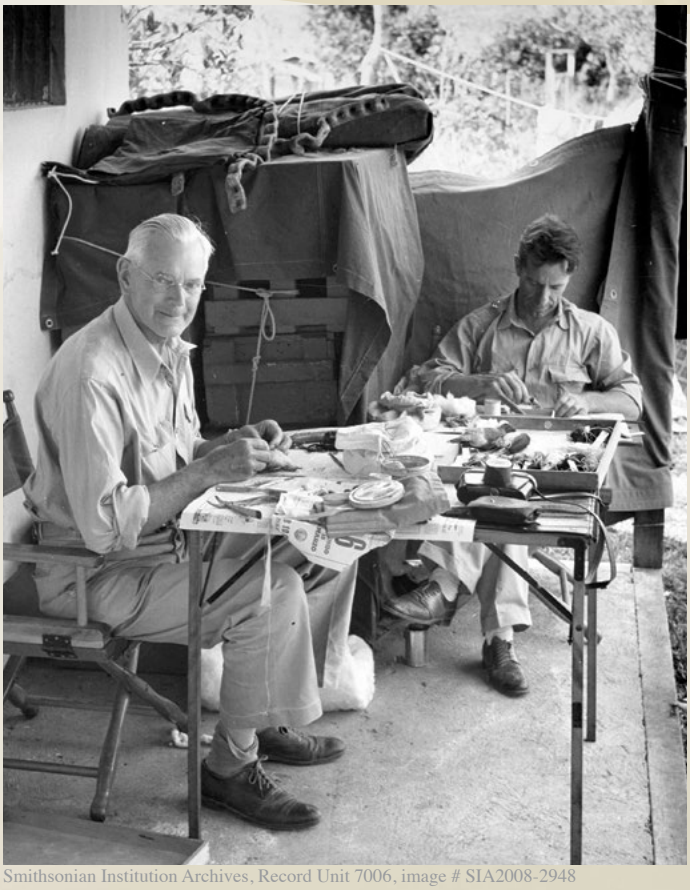
Phil Rau, author of the book *Bees and Wasps of Barro Colorado Island* (1933), was a pioneer student of insect behavior whose background differed greatly from the more famous entomologists who worked on BCI such as William Morton Wheeler, the eminent Harvard professor for whom Wheeler trail is named and TC Schneirla, who studied army ants. Rau, the orphaned son of poor immigrants, had no formal education beyond fourth grade, but he was a brilliant self-educated St. Louis businessman who financed his own research and had published more than 200 scientific papers and two books by the time he died in 1948. The manuscript of his first book, *Wasp Studies Afield* (1918) had been hand-copied neatly by his librarian wife, Nellie Rau, and with the encouragement of Wheeler, who provided a preface, it was published by Princeton University Press. Rau's book on BCI was based on only a few weeks of collections and observations but for many years it was one of the few sources of photographs and natural history facts on tropical bees and wasps. Rau was also fascinated by the Panamanian villages he saw, and added a chapter at the end of his book on the town of Frijoles, including photographs of this now lost village for which the Frijoles train station was named.

EUGENE EISENMANN

BIRDS OF BARRO COLORADO ISLAND

Eugene Eisenmann was born in 1906. He lived in Panama until he was 10 when his family moved to New York City. As a child in Panama he developed a love of nature that he never lost. As an adult he became a successful lawyer, but used his free time to study tropical birds of the New World. He became one of the most respected specialists on this subject. At the age of 50 he retired from practicing law and began his second career as an ornithologist at the American Museum of Natural History. The few books he wrote were considered to be exceptional, especially the one on the birds of Barro Colorado. His first trip to Barro Colorado was in 1939. His *Annotated List of Birds of Barro Colorado Island, Panama Canal Zone* was published in 1952. It became the most important reference for ornithologists, ecologists and zoogeographers who were interested in BCI. He also reported on the causes of the gradual loss of 38 bird species between 1926 and 1955, which later led conservationists to appreciate the need for larger reserves connected by biological corridors. A cove on the island was named for him.





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ALEXANDER WETMORE

ORNITHOLOGIST AND SECRETARY,
SMITHSONIAN INSTITUTION

Alexander Wetmore was one of the most influential figures in ornithology in the 20th century. Wetmore served as Assistant Secretary of the Smithsonian from 1925-1945 and Secretary from 1945-1954, a role in which he oversaw the transition of BCI from administration by the Institute for Research in Tropical America to the Smithsonian. Although he did little work on BCI itself, Wetmore visited Panama annually for more than 20 years, which resulted in his four-volume work, *The Birds of the Republic of Panama*.

MARTIN H. MOYNIHAN

NATURALIST AND FIRST DIRECTOR,
SMITHSONIAN TROPICAL RESEARCH INSTITUTE

Martin Moynihan became the third resident naturalist on Barro Colorado in 1957. He was a zoologist who was interested in the behavior of both land and marine animals. Because of his vision, patience, and persistence during his years on BCI, he was able to transform what had been a small field station into a world-renowned center for tropical research and one of the integral parts of the Smithsonian Tropical Research Institute which now oversees many biological research stations for the study of both terrestrial and marine biology. Moynihan was also an excellent field biologist whose interests included birds, squid, and New World monkeys. Following his retirement as director of STRI he lived in Panama City and in France until his death in 1996.

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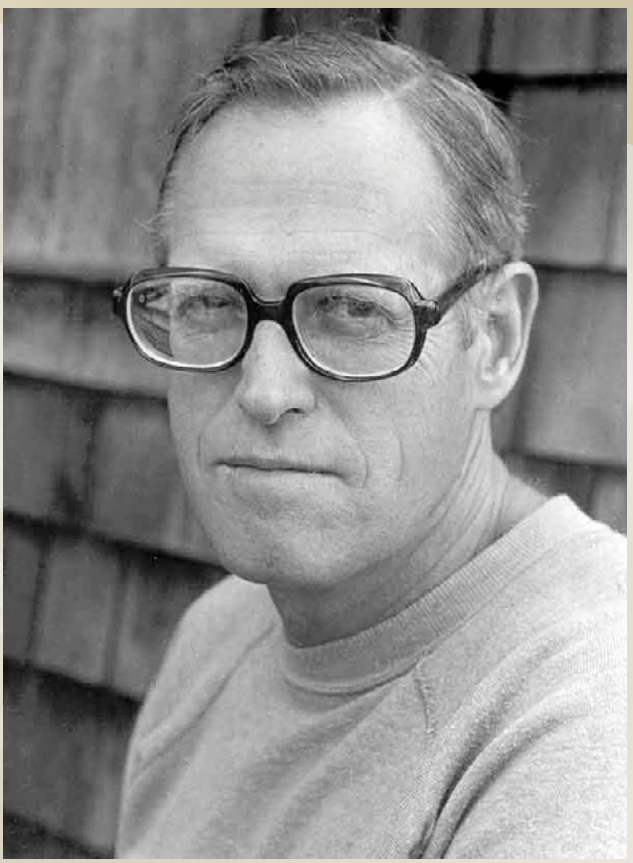
BATS EAT FIGS AND FROGS

STUDIES OF BAT ECOLOGY AND BEHAVIOR

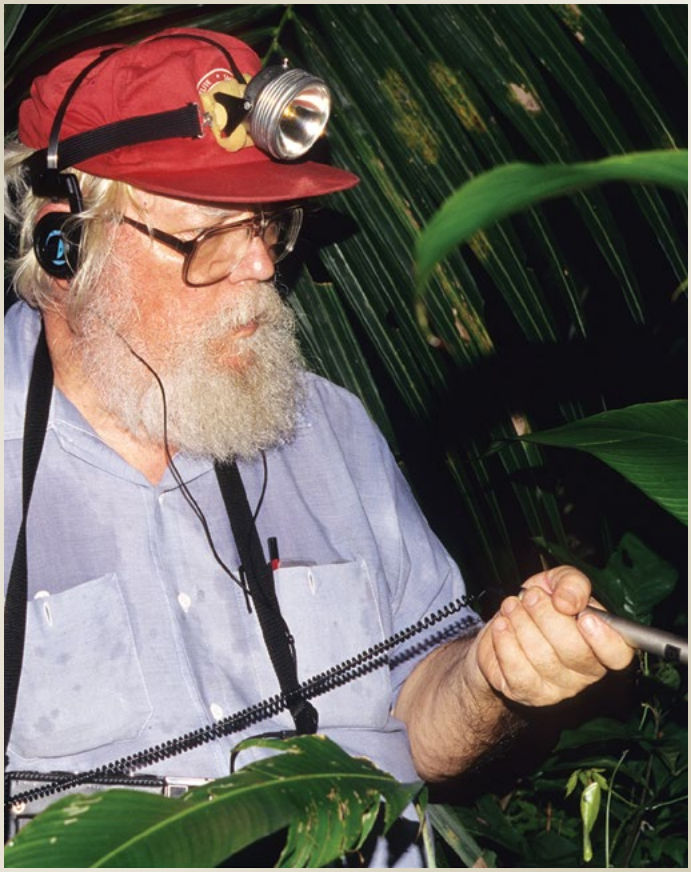


Charles Handley curator of mammals at the Smithsonian's Museum of Natural History began a 9-year survey of the bats of Barro Colorado in 1976. As ten species of bats fed mostly on figs, he also began to map the island's fig trees. Some of this work is summarized in Charles Handley, Don Wilson and Alfred Gardner, editors of *Demography and Natural History of common Fruit Bats, Artibeus jamaicensis, on Barro Colorado Island*.

Important scientific collaborations are often initiated when scientists meet. Merlin J. Tuttle came to Barro Colorado to study frog-eating bats. In 1979 he contacted Michael J. Ryan who was studying tungara frogs on the island. They discovered that the Fringed-Lipped Bat ate frogs at every pond they visited. At one pond the bats ate more than 6 frogs each hour. The bats located frogs when the frogs were calling. Bats were able to tell the difference between edible and poisonous frogs by the calls the frogs made. Bats could also tell the difference between frogs too large for the bats to eat and those that were just right. They were able to do this because these bats had a second frequency range they used for echolocation, at exactly the same low frequencies where the frog calls were the loudest.

PIONEERING STUDIES OF ACOUSTICS

UNDERSTANDING ANIMAL COMMUNICATION



Eugene Morton studied acoustics, the way sound is transmitted, in different habitats such as grasslands, forest edges, and forest interiors in the 1960s. Much of the forest work was done on BCI. This was the first time anyone had looked at the way bird sounds travel through different tropical habitats. Morton wanted to find out if birds took advantage of sound frequencies that travel best in their habitats in their calls and songs. Morton found that in forests, birds that live near the ground use pure tone sounds at the frequencies that do carry best in that environment. A paper on these finding was published by Morton in 1975 titled: *Ecological Sources of Selection on Avian Sounds*.

A. Stanley Rand, who joined the station staff in 1964, studied the evolution of tungara frog calls, a powerful example of sexual selection. Rand and his collaborators found that female frogs are more attracted to males who adorn their simple "tun" call with additional ornaments or "garas." Rand also conducted detailed behavioral studies of iguanas and long-term surveys of amphibian populations on Barro Colorado Island.

INSECT MONITORING

AGGREGATIONS OF FUNGUS BEETLES

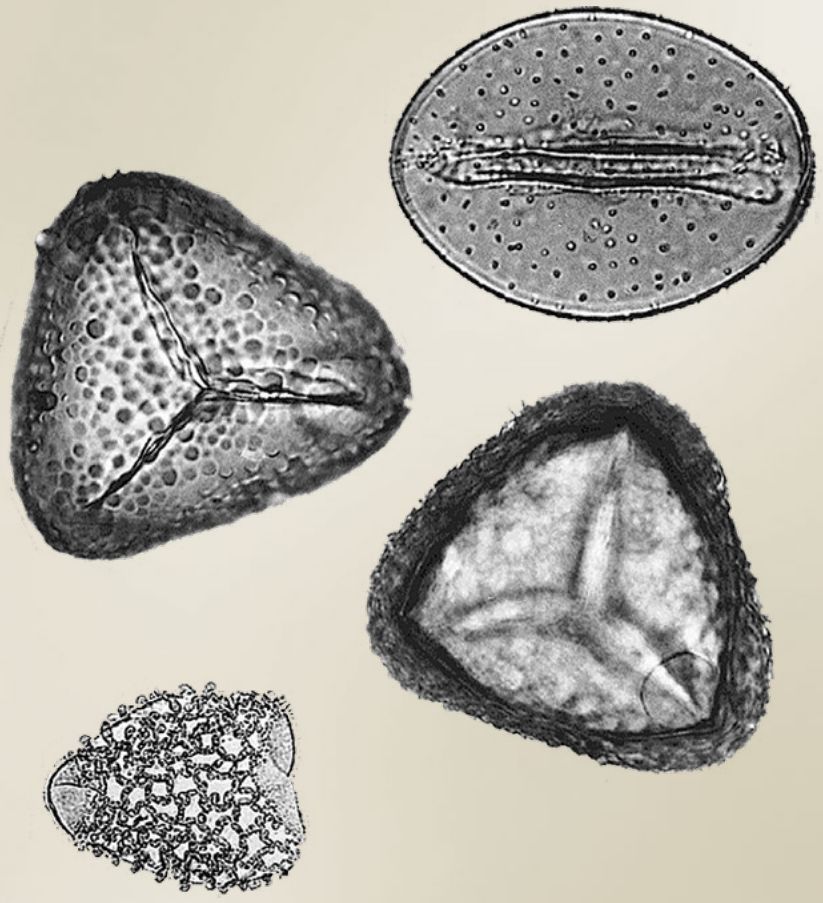
The tropical fungus beetle *Stenotarsus rotundus* was found to form huge clusters of 40,000 to 70,000 beetles at the base of one palm tree on Barro Colorado Island. A study by Wolda and Denlinger in 1984 found that beetles would remain in this aggregation for 8-10 months through a rainy season and the next dry season. While in this state the beetles do not eat or mate.

They finally disperse to reproduce at the beginning of the rainy season that follows. These beetles never return to the tree, but a new group will arrive at the same tree and repeat the same cycle. Although forming aggregations is common among diapausing adult insects in the tropics, using the same tree over and over by successive groups is unusual. Forming these huge agregations seems to be advantageous to the beetles in several ways; access to mates, defense against enemies, lowering their rate of metabolism, and slowing their water loss.

PIONEERING POLLEN STUDIES

UNIQUE POLLEN GRAINS AS RESEARCH TOOLS

A major contribution to the study of tropical biology was *Pollen Spores of BCI* by David W. Roubik and J. E. Moreno in 1991, published by the Missouri Botanical Garden. This study was the first treatment of tropical plant pollen at the community level. It was made possible by the important information contained in a prior publication of a study of the flowering plants of BCI by T. Croat in 1978. In 1979, David Roubik was then able to begin work toward the publication which now is the most widely used guide to the study of tropical pollen. It is used extensively in studies of tropical floristics, paleobiology, long-term climate change and paleohistory of flowering plants.

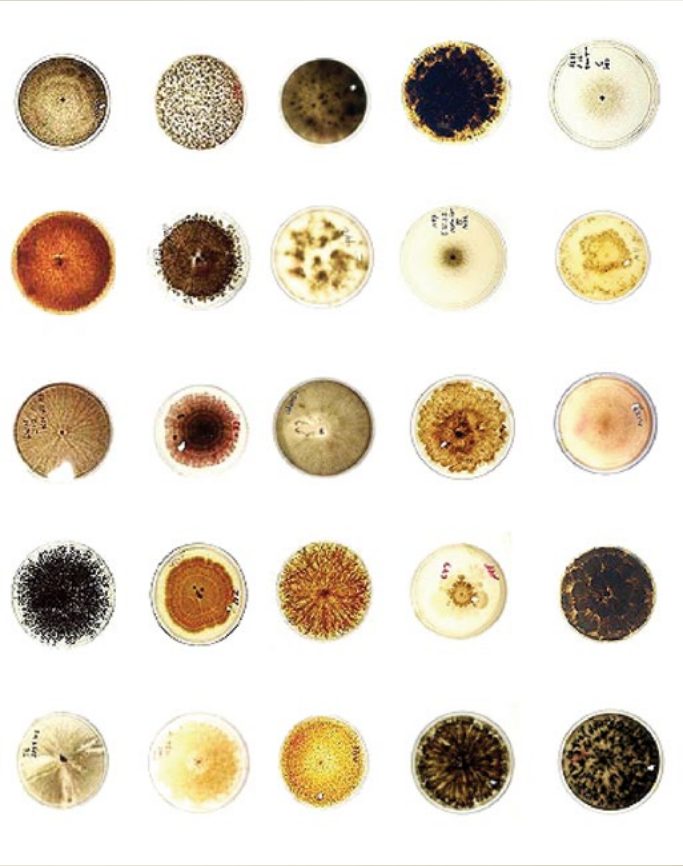


FIGS AND FIG WASPS
DEPEND ON EACH OTHER

A major focus of research on BCI has been the mutually beneficial relationship between figs and tiny fig wasps. The female wasp lays its eggs inside the ovaries of fig flowers, pollinating the fig at the same time. The female wasp then dies and each larva remains in the fig until it matures and can tunnel out. The females mate with the males and then they fly away to find another flowering fig where they lay their eggs. The males die inside the fig. The cycle repeats. The fig benefits by being pollinated, and thus, it is able to produce seeds. The wasp is able to lay its eggs in a place that is safe for its larva to live and feed until they mature.

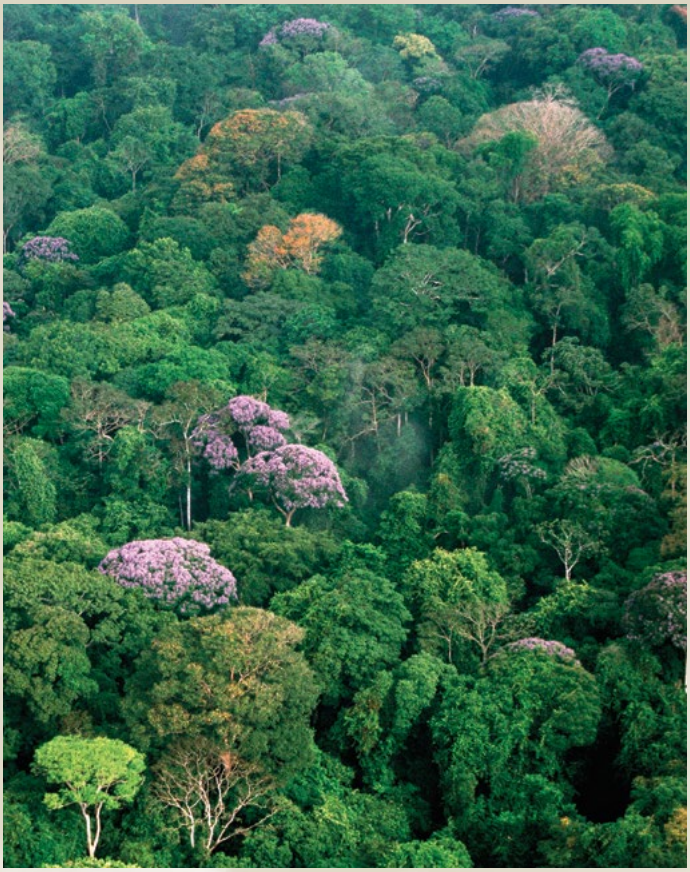
PLANTS AND FUNGI
ANOTHER MUTUALISM

Resident scientists and visiting researchers have been investigating the mutually beneficial relationships between plants and mycorrhizae (fungi in roots) and endophytes (fungi in leaves). The root fungi can transport phosphorus, needed by the plant and, in return, the plant provides the fungi with sugar, a food the fungi need. In the tropics each depends upon the other. All plant leaves contain endophytes. Researchers are only beginning to understand exactly what these leaf fungi do. A piece of leaf only the size of a postage stamp may contain 50 different species of leaf fungus. These fungi may act to protect plants in the same way our immune system helps us fight off disease. Discoveries in basic research such as this can lead to important applications in agriculture and disease prevention.



BAT ECHOLOCATION
SYNCHRONIZED CALLS & PHOTOS

Scientists on BCI working with bats made the first recordings of tropical bats' echolocation calls synchronized with photos of their movements while they were hunting and catching prey on Barro Colorado. The equipment used lowers the frequencies of the calls to levels that are audible to humans and also slows the speed so that each sound is heard individually. The sounds and the photographs of the bats as they fly toward and catch their prey are synchronized. Bat calls are slower at the beginning of the hunt, becoming ever faster as the bat nears its target, ending in the terminal buzz, at up to 200 individual sounds each second. Both White Lined Bats hunting moths and Greater Bulldog Bats searching for fish were recorded. This equipment showed the bats' flight pattern in 3 dimensions at the same time it synchronized the photographs and the calls. The researchers discovered that moths could detect the bats' calls and would try to outwit the bats by either dropping to the ground or quickly diving into hiding in vegetation. Stunning video pictures were made of Greater Bulldog Bats fishing at Barro Colorado near the docks.



FOREST DYNAMICS PLOT
TO GLOBAL EARTH OBSERVATORY SYSTEM

More than 25 years ago Stephen Hubbell and Robin Foster established a very large (50-hectare) forest dynamics plot on BCI, the first of its kind, as a better way to measure the diversity of rare tropical plants and how that diversity is maintained over time. All woody plants in the plot that were not vines, whose stems measured more than 1 centimeter in diameter were mapped, marked, measured, and identified. This census has been repeated every five years. Monitoring hundreds of thousands of trees on Barro Colorado and on identical plots around the world has provided information that has been extremely useful not only to ecologists, but also to forest managers who need to understand growth patterns of tropical trees. This initial plot on BCI, initiated as an experiment intended to shed light on the processes that create and maintain tropical biodiversity, has led to a worldwide network of tropical forest research sites where the same methods provide a unique perspective on global change.

HOW HABITAT LOSS AFFECTS BIRDS

IMPLICATIONS FOR CONSERVATION

Studies on Barro Colorado, conducted for more than 80 years, have shown that birds are sensitive to changes in their environment. By comparing the number of bird species and individual birds recorded from 1923 onward with observations made between June 1994 and May 1996, researchers discovered that approximately 65 species had disappeared since Barro Colorado was separated from the mainland. The number of individual birds had also declined.

The study also found 26 species not recorded by E. O. Willis in the 1970s. 36 species detected by Willis were not recorded. Barro Colorado Island is small in size compared to vast tropical forests, resembling many fragmented forests around the world today. Due to this study and others like it, there is now an awareness of the need to preserve forested tracts large enough to allow birds and other animals within them to maintain their numbers and to create corridors that connect them.

NOCTURNAL BEE VISION

SEEING IN THE DARK

Researchers have been observing nocturnal bees on Barro Colorado. These bees live in broken sticks and vines on the forest floor and are only active for 70 minutes before sunrise and 70 minutes after sunset. The researchers wondered if the bees are able to see in the dark at these times.

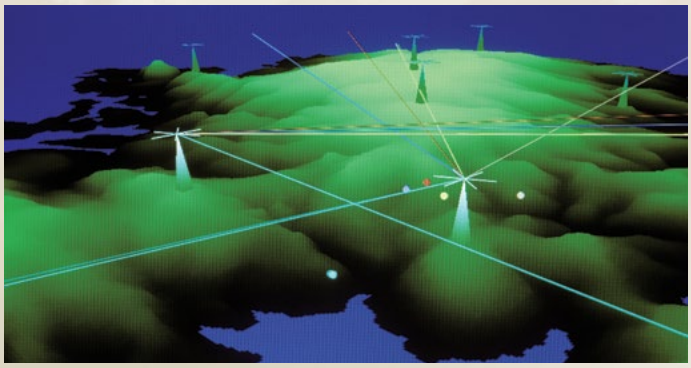
They discovered that the bees use landmarks to find their way and are able to see in the dark. This was the first time there was proof that a nocturnal animal had this ability. The researchers have also found that these bees' eyes are able to gather more light and their receptors are larger and take longer to gather light before transmitting it to the bees' brains, making it possible for them to see under very low light conditions.

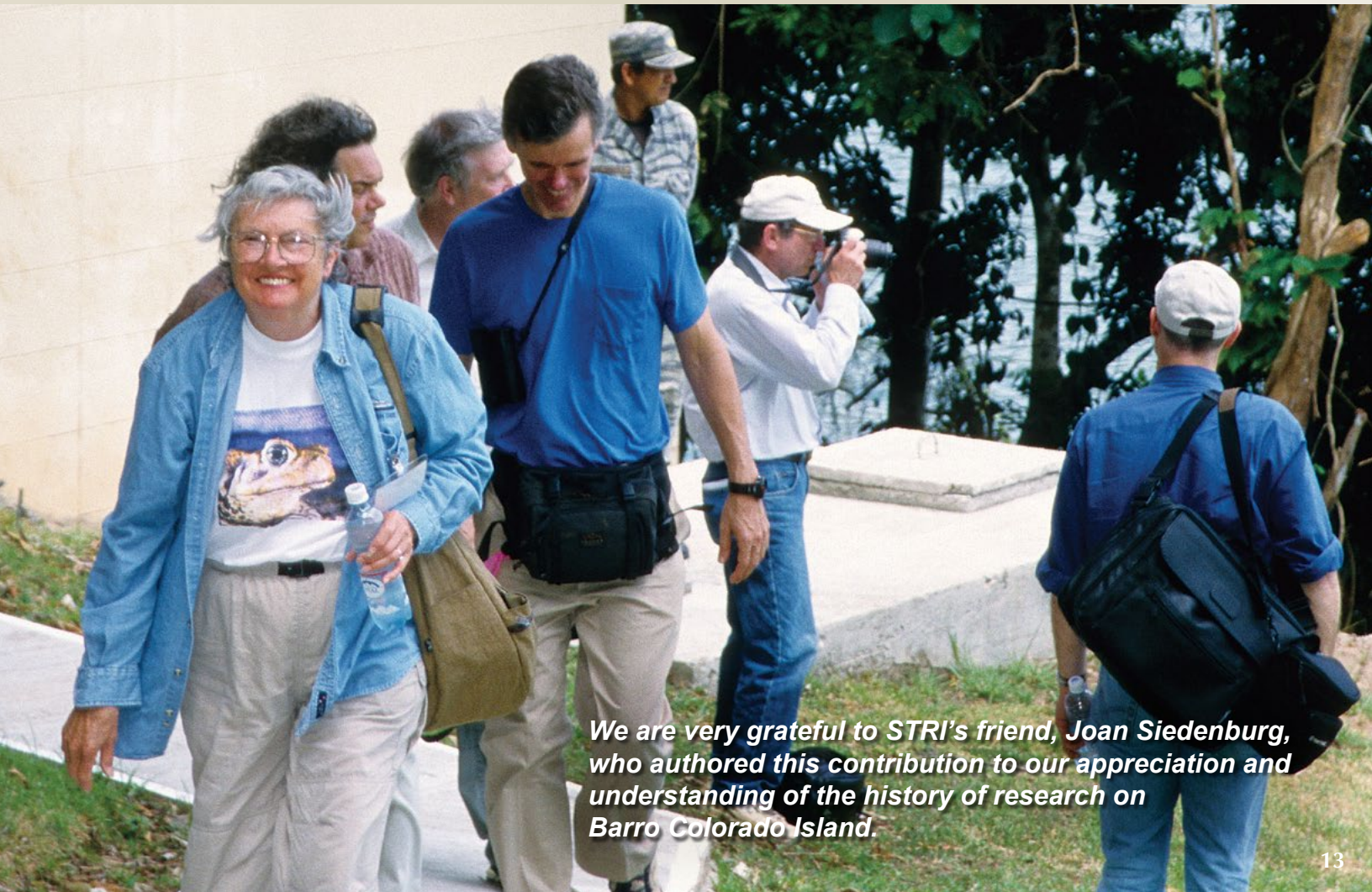
AUTOMATED RADIO TELEMETRY SYSTEM

REAL-TIME ANIMAL TRACKING

Technology is revolutionizing what we can learn about ecology. For example, BCI's automated radio telemetry system, "ARTS" for short, began to operate in December, 2003. The system has been improved several times since then. It is designed to track animal movements using a collar or tag that transmits radio signals continuously to receivers on multiple towers in different locations on the island.

These signals are then sent by radio to the laboratory where a computer is programmed to provide real-time positions for each of the collared animals. The program can reveal where an animal has been in the past, making it possible to map the movements and territories of the animals and to gather information about the times when an animal is most active and where it likes to rest and eat. It is also possible for researchers to quickly locate animals in the field with hand-held receivers. This saves a lot of time and effort when seeking animals such as howler monkeys or ocelots. Collared animals can also provide hitherto unknown facts concerning interactions between predators and their prey.





We are very grateful to STRI's friend, Joan Siedenburg, who authored this contribution to our appreciation and understanding of the history of research on Barro Colorado Island.

TRAILS

All but four of the trails on BCI are named for people who had a close connection with the island, or with others who worked there. Two are named for institutions that were important in establishing the original laboratory; the American Museum of Natural History and Harvard University, and two, Lake and Balboa, are named for survey markers.

TRAILS LIST

AMNH. Named after the American Museum of Natural History, one of the founding members of the Institute for Research in Tropical America, and home institution of Frank Chapman, one of BCI's most influential early researchers, as well as other scientists who worked here.

Allison V. Armour. Philanthropist. Armour was a friend and sponsor of David Fairchild, and put his yacht *Utowana* at his disposal for collecting trips. Armour donated money for the support of BCI in its early days.

Balboa. Named for a topographic marker on Cerro Balboa south of BCI. This trail was originally a survey sight line to this marker from the summit of the island. Cerro Balboa is named for Vasco Nuñez de Balboa, who discovered the Pacific Ocean in 1513 while visiting Panama.

Thomas Barbour. Associate Curator of Reptiles and Amphibians, Museum of Comparative Zoology, Harvard University. As Director of the Institute for Research in Tropical America, he supervised the BCI Laboratory from the United States during the 1920s and 1930s, and provided financial support out of his own funds.

Fausto Bocanegra. Originally a research assistant to Martin Moynihan, Fausto worked on BCI for over 30 years until his retirement in 1988. He was noted for having keen eyes for finding secretive animals in the forest.

Donato Carillo. A Ngobe Indian from Chiriqui, Donato was caretaker and right-hand man to James Zetek during the 1920s.

Abram Conrad. Conrad was James Zetek's first high school biology teacher.

Frank Chapman. Curator of Birds, American Museum of Natural History. Visiting BCI every year from 1925 to 1937, Chapman was a famous ornithologist and had enormous influence on establishing the scientific credibility of the laboratory.

Frank Drayton. Drayton was the island's first caretaker under Zetek, and was replaced by Donato Carillo.

David Fairchild. Agricultural Explorer, Foreign Seed and Plant Introduction, US Department of Agriculture. Although Fairchild, a well-known botanist, spent little time on the island, he was socially well-connected and obtained donations for its support from his wealthy friends such as Allison V. Armour and Barbour Lathrop.

Alfred O. Gross. Bowdoin College, Brunswick, Maine. Gross, an internationally known ornithogist, studied various species of birds on BCI on periodic visits from the 1920s until the 1960s.

Harvard. Named after Harvard University, one of the founding institutions of the Institute for Research in Tropical America, and home of several researchers who were instrumental in establishing the laboratory, including Thomas Barbour and William Morton Wheeler.

J. Douglas Hood. Professor of biology, University of Rochester. An entomologist and friend of James Zetek, he collected insects on the island in the 1930s.

Lake. This trail was originally a survey sight line to a topographic marker on Lake Gatun.

Barbour Lathrop. Philantropist. After becoming wealthy, Barbour Lathrop traveled the world. He befriended David Fairchild in the 1890s and sponsored some of Fairchild's early trips exploring for plants. Lathrop also donated money for the BCI laboratory during its early days.

Frank Lutz. Curator of Insects, American Museum of Natural History. Lutz was one of the first researchers to work on Barro Colorado, and investigated stingless bees, leaf-cutter ants, and the effect of environmental factors such as light on animal behavior.

Fred Miller. US Army Lieutenant who made the first topographic map of the island.

Ignacio Molino (Snyder-Molino). Assistant to James Zetek. Molino helped Zetek set up the BCI laboratory, and improved the first trail cut by Snyder.

T. Gilbert Pearson. President, National Association of Audubon Societies, New York. After a visit to the island, Pearson donated money to have this trail cut.

Nemesia Rodríguez. Nemesia was the wife of island caretaker, Donato Carillo, and island cook during the 1920s.

Theodore Schneirla. Curator of the Department of Animal Behavior, American Museum of Natural History. Schneirla was one of the the foremost comparative psychologists of the mid-20th century. He studied the behavior of army ants on BCI. Schneirla Trail was cut in the late 1970s to replace a bad section of William Morton Wheeler Trail.

Raymond Shannon. Entomologist, US Department of Agriculture. Shannon conducted the first scientific studies on BCI before the first laboratory building was constructed, working out of what became known as the "Shannon Shack". He studied mosquitoes and flies.

Thomas E. Snyder (Snyder-Molino). Entomologist, US Department of Agriculture. A specialist on termites, Snyder was one of the first researchers to visit BCI. He cut the first trail from what later became the Laboratory Clearing toward the center of the island, which was later improved by Ignacio Molino. He collaborated with James Zetek on studies of termite damage for several decades.

Paul C. Standley. Assistant Curator of plants, US National Herbarium. Standley wrote the first *Flora of Barro Colorado Island* based on his work on the island, as well as the first *Flora of the Panama Canal Zone*. He eventually became one of the leading experts on the flora of Central America.

Josselyn Van Tyne. Curator of Birds, Museum of Zoology, University of Michigan. A prominent ornithologist, he studied birds ranging from gallinules to toucans on BCI. He was the author of a major college textbook, *Fundamentals of Ornithology* (1959, co-authored with A. Berger).

Alexander Wetmore. Secretary, Smithsonian Institution, and ornithologist. Wetmore Trail was cut in the 1970s.

William Morton Wheeler. Professor of Entomology, Harvard University. Wheeler was one of the most prominent figures in entomology during the early 20th Century, specializing in the social behavior of ants and related insects, and coined the term ethology for animal behavior in 1902. He was a major proponent of the establishment of the Barro Colorado Island Laboratory.

James Zetek. Specialist in tropical insects, US Department of Agriculture. Zetek, together with Thomas Barbour and William Morton Wheeler, played a central role in the establishment of the Barro Colorado Island Laboratory in 1923. He served as its resident naturalist for the next 33 years.