A MEASURE OF TRUST:

Turks & Caicos National Trust Biodiversity Project

Rich diversity of animal and plant life is typically a trait affixed to habitats that appear lush and fertile, such as rainforests and coral reefs. The scrublands, dry tropical forests, and wetland habitats of the Turks & Caicos Islands may not appear to be lush or fertile, but in these habitats exists an extremely wide array of species.

The Caribbean is designated as one of the Biodiversity Hotspots on the globe today — many of the animals and plants that exist in this region exist nowhere else on Earth. Many are restricted to limited ranges, some even to single tiny islets and cays.

DR. MIKE PIENKOWSKI, UKOTCF

So important to global biodiversity are the Turks & Caicos Islands, that a large portion of the pristine wetlands in the Caicos Islands are listed as a Wetland of International Importance under the Ramsar Convention. The wetland systems on North, Middle, and East Caicos are thought to be the finest example of this type of wetland in the Caribbean.

In 1997, the Turks & Caicos National Trust, along with its international partner the United Kingdom Overseas Territories Conservation Forum, applied for the prestigious Darwin Initiative Biodiversity Project. This is funded and directed from the United Kingdom's Department of the Environment, Food & Rural Affairs. This project acts as a start-up pro-

Clockwise from top: This aerial view of parts of Middle Caicos' lower flats and bank shows its complex patterns of vegetation. The woodlands between Lorimers and Bambarra support important populations of this blue-gray gnatcatcher. Although attractive, greenhouse frogs are an introduced species that can pose threats to native species. This flower is from the locust tree, used for carving boat ribs because of the natural bends in its branches.

Story & Photos by B. Naqqi Manco, Conservation Officer and former Darwin Project Officer, Turks & Caicos National Trust

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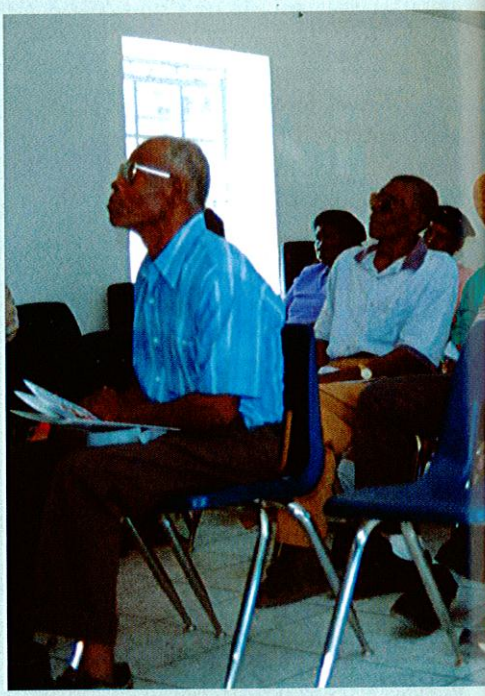
gramme for long-term efforts and functions by the involvement of biologists from a variety of specialized fields.

The intent of the National Trust and the Forum was to launch a Biodiversity Project which would initially define the botanic habitats of the area surrounding the Ramsar Wetlands Site and catalogue the plant, bird, insect, mammal, and reptile species in the area, with a special emphasis on denoting "flagship" species; that is, species which are synonymous with the uniqueness and fragility of a certain habitat, and which can attract interna-



Throughout the Darwin study, Middle Caicos community members played a vital role, combining local knowledge and ideas with those of visiting specialists.

DR. MIKE PIENKOWSKI, UKOTCF

tional conservation attention. (A good example of a flagship species is the Giant Panda of China.)

Eventually in 1999, the proposal, now involving another Forum member organisation, CABI Bioscience, was successful. The starting point for the project was decided to be Middle Caicos because of the island's vast expanses of pristine upland and wetland habitats. From 1999, several workshops were held on Middle Caicos to allow community members to give their advice on research coverage of areas they consider naturally, culturally, and historically important.

With the recruitment of a project officer, the project could be formally

launched on Middle Caicos. I arrived on Middle Caicos in April, 2000 and was welcomed into the Middle Caicos community of approximately 275 people. My role was not only to make arrangements for all of the visiting specialists, but also to develop further the good contacts with the people of Middle Caicos, who know the land best.

A constant presence on Middle Caicos afforded more success to the Darwin Project by giving the National Trust an on-site research base and local contacts. From the initiation of the proposal and right through the project, close involvement of the local community with the specialists, through the offices of the National Trust, has been fundamental.

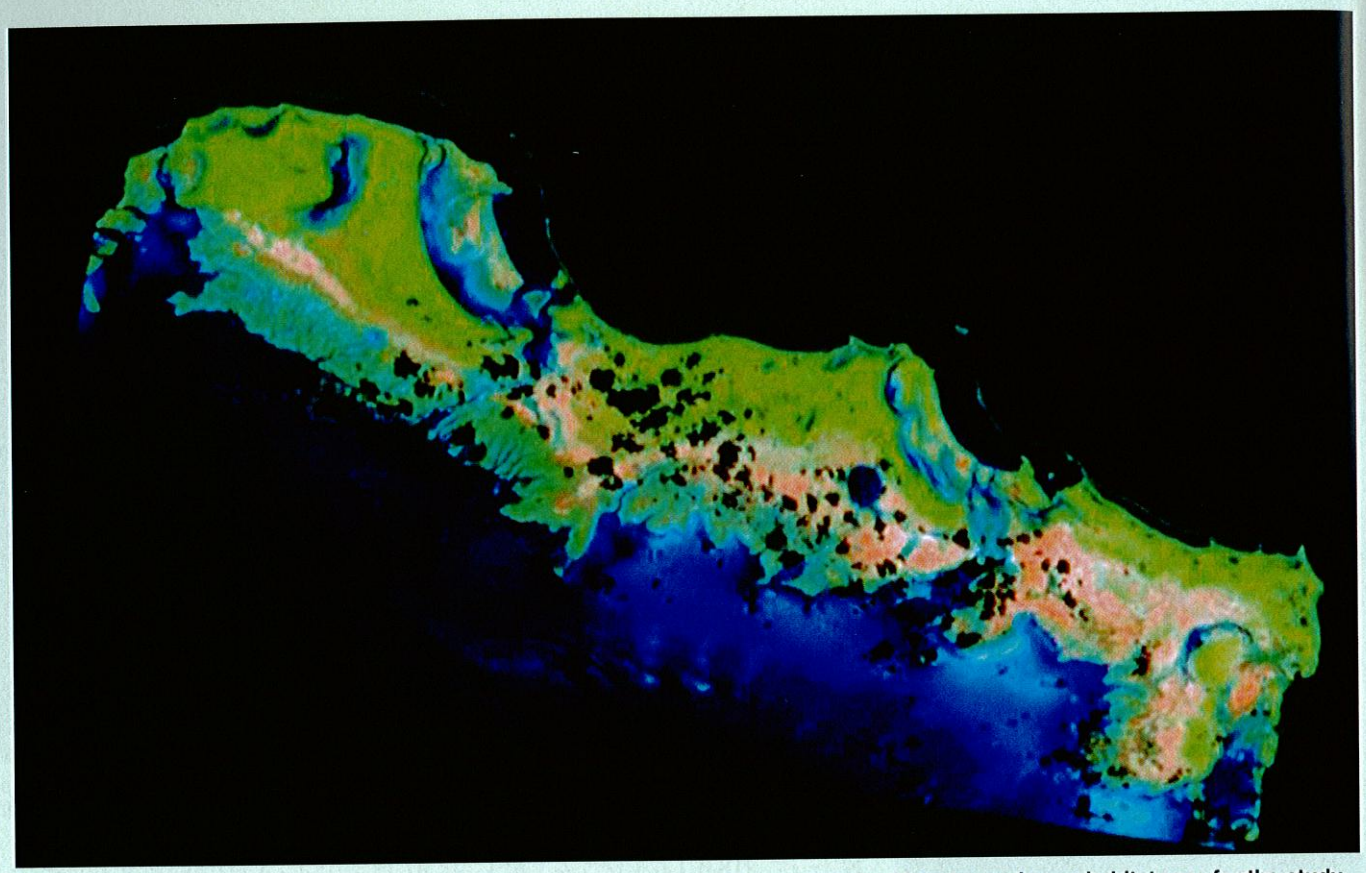
Biological specialists visited from the United Kingdom, the Cayman Islands and the United States to apply their expertise to the project. Their first role was to create a habitat map of the island's plant communities, and draft a catalogue of plant and animal species present. A second role they performed was to provide training for anyone who wished to participate in the research. By demonstrating scientific research methods to local trainees, the specialists were able to impart knowledge of methodology and the importance of valuing the existing habitats and organisms of the Islands. Three school groups and their teachers, two government environment department employees, and several individuals (including National Trust staff) partook in the research training.

DECR recruit Jasmine Parker takes the opportunity to work with visting scientists, including beetle specialist Dr. Roger Booth (right) of the Natural History Museum in London and the author.

DR. OLIVER CHEESMAN, CABI BIOSCIENCE

The initial stage of the research was the creation of a habitat map of plant communities and other habitats. Fred Burton of the Cayman Islands National Trust, with the support of Mike Pienkowski of the United Kingdom Overseas Territories Conservation Forum, led the "ground-proofing" and botanical habitat mapping. A satellite image was analysed by computer to delineate the habitat blocks, samples of which were then examined on the ground. A second round of analysis informed by these comparisons refined the habitat classification. Information on roads, tracks, boundaries and other features, as well as labelling, were added by a range of techniques.

The author helps enthusiastic pupils at Middle Caicos Primary School use a field guide to identify the live bats they have just been shown.



LANDSAT

This satellite image of North, Middle and East Caicos was analyzed, with ground-checking, to produce a habitat map for the study.

The botanical team then travelled on foot to the far reaches of Middle and North Caicos, making species lists of the various habitats and defining characteristics such as flooding, soil depth, height of vegetation and percent of vegetative cover. "Stinger" Guala, of Fairchild Tropical Gardens in Miami, led the collection of plant specimens, which were pressed for inclusion in an herbarium there. A duplicate set will be returned to the TCI when appropriate housing facilities exist, but in the meantime many specimens can be seen on a "virtual herbarium" on the Internet. (See www.virtualherbarium.org.) Other scientists were along to record bird, mammal, reptile, and insect species encountered in the various habitats.

Even more numerous in species than plants are insects. Oliver Cheesman, of CABI Bioscience, made collections of butterfly and dragonfly specimens and Roger Booth, of the British Museum, made collections of beetle specimens. These specimens were made in multiples so that duplicate collections will exist in England and the TCI when facilities exist to house them here.

The reptile researchers included Glenn Gerber of the San Diego Zoo, who has undertaken extensive studies on the Turks & Caicos Rock Iguanas. He and Tandora Grant, also from the San Diego Zoo, led the reptile research team. Six lizard species and three species of snakes were confirmed to live on Middle Caicos. Most of these are found only in TCI. The team's coverage was expanded to include amphibians; while no amphibian species are native to the TCI, two frog species have become established through human introduction.

Birds are an obvious attraction to the Islands, and the bird research was carried out mostly in the early mornings (the time of maximum activity by small birds) by Mike Pienkowski and his wife Ann. Dr. Pienkowski's frequent visits to the TCI allowed him to make many important bird observations. The area's

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From left: Dragonflys are one of the groups which are a priority for future studies. The chicken snake (*Tropidophis greenwayi*) is the smallest boa constrictor known to science — and found *only* on the Caicos Islands. The big-eared bat (*Macrotus waterhousii*) roosts in Conch Bar Caves.

importance to waterbirds was already well known. The study confirmed this, and discovered also that the scrub and woodland are vital to several land-birds which occur nowhere else and also to one of the most vulnerable North American warblers, which breeds in Michigan and winters in a few parts of TCI and the Bahamas.

Native mammal species in the TCI are probably restricted to one of the largest groups of mammals, the bats. Tony Hutson, of the Bat Conservation Trust, and Tim McCarthy, of the Carnegie Museum, carried out research in the cave systems of Middle Caicos and mist-netted some open areas thought to be frequented by bats. Five species were confirmed, one being a new record for the Islands. Future work will likely reveal more species throughout the Islands.

The Darwin Project's major output was a management plan for the natural areas surrounding the Ramsar Wetland site, including the defined habitat maps and species lists for the Islands. The "Plan for Biodiversity Management and Sustainable Development around Turks & Caicos Ramsar Site" is over 250 pages in length and includes maps, diagrams, and photos along with proposals for future work and guidelines for responsible eco-tourism parameters. The plan was edited by Dr. Pienkowski and me

DR. OLIVER CHEESMAN, CABI BIOSCIENCE

The area in Middle Caicos along the Crossing Place Trail is an important habitate for Drury's hairstreak butterfly (*Strymon acis leucosticha*), found only in the TCI.

with the input of the specialists and the local community. The document, intended to be a working document with additions and revisions made as necessary, was formally presented to the TCI Executive Council in October, 2002.

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Other published outputs of the Darwin Project include the DArWiN Newsletters and several reports and articles released pertaining to important findings in relation to biodiversity in the TCI. The data from the Darwin Project Research is also being adapted into the "Our Land, Our Seas, Our People" course that the National Trust produces for the country's schools.

Overall, the Darwin Project was intended as a way to secure and present knowledge of the area and its needs into one document for all to use and enjoy. After the project's initial two years, there are (as always in science) more questions from the answers we found.

I have transferred my main base to North Caicos to concentrate on the Dry Tropical Forest Habitat, and several more species discoveries have been made there. The Bio-diversity Project, which arose from the concluded Darwin Project, is still working at uncovering surprises hidden by nature all around the Islands, and implementing the Management Plan alongside the people of Middle and North Caicos.

The National Trust works for the people of the Turks & Caicos Islands, and invites input from anyone who believes they have identified an area or component of natural importance, along with any questions and concerns about the natural history and heritage of the Islands. The list of biodiversity grows with each discovery made, and allows us to continually renew our awe of the TCI's beautiful and pristine wilderness.

This aerial view looks over some of the dense, prickly scrub and tropical dry forest of Middle Caicos, with native pine in parts of the wetter areas.

You can contact the National Trust Office at (649) 941-5710 or (649) 941-3536, via e-mail at tc.nattrust@tciway.tc, or visit our office upstairs in the Town Center Mall, downtown Providenciales.

Correspondence regarding the Biodiversity Project may be addressed to Conservation Officer B. Naqqi Manco or National Trust Executive Director Ethlyn Gibbs-Williams. For your own copies of Darwin Project related publications, including the Management Plan, please visit the National Trust Office (or you can download from www.ukotcf.org under "Publications").

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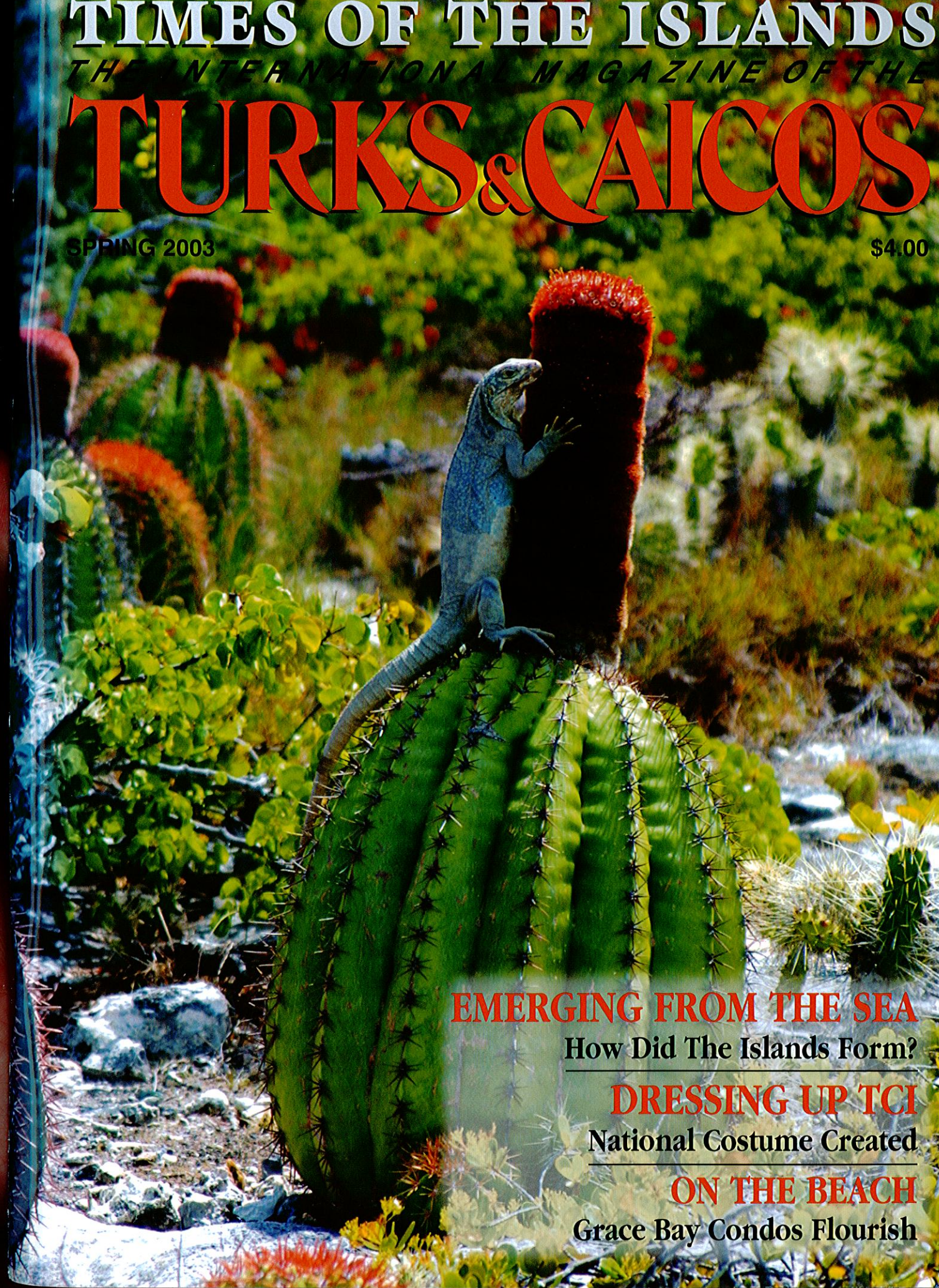

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