SPECIAL REPORT
By STEVE BUNK

UNDER an overcast moon the beach runs black, between high tide and the dark presence of the dunes. Suddenly a group of shadows looms and sways, breaks in two and forms a double line across the sand.

As our eyes begin to focus in the gloom, we draw nearer and see a heavy ellipse dragging itself up the gauntlet of stares. In a quiet voice, someone identifies the sea turtle as a loggerhead. Cautioned by a volunteer worker not to follow the lumbering reptile, parents and children crane wistfully as the loggerhead shuffles toward the dunes with its burden of eggs.

While the turtle finds a spot and begins to dig in, one or two spectators cast their torchlight beams toward the ocean, in search of another expectant mother. The offenders are chastised by others in the crowd who know that a light shining seaward can drive away the incoming turtle.

It will take the grounded loggerhead perhaps 45 minutes to dig her nest. After she begins laying, the people will be allowed to watch at close quarters. Meanwhile, they question the volunteer in low tones and examine the deep double trail in the sand, visible even on this black night, which was left by the turtle's passage.

This 1.5 kilometre-long strip of sand near Bundaberg in Queensland, called Mon Repos, is the last high-density sea turtle rookery on mainland Australia.

Mon Repos, near Bundaberg in Queensland, is the last high-density sea turtle rookery on the mainland. Thousands of visitors throng the 1.5km beach in summer months.

EARTH

TURTLES

The Last Sanctuary?

It's among the most important of such sites in the world, one reason for which is that four of the earth's eight species of sea turtles have been known to nest here — a variety unmatched anywhere else. Another reason is that at Mon Repos, people can gain easy access to large numbers of nesting sea turtles, watching the phenomenon literally within touching distance, every year from November to March.

But this place also has been a battleground. At issue is a planned housing development which may or may not affect the turtles. No one is really sure.

Landowners have tried to develop near Mon Repos for decades but always failed in their applications until December 1983. Then the local Shire Council, which acts as trustee of the Mon Repos environmental park, overturned a non-development policy it had set for the area just weeks earlier and granted a landowner permission to build a housing tract behind the beach.

That decision subsequently was aborted when opponents took the matter to a higher court and the developers withdrew their application. But in March 1985, the same developers' new application was granted again by the Shire Council.

The battle resumed and dragged on until last May, when the Queensland State Government approved a "development control plan" for about 500 hectares within an approximately 1.5 kilometre radius of the rookery. But the plan also allows for subdivision of land behind the beach into one-hectare housing lots.

DIRECTOR Don Henry of the Wildlife Preservation Society, which was one of three conservation groups actively opposing the development, says the plan was weaker than his people had hoped for. "We wanted to see a development control plan that maintained the rural nature of the land behind the rookery and put control on external lighting."

Michael Kennedy of the Fund For Animals says his organisation put thousands of dollars into the court cases.

"We won twice but we lost the third time," he says. "How often do we have to win?"

Liz Bourne of the Queensland Conservation Council believes the plan was "not a step in the right direction" but local real estate agent Dan Murphy, who is two-thirds owner of the land to be developed, says his 40 "low-key" houses would do less damage to the environment than a government proposal to build an ampitheatre allowing 1000 people to view the rookery every hour.

How much damage either controlled development or visitors might do to the rookery is still open to debate. One of the world's leading experts on the subject is Colin Limpus, a 47-year-old zoologist who has spent 18 years studying the sea turtles of Mon Repos for the Queensland National Parks and

Once the female turtle begins laying, spectators can gather round, even touch her, without seeming to cause distress. However, conservationists believe the housing development nearby could have unforseeable consequences.

Wildlife Service.

Limpus has had an interest in sea turtles ever since he first visited Mon Repos at age five. Almost every summer since then he's been back to the rookery but even he is uncertain whether or not it will remain a viable nesting site.

Limpus, who sits on international conservation panels and corresponds with other turtle experts around the globe, knows of only one situation similar to Mon Repos, at a sea turtle rookery in Malaysia. Crowds there are so big that they frighten turtles away from nesting on certain parts of the beach for most of the night. Vandalism and abuse of the animals are rife.

Management of the growing numbers of Mon Repos visitors is a problem, but the "development control plan" does establish a 250 metre-wide buffer zone immediately behind the beach, to which public access now will be controlled. Trees also will be planted to shield the rookery from artificial light.

IT is this light which plays the dark role in the drama. Sea turtles nest, and the hatchlings emerge, predominately at night. A significant amount of electric light — say, from a housing development — mingles with sea spray to create a glowing band in the sky that hatchlings mistake for the ocean's horizon. Thus, when they emerge from the nest, they can be misdirected inland instead of seaward. Nearby housing also brings with it the threat of predating pets, vandalism and a general activity that could divert the timid adult turtles from coming ashore to nest.

Exactly how close lights must be to disturb the turtles is still a subject of debate. The best expert opinion comes from Limpus, whose experiments and published scientific papers on the topic have led him to conclude that about one-and-a-half kilometres is a safe distance.

The zoologist also knows that the biological drive of these turtles to nest specifically at Mon Repos will bring them back to meet whatever obstacles may loom. Their determination to nest on this particular beach is apparent from watching a loggerhead in the act of laying her eggs.

She's surrounded by perhaps 75 people and their children. Having been left in peace to smooth out a bed in the dunes and then shovel out a trench for the eggs with back flippers cupped like scoops, the turtle will not be disturbed during the laying process. Someone has dug away the earth behind her tail and by flashlight we can see the eggs, white and round as ping pong balls, as they descend from a veil of mucus.

Limpus explains to the crowd that the eggs have leathery shells which enable them to bounce without breaking. In reply to a barrage of questions, he says the average number of eggs per "clutch" for loggerheads at Mon Repos is about 150 and the incubation period about 10 weeks. Each adult female lays several times during nesting season, which generally runs on an irregular two, three or five-year cycle.

Says turtle expert Limpus, "If we stuff this thing up now, the consequences won't be seen for quite a few decades . . . you don't get the opportunity to learn from your mistakes."

Finished with her laying, the loggerhead begins to cover the eggs with powerful strokes of her flippers. The back of her neck strains under flabby skin, like the throat of a thin old woman. In the torchlight, she's primeval — a brownish green carapace, four thick wedges of flippers and a featureless football of a head, tapering to a reptilian beak.

Limpus recites the weight of adult female loggerheads (60 to 150 kilograms at Mon Repos) and notes that this beach is one of three key Australian rookeries for the species, the other two both being on islands. Children kneel to brush dirt from the shell. A toddler is led up to touch the turtle and jumps back as it flails soundlessly in the sand.

A constant stream of tears flows from the turtle's black eyes. Limpus tells the on-lookers that this is how she clears her eyes and expels excess salt which has accumulated in her body from drinking sea water. The tears have nothing to do with pain and she secretes them even while swimming, he assures the crowd. A father cautions his child not to shine light in the turtle's eyes and nobody contradicts him, although even camera flashes don't deter the female at this stage of her reproductive ritual.

In addition to the green and the loggerhead, the massive leatherback also nests on rare occasion at Mon Repos. Like the green, this species is present in large numbers worldwide. But perhaps the greatest prize at Mon Repos is the flatback, which is known to breed only in Australia. Endemic to the country's continental shelf, the flatback is touted in national parks' literature as being "as uniquely Australian as the kangaroo and the kookaburra."

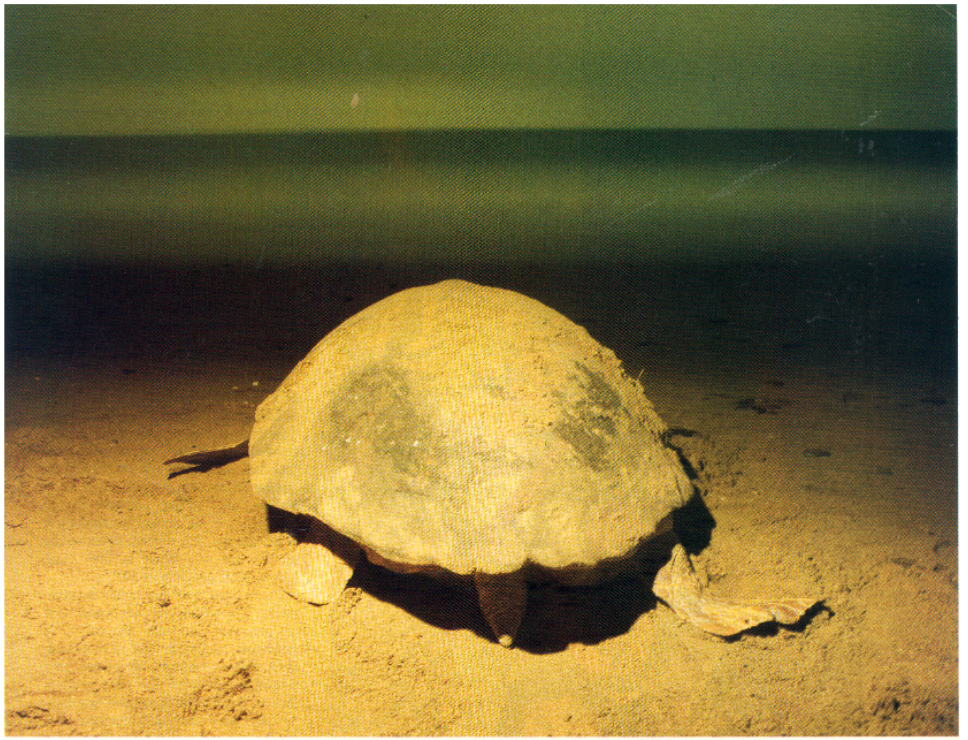
Toward the north end of the beach, one of the volunteers finds a flatback. It's only the third to come ashore all season, for although the species is plentiful, it mostly breeds further north along the coast. This turtle has hit land after midnight and most of the approximately 400 spectators have gone back to their tents.

With 600 to 700 people on a busy night, the 14 volunteers — stationed at three nearby beaches where the occasional turtle appears as well as at Mon Repos and divided into shifts throughout the night — are taxed to the limit of their managerial abilities.

Nevertheless, Limpus believes the desire of the "tree-huggers" to close the beach to the public is misdirected. He thinks more efficient management of the crowds — perhaps as provided for in the State Government's plan — is a better alternative.

A volunteer is holding a jar under the tail of the nesting flatback in order to collect a mucus sample. Meanwhile, another young woman scrapes small barnacles off the turtle's back to ensure an accurate measurement of the carapace. She also records the turtle's identification tag number, the egg count, its position on the beach and other details.

The flatback's eggs look like under-



sized cue balls. Facing on an angle between land and sea, she puffs occasionally, without sound. The tears coagulate under her eyes.

THE turtles are arriving in larger numbers now, the best times being about one hour before night high-tide and two hours after it. Another loggerhead has finished laying and her front flippers are restrained with ropes while a graduate student in marine biology takes a muscle tissue sample, as part of her study on remigration patterns of sea turtles. Yet another animal must be retagged and a volunteer affixes the small metal clamp on to a flipper.

Some people are concerned that the Mon Repos researchers' methods inflict undue discomfort on the animals. One such person is Jim McCutcheon, owner/operator of a campground which borders the rookery. Over the years, he has contributed regularly to the collection of scientific data, but no more.

"I've fallen right away from this research and my son, who was also deeply involved, feels the same way," says McCutcheon. "There's talk but there's no feeling. I have feeling. I won't do any more research. I've tagged my last turtle because it hurt me every time." Expressing doubt about the value of continued research, McCutcheon asks, "Can you be sure that it's not the turtle researchers who, in 50 years' time, will drive the turtles away?"

Limpus on the other hand, is convinced that the only way to prevent a decline in world populations before the situation becomes irreversible is to increase the scientific data base. Even though global research on green turtles has been in effect for a half-century, Limpus says, "We're still in many ways no closer to being able to manage turtles. Say, a leather company wants to harvest turtles to take the skin from the neck and flippers for making shoes and handbags and such — we can't tell them what the magic number is. If we harvest below it, the population will be sustainable, if they go above it, the population's going to decline. We just don't have that sort of knowledge. From the conservation point of view, that's very, very important.

"I'm not doing it because I believe those people ought to be able to handle turtle skins but the reality of it is, they are going to, and conservationists have to be able to provide the answers."

Limpus believes such knowledge is needed as soon as possible.

"If we stuff this thing up now," he warns, "the consequences won't be seen for quite a few decades, when the turtles are grown up and coming back to breed. And they're such long-lived animals from birth to breeding that there's probably no one in the world who has even lived to see the consequence of his mistakes in handling turtles. For that reason, you don't get the opportunity to learn from your mistakes." ■