

THE LEATHERY TURTLE

The programme for conservation of the giant Leathery Turtle in Malaya was described, with pictures, in *Oryx*, VI, 2; a photograph of the hatchery was the frontispiece of *Oryx*, VI, 4.

The extract below from an article by Professor J. R. Hendrickson in the *Malayan Nature Journal* of April, 1962, together with the latest information direct from him, shows the progress which is being made in the conservation of this endangered species.

On the morning of 19th June, 1961, after the turtle hatchery had been stocked, the working party from the Malayan Nature Society departed. Then for the next several weeks watchmen were employed under Fisheries Department supervision to guard against any vandalism or pillaging in the hatchery (no difficulties were reported). During this period, circles of wire netting were constructed and placed above each incubating nest in a position to confine any hatchling turtles when they emerged to the surface of the beach. This was done in order to make an accurate check on the fertility of each clutch of eggs.

On 5th August, forty-nine days after the first eggs had been transplanted, the hatchery was visited and several nests were opened and sampled in an attempt to determine how incubation was proceeding and when full-scale hatching was likely to begin. At this time two interested students were established at the site and lived there for the following two weeks until hatching was completed. Their costs were met for a grant-in-aid of turtle research made by the Eastern Mining and Metals Co., Ltd. These young men collected considerable valuable information during their stay and were invaluable in caring for the young turtles before they were distributed at sea.

Hatchery Results

Baby turtles first began to emerge from hatchery nests on the night of 9th August, fifty-three days after the eggs were laid and transplanted. On following nights increasing numbers of hatchlings emerged, reaching peaks on the nights of 12th and 14th August. After this the numbers declined, with only a few emerging on the night of the 17th and none at all on the night of the 18th. Eleven nests containing a total of 876 eggs proved to be sterile—this is apparently fairly common in sea turtles in general. From the remaining eighty-four nests (7,490 eggs), a total of 3,699 hatchling turtles emerged—just over 49 per cent (minimum 14 per cent, maximum 84 per cent). It must be made clear that 49 per cent is not the per cent *hatch*, but the per cent which hatched *and* successfully dug their way up to the surface through at least 2 feet of beach sand. No attempt was made on this occasion to determine the number of hatchlings which had failed to reach the surface.

It is useful to compare the gross figures, including sterile nests, with comparable figures from the established Green Sea Turtle hatchery in Sarawak which has been operating successfully for some thirteen or fourteen years. In Malaya 3,699 hatchling turtles emerging from a total of 8,366 eggs gives a percentage of just over 44 per cent gross success, whereas

a large sample of Sarawak nests gave a figure of 70 per cent, calculated in the same way.* One group of seven adjacent nests in the Rantau Dalam hatchery showed suspiciously few emerging turtles and this "bad spot" in the hatchery lowered the average productivity considerably; one is tempted to suggest a bit of bad luck here—either burrowing crabs, a subsoil drainage channel, or some other factor which had a detrimental effect on a large number of eggs in the densely-packed hatchery. The enclosure should probably be placed slightly farther down the beach in the future, with the clutches of eggs planted at slightly greater intervals.

After hatching began all the emerged baby turtles were collected each morning before the sun rose high enough to heat up the beach. The numbers emerging from each individual hatchery nest were carefully recorded, and the young turtles were then placed in tubs of sea water in the shade. Eventually such a large number of hatchling turtles accumulated that they could not all be kept in the tubs, and arrangements were made for them by lining excavations in the beach sand with plastic sheets, then pouring sea-water into the containers formed. Attap shelters provided the necessary shade for these plastic-lined pools; the method worked satisfactorily and should be adopted in the future as the cheaper method of storing large numbers of hatchling turtles. There were some deaths among the accumulated young turtles—this was partly due to overcrowding in the tubs and pools, but appeared to be mainly the predictable proportion of deaths which occur in any large group of chicks or other newly-hatched birds or reptiles for a variety of reasons. The losses in the accumulated baby turtles are not considered to have been excessive.

Release of Young Turtles

On Sunday, 14th August, about thirty members of the Malayan Nature Society returned to Rantau Dalam and the Fisheries launch came down from Kuala Trengganu. The accumulated baby turtles which had emerged from the nests up till that time were taken aboard the launch in tubs and were distributed at sea while the launch cruised in a wide arc. In this way the very large number of young turtles were spread over a large area of water, well out beyond the dangers of the beach surf and the predatory fish frequenting the shallows, and were distributed so thinly that in no one place was there a large enough concentration to attract schools of predatory deep water fish. It is believed that each individual hatchling thus treated had at least twice the chance to survive than it would have if it had crawled to the water by itself.

Two hundred and eight of the hatchling turtles released at sea were marked by amputating the posterior tip of the carapace. This caused no bleeding and the minor injury may heal inconspicuously, but there is at least a chance that the operation may result in an abnormally blunt rear shell, and it might possibly enable recognition of a group of these individuals as adults. If so, we would for the first time obtain some idea of how many years are necessary for a Leathery Turtle to grow to maturity.

* See page 266, "Oryx" VI, 5.—Ed.

On following days each night's "hatch" was distributed by persons wading out beyond the breakers on the beach and releasing the young turtles over a wide area. Although this method did not provide the freedom from risk of being eaten by shallow water predatory fish, it did have the advantage of ensuring that the baby turtles were released at sea when they were in prime condition, with the most energy for swimming. Those babies which had been stored for some days on shore before release appeared to suffer somewhat from exhaustion. Unlike baby Green Turtles, which provided the only basis for judgment until now, these seemed disinclined to rest in the tubs and probably suffered thereby. Also unlike baby Green Turtles, these can apparently dive immediately and gain no particular advantage by being kept captive (and safe) for several days before release.

Following the night of 18th August, when no more young turtles emerged from the hatchery nests, the two caretaker students departed for their homes and the hatchery was dismantled. All usable materials were stored by the Fisheries Department against use again next year.

Recommendations

(1) The hatchery stocking programme should be extended over a longer period of time—perhaps the period 15th June to 31st July.

(2) The turtle egg licence-holder should be worked into the programme using his labour force to carry fresh nests to the hatchery and transplant them immediately. They should try to transplant a certain small number of nests each night (five?, ten?). The goal should be one hundred nests per season.

(3) A Fisheries Department Officer should be detailed to remain on duty in the area, supervising the daily transplanting of eggs and care of the hatchery. He should also supervise the keeping of careful records.

(4) The hatchery should be located about 10 feet closer to the sea than in 1961, placing its landward edge out of the zone of tree roots and in cleaner sand.

(5) The hatchery nests should be spaced a clear 3 feet apart.

(6) A person should be employed to take each morning's "hatch" of baby turtles (after recording the number from each nest) and distribute them widely at sea, about $\frac{1}{3}$ mile or more out from shore. This could be done in any small, paddled or sail-powered craft.

(7) If one hundred nests are transplanted eighty should be full-depth nests (holes dug at least 3 feet deep), the remaining nests set experimentally at shallower levels.

The above recommendations were duly carried out in 1962 and by 22nd July 130 nests had been put down, filling an enlarged hatchery enclosure. On 13th August a telegram from the Fisheries Officer in charge stated that young turtles had begun to emerge. Then came a letter to say that by 25th August over 3,000 baby turtles had been successfully distributed at sea.