HERPETOLOGY IN JERSEY: A REPORT OF THE 1996 VISIT TO JERSEY ORGANISED BY THE CONSERVATION COMMITTEE

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The fourth annual meeting for BHS members on a conservation theme was held on the 4th and 5th, May, 1996 on the island of Jersey. The meeting had two main themes. First, a visit to the Herpetology Department at Jersey Wildlife Preservation Trust and Zoo, which enabled BHS members to see round the facilities and learn about the Trust's wildlife conservation and protection programmes for threatened herpetofauna; second, a visit by members to several of Jersey's herpetological sites and conservation areas to gain some insight into the status and threats facing the native herpetofauna.

VISIT TO THE JERSEY WILDLIFE PRESERVATION TRUST AND ZOO

Arriving at Jersey Zoo in time for lunch, we were met by Quentin Bloxam, General Curator, who promptly ushered us towards the Zoo's excellent restaurant, the Dodo. An appointment immediately afterwards was made with Richard Gibson, Herpetology Department Head, who was to show us round the collection, and behind the scenes, in the Gaherty Reptile Breeding Centre.

In terraria outside the House, there were enclosures containing hardy European species, primarily for exhibition purposes. Two or three old favourites such as the European Pond Tortoise *Emys orbicularis* and the Spanish terrapin *Mauremys leprosa* basked in the sunshine, despite the cold wind, at the concrete edges of pools. Three pairs of Marginated Tortoises, *Testudo marginata* steadily plodded across their enclosure, stopping intermittently to take bites from herbaceous plants growing on the ground, and moving their heads to survey the crowd observing them. There was another enclosure for endangered Jersey Agile Frogs *Rana dalmatina* although there was no obvious activity, but we were assured of their existence. They are being used in a captive breeding programme for release into specially chosen sites on the island to offset the decline and possible extinction of the species on Jersey and their tadpoles and some juveniles were shown to us in the "cool" room behind the scenes.

Once in the warmth of the reptile house itself, rare tropical species were evident, being bred for relocation and other purposes. First, there was a fine pair of Rhinoceros Iguanas, *Cyclura cornuta*, perched on logs in a delightfully presented terrarium, shared with a small colony of Antiguan Anoles, *Anolis wattsi*. Next to each other, but in separate cages for the moment "to make the heart grow stronger" and increase mating success, there was a pair of the very threatened *Iguana delicatissima* from the Lesser Antilles in the Caribbean. These iguanas are so closely related to green iguanas that one of the most significant threats to their survival is hybridisation with the introduced latter species.

In the centre of the exhibition area there were two humid vivaria planted with self-sustaining bromeliads, mosses, ferns and orchids. One contained the highly endangered

Blue Poison-Dart Frog, *Dendrobates azureus* and the miniscule *Dendrobates reticulatus*, and the other housed *Dendrobates auratus*, mottled iridescent turquoise and black in colour, and another small brown frog in the Dendrobatid family, *Colostethus trinitatis*, whose food was invisible to the naked eye. There were also some huge 'homeless' captive bred Burmese Pythons, *Python molurus bivittatus* in a large cage, that having outgrown their owners, had been relinquished by them and given to the zoo. They were on display primarily for exhibition and educational purposes, for the species is not endangered in the wild and breeds very readily in captivity. Next, a fine pair of Basilisk Lizards, *Basiliscus plumifrons* (family Iguanidae) was perched on branches in their cage, while on the ground in the same cage was a pair of South American Red-Footed Tortoises, *Geochelone carbonaria*. This pair of tortoises had inadvertently been allowed to mate and the female to lay eggs, and there were eight 2-month old hatchlings in an open vivarium behind the scenes.

At this point, Lee Durrell, Honorary Director, and Quentin Bloxam joined us as a few additional features about the collection were pointed out. There was a single hatchling of the Madagascan Flat-Tailed Tortoise, *Pyxis planicauda* - it was the first time the species had bred in captivity outside Madagascar, and was growing well in its cage next to the eight *G. carbonaria* hatchlings. In another enclosure, there were captive bred juveniles and adults of one of the world's smallest tortoise species, *Testudo kleinmanni*, and near the ground, a large female specimen of so-called *Testudo whitei* from Algeria which is much larger than the more widespread North African *Testudo graeca*. "Tortoiseville", a long indoor tortoise enclosure, was alive with twenty-seven baby marginated tortoises, all fighting over food and the best basking spots. Further along the corridor, there was a room devoted to Round Island Geckos from Mauritius, *Phelsuma guentheri*. The Zoo population of this species had crashed for a reason that was not entirely clear, but two years later, the population was building up again. The Round Island Skink, *Leiolopisma telfairii* has also been bred at Jersey Zoo, but the gecko now takes priority.

Among the snakes breeding successfully are the Round Island Boa, *Casarea dussumieri*, the Jamaican Boa, *Epicrates subflavus*, for which Richard Gibson carried out an island wide survey in October last year, and also an unusually coloured garter snake *Thamnophis sirtalis tetrataenia*, a subspecies from San Fransisco, confined to a tiny strip of land between two urbanised areas, which had blue and red, instead of yellow, dorso-lateral stripes. Finally, in partnership with Fauna & Flora International, the Government of Antigua and other locally based organizations on Antigua in the north-eastern Caribbean, there was one of the world's rarest snakes, a gentle, small, grey-coloured snake, the Antiguan Racer, *Alsophis antiguae*, in specially constructed vivaria. The species' last refuge is on Great Bird Island, off Antigua, where even there it was threatened by rats that had colonised from tourist boats until these unwelcome rodents were eradicated in December 1995. The racer was eliminated on Antigua by the Indian mongoose, which were introduced in 1899 to control rats in sugar cane plantations. If captive breeding is successful, hatchlings will be flown straight back to other islands on which rats and mongoose have been cleared, possibly even before sloughing or feeding, to establish a second island population and increase their chance of survival in the wild.

All in all, the visit was much enjoyed by the BHS party, and Richard Gibson's highly articulate exposition made the picture very much clearer. The environments inside the terraria were among the best one would ever see, and were the result of sensitive response and constant adaptation by Richard and his assistant Kevin Buley to improve the animals' needs. There was even a nesting box high up on a windowsill to improve the chances of successful nesting as one species of iguana consistently chose to perch on a branch prior to oviposition, and kept laying its eggs in mid air. This behaviour has now

been linked to substrate temperature and has been accommodated for by the provision of the "arboreal" nest site where ambient temperatures are much higher.

There was only time for a relatively small fraction of the work being done at the Centre to be covered during the visit. There was a lot more "unseen", and much of the work is conducted overseas in animals' natural habitats.

Among those animals unseen, the St. Lucia Whiptail, *Cnemidophorus vanzoi*, is confined to only two tiny islets, Maria Major and Maria Minor, off the coast of St. Lucia. Though the island is protected and no introduced predators are present, the lizard is considered extremely vulnerable due to its limited distribution. In 1993 another island, Praslin (not to be confused with that in the Seychelles group, Indian Ocean), was selected for a translocation project and the rat population eradicated. In 1995, 2 years later, after significant vegetation regeneration and the return of nesting birds to the island, 40 whiptails were removed from the source population (1500 or more individuals) on Maria Major, sampled for DNA, and released on Praslin. After an initial scare with a stray mongoose (which was quickly trapped), the lizards soon settled into their new home and were breeding only a few weeks later. Staff from JWPT have visited the new population again in 1996 to continue monitoring the success of the introduced population. Preliminary results suggest that there are now more than one hundred lizards on the island. The colours of the male are similar to the country's national colours depicted on the flag, and this lizard species has been taken up as the country's national emblem. A success story indeed!

The following species projects should also be mentioned. There is a large herd of Radiated Tortoises, *Geochelone radiata* occupying half of the outdoor paddock area. This species has bred in Jersey a number of times despite the cool climate.

Work has recently begun on the Prehensile-Tailed Skinks, *Corucia zebrata* from the Solomon Islands. The Zoo has two groups of these unique lizards. Although they are well known, and have been widely kept, only recently has their conservation status come to light as the Solomon islands are logged in a devastating way at an ever increasing rate, and the skinks' exploitation for the pet trade continues un-checked.

There is a whole room full of baby Jamaican Boas, a species mentioned earlier. The snake has been bred at the Trust since 1977, and field work has been carried out on two occasions. Based on work, and at the recommendation of Richard Gibson, this species has recently been reassessed as Vulnerable in the IUCN Red Data book, and is likely to be raised to an EEP programme in the next year.

Two endangered chelonian species are part of a cooperative breeding programme with the American Zoo Association. The Coahuilan Box-Turtle, *Terrapene coahuila* is restricted to a single small region of marshland in Coahuila County, Mexico, and the Hispaniolan Slider, *Trachemys decorata* has declined drastically over the past decade, and is the subject of a reintroduction programme coordinated by Zoo Dominica in the Dominican Republic.

The Mallorcan Midwife Toad, *Alytes muletensis*, known as a fossil, but only "re-discovered" in 1980, has been the subject of a Jersey breeding programme since 1986. The Zoo's offspring have been used to found other captive populations in Britain and Europe, and also for reintroduction to selected sites in Majorca. This project has successfully established five new populations in the wild so far, and further releases are

planned along with a cooperative programme of education and research, and habitat protection, reclamation and creation.

Fourteen baby Madagascan Iguanas, *Oplurus cuvieri* were running around two huge communal enclosures. This species is being used as a model species with which to learn and develop husbandry and breeding protocol for the closely related and endangered sub-species from the Comoros Islands.

The Zoo has a whole room devoted to the rearing of young freshwater turtles. Species currently in residence there included the Coahuilan Box-Turtles and European Pond Terrapins, species mentioned earlier.

There is also the Trust's well known work to conserve by captive breeding the Angonoka or Ploughshare Tortoise, *Geochelone yniphora* on Madagascar, which is being conducted by Don Read. The centre established at Madagascar recently suffered a theft (May 1996) of some 60 tortoises (mostly juveniles, but two females were included by the thieves for good measure). This was a very serious matter, which has rightly been much publicised among the world's herpetological community.

Now what about the staff themselves! The Herpetology office enjoys the comfort of air conditioning, while the rest of the building is set at around 30 °C, but not for the staff. The cooler air is for highly endangered colonies of Partula snails, many species of which are extinct in the wild, having been exterminated by introduced predatory snails. The remaining snails exist only in captivity, with sometimes as few as half a dozen individuals. Jersey was the first zoo to begin keeping these difficult creatures in 1982 at the request of Nottingham and Virginia universities. The captive breeding programme since then has gone from strength to strength, with around twenty collections now holding colonies in Britain, Europe and the USA. Releases into specially built snail reserves in their native home, Moorea in the Pacific, have taken place in 1994 and 1996. Results are encouraging and further releases are planned. The subjects, although not exactly herpetofaunal, enjoy the atmosphere conducive to amphibians and reptiles, or rather their minders!

The captive breeding work on many of the world's rarest species of amphibians and reptiles being done at the Zoo, and by the Jersey Wildlife Preservation Trust generally, is very valuable, making a substantial contribution both to our knowledge of rare species' biology and to conservation. Although already fairly well known, the enterprise deserves wider publicity within the world's herpetological community. A presentation will hopefully be made on the work of the Zoo's reptile house in both the form of a poster, and verbal account by Richard Gibson, at the 3rd World Congress of Herpetology in Prague, Czech Republic, 2-10 August 1997.

HERPETOFAUNA OF JERSEY

Compared to mainland Britain, the herpetofauna of Jersey is insular and small, and only supports three amphibian species and four reptile species. A former BHS President was first to produce an annotated inventory for the Channel Island group (Frazer, 1949). Three of the species on Jersey, however, never reached the rest of Britain naturally, namely the Agile Frog, *Rana dalmatina*, Wall Lizard, *Podarcis muralis* and Green Lizard, *Lacerta viridis*. The first two species are common in adjacent areas of France.

The island of Jersey covers 45 square miles, but the herpetofauna today, are mainly confined to the less urbanised coastal areas where there are heathland and sand dune

ecosystems. The interior of the island is intensively farmed for growing Jersey new potatoes and rearing Jersey cows on lush meadowland. Natural 'wildlife' areas are a rarity, except for garden ponds which are readily colonised by Common Toads, *Bufo bufo*.

An evening visit to ponds by the ruins of the Castle at Grosnez Point in the north west area of the island revealed the presence of toad tadpoles and Palmate Newts, *Triturus helveticus,* the latter surfacing intermittently for air. There is concern that Common Toads are less abundant than in the past, and contamination of ground water by agrochemicals may be a significant factor. Extensive use of fertilisers has raised the levels of nitrate and nitrite ions in the breeding ponds, and what could be traces of an arsenic based pesticide used in the early fifties has been detected in one of the ponds.

Regrettably we did not have the chance to see Jersey's third amphibian, the Agile Frog, because its status in the wild is cause for concern. Monitoring of all the known breeding ponds in 1995 and 1996 revealed no adults or spawn. The Jersey Environmental Services together with the Jersey Wildlife Preservation Trust are involved in a captive breeding programme with subsequent release of frogs into private ponds around the island to increase the captive population. We visited one pond where a number of tadpoles had been released, and their progress is being carefully monitored. The pond in question has been incorporated in an enclosure to prevent people and animals gaining access, and over twenty air-surfacing Palmate Newts were observed from the perimeter fencing. On a positive note, Palmate Newts are abundant in Jersey, but are often mistaken by the local people for lizards in their terrestrial phase.

The second day we visited Ouaisné Common which is one of the best herpetofauna sites on the island. This gorse heathland lies behind a sandy bay, Ouaisné Bay, and separates it from Noirmont. Both here and between La Pulente and Corbiere, where sadly no lizards were sighted between 16 and 17.00 h that afternoon, there are healthy Green Lizard populations. Simon Tonge, in his paper on the herpetofauna of Jersey reported that Ouaisné supported populations of all the Jersey herptiles, except the Wall Lizard (Tonge, 1986). Unfortunately in the ten interceding years, Agile Frogs are now presumed to have become extinct, and the size of the colony of Grass Snakes, *Natrix natrix* has greatly decreased which corresponds with the declining amphibian populations and increased contamination of freshwater by agrochemicals. Several Green Lizards, including adults and juveniles, were observed during our visit, basking in the morning sunshine in spots sheltered from the cold wind or actively foraging for invertebrate prey between tussocks of dune marram grass and gorse clumps.

The large male of the first lizards observed (12.08 h), a basking pair, was about 40 cm long, dark olive-green, speckled with brilliant bright green spots. It had almost the negative pigmentation of adjacent mainland *L. viridis*, which are grass-green and spotted, with a fine peppering of black dots. Is the darker colouration of the Jersey Green Lizards an adaptation to living at the extreme of its northerly range with the darker ground colour facilitating heat absorption? A young male Green Lizard, about two-thirds the size of the first animal was the next lizard to be observed. This individual was a uniform bright green with turquoise-coloured throat. An adult female observed was bright green with four white longitudinal stripes and a few black blotches. This was in contrast to French Green Lizard females, which are frequently brown. The juveniles observed were predominantly darker coloured and extremely fast moving, diving into grass tussocks and gorse bushes. Part of Ouaisné Common has just been purchased by the States of Jersey and, with the cooperation of the Tenants of the rest of the common, is being managed as protected area through positive conservation measures, for the area also

Plate 1. Ouaisné Common, Jersey. (Photograph by Frank Bowles).

supports a number of locally rare plants, such as the cross-leaved heath, and animals such as the Dartford warbler. With a satisfactory morning of lizard sightings behind us, we lunched at the nearby Smugglers Inn.

One of the best places on Jersey to see Wall Lizards is on the walls of Mont Orgueil Castle above Gorey Harbour in the east of the island. The colony ranges from the rocks on the beach to the castle keep where the south facing walls have not been rendered. Over thirty lizards were observed basking, scampering along the walls or with their heads peeping out of holes and crevasses. These Jersey Wall Lizards appeared to be a more colourful brownish and olive green than the greyer French Wall Lizards in Brittany. It is rumoured that the Wall Lizards at Mont Orgeil Castle where introduced by British soldiers, and if this is the case, it would be interesting to know from where they originally came. The colony appears to be thriving despite the fact that local cats from the harbour below the castle make it their hunting ground. One young lizard, with a missing tail was no doubt a casualty of such an encounter.

The first systematic survey of Jersey lizards was carried out by Frances Le Sueur (1976), who mapped their distribution based on sightings made after 1965. A subsequent survey carried out in 1986-7 by Chris Perkins into lizard distribution and abundance confirmed many of Le Sueur's records, with new sightings for Green Lizards (believed to have been due to a more intensive search) and a few losses due to site urbanisation. Green Lizard distribution is closely associated with the distribution of coastal heathland and dunes

concentrated in the south-west of the island. The distribution of Wall Lizards in Jersey has apparently always been restricted to the north and northeast coasts. The reasons for this are unknown. Were the animals deliberately introduced at some time in the past (as suspected at Mont Orgeil castle) or is their presence in the north due to an adaptation related to living at the extreme edge of their range?

In conclusion, it seems that the reptiles are not so much in decline as the amphibians on the Island. Amphibians with their permeable skins and larval gill membranes, and living in both aquatic and terrestrial habitats, may make them more vulnerable to the toxic effects of pesticides and other agrochemicals compared to reptiles. However, bioconcentration of insecticide residues must threaten both phyla, and may also endanger other forms of predatory wildlife higher up the food chain.

Jersey has its own Statutory Wild Life Law (1947) which prohibits removal of native herpetofauna for sale in pet shops on the Island and some degree of habitat protection was achieved by the Island Planning Law (1983). Alternatives to intensive farming could be further encouraged, but pressure on the land as a result of increased leisure activities by the thousands of visitors every year is also cause for concern. Finally, on a more positive note, it is reassuring to see that the conservation of the herpetofauna of Jersey is being taken seriously by Jersey Environmental Services, and that all possible measures are being taken to maintain, and even improve, their present status on the island.

Green Lizard *(Lacerta vividis)* from Jersey.
(Photograph by Chris Perkins and reproduced by permission).

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