ODONATA OF NORTH ISLAND, SEYCHELLES ARCHIPELAGO

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Abstract – A 6-hr visit in November 1997 established the presence of 9 spp., all of which showed some evidence of breeding. The paucity of previous Odon. records from North Island undoubtedly reflects the dearth of observers and it is probable that the present visit was the first entomological one since Vesey-FitzGerald in November 1952.

Introduction

John Jourdain wrote the first account of the wildlife of the Seychelles following his visit with two ships of the East India Company in 1609, where their landfall was North Island (SKERRITT & SKERRITT, 1991). This two square kilometre island is five kilometres north-east from Silhouette and 20 kilometres north of Mahé and is privately owned, with a resident caretaker, and allows day visitors by arrangement. There are two definitive studies on the Odonata of the Seychelles, CAMPION (1913) and BLACKMAN & PINHEY (1967). Both publications are based on observations by several entomologists over the preceding 17 years or so and records in those publications for any one island may be based on one visit by one observer. John Jourdain omitted to record any Odonata since he was pre-occupied with sources of food (tortoises) and ship-building materials (hardwood trees). BLACKMAN & PINHEY (1967) presented a compilation of records for the granitic Sechelles Islands, including the observations from CAMPION (1913), and included one record for North Island of *Diplacodes trivialis* from

Vesey-FitzGerald in November 1952. An opportunity arose for a six-hour, one day visit to North Island in November 1997, 45 years after Vesey-FitzGerald recorded *D. trivialis* there.

Aerial photographs of North Island (SKERRITT & SKERRITT, 1991) show a water-filled freshwater lake and a dried-out smaller pond. 1997 was a significant year for another visit to North Island in search of Odonata because of unusually high rainfall in August on Silhouette, over 20 inches (500mm) in four days and 3 inches (75mm) in eight hours on 17th November, (R. Gerlach, pers. comm.) North Island wetland habitats in November 1997, as in other parts of the Seychelles Archipelago, were extensively wet, with many ponds and lakes having one to two metres of flooded grass margins. Most of the areas described as marais were open water pools.

Methods and habitats

Whenever possible, Odonata were caught by sweep-netting for definitive identification based on the key of BLACKMAN & PINHEY (1967). Measurements of the captured insects were recorded for overall and abdominal lengths, total wing-span, hind wing length and size of pterostigmata. Photographs were taken through specimen boxes, hand-held individuals and perching individuals, both after release from the hand and on natural vegetation. If possible, both male and female specimens were caught for examination. Photography was used to record wing-venation and colouring, in addition to general records of colour and size of the insects.

One species, *Rhyothemis semihyalina*, could neither be caught nor photographed during six hours on North Island and only one, or perhaps two specimens were seen. Identification in that case was confirmed by three observers noting the characteristic patterning on the hind-wings and the typical sky-pointing display habit.

Evidence of breeding was based on combinations of observations of tandem-coupling, of cartwheel pairs in cop., ovipositioning and collection and identification of exuviae. The single, six-hour visit did not permit definitive proof of breeding but following the suggestions of PRENDERGAST (1997), these observations are reasonably presumptive.

North Island arises from the granitic Seychelles Bank and has had a chequered history as a market garden and as a coconut plantation. The few cows and chickens at present are subsistence for the caretaker. No apparent organised agriculture was being carried out in November 1997.

Three areas of water were visited and comprised of a pool of 5 × 10m some 500mm deep, a pond of 60 × 80m and more than 1m deep and a lake of 250 × 300m (or larger) and over 2m deep. The pool was close beside the south-east landing beach and was formed, in part by the run-off from the pond. The pool was definitely ephemeral, with flooded grasses and few rushes or sedges and no surface water vegetation. The pond had a central bed of reeds and rushes and some floating water plants. Aerial photographs from before 1981 showed that this pond does dry out on occasion, although in November 1997 it appeared to be a permanent area of water.

The central lake is permanent with a good variety of aquatic vegetation and was probably the basis for the market garden activities on the island.

The lake was higher on the island than the pond and may have drained into it. The pond definitely drained into the pool. All three areas of water were within 500m of each other and of the south-east beach.

Table I – Species recorded at each of the three areas of water; November 1997

Species	Pool	Pond	Lake
Ceriagrion glabrum	+	+	+
Ischnura senegalensis	+	–	+
Anax guttatus	+	+	+
Diplacodes trivialis	+	+	+
Orthetrum stemmale wrightii	+	–	–
Pantala flavescens	+	+	–
Rhyothemis semihyalina	–	–	+
Tholymis tillarga	present after 14.00 hr	present after 14.00 hr	present after 14.00 hr
Tramea limbata	+	+	+

Observations

Nine species were recorded on North

Table II – Breeding status of the recorded species

Species	In tandem	In copula	Ovipo-sition	Exu-viae	Breeding status
Ceriagrion glabrum	+	–	–	–	probable
Ischnura senegalensis	–	+	–	–	probable
Anax guttatus	+	+	+	+	confirm
Diplacodes trivialis	–	+	+	+	confirm
Orthetrum stemmale wrightii	–	–	–	–	possible
Pantala flavescens	+	–	+	–	probable
Rhyothemis semihyalina	–	–	–	–	possible
Tholymis tillarga	–	–	+	–	probable
Tramea limbata	+	–	+	+	confirm

Island during one six hour visit. Table I shows the records for each species at each of the three areas of water.

In addition, between 15.00 hr and 16.00 hr, and possibly later, three of the larger species, *Pantala flavescens*, *Anax guttatus* and *Tramea limbata*, were observed patrolling along the edge of the south-east landingbeach in a different form of behaviour to that seen at the fresh-water areas. They were seen to catch smaller insects and had no interest in each other, except as possible prey or predator. These larger Odonata were present in collections of 10 to 15 hawking insects of each species. Collections of this size were not seen at the fresh-water areas.

The observations for the presumption of breeding for the species is detailed in Table II.

Three types of ovipositioning were observed amongst the species.

Anax guttatus remained coupled in tandem and the female selected a suitable plant stem and crawled backwards down the stem until almost all of her abdomen was submerged, leaving her wings just above the water. Eggs were inserted into the plant stem and the pair of dragonflies, still in tandem, flew away to another suitable plant stem.

Diplacodes trivialis and *Tholymis tillarga* both showed females ovipositioning as individuals but with attendant males guarding them to prevent mating with rival males. Ovipositioning was by tail-dipping onto the surface of the water.

Pantala flavescens and *Tramea limbata*, both remained in tandem whilst the female laid her eggs by tail-dipping onto the surface of the water.

Discussion

The abundance of Odonata on Mahé (BLACKMAN & PINHEY, 1967) and on Silhouette (WAIN & WAIN, 1998) indicated that North Island was likely to have more than one species present as recorded by BLACKMAN & PINHEY (1967). The above average rainfall in 1997 ensured good Odonata habitats all over the Seychelles Archipelago and the observation and identification of nine species on North Island in one six-hour visit was a fortunate combination of fine weather, good habitat and three competent naturalists equipped with cameras, sweep-nets and an identification key. None of the observed Odonata are endemic to North Island and only one, *Orthetrum stemmale wrightii*, is endemic to the Seychelles Archipelago.

The low elevation of North Island, the lack of fast-flowing streams and the absence of native forest meant that it was unlikely that the other endemic Odonata of the Seychelles seen on Mahé, Praslin and Silhouette would be present.

The nine species of Odonata observed on North Island represent 50% of the observed species from the granitic islands (BLACKMAN & PINHEY, 1967) and from only a six-hour visit it is obviously not a comprehensive list. It was interesting that two of the species found on North Island, *Ischnura senegalensis* and *Rhyothemis semihyalina*, whilst common on Mahé, have not been observed on the closer island of Silhouette (BLACKMAN & PINHEY, 1967; WAIN & WAIN, 1998).

The records of presumptive breeding show that at least seven of the nine species recorded were not merely passing migrants but were genuine resident species on North Island. The other two species, *Rhyothemis semihyalina* and *Orthetrum stemmale wrightii*, could be regarded as possible breeding species, based on PRENDERGAST (1997), since they were both present in the normal breeding season and were in suitable breeding habitats. It is probable that all nine species observed in one six-hour visit were all breeding species on

North Island. One species which was not recorded and which may be present on North Island was *Agriocnemis pygmaea*. Isolated colonies are present on Mahé and Silhouette and suitable habitats were seen on North Island. Future visits to North Island by odonatologists in the next 45 years may be able to confirm this presumption.

References – BLACKMAN, R.A.A. & E.C.G. PINHEY, 1967, *Arnoldia, Rhod.* 3(12): 1-38; – CAMPION, H., 1913, *Trans. Linn. Soc. Lond.* 15(4): 435-446; – SKERRITT, A. & J. SKERRITT, [Eds], 1991. *Spectrum guide to the Seychelles*, pp. 34 & 123, Moorland Publ. Co., Ashbourne/Derbys.; – PRENDERGAST, E.D.V., 1997, *J. Br. Dragonfly Soc.* 13: 29-30; – WAIN, W.H. & C.B. WAIN, 1998, *Phelsuma* 6: 27-31.

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