

The following descriptions were originally submitted and reviewed to be published in my forthcoming book, *Freshwater Turtles of Australia*, Pierson Publishers, Sydney N.S.W. The book is now at the printers, Craft Print P/L, in Singapore. Craft Print P/L are now also the publishers.

The publication of these descriptions has been delayed. In order for other researchers to use names of these new taxa, publication of these descriptions has been brought forward and are presented in this journal.

John Cann

GEORGES SHORT-NECK TURTLE

Elseya georgesii sp. nov. HOLOTYPE A. M. R31721 COLLECTED BY J. CANN 1971

HISTORY

The first record of turtles other than *Chelodina longicollis* occurring in the Bellinger River was in 1971 when I collected four specimens described here, near Thora on the Bellinger River. Some of these specimens were lodged with the Australian Museum in Sydney (Cann, 1972) and a photograph was published in my book *Tortoises of Australia* (1978). Legler also mentioned them briefly in 1981 as '*Elseya* sp.'.

Allozyme electrophoresis analysis by Georges and Adams (1992) indicates that this turtle is a sibling species to the *Elseya* sp., from the Manning River.

TYPE DATA

Holotype: A. M. R31721 adult female, measuring 222 mm carapace length, collected by J. Cann in 1971 in the Bellinger River 30°25'S, 152°46'E.

Paratypes: A. M. R31719 adult male; A. M. R143552 (shell); Q. M. J59430 (formerly A. M. R31720) adult female; Q. M. J59425 (formerly A. M. R31722) adult male. All paratypes same data as holotype.

ETYMOLOGY

This turtle's name is dedicated to Dr Arthur Georges, of Canberra, Australian Capital Territory.

DIAGNOSIS

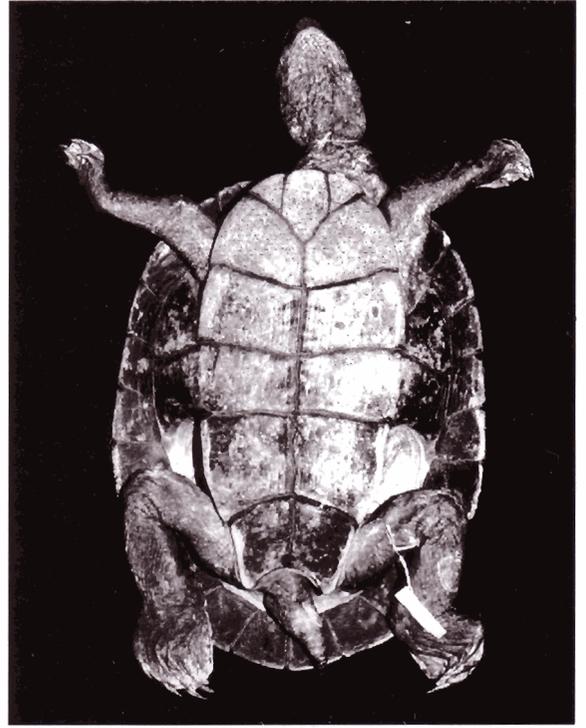
Elseya georgesii is a moderately large species of turtle known only from the Bellinger River and its tributaries on the northeast coast of New South Wales. This species is most similar to *Elseya purvisi* Wells & Wellington and those

species of *Elseya* currently included in, or allied to *Elseya latisternum*. It can be distinguished from *E. latisternum* and *Elseya* sp. from the Namoi River by the presence of a pale (yellow in life) band of colour on the side of the head and neck, a marbled light plastron with a greenish-blue tinge, unlike *E. purvisi* which is predominantly yellow, and the absence of a central groove on the carapace. It is most similar to *Elseya purvisi* from the Manning River, and can only readily be distinguished by the pattern of colour on the throat and tail. *E. georgesii* does not have a dark marking running down the centre of the throat or tail, whereas in *E. purvisi* these features are present.

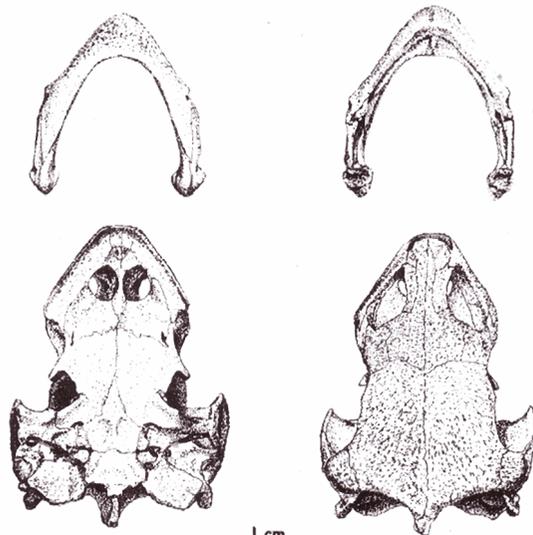
DESCRIPTION

The hatchlings of this species are among the most striking and attractive in Australia. The carapace may be light fawn, with darker patches or an even dark olive-brown. It is slightly keeled, with small serrations on the marginals behind the bridge. There is a narrow black line which traces the upper edge of the adjoining golden throat and mandible between the steel grey head and upper neck, beginning under the eye and extending along the neck. The plastron, bridges and soft underparts are a similar colour, while the upper skin is steel grey. From hatchling until maturity, the iris of the eye is golden with darker flecks. The inner edge has a yellowish ring.

As the turtle grows, two distinct barbels become increasingly noticeable. Concurrently, the gold fades from the mouth so the sheaths become more conspicuous. The throat darkens to steel grey, making the band of yellow from the angle of the mouth along the neck prominent by



▲ *Elseya georgesi*, holotype A.M R31721 ▲



1 cm



▲ Female *Elseya georgesi*, Bellinger River, N.S.W.

contrast. All indications of the gold band tend to have disappeared at an advanced age, by which time the eye colours have also dulled. The undershell of juveniles acquires dark edges to all seams, and a greenish blue tinge permeates the yellow and remains distinctive from juveniles throughout maturity. Later, these shields tend to darken. At no time does an adult's dark carapace develop a central groove as it does on *Elseya latisternum* and *Elseya* sp. from the Namoi River and there is also no tendency for the posterior of the shell to flare as it does in these closely related species; rather it reaches its peak slightly forward of the centre and tapers evenly to the rear.

When viewed dorsally, the nuchal is normally present, and with the exception of a slight bluntness on M1 and M2, the turtle is quite oval in shape. Viewed laterally, M1 - 3 drop sharply then the marginals run on a similar plane to the plastron to M10, then drop on the same arc as the central ridge. There is slight evidence of marginal turn up on M5 - 7.

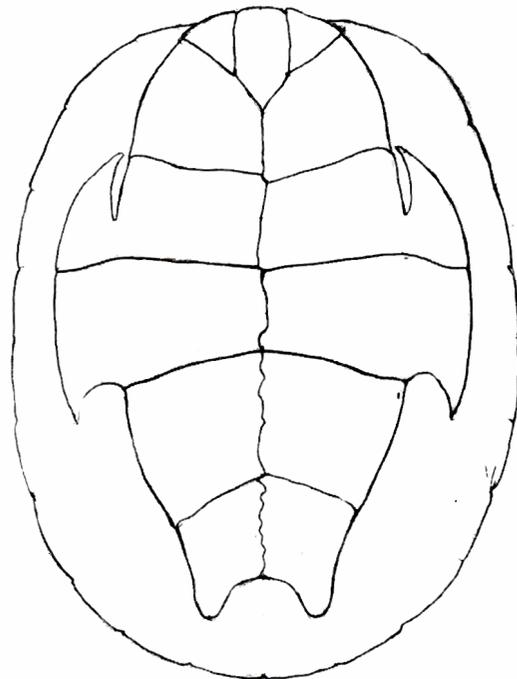
The anterior lobe of the plastron on old females may reach the anterior edge of the carapace so that when the turtle sits flat, the plastron can just be visible from a dorsal view. Viewed from below, the posterior lobe of the plastron is slightly tapered to a circular anal notch. Viewed from the front, the cross-section is evenly arched from marginal to marginal. An evenly dark-coloured head shield on the crown is present, extending down to the tympanum and is always smooth, unlike *E. latisternum* which can be patterned and keratinised when mature. There is no median alveolar ridge.

**HOLOTYPE: *Elseya georgesii*
A.M. R31721**

Carapace length:
Straight line: 222 mm
Width: 169 mm
Central: (Vertebral)

	Length	Width
C1	32 mm	51 mm
C2	42 mm	59.5mm
C3	39.5mm	62.5mm
C4	41 mm	54 mm
C5	36 mm	46 mm

Plastron length: (overall) 187 mm
Plastron width:
(front lobe) 91 mm
(rear lobe) 85 mm
Head width: 35.3mm
Lengths:
- Intergular 34.5mm
- Humeral 20 mm
- Pectoral 28 mm
- Abdominal 25 mm
- Femoral 36.5mm
- Anal 31 mm

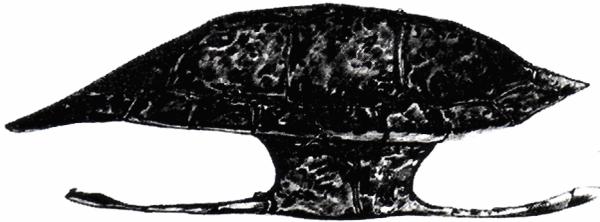


**PARATYPE: *Elseya georgesii*
BELLINGER RIVER**

Carapace length:
Straight line: 210 mm
Width: 164 mm
Depth: 69 mm
Central: (Vertebral) All centrals wider than long.
Plastron length: 182 mm
Plastron width: 85 mm
Bridge width: 38 mm
Lengths:
- Intergular 31.5mm
- Humeral 20.5mm
- Pectoral 30 mm
- Abdominal 23.5mm
- Femoral 38 mm
- Anal 30 mm



◆ Female *Elseya georgesi*, carapace length 183mm.



DISTRIBUTION

Elseya georgesi is restricted to the Bellinger River of mid-eastern New South Wales and its tributaries. This river starts as a narrow stream but once it reaches Thora 30 km downstream and enters the Bellinger Valley, it broadens considerably. From Thora it passes the township of Bellingen and the 12 km to sea are negotiable by boat.

This turtle species also occurs in the Kalang River, known locally as the south arm of the Bellinger, and both rivers share a common entrance to the sea.

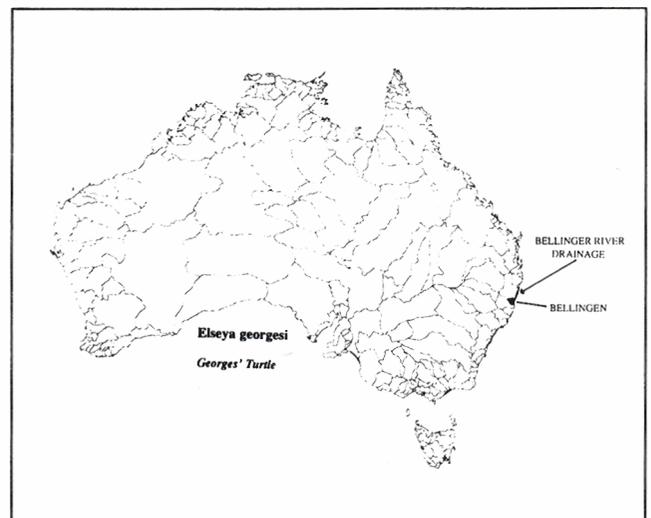
BREEDING BIOLOGY

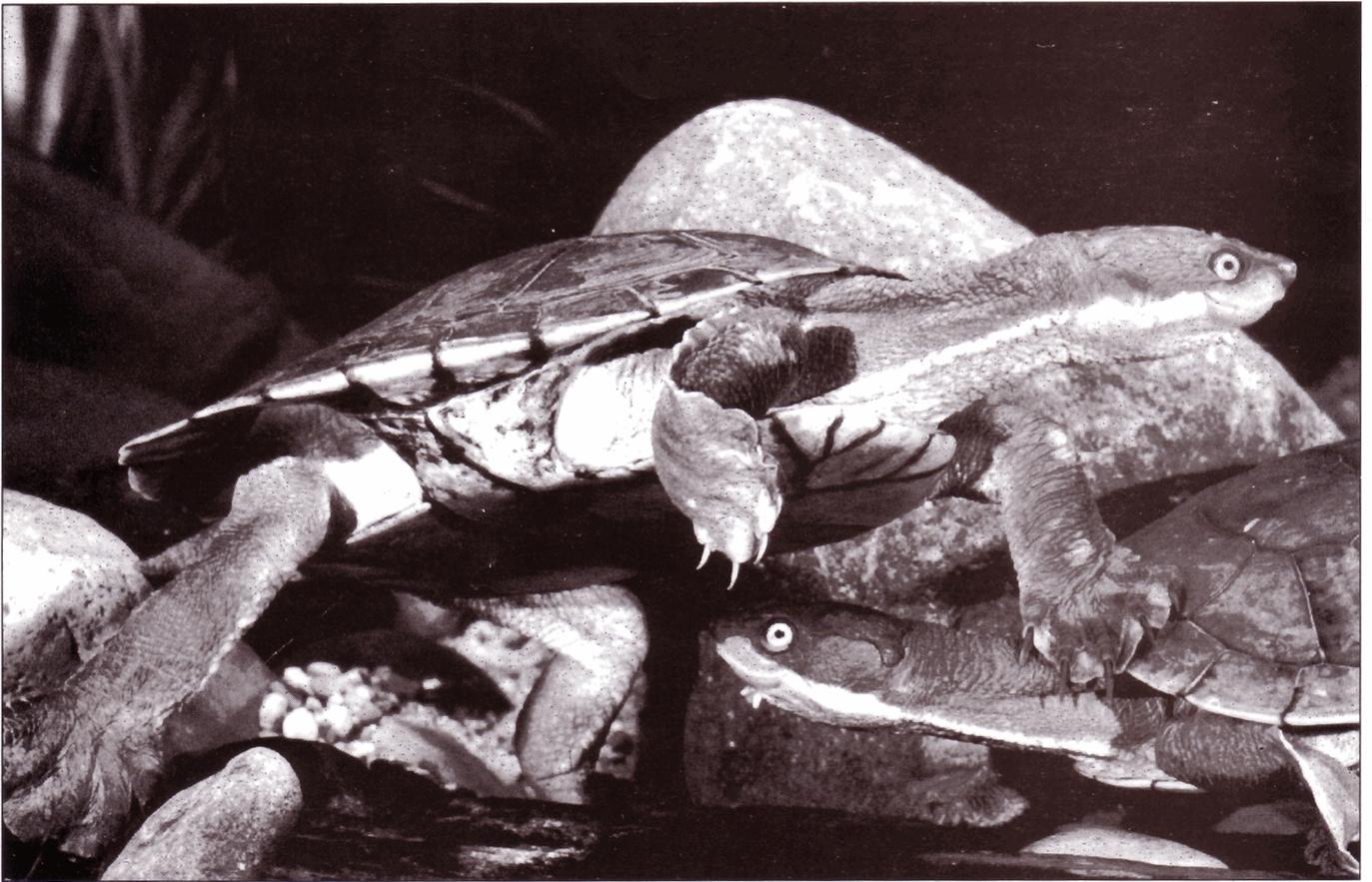
Nesting by *Elseya georgesi* is known to occur at the Bellinger between October and December, with clutches of 10 - 15 eggs. These average in size between 33.6 x 21.5 mm to 29 x 21 mm and can weigh 7.5 - 8.5 g. Hatchlings appear after 72 days at an average nest temperature of about 27°C and vary in shape from 31 mm long x 32 mm wide, to 29.25 mm long x 28.25 mm wide. They weigh 5.5 - 6.1 g. Eggs from other batches have weighed 4 - 6 g.

NATURAL HISTORY

Like all turtles in the *E. latisternum* group, the Bellinger River species is no exception in its feeding habits, being mainly carnivorous and to a lesser degree, herbivorous. The turtles I sampled were eating insect matter and what appeared to be predominantly algae; like most turtles, they would probably have seasonal or even daily dietary preferences. The water clarity in the flatter country of the Bellinger Valley is often affected by cattle and small creek run-off, yet when clear enough to dive, I saw short-necks from near the headwaters to just below the Bellinger Bridge.

To my knowledge, only short stretches of the Kalang have been studied. A major tributary on the north arm of the Bellinger River is the Never-Never River. This is a substantial run of water, probably 30 km long and has some good areas of sufficient depth to sustain short-neck populations, although I have seen them only a short distance up from the mouth. Upstream from Thora, boulders and pebbles form the riverbed and weed is found in patches, in many parts probably not establishing effectively in the fast flow caused by rain periods. The general terrain ensures that the water is well filtered and gives excellent clarity for observing turtles. There are many areas where the upper river is deep enough for diving and here turtles can be found. The further upstream, the larger the populations. Usually the deeper sections of the upper river average 1.5 - 2 m deep.

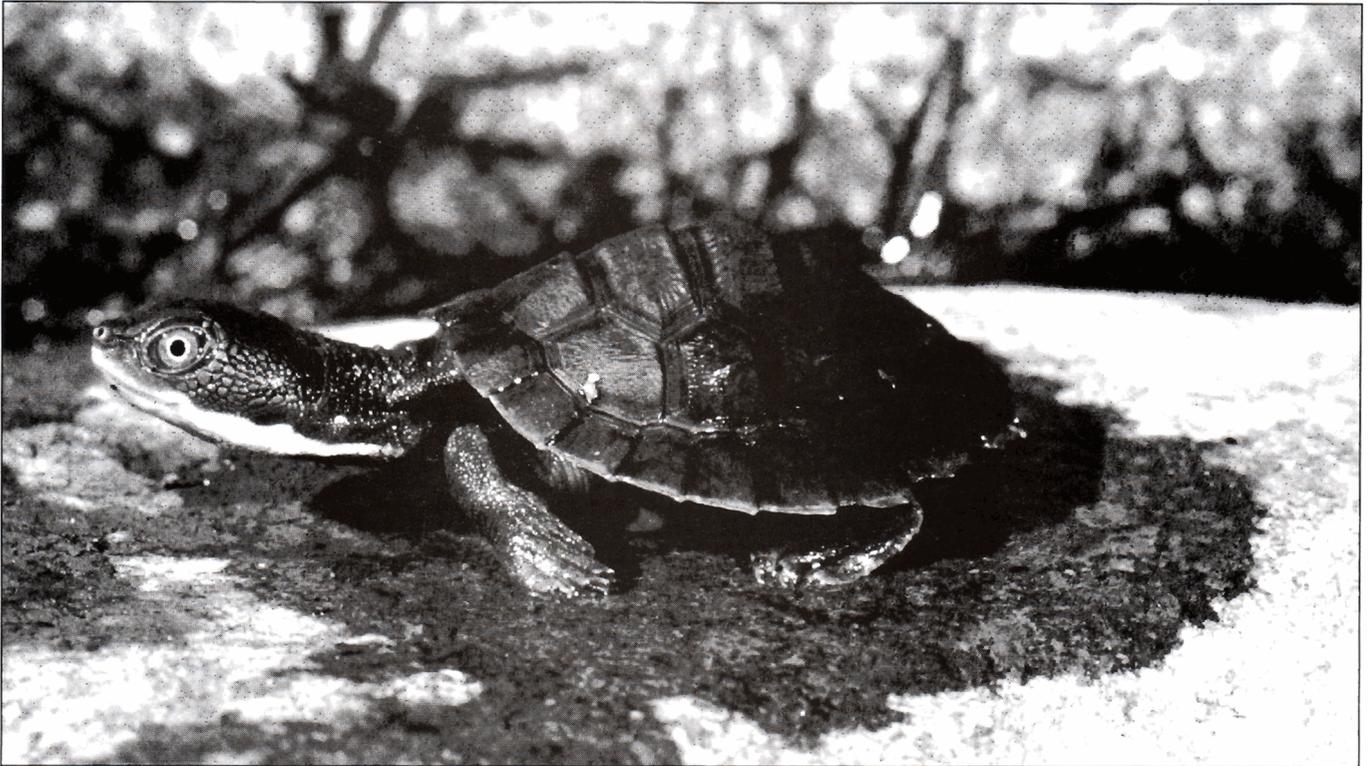




▲ FEMALE (TOP) AND MALE *Elseya* FROM THE BELLINGER RIVER.



▲ BELLINGER RIVER, NEAR TYPE LOCATION.



▲ *Elseya* hatchling, Bellinger River.

These turtles are not often seen swimming and it appears that once they have detected a diver, they settle on the bottom, relying on the camouflage of the carapace's cryptic colouration among the pebbles and sediment to conceal themselves. Occasionally, turtles are seen basking on fallen trees along the deeper stretches of the river but they are also known to bask on the bank and amongst vegetation. Although they are in good numbers, they are not as numerous as *Emydura* in some adjacent coastal rivers.

SYMPATRY

Chelodina longicollis, although present throughout the drainage, are rarely encountered. An *Emydura* species inhabits several locations and is currently under investigation.

ACKNOWLEDGMENTS

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Barry Nicol who dived with me when the first specimens were collected. Thanks also to Kylee Lennon who put on disk my four descriptions, and Ian Smales and Colin South for their skillful art work.

REFERENCES

- Cann, John (1972) *Notes on some tortoises collected in Northern Australia*, Vic. Nat. 89(6): 165-168.
- Cann, John (1978) *Tortoises of Australia*. London: Angus and Robertson, 79pp.
- Georges, Arthur and Adams, Mark (1992) *A phylogeny for Australian chelid turtles based on allozyme electrophoresis*, Aust. J. Zool, 40: 453-476.
- Legler, John M. (1981) *The taxonomy, distribution and ecology* (Testudines Pleurodira: Chelidae) Natl. Geogr. Soc. Res. Rep. 13: 391-404.