

IRWIN'S TURTLE

Elseya irwini sp. nov. HOLOTYPE Q. M. J59431 COLLECTED BY J. CANN. OCTOBER 1993

A new short-necked freshwater turtle is named and described from the Burdekin River of coastal eastern Queensland. It is distinguished from other Australian turtles by the complete whitish yellow head of the female. The male remains unsighted.

HISTORY

In 1990, Bob and Steve Irwin, the proprietors of Queensland Reptile and Fauna Park, at Beerwah, were camped on the banks of the Burdekin River. They noticed what they referred to as 'white-headed turtles' occasionally breaking the surface or basking on protruding boulders. While fishing with a meat-baited line, they caught a large female and pulled her to the bank. The specimen was both filmed and photographed before being released. Consequently, the documented information was sent to me for identification. In 1993, after two previous attempts, I collected a specimen while diving in the Burdekin River, approximately 18 km upstream from Ayr. I attempted and failed to trap specimens on three occasions. There has been no previous material published on this species from the Burdekin River.

TYPE DATA

Holotype Q. M. J59431 whole adult female with a carapace length of 322 mm, collected by J. Cann 22 October 1993 in the Burdekin River, Queensland, 19°42'S, 147°18'E, approximately 18 km upstream from Ayr.

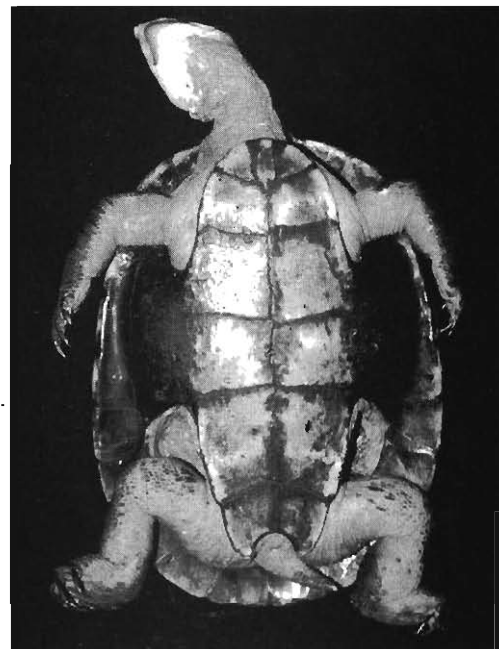
Paratype Q. M. J59021 juvenile with 106 mm carapace length, collected by J. Cann 23 September 1994 at the junction of the Bowen River and Sandalwood Creek (Terrible Creek). 20°27'S, 147°34'E.

ETYMOLOGY

Named for Steve Irwin of Beerwah, Queensland.



◆ *Elseya irwini*, holotype Q.M J59431, female.



DIAGNOSIS

Elseya irwini is a large species of turtle known so far only from the Burdekin River. It is most similar to *Elseya dentata* in overall size and morphology, but is readily distinguished from all populations of that species, and other species of *Elseya*, by the female's pale, primarily white head and yellowish horny sheath on the crown. The population of *Elseya dentata* from the Victoria

River, Northern Territory, also has some white marking on the face of mature individuals, but this is confined to the region of the face and neck and does not extend dorsally onto the horny sheath at the top of the head.

Holotype: *Elseya irwini*
Q. M. J59431

Carapace length:

Straight line: 322 mm
Width: 241 mm

Central: (Vertebral)

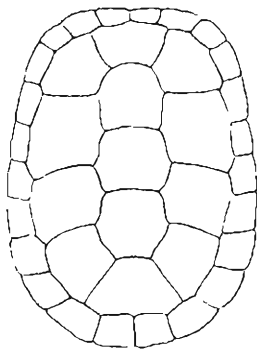
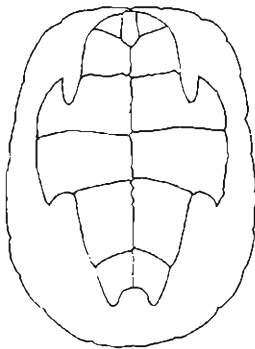
	Length	Width
C1	45.75 mm	72 mm
C2	61.25 mm	63.75 mm
C3	73 mm	63 mm
C4	65 mm	70.25 mm
C5	60.5 mm	93.75 mm

Plastron length: (overall) 281 mm

Plastron width: 57 mm

Lengths:

- Intergular	31.75mm
- Humeral	26.75 mm
- Pectoral	56.75 mm
- Abdominal	45 mm
- Femoral	65 mm
- Anal	37.5 mm



DESCRIPTION

Data from the type specimen, two other collected specimens, video footage of basking turtles and reports from fishermen and farmers throughout its known range indicated that all adults of this species have a distinctive light coloured head.

The following description is based on the holotype and photographs of two other adult females, both of which were released.

The head at first glance appears primarily white and this colour extends back to the neck region. When viewed closely, the crown is more of a light yellow, including the region between the eyes. From this point forward, the nose is suffused with rosy pink, extending to a lesser degree under the eye, ending at the angle of the mouth.

The iris is dark grey with a hint of olive extending into a light inner ring. This colour appears unique among turtles. The carapace is a light brown with dark patches and where the marginals turn up, the yellow of the plastron extends to the outer edge of these marginals. The plastron, with the exception of small turtles, is piebald yellow and black. The longest shield on the plastron is the femoral. The marginals turn up, M3 - 7. M8 is the widest point; from here the marginals flare evenly to the rear and are smooth and evenly edged, unlike other *Elseya* turtles of comparable size which show slight serrations in those drainages to both the north and south.

There is a slight indication of the carapace shields retaining annuli. The central, two, three and four are of similar length.

The head and neck are large (macrocephaly does not occur in this group). The jaw is strong and the symphysis of the mandible is wide; the horny sheath is a narrow band along the edge of the upper jaw. There is a median alveolar ridge on each maxilla, with corresponding grooves on the lower dentary. Two small distinctive barbels are present; the upper neck is covered mainly with many rounded tubercles but also has a number of longer pointed tubercles.



▲ The Bowen River, habitat of the Irwin's yellow-headed turtle. Note the floating native figs, a seasonal food.

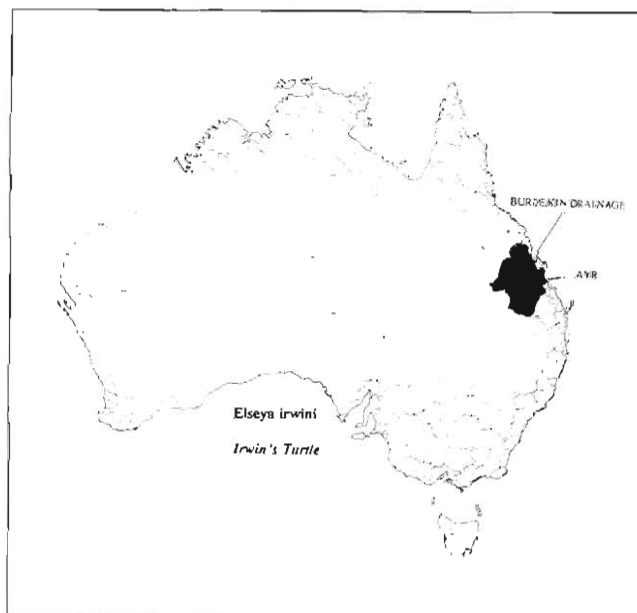
Average hatchling size is 41 x 40 x 20 mm deep but some are slightly wider than long. The average weight of these hatchlings is 11.86 g. At birth, the edge of the carapace is bluntly serrated, starting gradually at M1 and becoming more distinct to M12. The carapace of these is medium brown and dark speckled on all shields (being more distinctive on the marginals), which are also slightly crinkled. About four weeks after birth, the costals and central shields develop a distinctive orange tinge, a colour not seen before in an Australian hatchling. Two weeks after hatching, this colour, to a lesser degree, extends to the outer shields. The plastron and ventral surface of the marginals is light blue-grey. The soft parts are steel grey above and ventrally slightly lighter. There is an indication of pink on the webbed feet. The Burdekin hatchlings are less serrated than those seen in the rivers to the south. Similarly, they are smoother than the northern forms although only small juveniles of these have been seen, hatchlings may be similar.

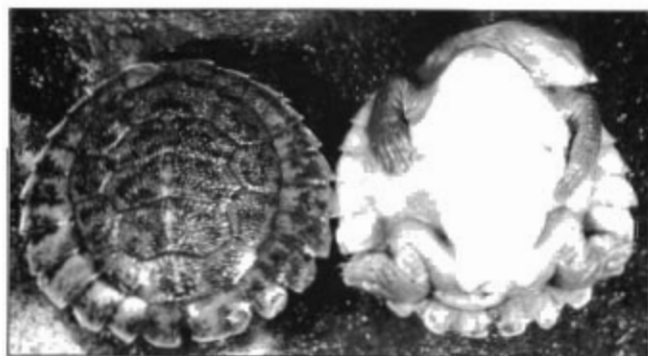
No morphological comparisons have been made between *Elseya irwini* and other members of the genus *Elseya*. However, recent electrophoretic

analysis by Georges & Adams (1996) indicates that *Elseya irwini* is distinct.

DISTRIBUTION

It is unusual for such a large, distinctive turtle to be scientifically discovered in recent times. *Elusor* is another example of one of Australia's most unusual turtles being found in the last few





▲ *E. irwini* hatchlings. The colour progresses as the turtle reaches maturity. These young, now 150mm cl show no indication of the characteristic light coloured head. A number of different 'snappers' develop a white face but only this species acquires a yellow crown.



▲ Hatchling *E. irwini*.

years. The major difference is the *E. irwini* comes from a vast river drainage whereas *Elusor* inhabits a relatively small system, the Mary River. The water of the Mary River is extremely clouded whereas the Burdekin is not. Saltwater crocodiles, however, are well established in many parts of the Burdekin so diving is greatly restricted. The Burdekin is the largest of Australia's eastern-flowing waterways, its upper reaches to the north are near the Herbert River

Falls National Park and run south-east for a considerable distance before linking up with the Suttor, Cape, Bowen and Belyando Rivers, the last starting 700 km south of its northern most point. As all waterways converge towards the centre of their 135,000 km² drainage system, the river becomes permanent and is always running.

Inquiries made of local naturalists, fishermen and farmers indicate that this distinctive coloured head has been seen breaking the surface in the Bogie, Bowen, Burdekin and Barratta Creeks. The Irwin's filmed it near the junction of the Bowen and Burdekin Rivers. Nesting data came from near the type location. Property owners and farm hands on the upper reaches of the Burdekin at Greenvale and Blue Range homesteads were unfamiliar with photographs of this turtle, although they line fish regularly.

BREEDING BIOLOGY

Legler's publication (1985) on the reproduction pattern of Australian turtles is based on the dissection of approximately 2000 specimens and nesting times were estimated chiefly by ovarian examination. Using this method, Legler reported that the nesting of *Elseya* sp. aff. *dentata* in Queensland occurs from early May to late June. On 8 September 1991, a farmer living by the river dug into a bank to install a temporary water pump; the following day when he returned, he noted the levelled area had been disturbed. Upon inspection he found this to be a turtle nest with 12 hard-shelled eggs, the average size being 45.8 x 30 mm. The hatchlings started to emerge 111 days later

NATURAL HISTORY

Very little is known about the behaviour of this freshwater turtle. They are a basking turtle and often break the surface with their head. They display cloacal respiration both in and out of the water. In captivity, adults eat meat, fish and bananas, smelling their food before taking it. Juveniles are quite defensive when handled, the adults not, if care is taken not to handle them roughly.

In its natural habitat *E. irwini* is probably omnivorous but the only current information we

have about the adult food preferences is that it will take meat on a fishing line. The holotype when collected was kept in a damp container for a few days before being placed in a drum of water; its faeces contained many marsh or blackwater snails (*Plutiopsis balonnenis*) some of which were still intact, measuring up to 10mm long. The overall volume excreted was approximately 150 ml of crushed shell (a substantial amount) which indicated no accidental or casual ingestion while eating. Four 10 mm lengths of vegetable stem were also present. It is not known if this is a seasonal dietary preference, although the snails would be available throughout the year. Legler's analysis (1982) of the *E. dentata* group's food indicates large females are almost solely plant eaters, although other Australian turtles demonstrated daily preferences. I would not describe them as opportunistic feeders, rather they eat whatever their requirements dictate. Only future research will show if adult *E. irwini* are naturally omnivorous.

Hatchlings in captivity will eat animal material almost exclusively in the form of worms, *Daphnia* or chopped fish, but later baby- and mini-size Hikari Cichlid™ staple pellets are taken. This is a formulated omnivorous diet.

SYMPATRY

Besides *E. irwini*, the Burdekin also contains *Elseya latisternum*, *Emydura krefftii*, *Chelodina longicollis* (upper reaches) and *Chelodina* sp. aff. *novaeguineae*.

ACKNOWLEDGMENTS

My thanks to both Bob and Steve Irwin who after catching the first known of these turtles, sent me photographs to identify and gave me their consent to work on it. Thanks also to Denis Watt of Ayr and Marc Dorse both of Queensland. Colin South did my line drawings and Ross Sadler of the Australian Museum gave valued assistance.

REFERENCES

- Georges, Arthur, and Adams, Mark (1996) *Electrophoretic delineation of species boundaries within the short-necked chelid turtles of Australia*, Zoological Journal of the Linnean Society, London, 118: 241 -260.
- Legler, John M. (1982) 'The Ecology of Freshwater turtles in the Alligator Rivers region'. Unpubl. report to the Office of the Supervising Sciences, Dept. of Employment and Industrial Relations, Canberra. 30 November 1982.
- Legler, John M. (1985) *Australian Chelid turtles: reproductive patterns in wide-ranging taxa*. In: Grigg, G., Shine, R. and Ehmann, H. (Eds). Biology of Australian Frogs and Reptiles. Roy. Zool. Soc. N.S.W., pp. 117 - 123.



George's turtle, morphologically are similar to the *Elseya* in the Manning River to the South, however, the southern sibling is the most attractive of the two.



A male *Elseya* from the Manning River. The tail marking of the Manning River is the most attractive of the two.



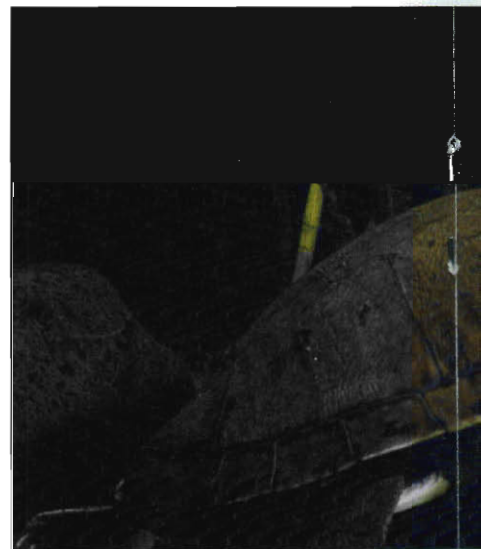
Irwin's Turtle. Note the yellow crown.



E.irwini from the Burdekin River.



A small juvenile *E.irwini*. Within a few weeks, an orange pattern develops on the carapace.



An adult *E. tanybaraga* from the Manning River.



...ning and Bellinger Rivers.
...ning species is distinctive.



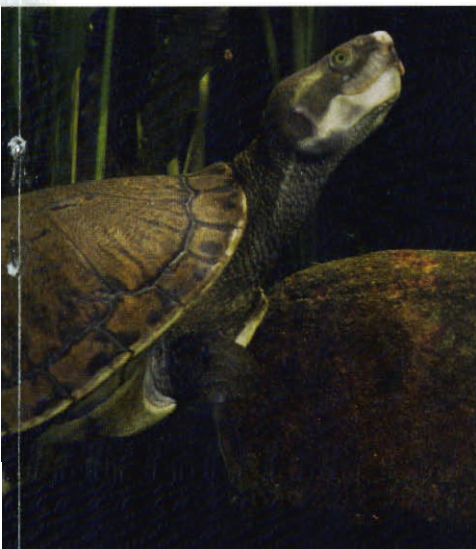
A large juvenile George Turtle, their eye colour would be
Australia's most attractive.



River drainage.



Irwin's Turtle.



...n Policeman Crossing, Daly



Chelodina kuchlingi Holotype W.A.M R29411.