

claw ending as knob; empodium divided, 5 rayed.

Opisthosoma: dorsum with median ridge shorter than submedian ridges, dorsally with about 51 rings, ventrally with about 53 microtuberculate rings; 1st 3 dorsal annuli 9 long; lateral setae (c2) 10 long, Lt-Lt 44 apart, Lt\Vt1 38, Lt-Vt1 25; 1st ventral setae (d) 17 long, Vt1-Vt1 19 apart, Vt1\Vt2 28, Vt1-Vt2 25; 2nd ventral setae (e) 17 long, Vt2-Vt2 10 apart, Vt2\Vt3 40, Vt2-Vt3 38; 3rd ventral setae (f) 14 long, Vt3-Vt3 16 apart; accessory setae (h1) present.

Coverflap: 19 wide, 12 long, with about 9 longitudinal ridges, genital setae (3a) 6 long, Gt-Gt 11 apart.

Male: Body 152 long, shield 32 long, 50 wide, scapular setae (sc) 3 long; genitalia 13 wide, 4 long, setae 6 long, Gt-Gt 13 apart.

Type data: *Holotype*, ♀, Nantou Co.: Renai; 6 Oct. 1994, C.F. Wang; ex *Smilax bracteata* Presl subsp. *verruculos* (Merr.) T. Koyama (Smilacaceae) (deposited at NMNS). Paratypes, 2 ♀, 2 ♂, ex *Schima superba* Gard. et Champ. var. *superba* (Theaceae).

Relation to host: A vagrant on the lower leaf surface. No apparent damage was observed.

Note: This new species is close to *A. osmophloea* Huang, 2001a but differs in the shield design

without a short line on each side, admedian lines with a semicircular line extending to lateral sides, and the 5-rayed empodium.

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臺灣產節蟬：描述四種惠蓀林場小麗節蟬族 (蟬蟬亞綱：節蟬總科：葉刺節蟬亞科)

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本文描述及繪圖3屬、4種惠蓀林場小麗節蟬族，其中包含3新種及1舊有種。分別為：*Schizacea chinenseae* sp. nov. 為害火炭母草 (*Polygonum chinense*)，*Acaphyllisa shinkoensa* sp. nov. 為害毛茛懸鉤子 (*Rubus shinkoensis*)，*Acaphyllisa bracteatae* sp. nov. 為害糙莖菝葜及木荷 (*Smilax bracteata* var. *verruculosa* 及 *Schima superba* var. *superba*)，*Pentaconvexus taiwanensis* Huang, 2001 為害三斗石櫟、短尾葉石櫟及川上氏櫟 (*Pasania hancei*, *Pasania harlandii* 及 *Castanopsis kawakamii*)。本文並對惠蓀林場產小麗節蟬族的種做一檢索表。

關鍵詞：小麗節蟬族，節蟬，惠蓀，臺灣。

The Latest Record of the Leatherback Sea Turtle (*Dermochelys coriacea*) from Eastern Taiwan

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Abstract. A latest record is described herein of a female leatherback sea turtle, *Dermochelys coriacea*, stranded on the northeast coast of Ilan County, Taiwan, on May 17, 2001. The leatherback sea turtle is the largest species in the world among living sea turtles. However, they rarely appear in the waters around Taiwan. Although the reasons that caused her to be stranded and die still require further investigation, scientists have inferred that it was most likely due to feeding behavior. This giant leatherback sea turtle was a sexually mature female with hundreds of eggs in her abdominal cavity, and those eggs were nearly ready to be laid. Herein we present a report with a detailed characteristic description and morphological measurements from this precious gift from the sea.

Key words: *Dermochelys coriacea*, Leatherback sea turtle, Taiwan.

INTRODUCTION

The leatherback sea turtle, *Dermochelys coriacea*, is the largest species among all living marine turtles. It can grow up to 180 cm in carapace length (Kordikova, 2002). Leatherback sea turtles are the most widely distributed animals of all marine reptiles, and they are found throughout tropical and temperate oceans of the world (Pritchard, 1980). Also, they are known to inhabit warmer seas, especially tropical seas, and females usually come ashore to nest every 2 to 3 years in warm sands of tropical beaches (Pritchard, 1982).

The leatherback sea turtle is the only living species of the Dermochelyidae. The other six extant species of marine turtles belong to the family Cheloniidae. Dermochelyids have a generally neotenic shell (Kordikova, 2002), and they are characterized by a reduction of shell scutes and the presence of a mosaic epithelial layer of small, polygonal, mosaic bones, directly overlain by the epidermis. As to the evolutionary lineage of the Dermochelyidae, it is thought to have diverged from other turtles during the

Cretaceous or Jurassic Period (about 100-150 ma). Compared to the Cheloniidae which is assumed to have evolved from a common ancestor during the Middle Tertiary (about 30-35 ma), the leatherback sea turtle is considered to be primitive or ancestral, but appears to be highly specialized from other closely related true turtles (Zangerl, 1980). However, the evolutionary history of the genus *Dermochelys* is poorly understood because of a lack of fossil material (Wood *et al.*, 1996).

Recent research of the leatherback sea turtle has focused on the study of their global distribution, migration, reproduction, and behavior (Eckert, 1990; Keinath and Musick, 1993; Renous and Bels, 1993; Dutton *et al.*, 1999). These subjects are closely linked to the most pressing issue of turtle conservation. Being one of the most globally endangered species, every possible record of the leatherback sea turtle is crucial to understand their life history and further protecting these giant marine turtles from extinction.

A sexually mature female leatherback sea turtle was found stranded on the coast of Aozaijiao (澳仔角), Suao Township (蘇澳鎮), Ilan County (宜蘭縣) (approximately 24°36'47.8"N, 121°51'39.5"E), northeastern Taiwan. After the turtle was carefully dismembered, the specimen was

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numbered NMNS003619-003772 and preserved in the National Museum of Natural Science, Taichung, Taiwan. In this paper, we are reporting the first confirmed record of the leatherback sea turtle in Taiwan with detailed character analyses and morphological measurements.

MATERIALS AND METHODS

A nearly dead large sea turtle was found on the northeastern coast of Taiwan at Aozaijiao (澳仔角), Suao Township (蘇澳鎮), Ilan County (宜蘭縣) (approximately 24°36'47.8"N, 121°51'39.5"E) (Figs. 1, 2) on May 17, 2001. Several beachgoers and navy seamen tried to push the turtle back into the ocean to save it, but the turtle was too heavy for them to handle. Unfortunately, the turtle died a few hours later. With assistance of the staff of the Bureau of Agriculture, Ilan County government, the body of the turtle was promptly transported to a commercial freezer storage plant for preservation in Ilan City. The following day, news regarding the discovery of this turtle was communicated by the Bureau of Agriculture, Ilan County government to research institutes and museums in Taiwan. The authors then quickly set out to investigate the situation. Thanks to the generous donation of the Ilan County government, the specimen of the leatherback sea turtle was delivered to the National Museum of Natural Science, Taiwan (NMNS). The leatherback sea turtle was numbered NMNS003619-003772 as a permanent collection record of the NMNS.

Upon preliminary examination by the authors, the animal was identified as a female leatherback sea turtle. The identification was determined based on the distinct appearance of its shell. The leatherback's carapace is slightly flexible and has a rubbery texture, and consists of bones that are buried in its skin. There are five dorsal ridges running the length of the carapace (Fig. 3). Sexual determination is based on the total tail length (TTL) and post-cloacal tail length (PTL). Female sea turtles show a shorter TTL but longer PTL (Fig. 4), while males reveal a very short PTL.

The first step of this project was to make a mold of the turtle using silicone rubber and then making a duplicate cast using fiberglass-reinforced polyester resin. We were optimistically hoping to use the reappearance of the turtle to provide an educational exhibit for the public in the near future. The second stage of this study was to dissect the leatherback sea turtle to collect its

organs and prepare its skull and skeleton for further investigation and sampling. Finally, the authors carefully studied the morphologic characters of the turtle and described its anatomical significance. These measurements were taken with calipers (straight-line measurements) or with a flexible tape measure (curved measurements). The methodology of measurement referred to Bolten (1999).



Fig. 1. Map showing the locality on the seacoast of Aozaijiao (澳仔角), Suao Township (蘇澳鎮), Ilan County (宜蘭縣), Taiwan (approximately 24° 36' 47.8" N, 121° 51' 39.5" E).



Fig. 2. A young female leatherback sea turtle beached live on the coast of Aozaijiao (澳仔角), Suao Township (蘇澳鎮), Ilan County (宜蘭縣) on May 17, 2001.



Fig. 3. Five dorsal ridges running the length of the carapace of the leatherback sea turtle, *Dermochelys coriacea*. The numbers, 1-5, indicate the position of each respective ridge.

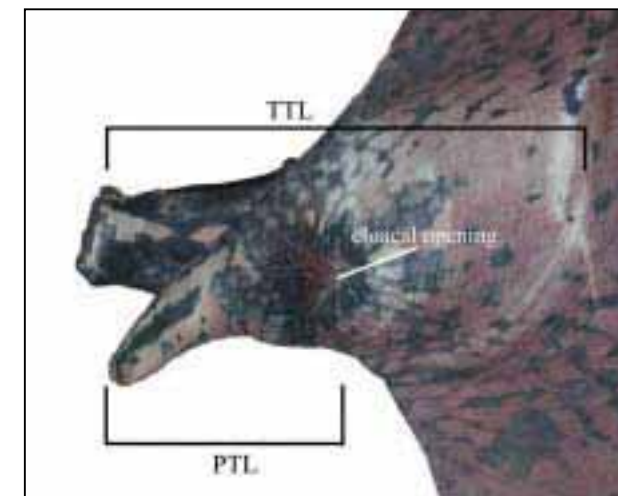


Fig. 4. Tail length measurements. 1) Total tail length (TTL) is the distance from the midline of the posterior margin of the plastron to the end of the tail; 2) post-cloacal tail length (PTL) is the distance from the mid-cloacal opening to the end of the tail.

RESULTS

Specimen

Class Reptilia
Order Testudines
Family Dermochelyidae
Genus *Dermochelys*
Species *Dermochelys coriacea*
(NMNS003619-003772)

Morphology

Sea turtles can be separated into hard-shelled (chelonid) and leathery-shelled (dermochelyid)

species. The leatherback sea turtle is the only species of the dermochelyid family. The exterior of the leatherback sea turtle is black with white speckling. Five dorsal ridges run along the length of the carapace; two ridges form the margins of the carapace. Few ridges appear in the ventral side, and some notches occur on each side of the upper jaw. The limbs of the leatherback sea turtle lack claws, and there are no scales on the head. The external body of the leatherback sea turtle reaches about 2 m in length and 0.8 m in width. It weighs approximately 300 kg. The detailed external morphological measurements are given in Table 1. This leatherback sea turtle was recognized as a female by the lengths of the TTL and PTL. The TTL was 280 mm, and the PTL was 130 mm. The PTL comprises nearly half the TTL. Compared to other male sea turtles, the PTL comprises only a very small part of the TTL. The entire mounted skeleton of the leatherback sea turtle is shown in Fig. 5.

The most remarkable feature of the leatherback is its so-called "soft shell". All other sea turtles have bony hard plates for their carapace. The leatherback's carapace is slightly flexible and has a rubbery texture. The carapace consists of numerous small, polygonal, and mosaic bones, which are called dermal ossicles and which are buried into the epithelial layer of skin (as shown in Fig. 6).

The dissection work was initiated by making a cut through the skin of the neck, then extending the cut laterally. After removing the plastron, hundreds of eggs were seen. The eggs almost occupied the entire abdominal cavity (Fig. 7). The average diameter of the eggs was about 4 cm. The presence of eggs therefore confirmed that this leatherback sea turtle was female. Additionally, this female leatherback sea turtle appeared to be sexually mature with developed eggs, and it seemed to have been nearly ready to lay the eggs.

Skull and mandible

Skulls of the leatherback sea turtle are easily discriminated from those of any other species. The skull is remarkably wide and rounded anteriorly with large orbits. The greatest recorded length of the leatherback sea turtle skull is 291 mm with 207 mm in greatest breadth. There are pointed cusps on the anterior maxillary bones. However, there are no parietal notches on the skull. The margins of the jaws are sharp and possess notches. The lower jaw comes to a

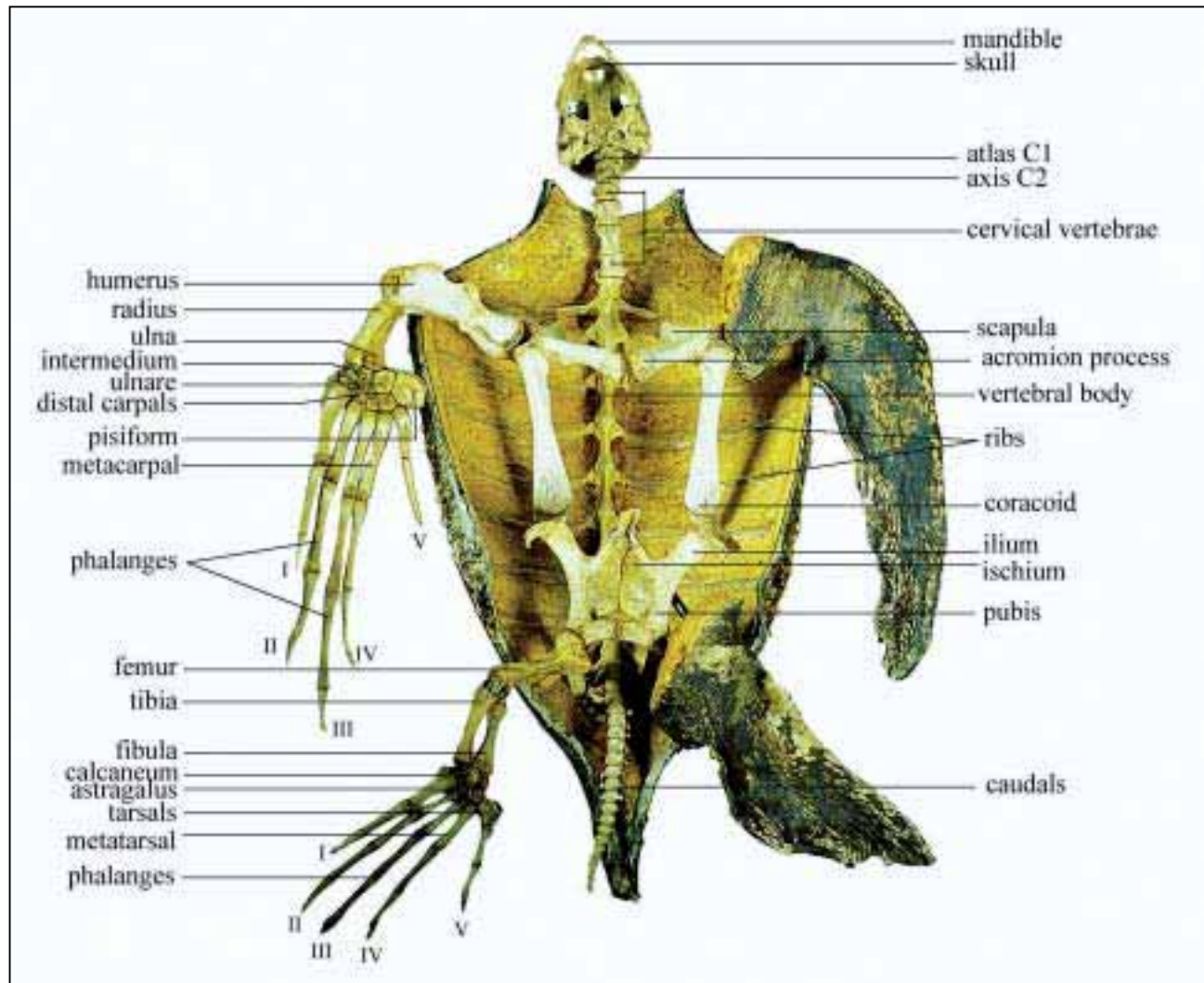


Fig. 5. The skeleton of the leatherback sea turtle, *Dermochelys coriacea*, NMNS003619-003772.



Fig. 6. Numerous dermal ossicles residing deep to the skin in the carapace of the leatherback sea turtle, *Dermochelys coriacea*.

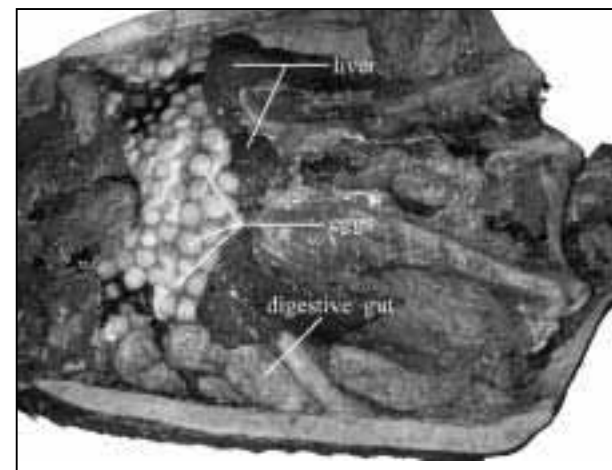


Fig. 7. A large number of eggs visible in the abdominal cavity.

dorsally directed point at the mandibular symphysis. The lower jaw has a cartilaginous portion medial to the dentary. There is no secondary palate, and there are loose articulations

of the bones. The actual preparation of the skull and mandible are shown in Fig. 8A, Fig. 8B and Fig 8C. Measurements of skull and mandible are given in Table 2a and Table 2b.

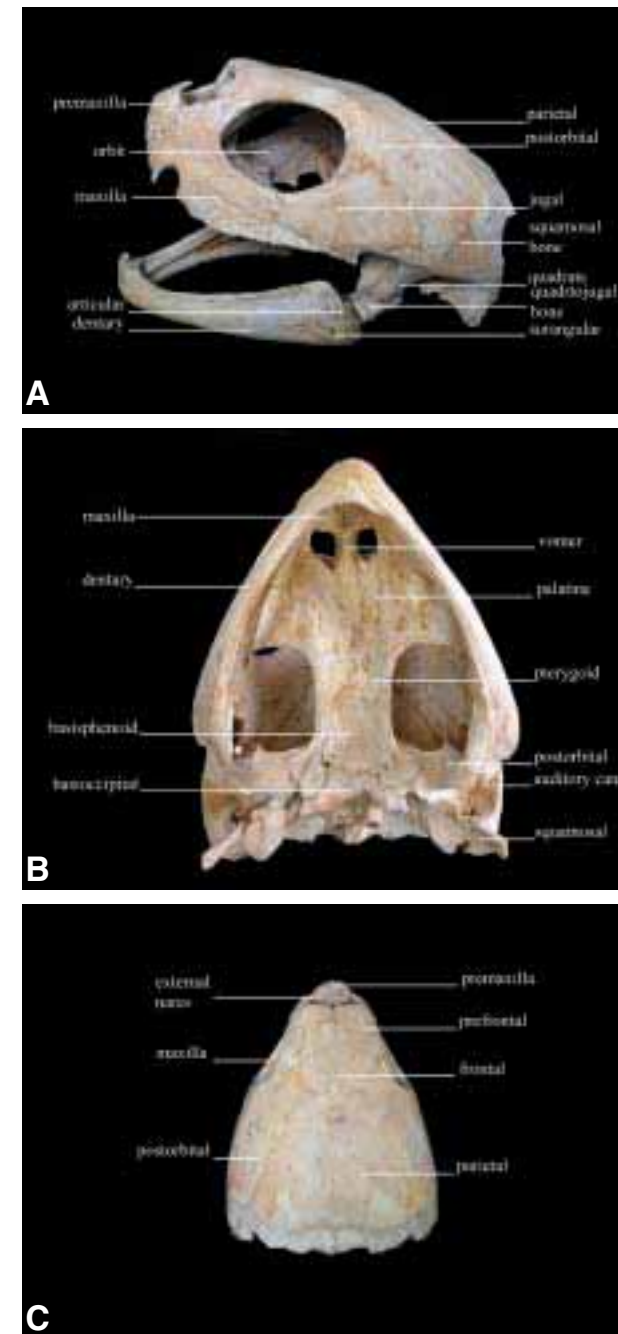


Fig. 8. The skull and mandible of the leatherback sea turtle, *Dermochelys coriacea*. A. Lateral view; B. ventral view; C. dorsal view.

Postcranial skeleton

The postcranial skeleton is divided into two main parts: the axial and appendicular skeletons (Fig. 5). The axial skeleton is composed of the carapace, vertebrae, and ribs. The appendicular skeleton includes the flippers, hind limbs, and their supporting structures (pelvic girdles).

Like all sea turtles, the leatherback sea turtle has seven mobile cervical vertebrae and ten thoracic vertebrae. There are three sacral vertebrae and 18 caudal vertebrae. Measurements of

vertebrae are given in Table 3. Each thoracic vertebra articulates with a pair of ribs. Each rib head is aligned with the junction of two vertebral bodies. Fusion of the vertebrae and ribs with the dermal bone results in unique carapacial bones. Measurements of both right and left ribs are given in Table 4.

The articulated forelimb of the leatherback sea turtle can show some extensive cartilage at the bone ends and extreme elongation of the phalanges. The large humerus has an almost primitive form with its flattened profile and extended medial process. The head and distal articulations to the radius and ulna are largely cartilaginous. The articulated hind limb also shows extensive cartilage among bones. The hind foot is wide and the phalanges somewhat elongated. The femur is the bony element of the thigh; the tibia and fibula are bony elements of the shank. The ends of these bones are cartilaginous. The ankle is somewhat flattened and laterally expanded, resulting in wide placement of the phalanges. Measurements of the appendicular skeleton are given in Table 5.

The pelvis of the leatherback sea turtle is composed of three pairs of bones: the pubis, ischium, and ilium. They are separate bones joined by cartilage in hatchlings, but they quickly ossify and fuse to form a single structure in older turtles. However, the pelvic bones of this mature leatherback sea turtle remained connected by cartilage.

DISCUSSION

The leatherback sea turtle, *Dermochelys coriacea*, is widespread around seas of the world. Leatherback sea turtles inhabit warmer seas, especially tropical seas. The nesting activity occurs almost exclusively on tropical beaches (Spotila *et al.*, 1996). Dutton *et al.* (1999) reported ten nesting population locations in the Atlantic, Indo-Pacific, and East Pacific Oceans. Those locations are concentrated on tropical beaches. There are two Asian-Pacific nesting locations: the Solomon Islands and Terengganu, Malaysia. Leatherback sea turtles are capable of extensive migration between tropical nesting habitats and cold-temperate feeding habitats (Eckert, 1987). A broad oceanic distribution and strong migratory capacity of marine creatures have been associated with catching prey and escaping predation. According to our observations, no obvious wound

appeared on this stranded leatherback sea turtle. It seems unlikely that the leatherback sea turtle was being pursued by a predator such as a shark when it reached the spot where it was found. In addition, the leatherback sea turtle is well known for roaming the open sea, feeding on jellyfish and other drifting sea creatures. Considering all these reasons together, we inferred that this leatherback sea turtle reached the Taiwanese coast (a subtropical beach), for the purpose of feeding instead of searching for nesting habitat or escaping from natural enemies. However, the factors which caused the leatherback sea turtle to be stranded and to die remain for further investigation.

Leatherback sea turtles are giant reptiles. They are the largest sea turtles, with an upper shell length reaching 2.5 m. The heaviest on record weighed 916 kg. The life expectancy of leatherbacks is not known, but the first breeding is thought to occur at between 10 and 15 years old (Pritchard, 1980). The specimen we obtained was a sexually mature female with hundreds of eggs in her abdominal cavity. Although the external body was about 2 m in length, 0.8 m in width, and 300 kg in weight, which are far smaller than those of the greatest record, the average size of the eggs was 4 mm in diameter. According to Eckert (1990), the nesting egg's size of the female leatherback sea turtle is from 4.5 to 5.8 mm. Therefore, we believe that these eggs with a size of 4 mm were nearly mature and ready for laying. In addition, we noticed that there was extensive cartilage at the bone ends and articulations from the prepared skeleton. These observations indicate that a potential for elongation of the bones existed in this leatherback sea turtle had it survived and continued growing. Based on the information obtained from the evidence, we concluded that this turtle was a young female, ready to give birth to the next generation. Her age would have been approximately 15 years old or younger.

The leatherback sea turtle has survived for 100 million years, but is now facing extinction. Recent estimates of numbers show that this species is declining and is comprised of only a few thousands of individuals (Spotila *et al.*, 2000). The shell of the leatherback sea turtle has no scutes or other cornified structures. It has ossified scales in its epithelial shell that form a mosaic of thousands of small polygonal bones. The evolution of the family of the leatherback has been accompanied by an increase in adult body size and development of epithelial ossifications. Thus, the

presence of epithelial ossification in the shell is the main character distinguishing the leatherback sea turtle from other turtles. The epithelial mosaic layer of osteodermis in the dorsal shield may be related to the great body size and strong migration ability compared to other sea turtles.

In Taiwan, Chen (1986) has addressed that the leatherback sea turtle could be found mainly in the seacoast of Eastern Taiwan. Cheng (1997) has also reported that the sea leatherback turtle would possibly appear the water around Taiwan. However, prior to this case, the leatherback sea turtles had only been recorded as two sightings in the seas near Taiwan. Local news documented a leatherback caught by fishermen near the Taitung coast in 1998, but it was killed soon afterwards. Unfortunately, nothing was kept of the specimen. Another record was obtained from the coast of the Penghu Archipelago on May 7, 2000. In that instance, a leatherback sea turtle of 174 kg and 1.23 m was caught by mistake by a fishing boat. Fortunately, the leatherback was successfully re-floated back to the ocean. Recently, another stranded leatherback sea turtle was found near Taichung on the west coast on December 13, 2002. The specimen was kept in a private aquarium in Taichung County. Although leatherback sea turtles have been found to reach several localities of the coast of Taiwan during different seasons, very little research has been carried on this giant turtle. One main reason for the lack of previous research on the leatherback sea turtle may have been due to concentration of interest in the famous species of green turtle (*Chelonia mydas*) for which there is abundant and extensive literature (Chen and Cheng, 1995; Cheng and Chen, 1997; Wang and Cheng, 1999; Cheng, 2000). We are pleased that we could contribute the first formal record of the leatherback sea turtle in Taiwan with a detailed character description and morphological measurements. We strongly recommend a permanent research program be established involving the study of the leatherback sea turtle's migration routes, feeding, nesting, and pathological investigations. This program will allow us to understand this precious creature and to protect this endangered turtle.

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Table 1. External measurements of *Dermochelys coriacea* (in mm)

1.	Maximum straight carapace length ^a	1,521
2.	Minimum straight carapace length ^b	1,439
3.	Curved carapace length	1,575
4.	Straight carapace width	765
5.	Curved carapace width	1,020
6.	Head width	208
7.	Head length	263
8.	Body depth	490
9.	Circumference	1,850
10.	Straight plastron length	902
11.	Curved plastron length	990
12.	Total tail length (TTL ^c)	280
13.	Post cloacal tail length (PTL ^d)	130
14.	Foreflipper length I (left, insertion to tip)	913
15.	Foreflipper length II (left, axilla to tip)	688
16.	Maximum width of foreflipper	259
17.	Hindflipper length I (left, insertion to tip)	598
18.	Hindflipper length II (left, axilla to tip)	548
19.	Maximum width of hindflipper	275

^a From the anterior edge of the carapace to the posterior tip of the supracaudals.^b From the anterior point at midline (nuchal scute) to the posterior notch at the posterior tip of the supracaudals.^c TTL, from the midline of the posterior margin of the plastron to the end of the tail.^d PTL, from the mid-cloacal opening to the end of the tail.Table 2a. Measurements of skull of *Dermochelys coriacea* (in mm)

1.	Greatest length	291
2.	Greatest breadth	207
3.	Condylbasal length	237
4.	Greatest breadth across the processus postfrontales	157
5.	Smallest breadth between the orbits on the dorsal side	105
6.	Greatest height in the median plane	156
7.	Lateral neurocranium length	124
8.	Shortest lateral facial length	61
9.	Palatal length	145
10.	Lateral length of the premaxilla (right)	44
11.	Greatest inner length of the orbit (right)	78
12.	Greatest inner height of the orbit	62
13.	Greatest breadth of the occipital condyles	37
14.	Greatest breadth of the foramen magnum	21
15.	Greatest breadth of the premaxilla	48
16.	Greatest palatal breadth	110
17.	Height of the horizontal part of the maxilla	28

Table 2b. Measurements of mandible of *Dermochelys coriacea* (in mm)

Mandible (right side)		
1.	Greatest length	173
2.	Length from the articular surface to the apex	164
3.	Length of the symphysis	21
4.	Breath of the two halves between the ariculars	185

Table 3. Measurements of vertebrae of *Dermochelys coriacea* (in mm)

Vertebra	No.	GL ^a	GB ^b	H ^c	PL ^d	BF ^e	HF ^f
cervical	1	15	67	57	27	41	31
	2	37	56	66	36	34	37
	3	45	56	68	45	35	39
	4	46	64	78	55	34	42
	5	52	64	76	50	42	45
	6	59	62	78	55	36	43
	7	56	54	89	48	40	37
thoracic	1	96	103	64	44	39	42
	2	119	111	55	69	40	49
	3	—	88	42	99	25	55
	4	—	85	42	103	22	56
	5	—	82	37	101	20	61
	6	—	71	45	101	22	58
	7	—	64	43	96	22	52
	8	—	60	41	84	22	42
	9	—	55	40	69	22	39
	10	—	57	39	39	55	27
sacral	1	59	55	34	29	25	27
	2	47	48	31	34	22	22
	3	62	39	34	35	21	23
caudal	1	51	55	64	29	24	26
	2	45	57	31	33	19	25
	3	45	52	32	31	20	31
	4	47	42	29	27	19	25
	5	45	39	32	26	20	25
	6	39	40	46	21	18	22
	7	37	35	45	25	15	18
	8	30	34	41	21	15	17
	9	29	32	28	21	14	15
	10	27	31	25	19	17	14
	11	24	30	24	17	13	14
	12	21	28	23	17	15	13
	13	19	27	20	17	11	12
	14	19	23	16	15	12	12
	15	25	17	13	12	11	11
	16	21	15	11	8	11	10
	17	16	14	10	7	9	9
	18	26	13	9	14	9	9

^a Greatest length on the ventral side; ^b greatest breadth across the wings; ^c height; ^d physiological length of the body of the vertebrae; ^e breath of the facies terminalis cranialis; ^f height of the facies terminalis cranialis.

Table 4. Measurements of ribs of *Dermochelys coriacea* (in mm)

Rib no.	A		B		C	
	L.	R.	L.	R.	L.	R.
1	110	110	13	15	104	109
2	425	425	27	32	369	338
3	460	440	37	37	400	339
4	430	420	33	32	385	327
5	400	405	28	39	381	300
6	370	380	28	36	341	280
7	365	320	25	33	313	269
8	290	310	30	30	203	260
9	245	255	21	25	198	227
10	45	40	13	13	46	42
11	40	40	15	14	31	53

A, Arch length; B, width at middle; C, distance between proximal and distal ends; L, left; R, right.

Table 5. Measurements of postcranial skeleton of *Dermochelys coriacea* (in mm)

	A		B		C	
	L.	R.	L.	R.	L.	R.
1 Scapula	251	244	47	50	80	77
2 Proscapular process	176	174	58	58	59	64
3 Coracoid	340	339	85	88	76	79
4 Humerus	—	305	—	133	—	142
5 Ulna	—	121	—	39	—	66
6 Radius	—	132	—	44	—	47
7 Carpals	—	84	—	154	—	121
8 Metacarpal I	—	99	—	30	—	15
9 Metacarpal II	—	177	—	28	—	24
10 Metacarpal III	—	167	—	31	—	26
11 Metacarpal IV	—	155	—	33	—	31
12 Metacarpal V	—	157	—	54	—	32
13 Pelvis	—	368	—	313	—	157
14 Femur	—	193	—	87	—	90
15 Tibia	—	152	—	57	—	37
16 Fibula	—	126	—	38	—	43
17 Tarsals	—	49	—	39	—	42
18 Metatarsal I	—	89	—	49	—	22
19 Metatarsal II	—	76	—	24	—	19
20 Metatarsal III	—	85	—	21	—	19
21 Metatarsal IV	—	88	—	21	—	19
22 Metatarsal V	—	63	—	19	—	16

A, Greatest length; B, proximal width; C, distal width; L, left; R, right.

臺灣東部海岸革龜之最新記錄

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本文記錄於2001年5月17日發現於臺灣東部宜蘭海岸之革龜。革龜屬於現生海龜中體型最為龐大的種屬，在臺灣周圍海域並不常見。本文描述該革龜標本之型態與骨骼之特徵，並詳細記錄各項型態測量資料。該革龜為雌性年輕個體，腹腔內含有上百顆成熟龜卵，推測正值準備產卵階段。由於革龜上岸產卵地區多集中在熱帶海域，因此本標本可能因為追逐獵物而抵達臺灣附近海域。該革龜並無明顯的外傷，死亡原因有待進一步研究。

關鍵詞：*Dermochelys coriacea*，革龜，臺灣。