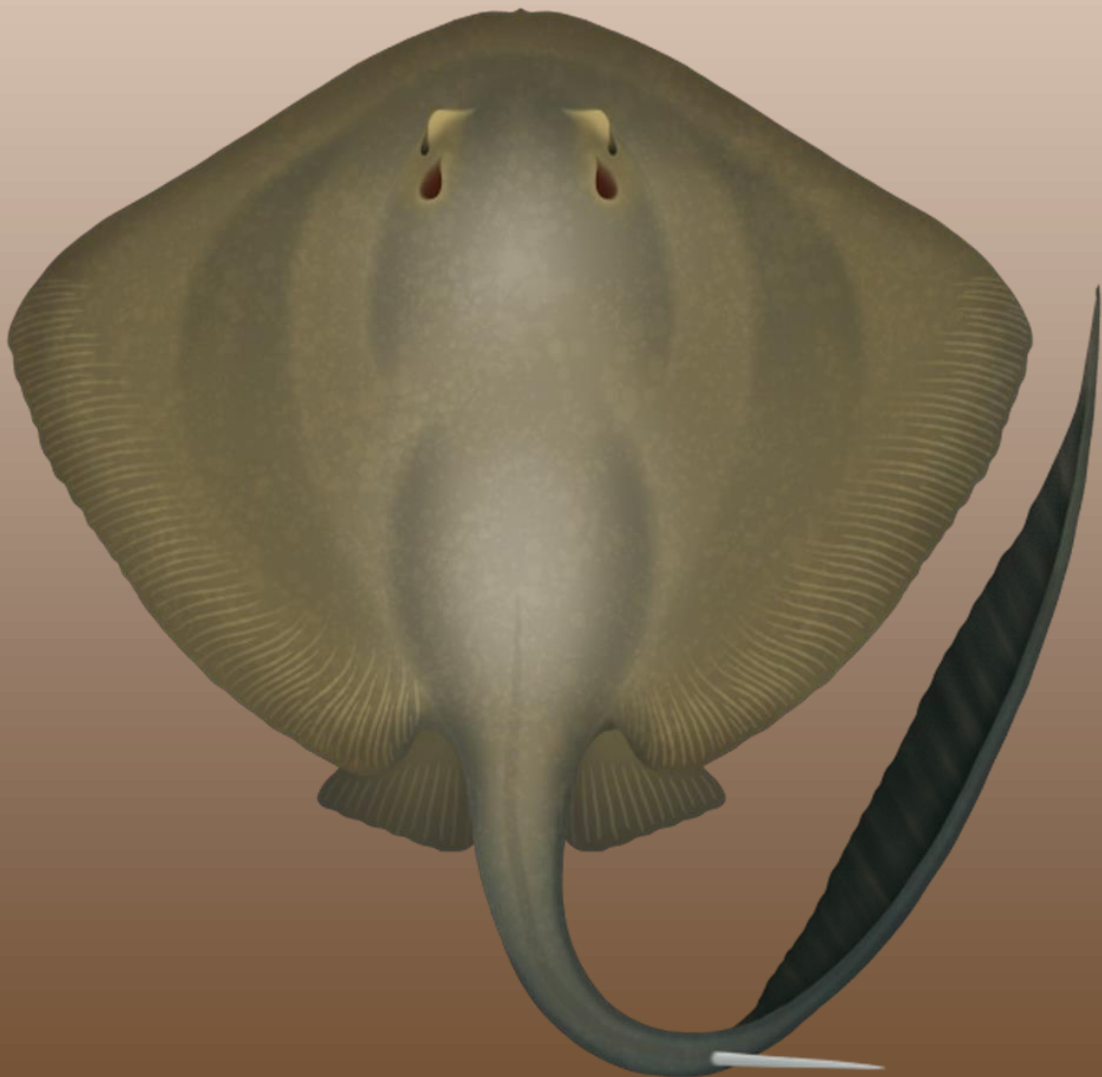


Shagreen

A guide to shagreen, its origin, use and historical context concerning British swords



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The shagreen used for British sword grips

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Introduction

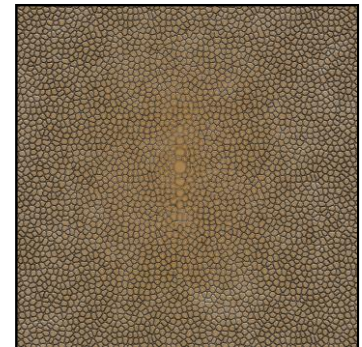
There is frequent debate within the sword collecting and research community about the origin and preparation of the shagreen used to cover the grips of many British regulation swords. This is particularly relevant to sword conservationists who may wish to refurbish or recondition swords and desire to use materials and techniques as authentic to their original construction as possible.

This short guide aims to capture and disseminate the modest research which has been conducted to answer these questions, and to act as a reference for when the subject is inevitably raised again.

What is shagreen?

Unfortunately, the term shagreen has been used with some liberty over time and can refer to a variety of products. It can be defined as an untanned leather, often dyed green; originally made from horse, ass or even seal skin, today mostly made from the skin of a shark or ray.

The name is believed to have originated from the Turkish word *sağrı* referring to the croup (the top rump of a horse or similar animal, from which the original shagreen was manufactured), via the French word *chagrin*, to the English term of *shagreen*. The word *shagreen* (*shaggerine*), relating to fish-skin traces back to at least 1660 in England.



Why use shagreen for sword grips?

Shagreen is a naturally rough-surfaced material which is hard wearing and offers a firm and positive grip within the hand, even in wet conditions. Due to the natural patternation, it has an attractive appearance and is an almost ideal material for covering sword grips. It is believed to be the Japanese, in the 13th Century who first used shagreen for sword grips. British shagreen-covered sword grips were likely first used in the mid-17th Century.



Which species of fish are used for British swords?

It is clear from the observation of surviving swords that more than one type of fish-skin was used to make the shagreen found on British swords. In general, there is the fine-grained, usually black or grey shagreen used predominantly (but not exclusively) for swords of the British army, customs and police forces; and a coarser-grained, usually white shagreen used predominantly (but not exclusively) for Royal Navy swords. This white, coarse-grained shagreen is called *Galuchat* in the French language.



The secrecy surrounding shagreen fish species is highlighted by the following line from the New Family Encyclopaedia of 1833: *The skin of some of the species of shark or dog-fish, being very rough, was formerly sold as shagreen, but its prominences have not the roundness of those of shagreen [made from horse skin], and it has long been known by its proper name of fish-skin. The skins of which shagreen is made are not exactly known in this country.*

In 1852, Frazer's Magazine attempted to identify the species of fish used for the manufacture of shagreen, as it was perceived that merchants were deliberately keeping the source secret for their commercial advantage. The magazine concluded that the source was likely to be from the Sephin Ray (likely the cowtail stingray [*Pastinachus sephen*]), from the Red Sea. Presumably this is the ray skin used predominantly for Royal Navy swords. *P. sephen* can be found both within the Red Sea and Japanese waters.

At a meeting of the Dublin Microscopical Club, on 8th April 1897, Mr. W.F. Sinclair exhibited two specimens of shagreen covered sword grips from British swords. The fine-grain, grey shagreen was determined to have originated from the gulper shark [*Centrophorus granulosus*], which is a long and slender dogfish usually about three feet in length generally found in deep, murky waters such as off the coast of Madeira. The coarse-grained white variety of shagreen was determined to have originated from the cowtail stingray [*Pastinachus sephen*], which is a species of stingray found widespread in the Indo-Pacific region.

From an interview with Mike Templar, buyer for Wilkinson Sword Ltd. In 1986, he was specific that only skins from the kitefin shark [*Dalatias licha*], a species of squaliform shark found close to the sea floor especially in Indonesia and Japan, were used for covering the grips of military (army) swords. Japan, as a source for fish skins for Wilkinson is confirmed in an 1887 article (Pall Mall Budget) concerning their manufacture of swords, and again in 1896 (Pearson's magazine) as 'the skin of a Japanese fish'.

Another species of fish often referred to in the production of shagreen is the small-spotted catfish [*Scyliorhinus canicula*], which is a dog-fish found frequently in the waters of the British Isles; however, the shagreen made from this species is universally mentioned in the production of a polishing paper, or emery-paper used for dressing wood and metal, and never in association with sword grips.

Preparation of shagreen

Skinning & fleshing

The United States Fisheries Review of 1939 describes the process of processing shark-skin as follows:

Upon landing, the sharks are piled on the dock and are thoroughly washed with sea water. Skinning follows quickly thereafter. The fins are removed by simple sweeps of the knife, the tail or caudal fin being removed at the root or base knob. As the tail of the shark has no commercial value, it is not included in the measure of the hide when computing its value. The hide is then split along the back through the holes left by the removal of the fins. Contrary to the method of skinning most animals, the incision is made along the back and the belly is left untouched. The nose is cut off a short distance from the tip, thus making the length of measure as from the nose cut to the caudal cut. The skinner or 'flayer' does not attempt to thoroughly remove the meat in the skinning process as this will be done by the flesher when he cleans the hide. During all operations the hide is kept well soaked with sea water to prevent hardening or drying.

Fleshing is probably the most crucial step in the entire preparation of the hide, for it is here that a false move of the sharp fleshing or 'beaming' knife would completely ruin the hide. As each knife wound diminishes the market value of the hide, a skilful flesher is a valuable employee. In the fleshing process the hide is draped over a curved board of about six feet in length with the flesh side uppermost. The fleshing knife in appearance is similar to a carpenter's draw-knife but in operation is pushed away from, rather than drawn toward', the operator. A skilful flesher can in five minutes completely remove all the meat adhering to the hide as well as trim it to its finished form.



After fleshing, the hides are thoroughly washed in sea water and made ready for curing. As they are stacked, flesh side up, a moderate quantity of salt is placed on each one. For this purpose mineral salt is preferable to sea-water salt. After a period of from four to five days the hides are considered sufficiently well cured for shipment to the market. Under no circumstances are they permitted to remain in the salt for a period longer than six days as mould or 'sour' spots will appear. Shipment is usually made in open barrels covered with a damp burlap sack to keep out sunlight.

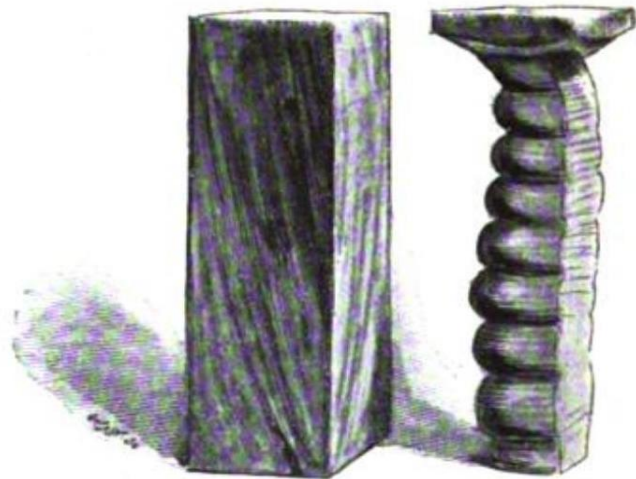
In their *Commercial Products of the Sea* (Griffith and Farran, 1879), it specifies that shagreen made from ray skin [*Pastinachus sephen*] is cut from the back of the animal.

Fitting

Fitting of the shagreen onto the grip is described in 'The Birmingham Sword' from 1875:

The making of the grips is also a very interesting bit of work. These are the handles by which the sword is gripped, hence the name. A grip at first is a bit of walnut, oblong in shape, but narrower at the end than the top. The back, which is made of metal, is placed on it, and the wood is worked into the required shape by files. A large number of different shapes, sizes, and cutting powers are used in this work. When the top has been cut, the grip shaped, and the tenon for the ferrule made, it is then 'balled.' For this purpose it is fastened in a vice, a three-sided file cuts a deep indentation at regular intervals, each division is rounded or balled by a file, and the indentations connected by slanting interstices cut by a hand-saw.

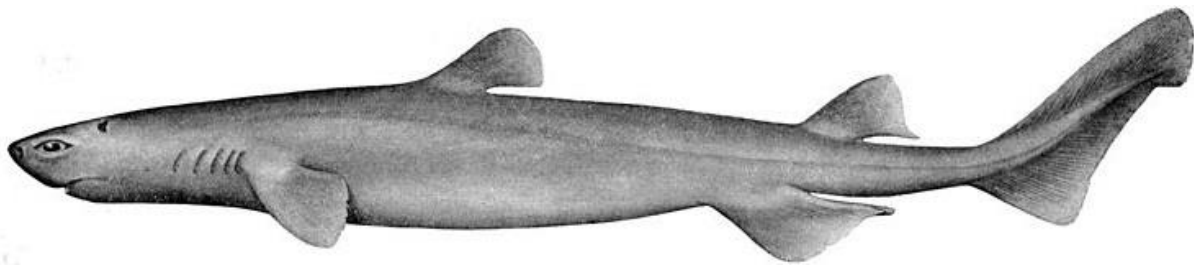
The grip is then drilled through in a lathe, for the purpose of receiving the tang. When this has been done, a piece of the skin of a dog-fish [Shark], which has been a long time soaked in water, is cut off. Every bit of flesh on the inside of the skin is then carefully removed, and a piece of pure skin is left. This is put round the grip, a piece of string or wire is fixed by a loop to a piece of steel fastened in the vice, and the workman binds the skin tightly round the grip by winding the string or wire round the space between each ball. It is then filed and the back fitted on again. In making a grip it passes through the workman's hands no fewer than thirteen times.



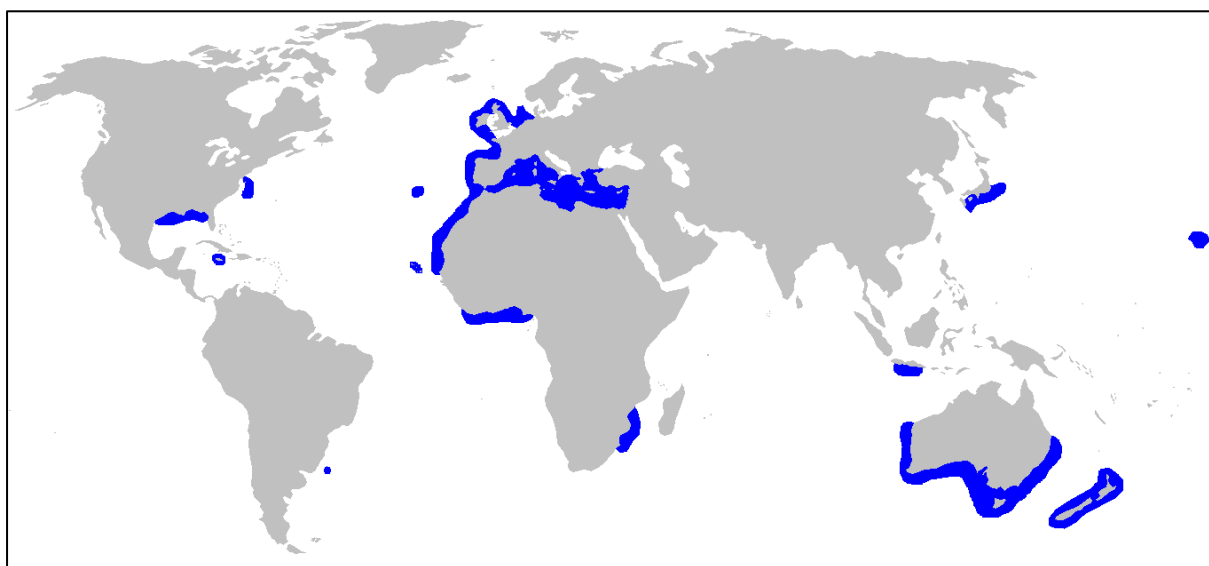
Species appendix

The fine-grain, black or grey shagreen was most likely sourced from the kitefin shark [*Dalatias licha*], or for earlier swords, possibly the gulper shark [*Centrophorus granulosus*].

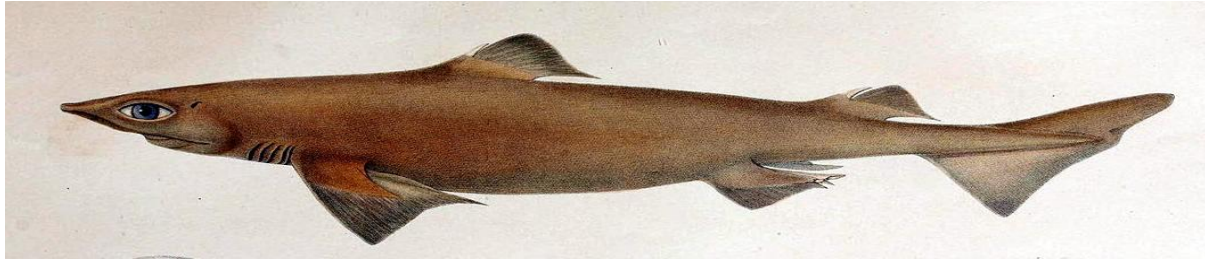
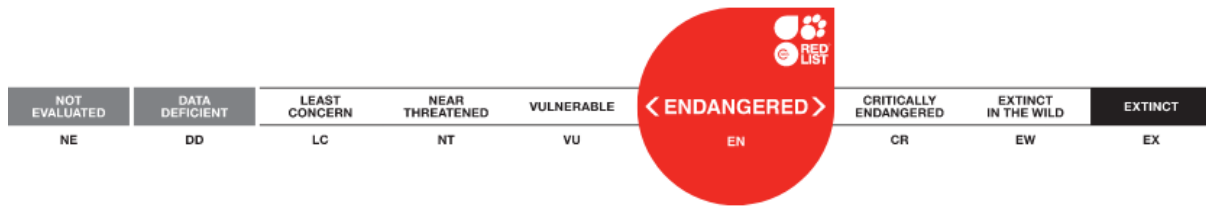
Kitefin shark [*Dalatias licha*]



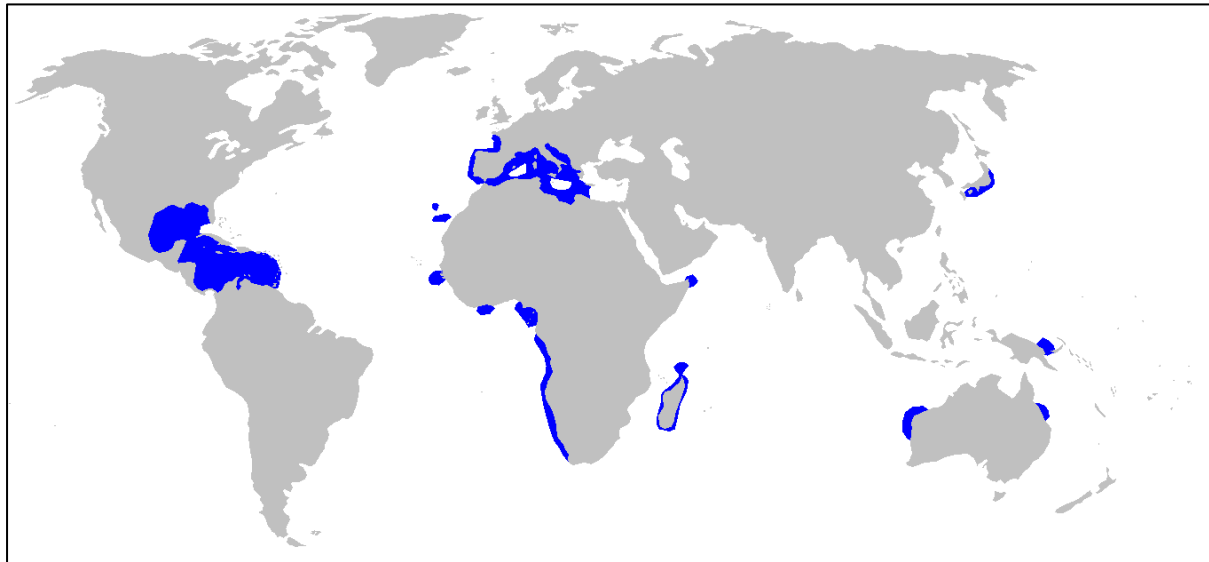
The **kitefin shark** or **seal shark** (*Dalatias licha*) is a species of squaliform shark in the family Dalatiidae, and the type species in its genus. It is found sporadically around the world, usually close to the sea floor at depths of 200–600 m (660–1,970 ft). With a sizable oil-filled liver to maintain neutral buoyancy, this shark is able to cruise slowly through the water while expending little energy. The kitefin shark, the largest luminous vertebrate on record,[3] has a slender body with a very short, blunt snout, large eyes, and thick lips. Its teeth are highly differentiated between the upper and lower jaws, with the upper teeth small and narrow and the lower teeth large, triangular, and serrated. Its typical length is 1.0–1.4 m (3.3–4.6 ft), though examples as long as 5.9 ft (180 cm) have been encountered.



Gulper shark [*Centrophorus granulosus*]

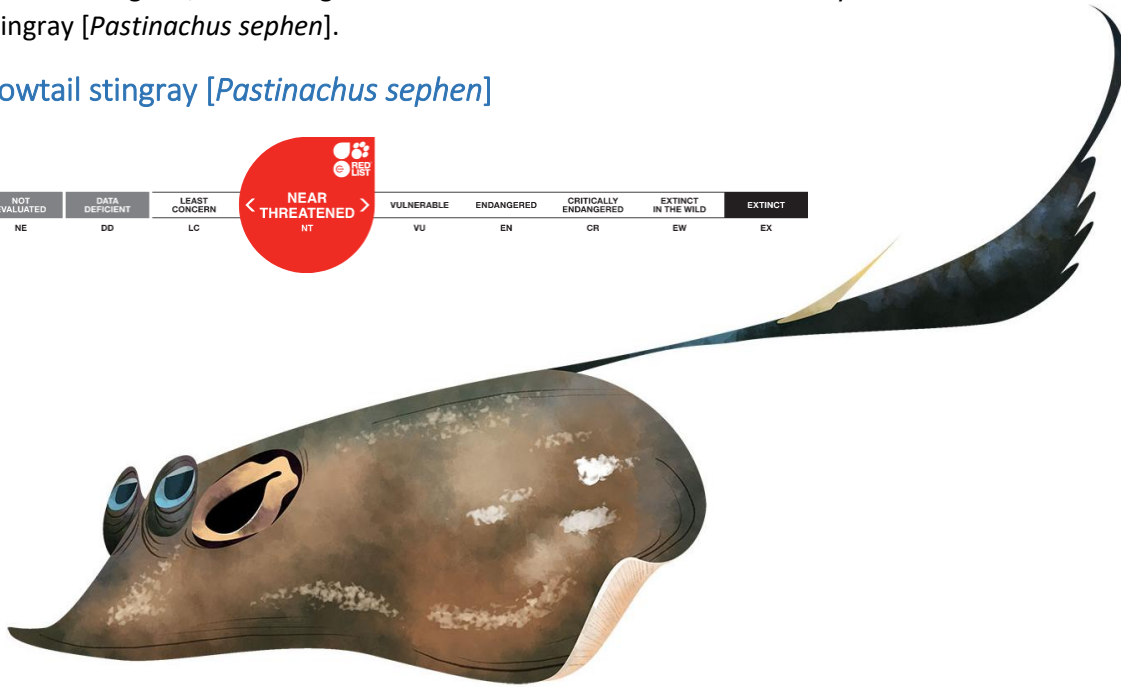
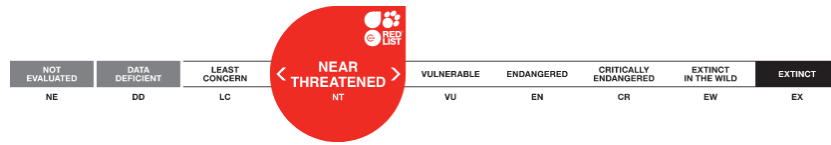


The **gulper shark** (*Centrophorus granulosus*) is a long and slender dogfish usually about three feet in length generally found in deep, murky waters all around the world. It is a light greyish brown, paler ventrally, with a long snout and large greenish eyes. This deep water shark has two dorsal fins with long, grooved spines and the second dorsal fin smaller than the first. Its upper teeth are blade-like and lower have finely serrated edges. This tertiary consumer feeds on mainly fish such as bony fish, but also cephalopods such as squid and other invertebrates like crustaceans. The gulper shark is currently an endangered species mainly because of exploitation by humans and their abnormally long gestation period and low fecundity, preventing their population from recovering.



The coarser-grain, white shagreen used for naval swords was most likely sourced from the cowtail stingray [*Pastinachus sephen*].

Cowtail stingray [*Pastinachus sephen*]



The **cowtail stingray** (*Pastinachus sephen*) is a species of stingray in the family Dasyatidae, widespread in the Indo-Pacific region and occasionally entering freshwater habitats. Other common names include banana-tail ray, drab stingray, fantail ray, feathertail stingray, and frill tailed sting ray. This species is sometimes placed in the genus *Dasyatis* or *Hypolophus* (an obsolete synonym of *Pastinachus*). The most distinctive characteristic of the cowtail stingray is the large, flag-like ventral fold on its tail, which is especially prominent when the ray is swimming. This species is targeted by commercial fisheries as a source of high-quality shagreen, a type of rawhide, and its populations are now under threat from heavy exploitation.

