

= Greater crested tern =

The greater crested tern (*Thalasseus bergii*), also called crested tern or swift tern , is a seabird in the tern family that nests in dense colonies on coastlines and islands in the tropical and subtropical Old World . Its five subspecies breed in the area from South Africa around the Indian Ocean to the central Pacific and Australia , all populations dispersing widely from the breeding range after nesting . This large tern is closely related to the royal and lesser crested terns , but can be distinguished by its size and bill colour .

The greater crested tern has grey upperparts , white underparts , a yellow bill , and a shaggy black crest that recedes in winter . Its young have a distinctive appearance , with strongly patterned grey , brown and white plumage , and rely on their parents for food for several months after they have fledged . Like all members of the genus *Thalasseus* , the greater crested tern feeds by plunge diving for fish , usually in marine environments ; the male offers fish to the female as part of the courtship ritual .

This is an adaptable species that has learned to follow fishing boats for jettisoned bycatch , and to use unusual nest sites such as the roofs of buildings and artificial islands in salt pans and sewage works . Its eggs and young are taken by gulls and ibises , and human activities such as fishing , shooting and egg harvesting have caused local population declines . There are no global conservation concerns for this bird , which has a stable total population of more than 500 @, @ 000 individuals .

= = Taxonomy = =

The terns , family *Sternidae* , are small to medium @-@ sized seabirds closely related to the gulls , skimmers and skuas . They are gull @-@ like in appearance , but typically have a lighter build , long pointed wings (which give them a fast , buoyant flight) , a deeply forked tail and short legs . Most species are grey above and white below , and have a black cap that is reduced or flecked with white in the winter .

The greater crested tern was originally described as *Sterna bergii* by German naturalist Martin Lichtenstein in 1823 , but was moved to its current genus , *Thalasseus* , after mitochondrial DNA studies confirmed that the three main head patterns shown by terns (no black cap , black cap , black cap with a white forehead) corresponded to distinct clades .

The greater crested tern 's closest relatives within its genus appear to be the lesser crested tern (*T. bengalensis*) , and the royal tern (*T. maximus*) . The DNA study did not include the critically endangered Chinese crested tern (*T. bernsteini*) but , as that bird was formerly considered to be conspecific with the greater crested tern as a synonym of the subspecies *T. b. cristatus* , it is presumably also very closely related .

The generic name of the greater crested tern is derived from Greek *Thalassa* , " sea " , and the species epithet *bergii* commemorates Carl Heinrich Bergius , a Prussian pharmacist and botanist who collected the first specimens of this tern near Cape Town .

The greater crested tern has about five geographical races , differing mainly in the colour of the upperparts and bill . These are listed below in taxonomic sequence . A similar number of other potential subspecies have been proposed , but are not considered valid .

= = Description = =

The greater crested tern is a large tern with a long (5 @. @ 4 ? 6 @. @ 5 cm or 2 @. @ 1 ? 2 @. @ 6 in) yellow bill , black legs , and a glossy black crest that is noticeably shaggy at its rear . The breeding adult of the nominate subspecies *T. b. bergii* is 46 ? 49 cm (18 ? 19 @. @ 5 in) long , with a 125 ? 130 cm (49 ? 51 in) wing @-@ span ; this subspecies weighs 325 ? 397 g (11 @. @ 4 ? 14 @. @ 0 oz) . The forehead and the underparts are white , the back and inner wings are dusky @-@ grey . In winter , the upperparts plumage wears to a paler grey , and the crown of the head becomes white , merging at the rear into a peppered black crest and mask .

The adults of both sexes are identical in appearance , but juvenile birds are distinctive , with a head pattern like the winter adult , and upperparts strongly patterned in grey , brown , and white ; the closed wings appear to have dark bars . After moulting , the young terns resemble the adult , but still have a variegated wing pattern with a dark bar on the inner flight feathers .

The northern subspecies *T. b. velox* and *T. b. thalassina* are in breeding plumage from May to September or October , whereas the relevant period for the two southern African races is from December to April . For *T. b. cristata* , the moult timing depends on location ; birds from Australia and Oceania are in breeding plumage from September to about April , but those in Thailand , China and Sulawesi have this appearance from February to June or July .

The royal tern is similar in size to this species , but has a heavier build , broader wings , a paler back and a blunter , more orange bill . The greater crested often associates with the lesser crested tern , but is 25 % larger than the latter , with a proportionately longer bill , longer and heavier head , and bulkier body . Lesser crested tern has an orange @-@ tinted bill , and in immature plumage it is much less variegated than greater crested .

The greater crested tern is highly vocal , especially at its breeding grounds . The territorial advertising call is a loud , raucous , crow @-@ like kerrak . Other calls include a korrrorkorr given at the nest by anxious or excited birds , and a hard wep wep in flight .

= = Distribution and habitat = =

The greater crested tern occurs in tropical and warm temperate coastal parts of the Old World from South Africa around the Indian Ocean to the Pacific and Australia . The subspecies *T. b. bergii* and *T. b. enigma* breed in Southern Africa from Namibia to Tanzania , and possibly on islands around Madagascar . There is then a break in the breeding distribution of this species until Somalia and the Red Sea , and another discontinuity further east in southern India .

The greater crested tern breeds on many islands in the Indian Ocean including Aldabra and Etoile in the Seychelles , the Chagos Archipelago , and Rodrigues . There are colonies on numerous Pacific islands , including Kiribati , Fiji , Tonga , the Society Islands and the Tuamotus .

The nests are located on low ? lying sandy , rocky , or coral islands , sometimes amongst stunted shrubs , often without any shelter at all . When not breeding , the greater crested tern will roost or rest on open shores , less often on boats , pilings , harbour buildings and raised salt mounds in lagoons . It is rarely seen on tidal creeks or inland waters .

All populations of greater crested tern disperse after breeding . When Southern African birds leave colonies in Namibia and Western Cape Province , most adults move east to the Indian Ocean coastline of South Africa . Many young birds also travel east , sometimes more than 2 @,@ 000 km (1 @,@ 200 mi) , but others move northwards along the western coast . *T. b. thalassina* winters on the east African coast north to Kenya and Somalia and may move as far south as Durban . Populations of *T. b. velox* breeding from the Persian Gulf eastwards appear to be sedentary or dispersive rather than truly migratory , but those breeding in the Red Sea winter south along the east African coast to Kenya . *T. b. cristata* mostly stays within 400 km (250 mi) of its colonies , but some birds wander up to around 1 @,@ 000 km (620 mi) . This species has occurred as a vagrant to Hawaii , New Zealand , North Korea , Jordan , and Israel .

= = Behaviour = =

= = Breeding = =

The greater crested tern breeds in colonies , often in association with other seabirds . It is monogamous and the pair bond is maintained through the year and sometimes in consecutive breeding seasons . The colony size is related to the abundance of pelagic fish prey , and the largest documented colony , with 13 @,@ 000 to 15 @,@ 000 pairs , is in the Gulf of Carpentaria in northern Australia , a region which also supports major colonies of other seabirds . Since nesting in

this area follows the summer monsoonal flooding , it is presumably a response to fish stocks rising , probably due to river run @-@ off providing extra nutrient to the Gulf . This tern does not show site fidelity , frequently changing its nest site from year to year , sometimes by more than 200 km (120 mi) .

A male greater crested tern establishes a small area of the colony in preparation for nesting , and initially pecks at any other tern entering his territory . If the intruder is another male , it retaliates in kind , and is normally vigorously repelled by the incumbent . A female entering the nest area reacts passively to the male 's aggression , enabling him to recognise her sex and initiate pair formation by display , including head raising and bowing ; this behaviour is frequently repeated during nesting to reinforce the bond between the pair . Terns also use fish as part of the courtship ritual . One bird flies around the colony with a fish in its beak , calling loudly ; its partner may also fly , but the pair eventually settle and the gift is exchanged .

The nest is a shallow scrape in the sand on open , flat or occasionally sloping ground . It is often unlined , but sometimes includes stones or cuttlefish bones . One , sometimes two , eggs are laid and incubated by both parents for 25 to 30 days prior to hatching . The eggs are cream with blackish streaks . Egg laying is synchronised within a breeding colony and more tightly so within sub @-@ colonies . Parents do not recognize their own eggs or newly hatched chicks , but are able to distinguish their chicks by the time they are two days @-@ old , shortly before they begin to wander from the nest . The precocial chicks , which are very pale with black speckling , are brooded and fed by both parents , but may gather in crèches when older . The young terns fledge after 38 to 40 days , but remain dependent on the parents after leaving the colony until they are about four months old .

In South Africa , this species has adapted to breeding on the roofs of building , sometimes with Hartlaub 's gull , which also shares the more typical nesting sites of the nominate race . In 2000 , 7 @.@ 5 % of the population of this subspecies bred on roofs . Artificial islands in salt pans and sewage works have also recently been colonised by this adaptable seabird .

Adult terns have few predators , but in Namibia immature birds are often robbed of their food by kelp gulls , and that species , along with Hartlaub 's gull , silver gull and sacred ibis , has been observed feeding on eggs or nestlings , especially when colonies are disturbed . Smaller subcolonies with a relatively larger numbers of nests located on the perimeter are subject to more predation . In Australia , predation by cats and dogs , and occasional deaths by shooting or collisions with cars , wires or light @-@ towers have been documented .

Commercial fisheries can have both positive and negative effects on the greater crested tern . Juvenile survival rates are improved where trawler discards provide extra food , and huge population increases in the southeastern Gulf of Carpentaria are thought to have been due to the development of a large prawn trawl fishery . Conversely , purse @-@ seine fishing reduces the available food supply , and sizeable fluctuations in the numbers of great crested terns breeding in the Western Cape of South Africa are significantly related to changes in the abundance of pelagic fish , which are intensively exploited by purse @-@ seine fishing . Terns may be killed or injured by collisions with trawl warps , trapped in trawls or discarded gear , or hooked by longline fishing , but , unlike albatrosses and petrels , there is little evidence that overall numbers are significantly affected .

An unusual incident was the incapacitation of 103 terns off Robben Island , South Africa by marine foam , generated by a combination of wave action , kelp mucilage and phytoplankton . After treatment , 90 % of the birds were fit to be released .

== Feeding ==

Fish are the main food of the greater crested tern , found to make up nearly 90 % of all prey items with the remainder including cephalopods , crustaceans and insects . Unusual vertebrate prey included agamid lizards and green turtle hatchlings .

The great crested tern feeds mostly at sea by plunge diving to a depth of up to 1 m (3 @.@ 3 ft) , or by dipping from the surface , and food is usually swallowed in mid @-@ air . Birds may forage up to 10 km (6 @.@ 2 mi) from land in the breeding season . Prey size ranges from 7 ? 138 mm (0 @.@ 28 ? 5 @.@ 43 in) in length and up to 30 g (1 @.@ 1 oz) in weight . Shoaling pelagic fish

such as anchovy and sardine are typical prey , but bottom @-@ living species are taken as discards from commercial fishing . This tern actively follows trawlers , including at night , and during the fishing season trawl discards can constitute 70 % of its diet . Prawn fishing is particularly productive in providing extra food , since prawns usually represent only 10 ? 20 % of the catch , the remaining being bycatch , mainly fish such as cardinalfish and gobies .

A study of an area of the Great Barrier Reef where the number of breeding great crested terns has grown ten @-@ fold , probably due to extra food from trawl by @-@ catch , suggested that lesser crested and sooty terns have moved away and now breed on a part of the reef where fishing is banned . It is possible that the large increase in the number of greater crested terns may have affected other species through competition for food and nesting sites .

Terns have red oil droplets in the cone cells of the retinas of their eyes . This improves contrast and sharpens distance vision , especially in hazy conditions . Birds that have to see through an air / water interface , such as terns and gulls , have more strongly coloured carotenoid pigments in the cone oil drops than other avian species . The improved eyesight helps terns to locate shoals of fish , although it is uncertain whether they are sighting the phytoplankton on which the fish feed , or observing other terns diving for food . Tern 's eyes are not particularly ultraviolet sensitive , an adaptation more suited to terrestrial feeders like the gulls .

= = Status = =

The greater crested tern has a widespread distribution range , estimated at 1 ? 10 million square kilometres (0 @.@ 4 ? 3 @.@ 8 million square miles) . The population has not been quantified , but it is not believed to approach the thresholds for either the size criterion (fewer than 10 @,@ 000 mature individuals) or the population decline criterion (declining more than 30 % in ten years or three generations) of the IUCN Red List . For these reasons , the species is evaluated as being of Least Concern at the global level . However , there are concerns for populations in some areas such as the Gulf of Thailand where the species no longer breeds , and in Indonesia where egg harvesting has caused declines .

All subspecies except *T. b. cristata* are covered under the Agreement on the Conservation of African @-@ Eurasian Migratory Waterbirds (AEWA) . Parties to the Agreement are required to engage in a wide range of conservation strategies described in a detailed action plan . The plan is intended to address key issues such as species and habitat conservation , management of human activities , research , education , and implementation .