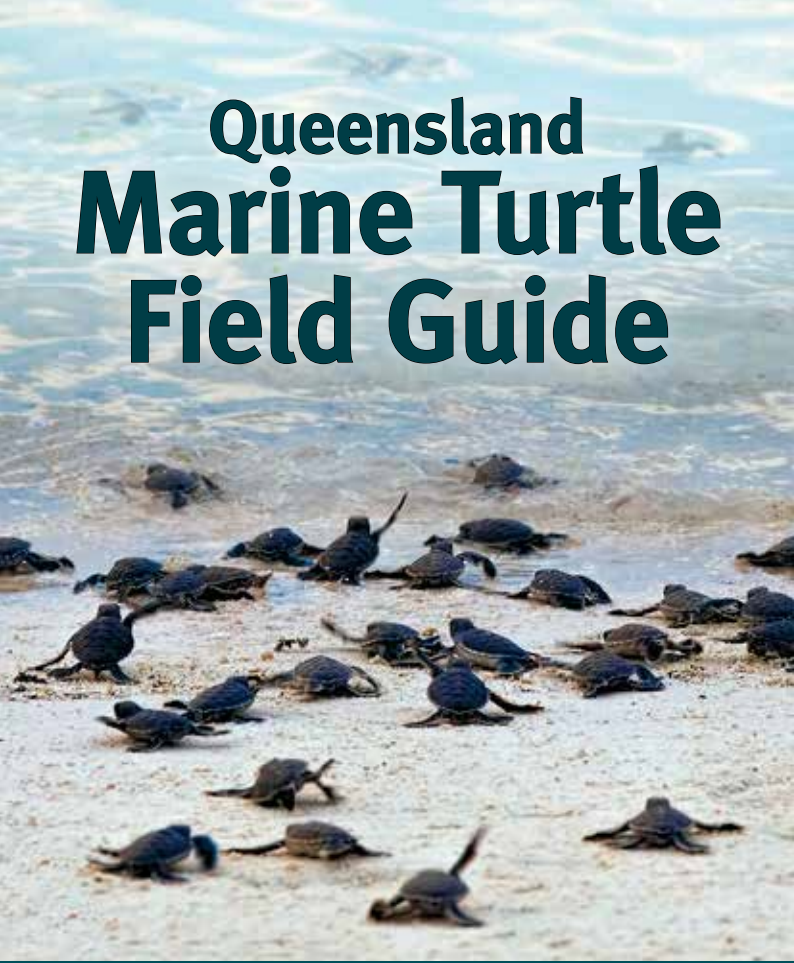
Queensland Marine Turtle Field Guide



Nest to Ocean
Turtle Protection Program

Australian Government

Queensland Government

Queensland's coast has some of the most important marine turtle nesting sites in the world. Six species of threatened marine turtles nest along our idyllic beaches. These rookeries support significant nesting populations of green, loggerhead, hawksbill, flatback and olive ridley turtles.

One of the most serious threats to nesting turtle populations is the destruction of their eggs and hatchlings by predators. Feral pigs have been found to be responsible for destroying over 70 per cent of turtle nests at nesting beaches on Cape York, continued loss at this rate is not sustainable. Other predators include foxes, dogs, dingoes and goannas.

To reduce predation on marine turtle nests and help the recovery of threatened marine turtle populations, the Australian and Queensland Governments have together invested nearly $7million in the Nest to Ocean Turtle Protection Program. The program supports predator control and turtle monitoring at priority nesting beaches. It also assists Traditional Owner and community groups to increase their participation in these important activities.

This field guide has been developed as part of the Nest to Ocean Turtle Protection Program. Correctly identifying marine turtles, and the animals that prey on their nests, provides valuable information about turtle populations and shows where predator control activities are most needed.

Nest to Ocean
Turtle Protection Program

Front Cover: Turtle hatchlings © *K Jorgen*
Inside Cover: Steven Marpoondin (APN Cape York) © *Brian Ross*

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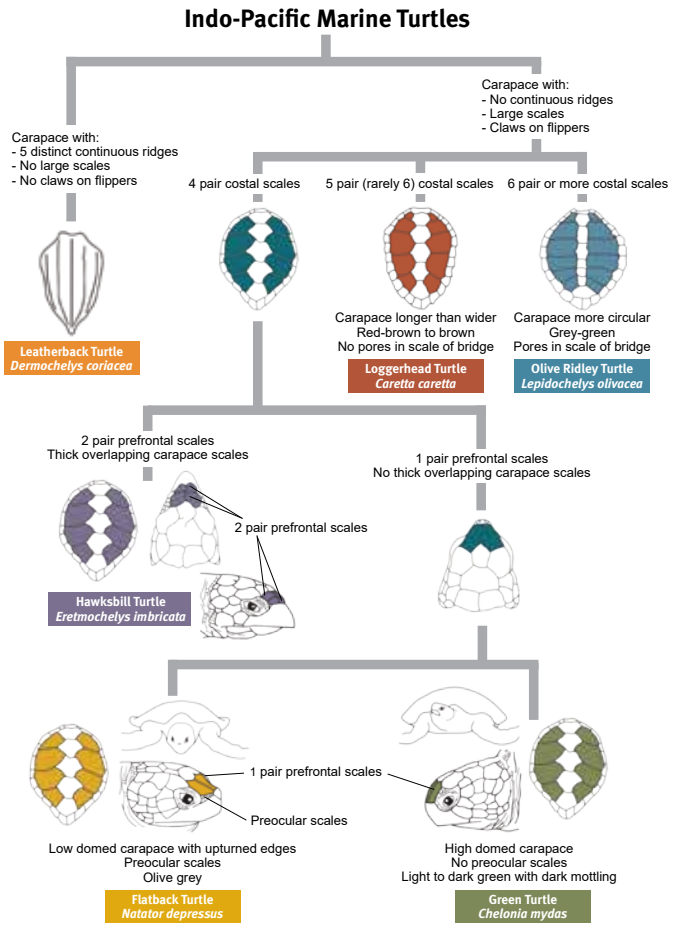

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Alternating Stroke

Flipper marks alternate

Track Features

Early morning monitoring is best as tracks will deteriorate over time. The clarity of tracks can be affected by flipper damage, terrain, sand moisture, tides, wind and weather. Look for several key identifying features, along different sections of track.

The key track identification features are:

- Stroke Style
- Track Width
- Hind Flipper Marks
- Front Flipper Marks
- Plastron Drag
- Tail Drag

Loggerhead

Track Width
Less than 1 meter

Hind Flipper

Front Flipper

Plastron Drag

Tail Drag
Not present

Hawksbill

Track Width
Approx. 70–80 cm

Hind Flipper

Front Flipper

Plastron Drag

Tail Drag

Olive Ridley

Track Width
Approx. 70–80 cm

Hind Flipper

Front Flipper

Plastron Drag

Tail Drag

Breast Stroke

Flipper marks side by side

Green

Track Width
Approx. 94–144 cm

Hind Flipper

Front Flipper

Plastron Drag

Tail Drag

Flatback

Track Width
Approx. 90–100 cm

Hind Flipper

Front Flipper

Plastron Drag

Tail Drag

Leatherback

Track Width
Greater than 2 meters

Hind Flipper

Front Flipper

Plastron Drag
Not Visible

Tail Drag

Track Direction

Clues to determine track direction:

Turtles push sand backwards, the higher sand mound is at the back.

If track overlaps, the top track is the returning track.

Sand is always thrown back over the emerging track when digging.

Measuring Width

Measure from outer edge of track. This may be the front or rear flipper, depending on species.

Guidelines on how to **Record** data and implement **Action** during a basic beach survey (see page 9). These may be tailored to suit individual monitoring programs and implemented in accordance with training.

Record

Species Identification: Use track or sighting to identify species.

GPS Nest Location: Note GPS coordinates & waypoint number.

False Crawl: Track with no nest.

Extent of Damage: Partial or complete destruction of nest.

Evidence of Predation: Diggings, tracks, sighting.

Predator Identification: Use track or sighting to identify species.

Hatchlings Emerged: Yes, hatchling tracks or sighting.

Tag Information: Note tag ID number and its location on turtle.

Curved carapace length (CCL): From front (where skin and carapace meet), down midline to back edge of carapace (over tail).

Action

Photograph: To verify species and/or nest damage/predation.

Mark Nest: Install marker to indicate nest location (if required).

Bury Eggshells and Mark Track: To avoid record duplication; mark track line above the high tide mark.

Submit Data: Project manager to submit data to the relevant Queensland Department.

Basic Beach Survey

Traverse beach to locate fresh turtle tracks.
Walk along the high tide line or drive on the wet sand just below the high tide mark

Equipment Checklist

- GPS (Use datum WGS 84 and decimal degrees)
- Data sheets or charged data recording device
- Pencil
- Tape measure
- Camera
- Personal safety gear
- Torch (night monitoring)
- Spare batteries
- Monitoring field guide

Record fresh tracks only

Adult Track No nesting turtle
- Identify Species: refer to **Track Identification** (Pages 6-7)
- Is there a nest or is it a false crawl?
  - **Nest** — Record / Action: Species ID; GPS Nest Location; Mark Nest
    - Is nest damaged?
      - **No** — Mark monitored track with a line, above high tide mark, so it's not recorded twice
      - **Yes** — Record / Action: Extent of Damage; Evidence of Predation; Predator ID (refer to pages 22-25); Photograph; Bury Eggshells
  - **False Crawl** — Record / Action: Species ID; False Crawl
  - **Unsure** — Record / Action: Species ID; GPS Nest Location; Mark Nest; Photograph

Adult Track Nesting turtle
- Identify Species: refer to **Species Identification** (Pages 3-5, 10-21)
- Once female has settled into laying or has completed nesting
- Record / Action: Species ID; Tag Information; Curved carapace length; GPS Nest Location; Mark Nest

Hatchling Tracks Hatchlings
- Identify Species: if hatchling present refer to **Species Identification** (Pages 3-5, 10-21)
- Record / Action: Species ID; Hatchlings Emerged; Marked Nest ID or GPS Nest Location; Evidence of Predation; Predator ID (refer to pages 22-25)

Refer to Page 8 for Record / Action monitoring protocols

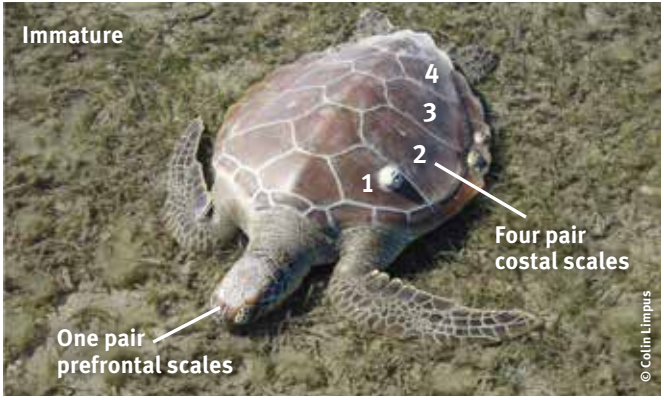
Mark monitored track with a line, above high tide mark, so it's not recorded twice

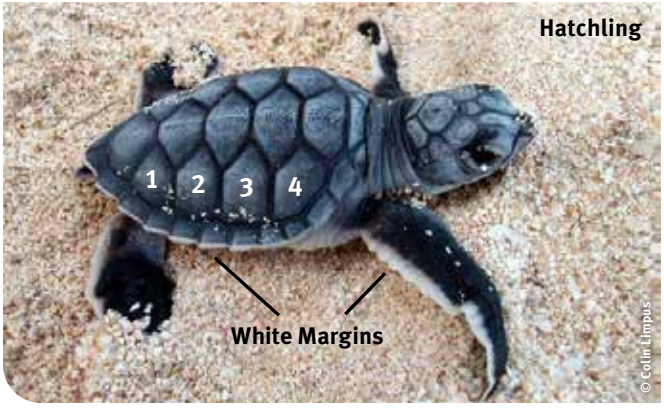
Continue and complete survey

Submit data forms and photographs for verification to project manager

Green Turtle, *Chelonia mydas*

Status: Nationally Vulnerable, Queensland Vulnerable





Key Identification Features


Breast Stroke Track


Carapace Scales


4 Pair Costal Scales

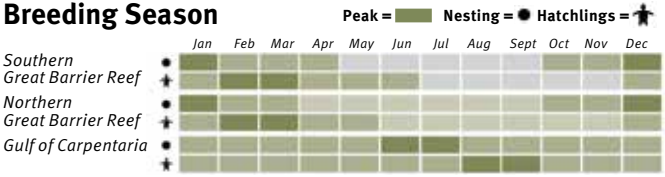

1 Pair Prefrontal Scales


Qld Nesting Sites

Adult: *Carapace is a high dome. Colour is light to dark green with dark mottling. Plastron colour is cream-white.*

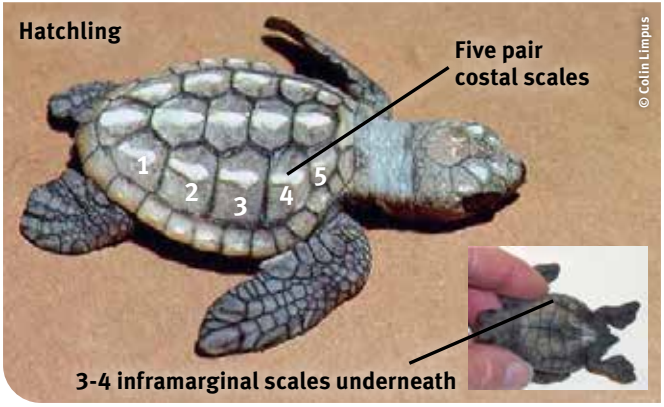
Hatchling: *Black-dark brown with white margins, white plastron.*

Breeding Season

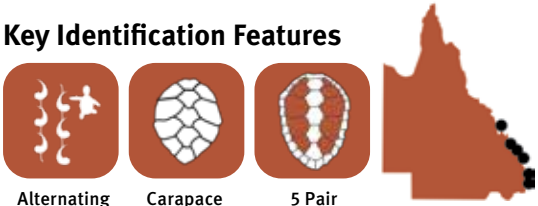


Loggerhead Turtle, *Caretta caretta*

Status: Nationally Endangered, Queensland Endangered



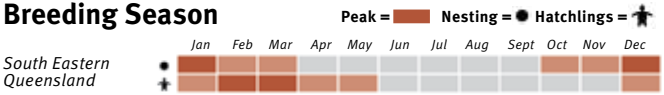
Key Identification Features

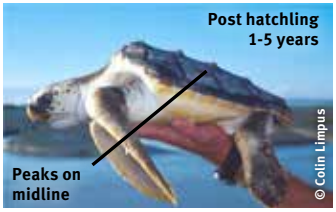


Adult: *Carapace is longer than wider. Colour is red-brown to brown. Plastron colour is yellow.*

Hatchling: *Dark brown with 5 costal scales and dark plastron with 3–4 inframarginal scales.*

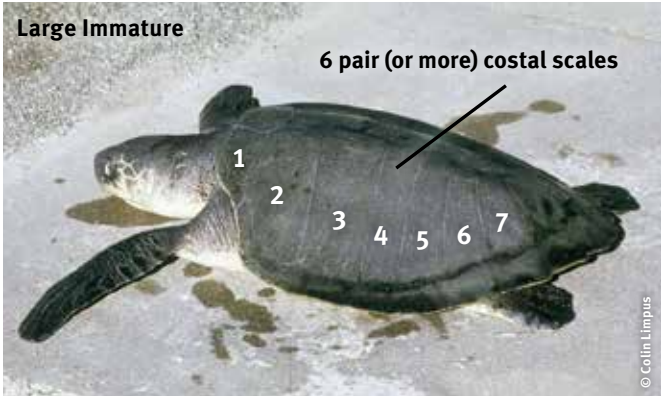
Breeding Season





Olive Ridley Turtle, *Lepidochelys olivacea*

Status: Nationally Endangered, Queensland Endangered



Key Identification Features


Alternating Track


Carapace Scales

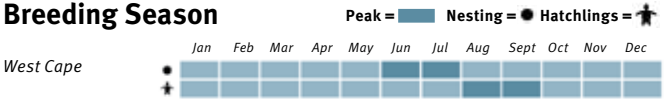

6 Pair (or more) Costal Scales


Qld Nesting Sites

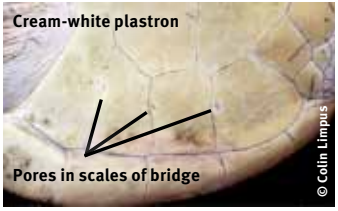
Adult: *Carapace is circular. Colour is grey-green with no conspicuous markings. Plastron colour is cream-white.*

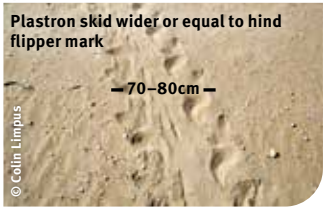
Hatchling: *Charcoal-grey/black-brown on both sides.*

Breeding Season



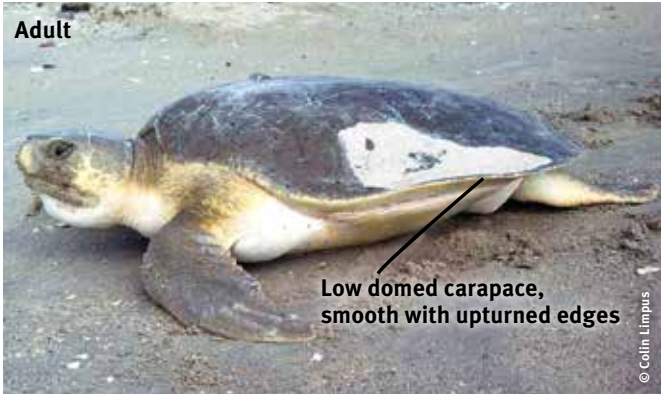
All year, peaks during dry season.

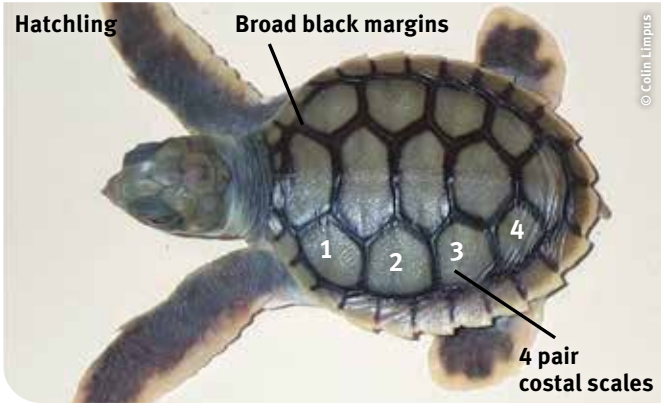




Flatback Turtle, *Natator depressus*

Status: Nationally Vulnerable, Queensland Vulnerable



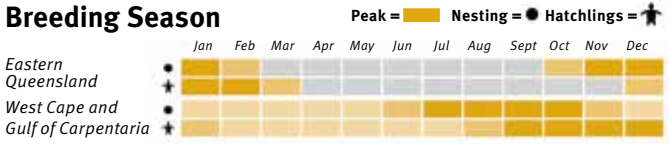


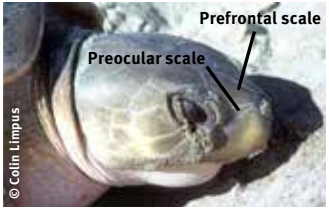
Key Identification Features

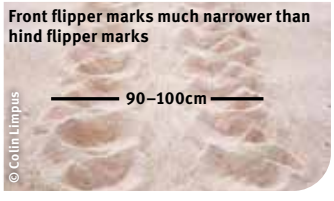
Adult: *Carapace is a low dome, smooth with upturned edges. Colour is grey to pale-grey or olive. Preocular scales. Plastron is creamy-yellow.*

Hatchling: *Olive-green, scales with broad black margin. Plastron is a solid white.*

Breeding Season

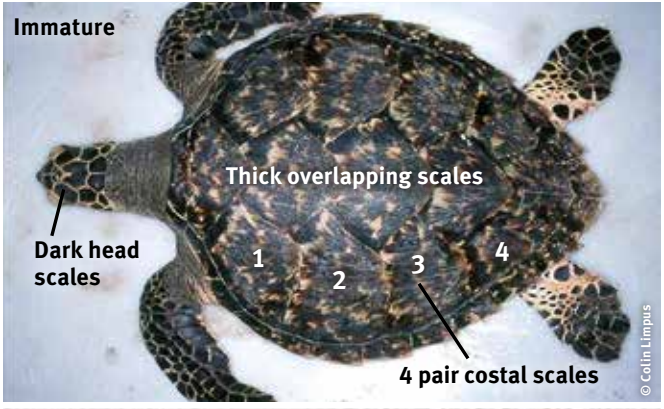


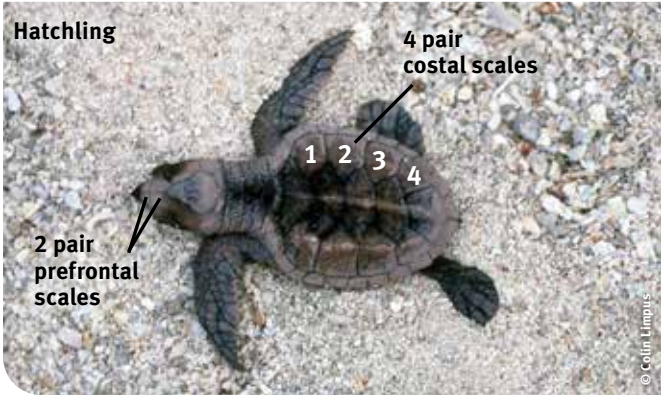




Hawksbill Turtle, *Eretmochelys imbricata*

Status: Nationally Vulnerable, Queensland Vulnerable



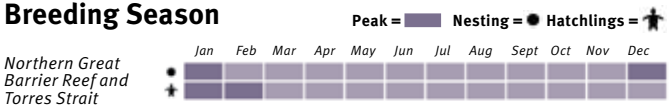


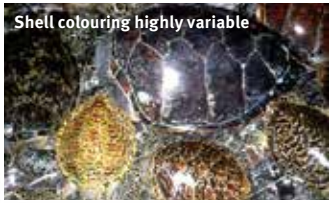
Key Identifcation Features

Adult: *Carapace has thick overlapping scales. Colour is olive green or brown and is extensively variegated with brown/black markings. Adult plastron is yellow or white with black spots.*

Hatchlings: *Dark brown.*

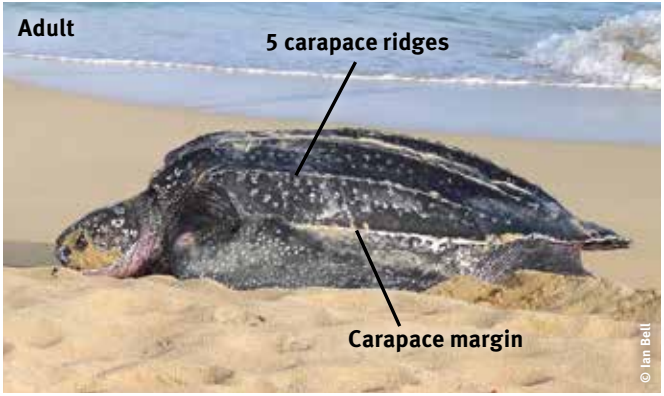
Breeding Season

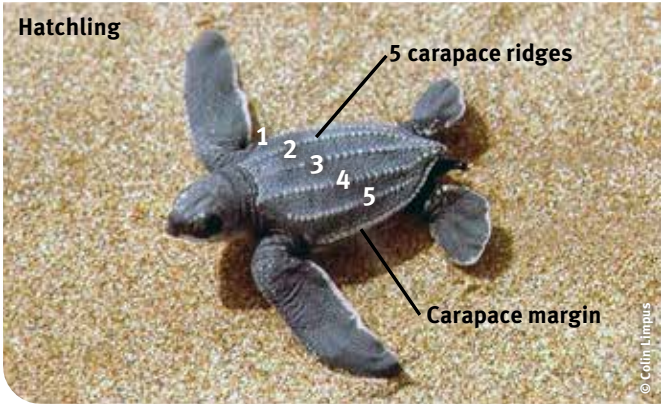




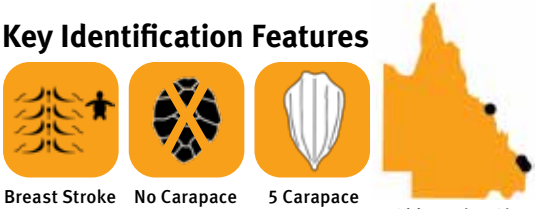
Leatherback Turtle, *Dermochelys coriacea*

Status: Nationally Vulnerable, Queensland Endangered





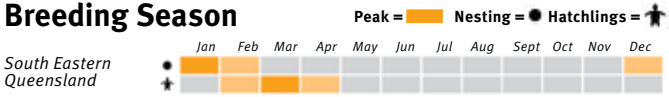
Key Identification Features

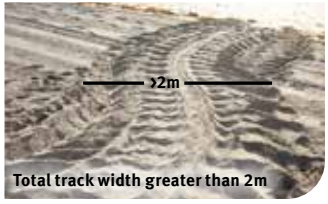


Adult: *Carapace is long and pointed. Long ridges run down the length of carapace. Colour is a uniform black-brown. Soft leathery skin.*

Hatchlings: *Finely beaded, black with white markings on the carapace ridges and plastron.*

Breeding Season

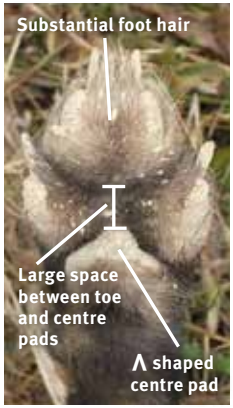




Fox

Track Identification Features

- Front foot is larger than back foot.
- Elongated oval shaped claws, may not show on track.
- Substantial foot hair, sometimes visible on track impression.
- Large space between centre pad and toe pads.
- Centre pad has a distinct inverted V shape.
- Tracks are straight, hind feet reusing front feet impressions.
- Small track width.



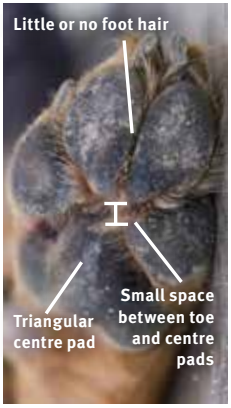
Management Options

- Den detection and fumigation
- Ground shooting
- Trapping
- Baiting
- Exclusion fencing
- Nest protection (cages)

Wild Dog or Dingo

Track Identification Features

- Front foot is larger than back foot.
- Little or no foot hair in between pads.
- Small space between centre pad and toe pads.
- Centre pad almost triangular.
- Foot imprint rounded.
- Tracks are straight but not as neat and aligned as a fox's track.



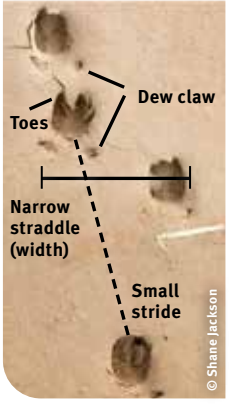
Management Options

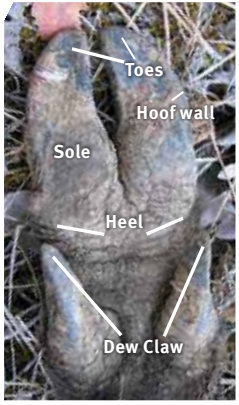
- Ground shooting
- Leg hold trapping
- Baiting (1080 or strychnine)
- Exclusion fencing
- Nest protection (cages)

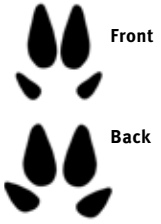
Feral Pig

Track Identification Features

- Back feet slightly larger than front.
- Foot print consists of a two toe hoof and two dew claws.
- Dew claws distinctive identification feature but may not be present in harder soils.
- Small stride and narrow straddle.







Management Options

- Ground/aerial shooting
- Trapping
- Baiting
- Exclusion fencing
- Nest protection (cages)

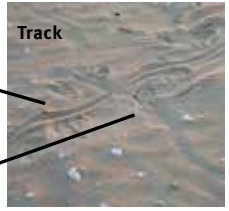
Goanna

Track Identification Features

- Both walk and run tracks have alternating foot prints.
- Trail drag usually visable.

Nest Predation Identification

- Goannas burrow into nest at an angle from the side of the nest, not vertical from directly above.
- The burrow is typically domed shape, not circular.



Management Options

- Trapping
- Exclusion fencing
- Nest protection (cages)

Principles of Pest Management

Managing pest animals requires long-term control programs and a variety of approaches. Effective programs are designed around these eight principles:

1. INTEGRATION

Ensuring pest management programs are an integral part of the management of natural areas.

2. PUBLIC AWARENESS

Raising public awareness and knowledge of pests to increase community and individual participation in pest management.

3. COMMITMENT

Gaining a commitment to long term programs by the community, industry groups and government entities.

4. CONSULTATION AND PARTNERSHIP

Establishing partnerships between local communities, industry groups, state government agencies and local governments to achieve a collaborative approach.

5. PLANNING

Consistent planning at local, regional, state and national levels ensures combined resources target the agreed priorities.

6. PREVENTION

Preventing the spread of pests, and using early detection and intervention to control pests.

7. BEST PRACTICE

Using ecologically and socially responsible pest management practices to protect the environment and natural resources.

8. IMPROVEMENT

Research and regular monitoring and evaluating of programs helps improve and refine pest management practices.

Threats to Marine Turtles

Marine turtles are long-lived and slow to mature. Depending on the species they can take anywhere between 8–50 years to reach breeding age. Due to the range of threats, at their different life stages, it is thought that only 1 in 1000 hatchlings will survive to adulthood and then return to the beach to nest. For this reason it is critical to address the range of threats throughout their lifecycle.

Threats include:

- Native and introduced animals predating turtle eggs and hatchlings.
- Vehicles compacting turtle nests or forming tyre ruts that trap hatchlings.
- Humans taking turtle eggs.
- Bycatch of marine turtles in fisheries.
- Marine debris.
- Impact to breeding habitat from coastal development and artificial lighting.
- Deteriorating water quality.
- Unknown and possibly unsustainable levels of turtle harvesting, in and outside Australian waters.

What you can do:

- Support the management of predators such as pigs, dogs and foxes around turtle nesting beaches.
- Report turtle nests and predated turtle nests to your local ranger.
- Keep your dogs on a lead when walking on the beach during nesting/hatchling season.
- Drive slowly on beaches and avoid driving over nests. Drive on the wet sand below the high tide mark to avoid making wheel ruts.
- Pick up marine debris from the beach and waterways.
- Report ghost nets to your local ranger.
- At night, minimise lights on the beach, including campfires.
- Support sustainable, traditional use of adult turtles and turtle eggs.

Acknowledgements

The Queensland Parks and Wildlife Service Nest to Ocean Turtle Protection Program Team would like to acknowledge the contribution of staff from the following organisations in the development of the field guide: Western Cape Turtle Threat Abatement Alliance supported by Cape York Natural Resource Management, Balkanu Cape York Development Corporation, Aak Puul Ngantam, Feralfix, World Wildlife Fund for Nature, and University of Queensland. Also acknowledged is the input and advice of staff from our partnering Australian and Queensland Government departments.

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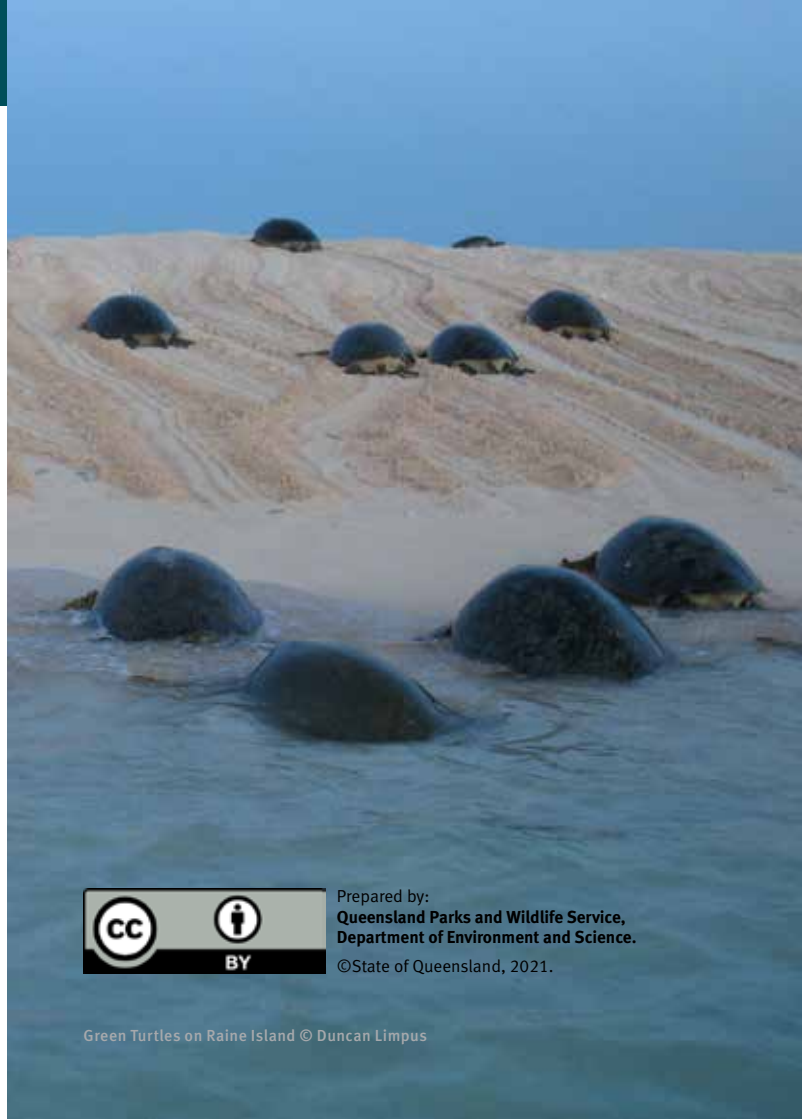

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