

# Stage 4: Migratory species, a journey to survive

## Concept:

- Students are introduced to the concept of migration.
- Many species need to migrate to reproduce, feed, rest, escape harsh climates.
- Migratory species face threats across their range.

## Student inquiry:

- Why do species need to migrate?
- What species migrate to the Western Australian coastal and marine environments?
- What countries do migratory shorebirds visit during migration?
- What are some of the biggest threats that shorebirds face?
- How are shorebirds protected outside Australia?

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### AUSTRALIAN CURRICULUM – SCIENCE

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#### Year 4

Living things depend on each other and the environment to survive (ACSSU073)

#### Year 5

Living things have structural features and adaptations that help them to survive in their environment (ACSSU043)

#### Year 6

The growth and survival of living things are affected by physical conditions of their environment (ACSSU094)

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### AUSTRALIAN CURRICULUM – GEOGRAPHY

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The importance of environments to animals and people, and different views on how they can be protected (ACHASSK088)

The location of the major countries of the Asia region in relation to Australia and the geographical diversity within the region (ACHASSK138)

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## Background information for teachers

### A survival tactic

Migration is an important survival strategy that many species undertake at different stages of life. It involves the movement of a large portion or the entire population of a species from one geographical area to another. The need for a species to migrate can be triggered by seasonal weather patterns, food supply and/or breeding habitat requirements. Some migrations may be small, others are journeys of epic distances crossing equatorial boundaries. Species that migrate at some stage during their life are classified as a migratory species. These species have evolved to take advantage of the availability of resources such as optimal habitat and food supply and to avoid seasonal climate changes they are not adapted for.

It sounds pretty good to always have the best habitat, food supply and climate however, it comes at a price. It takes a lot of energy to migrate and an ample food supply before leaving so individuals can store enough fat to fuel their journey. Predictable patterns and mass aggregations of species at sites makes them vulnerable to overharvesting by humans. Human disturbance, habitat loss as a result of coastal development, invasive species and pollution at important sites along the journey, or at the end destination, put migratory species at risk.

CASE STUDY

## The travellers

Migratory shorebirds have some of the most impressive migrations of all animals. For some, the annual migration is close to 30,000km-return journey from the breeding grounds in the northern hemisphere to the feeding grounds in the southern hemisphere. Thirty-seven shorebird species regularly migrate to Australia.

They fly along the East Asian Australasian Flyway (EAAF). The EAAF is like a circuit of highways in the sky connecting breeding grounds and feeding grounds. Many birds need to stop along the way to rest and refuel, these areas are called staging sites. One of the most important staging sites for migratory shorebirds in the EAAF is the Yellow Sea, which is bordered by the coasts of China and the Korean Peninsula.



### Teacher directions:

1. As a class, discuss the definition of migration, ask the students if they can list any species that migrate. Do any of them migrate to the Western Australian coast? Brainstorm different reasons why each species listed may migrate.

In the list students may have identified different animal groups: mammal, birds, reptile etc. Ask the students if they know how each species group knows where to migrate. How do they learn? (For example mammals receive parental care and are taught the migration route, turtles are genetically programmed to return to their natal beaches (the beaches they were born), birds follow a flock.)

Ask the class, do they think migration is risky for the species? Get them thinking about the different stress migration can have (for example it requires a lot of energy, need ample food supply before leaving, how weather can have an impact). Discuss how humans can impact their survival during migration (for example targeted hunting using predictable migration routes and times, habitat loss at important stopover sites or final destination, development causing disruption in migration routes, harvesting of prey species and disturbance).

2. In groups or as individuals give students Activity sheet 4.1 to complete. This may require students to do an internet search or use provided resources. Use prior knowledge gained from Stages 1-3 to assist in completing the questions.
3. Provide students with the Migratory shorebird poster and/or page 1-5 of the Shorebirds and seabirds of the Pilbara coast and islands. Read 'The travellers' paragraph from the teacher notes to the students. Discuss with the students the reasons for migration (for example birds are not adapted for extreme cold weather). Ask the students to think about how the birds make the journey? What is needed to make the distance? What route do they take?
4. Give students Activity sheet 4.2 to complete.



Fairy tern



Wedge-tailed shearwater

## STAGE 4: MIGRATORY SPECIES, A JOURNEY TO SURVIVE

### TEACHER INFORMATION

5. Discuss with the class the different countries that shorebirds visit during their migration journey and if there is protection for them in these countries. Brainstorm/investigate a list of organisations or conservation projects that work towards their protection (for example Birdlife Australia, governments working together using international agreements – Japan-Australia Migratory Bird Agreement (JAMBA) and the China-Australia Migratory Bird Agreement (CAMBA) and Republic of Korea-Australia Migratory Bird Agreement (ROKAMBA)).
6. As a class, work together and create your own flock to raise awareness of shorebirds in your local area. Investigate which is your nearest wetland habitat where shorebirds rest and refuel. If there are none close by focus on the importance of Western Australia's wetland and coastal habitat. This activity can be completed at any time or be planned to coincide with World Migratory Bird Days on the second Saturday in May and October or the arrival (September – November) or departure times (March – May) of migratory shorebirds.

### Resources:

- Resource 1: Species profile – Poster 4
- **Shorebirds and seabirds of the Pilbara coast and islands**  
[dpaw.wa.gov.au/images/documents/conservation-management/wetlands/20170167\\_pilbara\\_shorebirds\\_and\\_seabirds\\_of\\_the\\_pilbara\\_coast\\_and\\_islands\\_web.pdf](http://dpaw.wa.gov.au/images/documents/conservation-management/wetlands/20170167_pilbara_shorebirds_and_seabirds_of_the_pilbara_coast_and_islands_web.pdf)



**Top left:** Roseate terns nesting on Stewart Island. Photo – Carolyn Williams/DBCA **Top right:** Caspian, crested and lesser crested terns. Photo – Grant Griffin/DBCA **Above:** Migratory shorebird roosting. Photo – Felicity Kelly/DBCA

## Activity sheet 4.1 Create a threatened species calendar

Using the pictures below make a calendar of when and where you would find these species along the Western Australian coast.

1. Name the habitat and location where you can find them
2. What stage of their life cycle are they at? Or what is the reason for migrating to that location
3. What pressures can have an impact on them at this location?

January	February	March
April	May	June
July	August	September
October	November	December

STAGE 4: MIGRATORY SPECIES, A JOURNEY TO SURVIVE  
STUDENT ACTIVITY SHEET



Humpback whale



Dugong



Australian humpback dolphin



Green turtle hatchlings



Turtle's mating



Whale shark



Turtle laying eggs



Shorebirds feeding



White-bellied sea-eagle



Wedge-tailed shearwater in burrow



Fairy tern



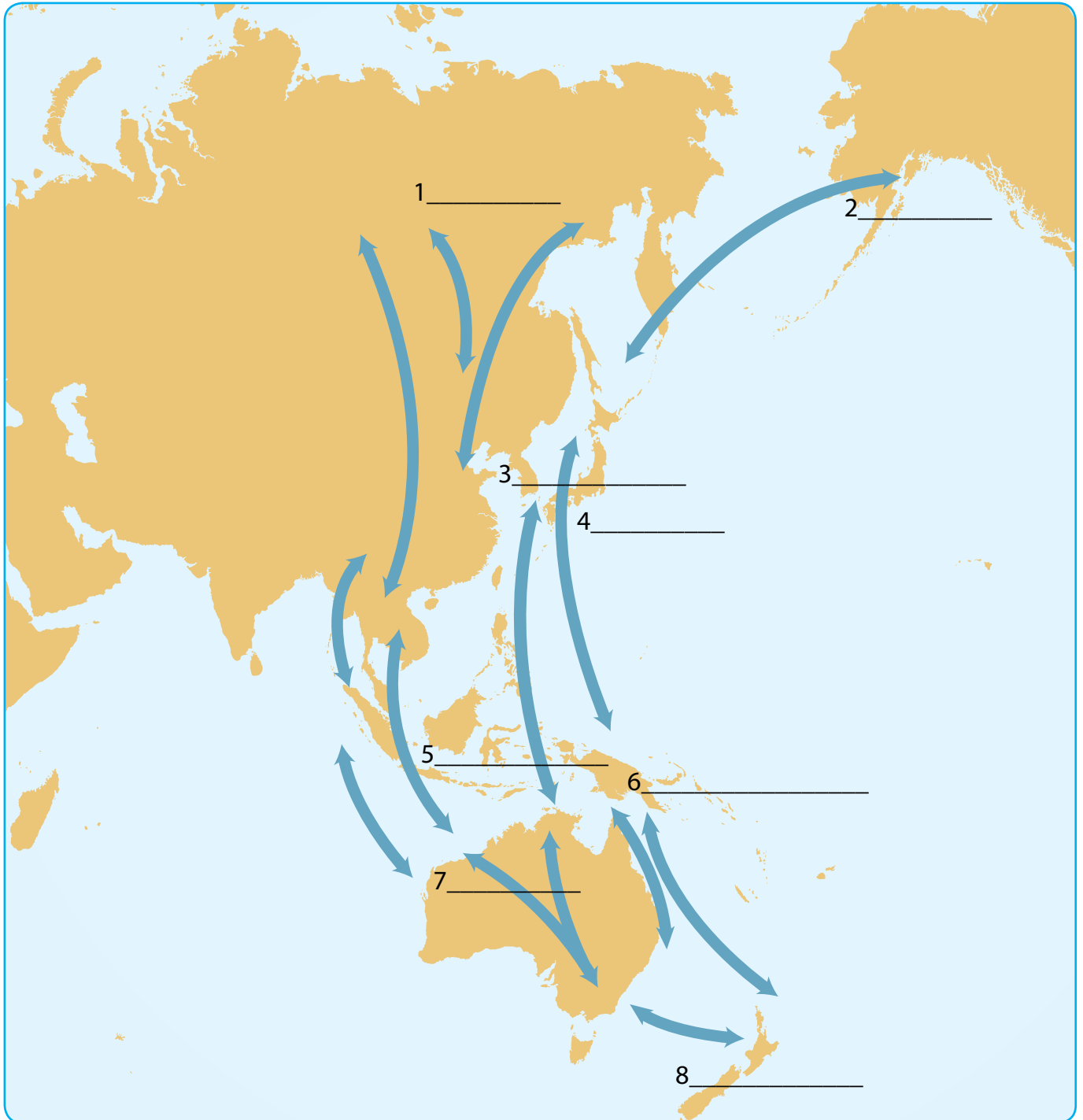
Green sawfish

## Activity sheet 4.2

Investigate the migration route of shorebirds in the East Asian Australasian Flyway.

1. Look at the map below: can you label the countries where shorebirds stop along the way?
2. How far do they travel?
3. Why do they need to stop?

### East Asian-Australasian Flyway



## Activity sheet 4.3 Create your own flock

(adapted from Pukorokoro Miranda Shorebird Centre education resource)

Celebrate the arrival or departure of shorebirds by creating your own flock in the classroom.

Shorebirds, also known as waders, may utilise wetland habitats that are not on the coast, even if you live inland you may have some species living near you.

1. Each student picks one of the attached bird templates and then designs it to their liking.
2. Put your flock on display at school, in the community and send a picture into the local paper to help raise awareness of the migratory shorebirds.

### Example of a created flock of shorebirds

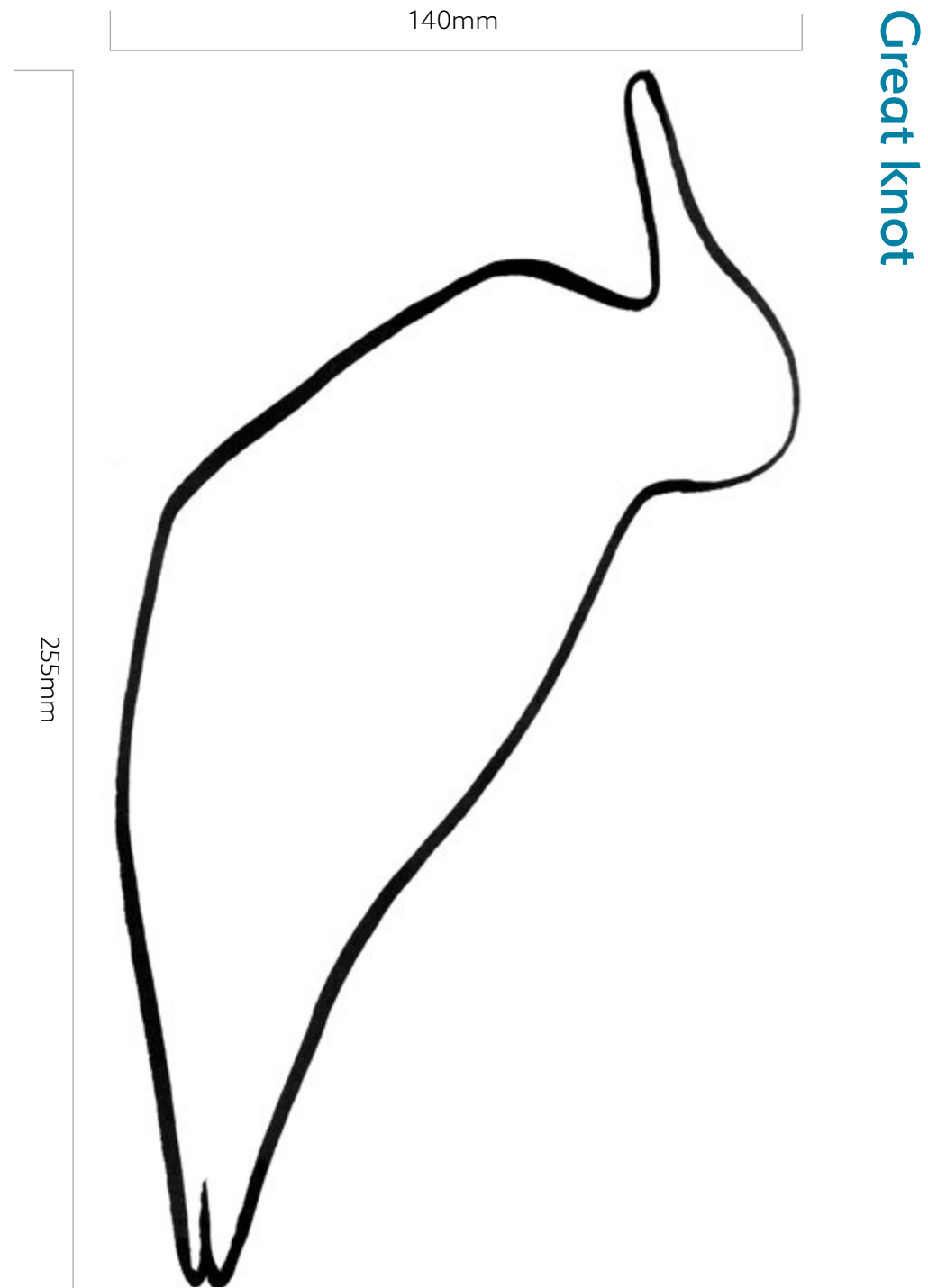


Above: Flock Oz - Broome. Photo - Kandy Curran, Roebuck Bay Working Group courtesy of Grace Maglio/Flock Oz Broome.



**Templates: Great knot and Bar-tailed Godwit**

To enlarge these bird templates to full size, set photocopier to enlarge from A4 to A3 or enlarge to 140%.



# Bar-tailed godwit

