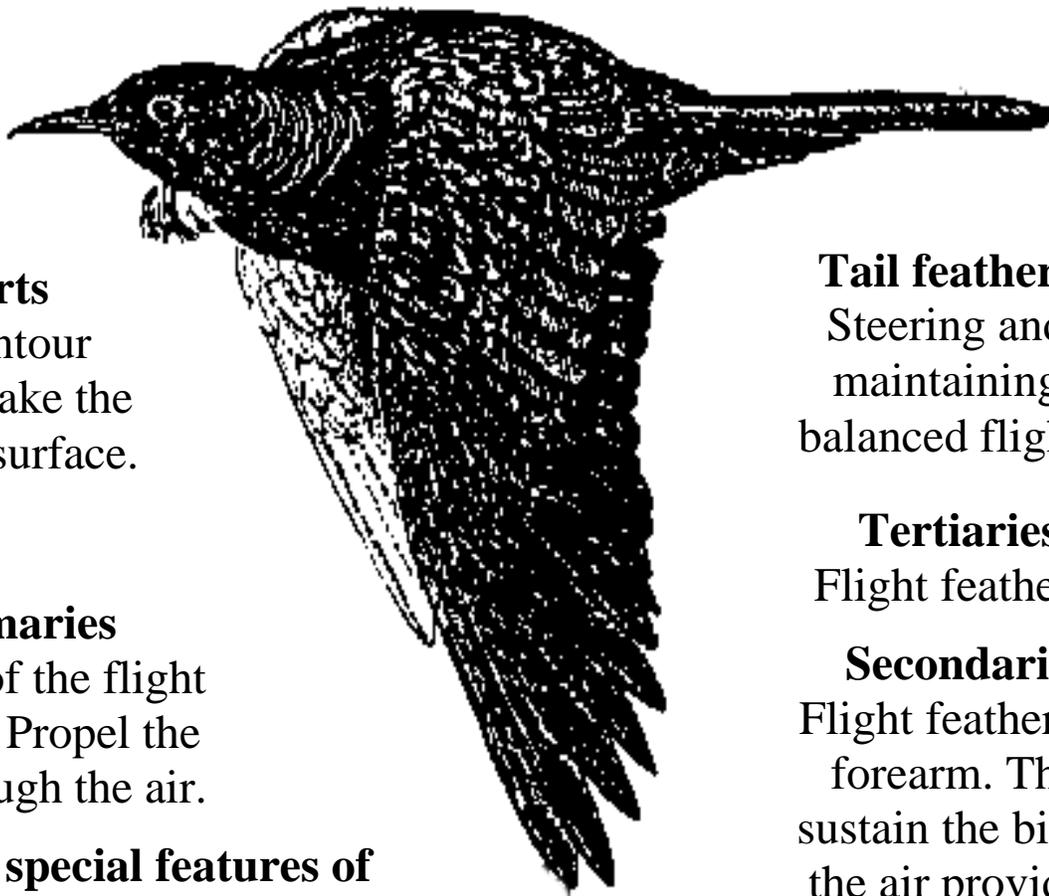


# FLIGHT



## **Converts**

Small contour feathers. Make the birds wing surface.

## **Primaries**

Largest of the flight feathers. Propel the bird through the air.

**One of the special features of birds is their ability to fly.**

**Tail feathers**  
Steering and maintaining balanced flight.

**Tertiaries**  
Flight feathers.

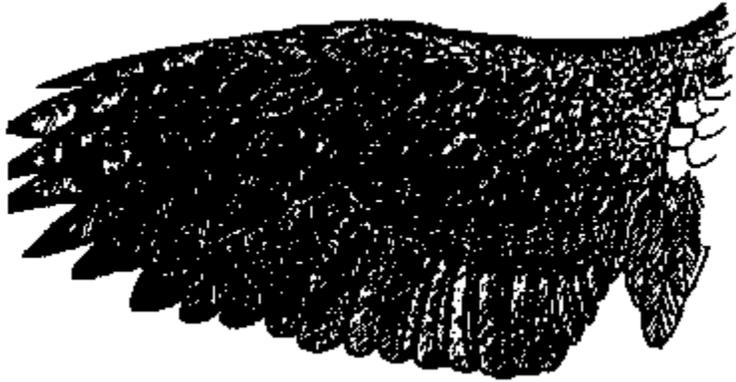
**Secondaries**  
Flight feathers on forearm. They sustain the bird in the air providing lift.

**In order to fly birds must have wings and feathers, but as well as this, they need to have adaptations for reducing their weight.**

List three ways you think birds have reduced their weight?

- 1
- 2
- 3

The wings of birds vary in shape as well as in size. There are three main types of wings found on the birds at Nga Manu, which reflect the adaptations they have made to different niches within their environment.



Birds that need great control and height for flying.



Birds adapted for the forest and shrub habitats.



Birds that feed on the wing or make long migrations.

As well as the different types, some wings make sounds when a bird is flying.

Listen carefully to birds at Nga Manu. Can you hear any that make noise with their wings while flying? Name the birds if you can.



Watch the birds at Nga Manu. What sort of wing type does each bird have?

- Fantail
- Swallow
- Hawk
- Owl
- Blackbird

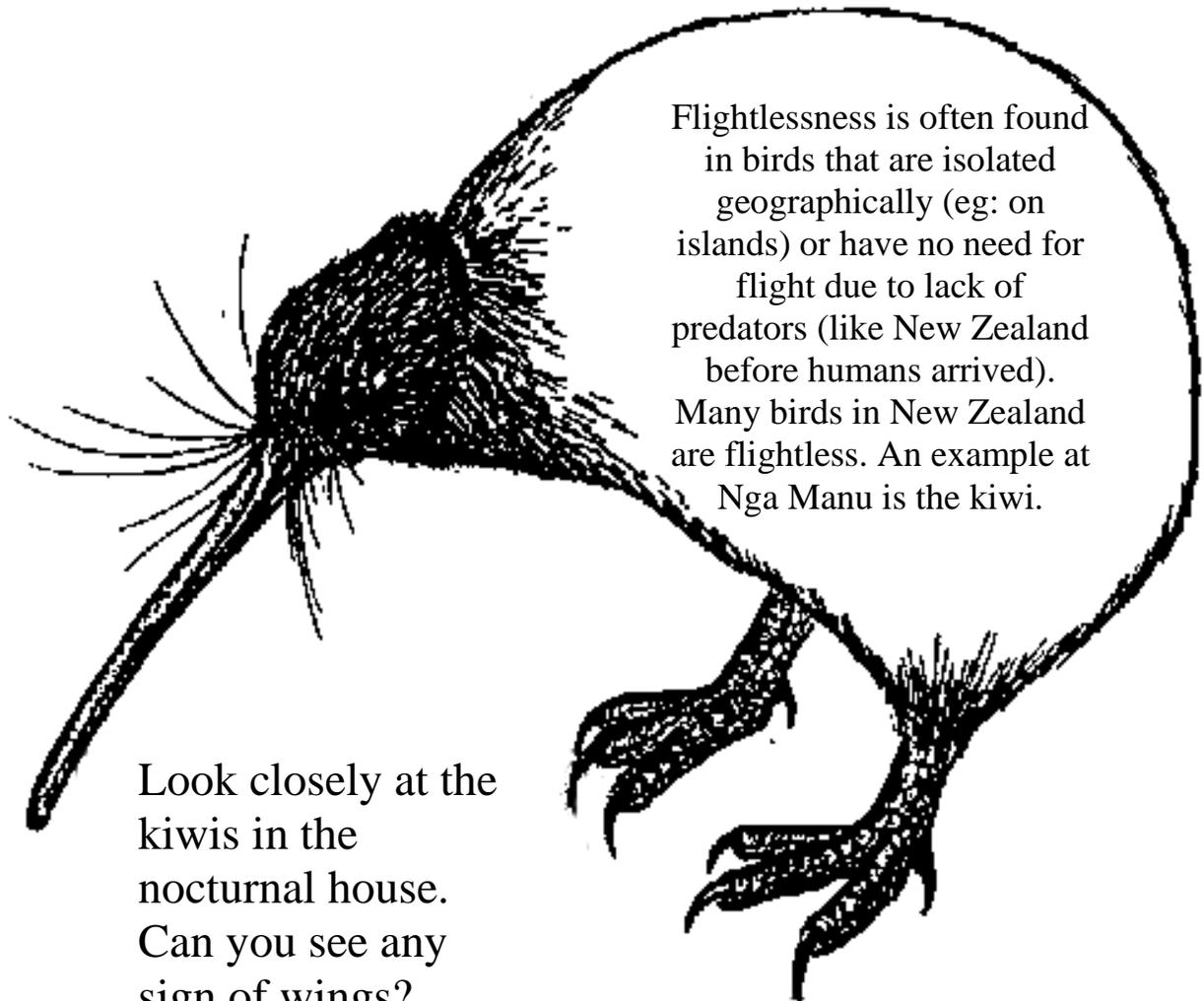
Some birds find it easy to take off for flying while others need to have a running take off. Usually the larger birds are the ones that find take off more difficult.

Watch the birds at Nga Manu. Which birds need to have a long take off?

Which birds need no running take off?



Can you think of any other flightless birds in New Zealand?



Flightlessness is often found in birds that are isolated geographically (eg: on islands) or have no need for flight due to lack of predators (like New Zealand before humans arrived). Many birds in New Zealand are flightless. An example at Nga Manu is the kiwi.

Look closely at the kiwis in the nocturnal house. Can you see any sign of wings?

