



## INHERITANCE 1 - OSPREYS, MALE OR FEMALE?

### Introduction

Ospreys have 80 chromosomes in their nucleus. The 80 chromosomes work in pairs so this means ospreys have 40 pairs of chromosomes in each cell. Two of these chromosomes (i.e. one pair) determine if the osprey is male or female and are known as the “sex chromosomes”.

The sex chromosomes can be of two types known as **W** or **Z**. Males have TWO Z chromosomes abbreviated to **ZZ**. Females have one W chromosome and one Z so are **WZ**.

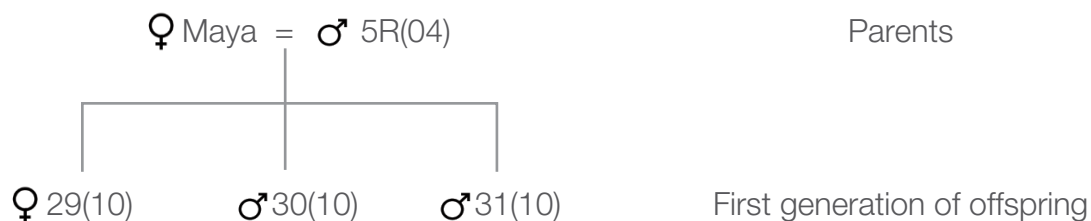
The sex cells or **gametes** of ospreys, sperm of males and the eggs of females, have 40 chromosomes i.e. **HALF** the number of the parent, This means that when one sperm fertilises one egg, the total number of chromosomes in the first cell of the new offspring will be 80, the same as the original osprey parents.

Sperm cells or egg cells only have ONE sex chromosome, **HALF** the number of the parent.

- How is the way sex is determined in ospreys (a) different to humans  
(b) similar to humans.

### Male or female Osprey?

Below is an Osprey Family Tree. The symbols are ♂ for male and ♀ for female. The letters and numbers like 5R(04) are the osprey's ring numbers, Maya is named as she does not have a ring.



- List the five ospreys in the family tree and next to each write down if they are WW or WZ
- Draw a genetic diagram to show the probability of the offspring for Maya and 5R(04) being male or female.
- If Maya and 5R(04) had another chick what is the probability of the chick being a male or a female?
- In Ospreys which parent determines if a chick will be male or female?