Discovering Raptor Nests

What Can Be Learned?

Raptors are ideally suited to their lifestyle and therefore totally dependent on their habitat and can live no other way.

Students can learn about the variety of raptor nest building strategies in Tasmania by looking at the different nest types, their location and size and how this relates to the ecology of each species.

Whose nest is the biggest?

The biggest nest recorded was actually built by North American bald eagles over 30 years and reached about 2.7m in length and 6m deep and weighed two ton, eventually toppling the host tree!

The Tasmanian Wedge-tailed Eagle builds a nest up to 2.8m in diameter although some have been recorded as 2m deep and 3m long. The White-Bellied Sea-Eagle builds a nest up to 2m wide and 4.5m deep! So these eagles must find a sturdy tree to support the giant nest. The best trees for these sorts of nests are large Eucalypts such as E. viminalis, E. delegatensis, E. globulus, E. regnans and E. ovata. But it's hard getting started – they have to find a sturdy major branch, preferably with a fork to hold the initial sticks in place and at a good height to protect the chicks and provide an aerial view of the terrain. Wedge-tail Eagles generally choose the tallest and broadest tree they can find, preferably one on a down slope, below a ridge and out of the prevailing winds. Also they prefer forests with a closed canopy as they are very shy breeders and need over 10 hectares of surrounding forest.

White-bellied Sea-Eagle and chick. Photo by Dave Watts

Like Sea Eagles, Wedge-tail Eagles tend to build really large nests for several reasons. Firstly, they are a large bird weighing up to 5.5kg in the female. Secondly they are relatively long-lived reaching around 25 years of age in the wild and up to 40 years in captivity. Sea-Eagles can live up to 30 years. Finally, both species are monogamous, pairing for life and returning to the same home territory and often the same nest to breed, piling on new material decade after decade. Nests are constructed from a platform of old dead sticks up to 2m in length and then the shallow depression is lined with green eucalypt leaves and fresh sprigs.

Adult Wedge-tail Eagles closely watch the surrounding area and will desert the nest if disturbed by people or land clearing. Their window for breeding opportunity is very small. They generally lay 1-2 eggs in late August or early September and chicks are fed by both parents and remain in the nest for around 3 months.

Do all raptors build nests?

Some raptors are terrible nest builders! Australian kestrels will nest anywhere including on building ledges, inside caves, in tree hollows and even on the ground in small dirt scrapes. They often take over abandoned nests of other birds. Peregrine Falcons are the same, they do not deign to build their own nests, instead, in Tasmania they prefer to nest on cliff face recesses. What is crucial to a peregrine is a high vantage point with open vistas below so they can aerially hunt other birds. They often overlook waterways which attract prey and were given the name duck hawk because of the number of waterfowl they caught.

They choose a ledge that not only has a good vantage point but is also under outcropping rock which provides protection from the elements and aerial predators. Peregrines use their feet to scratch out a shallow nest which moulds to their body shape. Eggs are laid directly into this rocky, shallow depression. Peregrines mate for life and will return to the same breeding ledge and in some countries such eyries have lasted for over a century in continuous use by successive pairs.

Tree hollow or abandoned nest required

Masked Owls and the Southern Boobook Owl both nest in tree hollows. So they need old growth forest

which contains old, dead trees or trees that have been around long enough, sometimes hundreds of years, to form hollows. The nest is a bare chamber lined with soil or mulch deep within the tree. Masked Owls breed from late October to early November and lay up to four eggs. They form monogamous pairs and the male hunts for food whilst the female incubates the chicks. Boobooks lay up to three eggs but both parents hunt for food, although sometimes a second female helper will feed the young.

Brown Falcons use open hollows, build a stick nest in a tree or use another abandoned hawks nest to raise their young. Australian Hobby's generally breed in nests they have taken over from other birds. They prefer open woodlands but can also live in urban parks and gardens.

Other raptor nests

Like other birds, many raptors nest in trees. The Whistling Kite nests in tall trees and build a bulky platform of sticks. They often use the same nest and will diligently defend their territory. Similarly, Brown Goshawks also nest in tall trees making a stick platform and defending the nest strenuously. They line the nest with Eucalyptus leaves and will return to the same nest each year. They prefer the tallest trees possible and usually near a waterway. Collared Sparrowhawks make a fairly flat nest of sticks and twigs lined with fresh leaves, high up in a tree fork hidden amongst foliage. They are fairly quiet around the nest and not as aggressive as the Brown Goshawk. Tawny Frogmouths build a loose platform of sticks in a forked tree branch. Males incubate the eggs during the day and the females assist overnight. Occasionally they rear two broods in a season. Grey Goshawks also make a large stick nest high in a tree fork and return to the same nest each year. Females do most of the incubation whilst males hunt for food. They only nest in wet forests and prefer blackwoods.

Swamp Harriers are ground nesting birds making the nest of straw, grasses or water reeds. They often nest amongst crops and are easily disturbed, abandoning both eggs and young chicks. Males hunt for food and transfer it to the female midair.

Activity 1. Building your own eagle nest.

To get an idea of the size have four students lie on the ground toe to toe making a cross with their hands in the air. This is roughly the size of an eagle's nest.

Visit your local area or create a map of your own local area and work out where would be the best location for your nest. Identify all the things your wedge-tail eagle or sea-eagle pair will need. Measure out on the ground a circle 2.8m in diameter. Collect sticks and twigs and build your own nest.

Try building an eagle nest in a tree fork. Once it is built – take a photo of it. Test how strong it is? Could it support a 5.5kg adult plus a nearly fully grown chick?

Activity 2: Nest for Sale

Choose one of the birds of prey and work out an advertisement for your new house requirements. Do you need a house to rent or one for sale. What location would you be looking for? What sort of habitat do you need? What sort of furnishings do you require? Would pets be allowed?

Activity 3

Take students on a nature walk and collect materials they would need to construct a nest. Items they may collect could include sticks, leaves, feathers, mud or even man-made objects. Have students build a nest from the items they have collected, without using glue or sticky tape. How easy is it to construct a nest. Judge each nest on its suitability – protection, strength (support adult, babies, eggs), and warmth. Remind students that if they see a real nest it is important that they do not disturb it and understand how much effort has gone in to designing it.

Harrier chicks. Photo by Peter Tonelli

Raptor E-Set - Lesson Plan

E-Sets are an Electronic Environmental and Educational set of notes for teachers. Raptor E-Set suited to upper primary students.