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**OSPREYS.**

**Overview**

**Other names:** Sea Hawk, Mullet Hawk or Fish Hawk.

One of world’s most widely distributed birds.

Breeding and wintering populations are on every continent except Antarctica. Most northern are found in the Arctic circle in Finnish Lapland. Northern population mostly migrate south for the winter to the southern-most tip of Africa.

Adult Ospreys can live into their 20’s.

Often remain faithful to same breeding and wintering sites, and the same mate when they return to the nest each spring.

**Size:** Larger than a Buzzard, but smaller than most Eagles.

Wingspan 5ft/1.5m. Long narrow wings. Strong, steady wingbeats, mixed with long glides. ‘M’ shape in flight. Can hover over water, called ‘helicoptering’.

Female larger than male. Weigh up to 2kg/4.5lb.

Very striking. Brown above, white below. Yellow eye.

Young begin moulting when they reach wintering grounds, and get full adult plumage at 2 yrs when they become sexually active.

Range of calls. High pitched.

**Problems.**

**Historical persecution.** From the medieval period Ospreys were persecuted. The species was eradicated from many areas.

In the mid-20thC use of **harmful pesticides/insecticides** became a big problem.

Crows will predate unprotected eggs.

**Climate change** leading to poor weather during breeding times.

Now a protected species.

Beginning to recover, expanding across much of Europe. Aided by translocation projects and artificial nest building.

**Migration**

European and Asian Ospreys winter in sub-Saharan Africa and the Indian sub-continent. Some don’t migrate if it’s warm enough to over winter in their breeding grounds

Young Ospreys **migrate** alone without parents or others to follow. They rely on an inherited programme of direction and distance…1000s of kms away. They also learn to catch fish for themselves as they migrate south. Young Osprey survival rates are low, and only 20-30% survive to their 2nd year.

Many young remain on winter grounds for all of 2nd summer and head north when they’re 2yrs old. They are naturally drawn back to their birth site. Male birds often nest close, just a few kms from where they fledged.

**Diet and feeding/hunting**

A ‘piscivore’, Ospreys feed exclusively on fish. Their hunting grounds can be the coast, estuaries, inland lakes, rivers and ponds.

Fish must be close to surface. The Osprey circles or hovers over water at a height of 15 to 120ft/5-40m. Excellent vision (dense eye receptors) that enables it to locate the fish up to 1m deep. Pale underside makes it inconspicuous against bright sky. Turns itself into the wind, folds in its wings and drops into water fast, its splayed talons forward. Third transparent eyelid closes for protection. Long legs enable it to reach down to depth of 3ft/1m. Has small spines on underside of toes and a reversible toe to help grip the fish.

Sometimes the Osprey rests on the water, wings outstretched with its catch. Then lifts off. Can take several attempts if fish is heavy. Can lift a big fish 300g to 1kg (2.2lbs), half its body weight. Can be difficult for bird to get into air. Have oily feathers to avoid waterlogging (Osprey’s have a gland on rump that produces oil for waterproofing).

Carries fish head first which helps with aerodynamics

Shakes off excess water in flight. 1 in 4 dives are successful. Weather conditions play a part. High wind/heavy rain makes it difficult to maintain position and creates waves on water making it difficult to spot fish. Bright sun on water creates glare.

Sometimes harassed by large gulls. He returns with a fish and usually eats the head before handing it over to her.

Fish preferred; Sea trout, herring, roach, perch, pike, bream.

**Wintering**

Osprys spend the winter apart. Most spend winter on coast of West Africa. (eg Senegal/Gambia)

**Nests.**

Sites may be used for many years by successive generations.

Can become enormous. Osprey’s like a clear unobstructed view all round. Nest is made from sticks, lined with turf and moss. Scottish nests can be very tall…30m/100ft, in Douglas Fir. Good view, but exposed to the elements. In winter may collapse with snow. Other locations are often used eg:

In Germany they use electric pylons.

USA TV ariels.

Masts of boats

Corsica cliffs.

Some ground nest… but susceptible to predation.

Will use artificial nests, good way to encourage species to spread.

When Ospreys return to nest in spring, it’s usually very close to the same date each year. Get there early so that they’re not usurped by rivals. Male usually arrives first, not always. He does some spectacular flying to greet the female. They usually spend several days repairing damage to the nest. M & F build the nest, but the M does most of the work. Breaks branches off trees. Swoops to pick up branches from ground. Move sticks around and interweaves. Very secure structure. On return to nest they scrape out the nest cup: By end of breeding season the nest becomes flattened so young can launch themselves off the nest. But eggs need protecting, so M&F dig a shallow depression , lined with moss.

**Breeding**

Arrive on nest late March/early April.

Breeding season M&F have defined roles. F does most of the incubation then brooding and protection of the young. F asks for food through summer with a series of calls. She prompts male to go fishing. Young also call for food.

M defends the nest, supplies the fish.

Young fledge after about 7 weeks and migrate a few weeks later.

Most Ospreys breed close to their favoured fishing locations. Some catch fish withing sight of nest, others fly further, 40km/25 miles round trip. Male will travel 1000s km during a breeding season to feed family. Male Ospreys do most of the fishing during breeding season. When chicks are born, he will catch the first fish at first light, and make regular trips during the day. Sometimes five of six fish/day, and may catch from different sites.

**Defending the nest.**

Ospreys don’t mind and often prefer to nest close to other Ospreys.

In Scotland some nests are only 100s metres apart. Usually 2-3km.

During breeding males defend nest against other Ospreys. First by calling, then chasing away. Young birds, looking for a breeding site like to take over an established nest rather than build their own. If older Osprey arrives late he will try to oust any rivals.

**Mating.**

Ospreys usually mate for life. There are examples of polygamy. Unattached female may settle on a vacant nest close to a breeding pair (1.5km). Nearby male may visit and breed, and then split his time feeding both nests. If he leaves later, when it gets busy, she will fish and leave the nest unprotected. Not likely the young will survive.

**Egg laying**

Usually lay a clutch of 3 eggs laid 1 to 2 days apart. About the size of a hen’s egg. She does most of the incubating, about 75%.

Males takes over when she needs a break. Eggs are uncovered for only seconds.

Osprey chicks are very weak at first, but soon they can lift their head and call for food. When hatched he fishes more frequently. She tears off bits of fish and offers them to the chick. First chick becomes dominant, gets fed first…’fed up’…then she feeds the others. Cold and wet weather can be fatal to the young, and makes for difficult fishing for the male. She is very good at sheltering the young.

Chicks grow quickly due to high protein diet…very healthy.

2 weeks old, first feathers.

3 weeks shuffling round nest.

Male is now delivering 5-6 fish daily.

1 month old, 3/4rs grown, all feathers…camouflage/lie flat if mother signals (Buzzards/Corvids will take chicks)

4-5 weeks, standing up, wing flapping.

7 weeks feeding themselves. Helicoptering.

8 weeks, fledge. Takes courage for first flight.

When they first fly mother will often shadow the young. Flying is usually good, it’s landing that’s difficult.

**Post Fledging.**

A time to learn skills before migration. Gain confidence, make many short flights. Get longer until they’re away for several hours at a time can fly 15 to 20 km. They imprint on their home area (natal), make mental maps. Charging up the satnav. At this stage they’re still dependent on parents for food until they depart on migration. They do make practice dives into the water. Sometimes catch a fish. Must feed well before it migrates, a bird in poor condition can be fatal.

Once young have been flying for several weeks, mum departs on migration. Dad remains to continue to feed. Eventually the young will depart, then it’s time for dad to leave.

**Migration and migratory problems.**

Ospreys in Europe, Asia and North America usually migrate. The adults and juveniles leave northern breeding grounds in late August and early September. Juveniles migrate alone. Adults return to the same wintering site each year. Young must find somewhere safe to spend the winter.

Many birds now are wintering on the, Iberian peninsula but most continue south, crossing the Straights of Gibralta to Morocco, then skirting around the western edge of the Sahara towards the fish rich coastal waters of West Africa, from Mauritania, south through Senegal, the Gambia towards the !vory Coast.

(see p. 48 (Tim McCrill) for other countries Ospreys)

Migration is one of the wonders of the natural world. Ospreys migrate alone, so it’s a challenge of endurance and navigations, especially for juveniles. Most other birds migrate in family groups. Ospreys migrate on instinct alone. ‘Vector summation’…the migratory journey is broken down into a series of flight steps (vectors). So UK Ospreys go SW. So ours go to Spain or Portugal, across the Sahara to W Africa.

The Sahara presents demanding challenges. Ospreys usually fly over the Sahara by day to take advantage of thermal updrafts. Risk of starvation is high, particularly if a young bird is in poor condition. Must also negotiate dust storms that have increased dramatically in past years. Ospreys use a soaring/gliding flight over the desert. They circle in strong thermal to gain altitude then glide onwards, slowly losing altitude. Thus they minimize the need for flapping, conserving energy. Together with strong winds and dust storms, they also have a lack of safe roost sites. Many have to roost on the desert floor, increasing chance of predation. All sorts of dangers: Eagle Owls, crocodiles, jackals, feral dogs, discarded fishing nets, intentional killing.

When they reach wintering grounds, adult birds will settle into a routine, roost in the same location, same fishing and perching spots. Often live in the same 1km square area for 6 months. Often perch together in colonies if food is plentiful. If not they can be territorial.

**Wind** has a profound effect on migration. Ospreys may be blown off course. Strong easterly winds are a problem, especially for young birds. They mostly maintain a fairly constant altitude over the sea, using flapping flight. This is very costly in terms of energy. However they do gain altitude on thermals and then slowly glide down, saving energy. Ospreys have long narrow wings, which reduce drag and make them more aerodynamic. So, they expend significantly less energy during flapping flight than other raptors. Thus they Osprey can cross oceans whereas many other raptors can’t.

Osprey’s will typically fly 250-300km/155-185 miles in a day. Often they will choose to roost close to a lake, river or estuary to allow fishing in the evening or at first light. This is called ‘Fly and forage’ migration. Some may ‘stopover’ for a few days or even weeks. Usually return to the same stop over each migration. No one knows why they choose lengthy stops or fly direct. Early imprinting plays a big part.

Mortality in osprey’s is as high as 70% in the first 2 years.

**History of Osprey’s in UK.**

Ospreys liked to raid fishponds, and were hunted to extinction by the mid 19thC in England & Wales. Only a tiny population are left in Scotland. Now recovering well due to 50 years of conservation work.

**Decline.** Ospreys were once a common sight in British Isles. But they hunted in fish ponds of large country houses, castles, monasteries etc, so were relentlessly persecuted. When fish was eaten on Fridays for religious grounds, the Osprey was seen as a pest. In 18th & 19th Centuries’ guns got better and there was a steep decline. Last pair in 1847, Somerset, shot. In Scotland there were fewer people, so less persecution. By Mid-19thc, 40 breeding pairs in remote Scottish areas. Now new threat from egg collectors and taxidermy. So called Victorian ‘naturalists’. Scot’s population declined, and by 1916 were thought to have become extinct. Evidence shows may have been some limited breeding going on.. in ver remote areas.

With the efforts of some Scottish landowners and conservationists in 1950s and 60s, populations begins recovery.

A breeding programme was begun on Loch Garten 1954, kept secret. People were still egg collecting. Eggs robbed. RSPB orgainised team of wardens to protect. In 1959, the site became a ‘protected bird sanctuary’. 3 eggs hatched. Couldn’t keep it a secret anymore. So tactics changed, and people encouraged to visit the Ospreys from an observation point. First example of ‘ecotourism’.

1960, **Roy Dennis** got involved. He’s done more for Ospreys than anyone else. Nests were protected with barbed wire and intruder alarms. First Osprey was ringed in Scotland in 1966 (5-6 weeks old) Ringing: Osprey chicks are docile, and lie flat in nest. They are Bagged by experts, lowered to the ground, whilst the parents circle overhead. Sometimes divebomb, but not usually aggressive. Weighed, measured and ringed x 2. BTO & colour ring, easy to see. Enhances our understanding. The aim is to encourage support of local people…landowners, foresters, gamekeepers, farmers which is the key to recovery.

Ospreys are now a protected species under the Wildlife and Countryside act 1981.

Osprey spread can be slow, and the ‘colour ringing’ has shown some interesting traits. Male ospreys tend to return to areas close to their birth-sites in later years, although females go further afield. But because males do most of the nest building, this limits geographical expansion. However, the Scottish population continued to increase and in 2001, 153 breeding pairs reared over 200 chicks. Today there are more than 300 pairs and Ospreys have returned to England and Wales.

**Osprey Conservation.**

The effects of persecution, habitat loss and insecticides have been devastating, but conservation efforts have worked well. Artificial nest building and re-introduction (translocation) have been very successful.

Egg collecting is now far less of a threat.

Ospreys respond well to proactive intervention.

Artificial nest building has been very successful. Roy Dennis constructed the first one in 1960 using an old cartwheel. It was never used, but techniques have got better.

Two ways in which artificial nests help Osprey spread.

1. Young inexperienced Ospreys tend to build poorly constructed nests in poor positions. They may collapse in the breeding season, leading to loss of eggs or chicks. Conservationists (Roy etc) identified poor nests, and replaced them with secure nests in the winter. They also repaired nests damaged by storms. So, returning Ospreys do not have to spend time and energy re-building during the next breeding season.

2. Artificial nests have been an excellent way to encourage Ospreys to spread to new areas. 2yr olds return to UK for the first time and fly over vast areas. First time breeders prefer to take over established nests rather than build their own. So, there is a likely hood they will take over artificial nests in new areas, assisting the spread. This has led to re-colonization in Cumbria and the Keilder forest.

**Best Nest.**

Should look like an active Osprey nest. Should be a large structure about 1m/3ft across. Lined with turf, moss and soil, outer structure of sticks and branches. Location is important. Ospreys prefer a clear view all round on top of a tree or telegraph pole. Does not need to be on the water’s edge. Many nests are several kms from the nearest water, but best if a short flight from fishing grounds.

**Translocations (TL)**

Needed for bigger geographical jumps.

Five artificial nests were built at Rutland Water in 1995.

Translocation was discussed, rather than relying on natural colonization to take place, which may have taken decades.

Never attempted in Europe before, but there had been success in USA. TL involves moving chicks form well established colonies and releasing into areas where there is no Osprey population. Young Ospreys imprint on an area where they first fly, so moving chicks at 6 weeks just before fledging is required. This improves the chance of them returning to the TL site when they’re 2yrs old. Scottish birds were TL’d under license to Rutland.

**Rutland Water.**

The young birds were housed in specially designed release pens on a hill so they could overlook the area. Fed locally sourced trout. Human contact was kept to a minimum. After 2/3 weeks, ready for release. Pens opened, some birds went, others stayed for a while. Birds well-fed, so they were in the best condition when they departed on migration.

Urge to hunt and fish is entirely instinctive, so the young Ospreys didn’t need teaching by parents. Birds were fitted with monitoring equipment/trackers.

Birds began to return in 1999 (birds released in 1997)…breeding finally began in 2001, and Ospreys returned to England after 150 yr absence. Artificial nests were also colonized in Lake District.

**Wales**

In 2004, 2 pairs of Ospreys were found breeding in Wales. Both males had been TL’d to Rutland water….Glaslyn Valley, Snowdonia/Mid Wales.

An artificial nest built by Montgomeryshire WT (Gors Dyfi) was taken over by Rutland birds. 3 make chicks from Glaslyn have gone on to breed in northern England.

**Future conservation.**

Translocation is the most effective means of restoring Ospreys to new locations.

Conservation of charismatic species like the Ospreys plays a crucial role in raising awareness of the need to conserve ecosystems and habitats.

Ospreys were lost entirely through the influence of humans, their return sparks much interest.

Ecotourism inspires people to take more of an interest in nature.

Links schoolchildren from 3 different continents, Euorpe, America, Africa during ‘World Osprey Week’. Tanji in the Gambia now run environmental educational programmes. Their football team is called Osprey FC.

**Ospreys in Culture.**

Ospreys have been admired for 1000s of years. It is referred in many historical texts.

Scientific name is ‘Pandion Haliaetus’…a mythical king of Athens Pandion and ‘hals’ meaning ‘salt or sea’. ‘Aetos’ means Eagle.

The Osprey is revered by Senegalese fishermen in song.

Aristotle wrote ‘History of animals in 4th Century BC, and included the Osprey.

Pliny wrote of it in 1stC AD in his ’Natural history’.

In Middle Ages it was believed that fish were mesmerized by the sight of a hunting Osprey, and would swim belly-up in an act of surrender.

Also thought that Ospreys had one webbed foot for swimming and one with sharp talons for fishing.

Shakespeare: Coriolanus used the Osprey as a metaphor for great military skills.

**Andy Harrop-Smith**

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(Bibliography to follow)