



Rehabilitation Report 2009

*Bird Casualties received
by the Barn Owl Trust
in the period 1990-2005*



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CHAPTER 1

1.1 INTRODUCTION

1.1.1 Barn Owls at risk

The Barn Owl population of Britain is thought to have decreased by at least 70% since the 1930s, although the full extent of their decline cannot be determined as initial surveys were less than reliable (Percival 1992). Anecdotal evidence suggests the birds were very common indeed during the 1800s, but the first reliable survey in the late 90s estimated the UK population at only 4,000 pairs (Toms *et al.* 2001). The principal factor in this decline was a significant reduction in food supply caused by intensive farming and the loss of traditional nest sites such as old barns and hollow trees.

The overall size of the Barn Owl population is determined more by the survival rate of first-years than by any other life cycle parameter (Percival 1990). It is therefore particularly important to consider the causes of mortality amongst younger birds. Each year about 12,000 young are produced, up to half of which die during post-fledging dispersal and approximately another quarter die during their first winter. Most deaths occur as a result of starvation or encounters with man-made hazards such as motor vehicles (Percival 1990 & 1991, Ramsden 2003). Although starvation is an entirely natural cause of mortality, it is exacerbated by the lack of food resulting from intensive land management. Other possible risks include flying into obstacles such as overhead wires and windows, becoming trapped in buildings, drowning, and electrocution.

1.1.2 Lack of published information and experience amongst rehabilitators

Many rehabilitators have little or no experience of working with Barn Owls. This is due to the fact that the number of injured Barn Owls they receive is generally low given that they are relatively rare birds and the vast majority of casualties die quickly. Compared with many more common birds Barn Owls are specialist feeders with particular dietary requirements and habitat needs. They tend to be shy by nature and are not the easiest of birds to treat. In addition, many rehabilitators pay insufficient attention to selecting the best release method for each individual bird and many are simply taken out and let go. The advantages of a supported release and the need to release birds within their own home range rather than elsewhere are little understood.

Although information exists on the veterinary aspects and housing of owl casualties (see for example McKeever 1987), this information is not widely available. In addition, there is a distinct lack of published information concerning release methods. At the invitation of the *British Wildlife Rehabilitation Council* the Barn Owl Trust (BOT) gave a presentation on release methods at their 2000 Annual Conference to an audience of wildlife “rehabbers”. This presentation later appeared in the published proceedings (BWRC 2002). More recently the Trust has created web pages for people finding injured or “orphaned” owls as well as leaflets that deal specifically with the treatment of young Barn Owls and young Tawny Owls. In the future we hope to produce further information; please refer to www.barnowltrust.org.uk

1.1.3 The Barn Owl Trust’s historical involvement in the release of captive owls and the development of its release methods

The Barn Owl Trust evolved from the work of its predecessor, the Devon Barn Owl Breeding and Release Scheme, which started in 1985. Within the Scheme, Barn Owls were captive bred and then released from specially surveyed areas that had suitable habitat and no resident wild Barn Owls (Ramsden & Ramsden 1989). The scheme

operators were intensely interested in the process of the actual release – if an inexperienced and physically unfit captive bird was to change into a fit, well-adapted and independent wild bird, how could this be achieved and what were the dangers to be avoided? In making this transition, what the birds needed perhaps more than anything else, was time. Released birds needed time to adapt to life in the wild and in order to give them this time it was necessary to ensure that they did not starve faster than they learnt to hunt. The only way that the risk of starvation could be minimised was to establish a pattern of return for food provided. Maximising the chances of this pattern being established in newly released birds became a fundamental principle governing the selection and preparation of release sites, as well as steering the evolution of release methods.

Whilst the above principles can be applied to all fledged owls (mainly adults), the release of nestlings which involved placing unfledged birds in nestboxes (without confinement) involved different principles altogether. By the time the BOT was founded as a registered charity in 1988, two release methods for captive-bred birds had been refined: one for adults with young in the nest, and one for nestlings. The BOT had also become involved in the treatment and rehabilitation of wild casualty owls. Although many of the casualty owls already knew how to survive in the wild, those individuals that it was possible to release still had to undergo the transition from a period of treatment in close confinement, followed by a period in an aviary, to the process of release - in many cases having to re-use limbs that had been fractured. Fortunately, the release methods developed for captive-bred birds were used to good effect with birds of wild origin. In spite of the fact that experienced wild birds were in an entirely different situation from captive bred birds, the advantages of a gradual/supported release worked equally well for them. For those birds of wild origin that had never been self-sufficient, the release methods used for captive bred birds were perfect.

1.1.4 The work of the Trust

Dealing with owl casualties and the rehabilitation and release of birds, although important, is not the Trust's main work. Most effort is directed towards maintaining the Barn Owl population by providing prey-rich habitat and ideal nest/roost sites. Foraging habitat is largely provided through advisory work with farmers and landowners via site visits and information provision. Ideal nest/roost sites are provided by the Trust through the erection of nestboxes and through encouraging provision for Barn Owls within developments such as barn conversions. Much of the Trust's advisory work is achieved by maintaining web pages and leaflets available on paper or as PDF documents. With its range of over 40 information leaflets, the BOT is now the main source of information on Barn Owls in the UK. Advice given by the BOT is based on over 20 years' practical experience and knowledge acquired through the creation and management of its own 26-acre nature reserve.

The BOT is also a research body and published the first-ever reports on the following subjects: the survival of released captive-bred Barn Owls (Ramsden & Ramsden 1989), the effects of barn conversions on local Barn Owl populations (Ramsden 1995), major road mortality and the effect of the major road network on the Barn Owl population (Ramsden 2003). BOT has conducted the biggest-ever county Barn Owl surveys (in Devon and Cornwall) (Ramsden & Howells 2004, French and Ramsden 2005). As well as developing sound release methods for captive owls, the Trust has put a lot of effort into the improvement of nest box designs aimed specifically at reducing the high levels of nestling mortality associated with unsafe nesting places (see BOT leaflets nos. 2, 3, & 50).

Thought-provoking educational work has been a feature of the BOT since its first junior school presentation in 1989. Up to 2008 the Trust has provided 467 presentations to

juniors and 389 to groups of adults. In more recent years the Trust has become a regular provider of specialist training for Ecological Consultants involved in planning and development work. Other educational resources include a schools pack and DVD, the widest range of leaflets covering all aspects of Barn Owl conservation, and a booklet for Planners and Developers published by Natural England. The Trust's presentation on release methods for rehabilitated Barn Owls is still in use and regularly requested by animal care and veterinary course organisers.

1.1.5 Scope of this report

This document aims to present figures on the number of bird casualties received by the Barn Owl Trust and what happened to them up to the point of release. Background information and a brief outline of the rehabilitation process are also included so as to provide the reader with an understanding of the Trust's involvement in this type of work. However, the aim of this report is not to provide detailed guidance with regard to dealing with casualties or the selection/operation of the most appropriate release method.

1.2 OUTLINE OF THE REHABILITATION PROCESS

1.2.1 Recording and correct identification of the incoming casualty

First, the exact finding place and circumstances must be recorded. The lack of this information will almost certainly affect the final choice of release place/method and this decision will have a strong influence on the bird's chances of survival.

Second, the species must be correctly identified as this will often determine the next step to be taken. For example, a very young Tawny Owl need not be put back in the nest as the parent birds will feed it anywhere nearby, whereas a very young Barn Owl must be put back in the actual nest or it will most likely die as a result of neglect. Third, the age of the bird must be determined. If the bird is obviously a fluffy nestling then age determination is simple whereas a ten-week old Barn Owl (just fledged) looks virtually identical to an adult. It is vitally important to differentiate between adults and recently fledged birds as the release place/method used will depend on age determination as much as it does on correct species identification. Adults that have been self-sufficient and have their own well-established home range will need to be returned to it.

A Rehabilitation Record Form is used for each bird and all the above information and subsequent progress is recorded. Almost all birds are weighed on arrival and at various stages during the rehabilitation process. Records include weight, behavioural observations, treatment, progress, and eventually the release details or other outcome.

1.2.2 Initial assessment

Upon arrival it is sometimes immediately obvious that the best thing to do is to have the bird put down as quickly as possible. Deciding whether or not to treat a seriously injured bird is often a difficult judgement to make and parts of the assessment are bound to be subjective; a matter of opinion. Is putting the bird through at least two weeks of stress justifiable when its chances of survival are very slim indeed?

Approximately half of all the seriously injured owls that the BOT receive die or are put down because their prospects are hopeless. Following the decision to treat or put down, the next decision is whether to take the bird to the vet for assessment and initial treatment or for BOT to treat it without veterinary involvement.

Occasionally, birds are received in excellent condition suffering only from slight concussion (and fully recover within a few hours) or appear to have nothing wrong with

them at all. If the birds are nestlings then they may be returned to their original nest. Adults, on the other hand, are sometimes taken back to their place of finding and simply let go.



Eye damage and bleeding from the ear and nostrils resulting from a vehicle collision

1.2.3 First aid and treatment

In general, the problems that are dealt with by BOT alone include concussion, emaciation and radius/ulna wing fractures (which may be strapped at the BOT). Injuries that would need veterinary treatment include fractured humerus, any dislocation, most leg fractures, anything that requires an X-ray, bumblefoot and other serious problems. First aid often involves treatment for shock, re-hydration of emaciated birds and occasionally the cleaning and/or covering of open wounds. Further treatment may include the pinning and/or strapping of a fractured wing, pinning and/or splinting of a leg fracture, administration of antibiotics, eye drops or ointment, regular re-hydration and/or force-feeding. Both conventional drug treatments and homeopathic remedies are used as appropriate.



Vet operating on a fractured wing

1.2.4 Close confinement and handling

Many casualties are confined for 14 days and occasionally as long as 20 days. This may cause damage to feathers and so closely confined birds are checked frequently. Solid-walled carriers or storage boxes are used in preference to mesh cages. Bedding is provided in the form of a large towel wrapped around a newspaper. This enables us to check for any change in the colouration of droppings and makes it easy to spot

uneaten food items or discarded medication. Once the bird is eating well, the bedding is usually changed to a thick layer of compressed shredded paper.



Birds housed in plastic storage boxes

During confinement most birds need to be handled between one and three times a day. In order to restrict mobility and minimise the risk of accidental damage the birds are usually wrapped in a towel. This allows them to be re-hydrated, force-fed, or be given pills single-handedly.



Towel wrapping is the best way to handle a casualty as it helps minimise feather damage

1.2.5. Convalescence and aviary confinement

Once the bird is eating and recovering well it is moved into a small aviary and its mobility assessed. In such a small aviary the bird can only get up to a high perch by fairly strenuous climbing or vertical take off. Typically, after a few days the bird is moved to a large flight aviary (sometimes via an intermediate one). Here the flight is assessed along with general movement, coordination, reactions and other behaviour.

Birds that are judged to be 100% fit are obviously released. Birds with a slight to moderate disability are kept permanently in the Trust's sanctuary. However, difficulties can arise when assessing suitability for release as a significant proportion of birds are

judged to be only 98% or 99% fit. In an ideal world, no birds would be considered for release unless 100% fit. However, it should be noted that bird ringers who capture large numbers of wild birds occasionally find one that is slightly disabled and evidently surviving. On occasion, birds that are deemed to be only 99% fit are released by the Barn Owl Trust as the alternative is a life in permanent captivity or euthanasia.



**This Barn Owl has a dropped wing (right wing lower than left wing).
This is quite common following a severe wing fracture**

1.3 Release methods used by the BOT

1.3.1 Release method selection

As long as the bird is deemed fit enough for release then a decision is made on the best release method to use, taking into consideration all the factors involved with each individual. Birds that have previously had a home range (in the case of a Barn Owl) or territory (in the case of a Tawny Owl) are almost always released very close to where they were found. Birds that have never had a home range or held a territory (because they became casualties before becoming established and self-sufficient) are released in an area of habitat suitable for that species.

There are numerous factors that determine the best place, time, and method of release for each individual bird these include species, age, experience, original finding circumstances, time spent in captivity, habitat requirements, availability of release facilities, time of year, and weather forecast.

1.3.2 Returned to nest or fostered in (a method for unfledged nestlings)

Owlets that have fallen from the nest, have incurred no injuries and are well fed are often placed back in the nest (especially critical for Barn Owls) or near to the natal site (appropriate for Tawny Owls). Young that cannot for some reason be returned, are sometimes fostered-in to a different nest with young of a similar age. A minority of nestlings or fledglings are kept for longer and by the time they are fit enough to be returned the original nest is empty. In these circumstances, inexperienced young birds are never taken back to the nest site and just let go (cold-released) or cold-released elsewhere. This is because the cold-release method does not provide the post-release support that is considered to be essential for inexperienced birds.

1.3.3 Young brood release (another method for unfledged nestlings)

This method involves placing one or (usually) more nestling Barn Owls in a nestbox in an area of suitable habitat and placing food in the box every evening. The birds are not shut in and are only restrained by their own underdevelopment. As they grow and become more mobile the natural pace of their own development governs the speed of their release. With this method, a pattern of return for food is almost always established and their survival rate is equal to that of parent-reared birds. This method is not generally used with nestling Tawny or Little Owls because when they fledge they do not appear to be as nest-orientated as fledging Barn Owls.

1.3.4 Cold (unsupported) release (a method for adult birds)

With this method the individual bird is taken back to where it was found (or very nearby) and held up in the air until it has stopped struggling and has had a look around. The releaser's grip is gradually relaxed and their hands are slowly opened allowing the bird to fly off. There is no attempt to establish a pattern of return for food and if it is to survive, the bird must attain self-sufficiency very quickly. This method is generally used for experienced adult birds that appear 100% fit and have only been confined at BOT for a few hours or at the most, a few days.



A Barn Owl being released using the cold (unsupported) release method

1.3.5 Top-opening aviary release (a gradual or supported release method for fledged/adult birds)

This method involves the keeping of one or more owls in a large aviary which is built in such a way that at least a third of its roof area can be easily and quietly opened. The owl's food is placed in a small open-ended box so that local crows and magpies cannot see it, the idea being that when the aviary is open the released bird is the only bird that knows where the food is. At time of release, the top of the aviary is locked in the open position allowing the bird to come and go at will. This helps to maximise the chances of a pattern of return for food being established. In order for the bird to feel well settled in the aviary and to become familiar with its surroundings it is confined for no less than two weeks before release. The aim is for the aviary top to be opened without the bird flying out, so that it is able to leave in its own time in a relaxed manner. After release, food continues to be provided for not less than ten days and/or for as long as the owl takes it.

1.3.6 Mobile aviary release (another gradual or supported release method for fledged/adult birds)

Operation of the mobile release aviary follows the same principles as the static top-opening aviary except that it can be towed to any accessible release location. By far the best place to release an adult bird is within its own home range (or territory) and by far the best method is a gradual release from a top-opening aviary. The mobile aviary allows us to use the best method in the best place for each individual owl. For birds

that have never been independent (and therefore don't need to be returned to a particular area) the mobile aviary can be taken to an area of ideal habitat. Once the aviary is detached from the vehicle and set up, the owl is placed inside and feeding commences for at least two weeks.



The mobile aviary being set up in preparation for a release



Once the top of the mobile aviary is opened, the owl is able to come and go at will whilst food continues to be provided

CHAPTER 2 RESULTS

2.1 SOURCE OF INCOMING BIRDS

The majority of casualty birds brought into the Barn Owl Trust were from the wild and the remainder had sustained injuries when kept in captivity elsewhere. Out of a total of 293 birds, 273 were of wild origin, 17 were captive and 3 were picked up shortly after release from captivity.

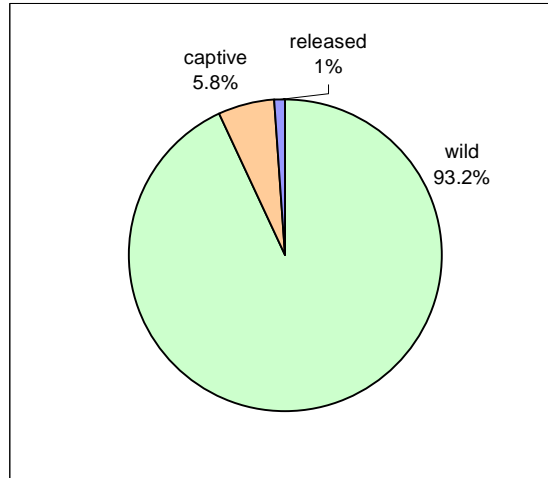


Figure 1. Source of the birds received at the Barn Owl Trust

2.2 SPECIES RECEIVED

The most frequent species of birds received by the BOT were Barn Owls, Tawny Owls and Little Owls, with just one Short Eared Owl and two Long Eared Owls. The Boobook Owl and Eagle Owl were both escaped captive birds.

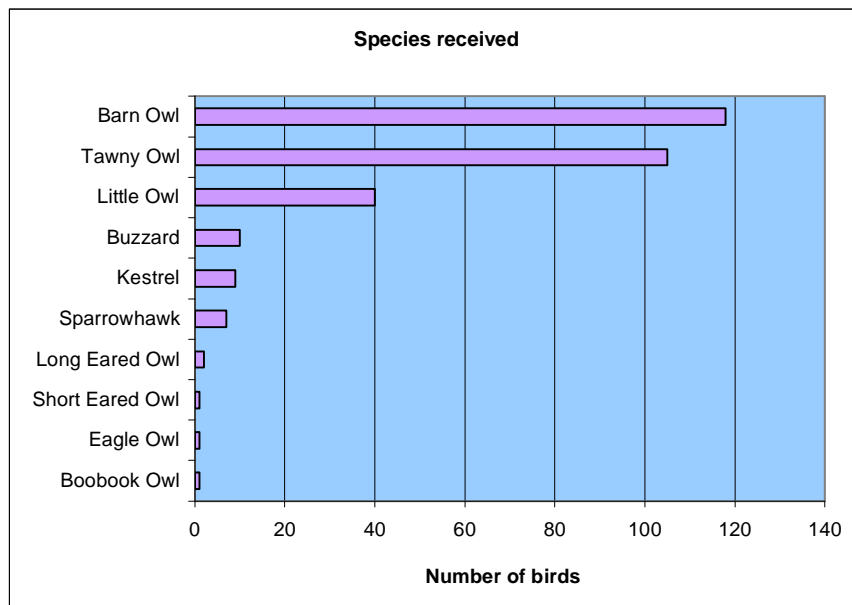


Figure 2. Species received at the BOT. The values refer to the total number of birds received, captive bred included

2.3 YEARLY INCOMING TREND

Figure 3 shows the yearly trend of all incoming birds from 1990 to 2005. There are three peaks: 1994, 1996 and 2005. From other research conducted by the BOT there may be some correlation between the number of birds received and the productivity of the owl populations, i.e. the more owls there are, the more owl casualties are found. A lack of public awareness of the work of the BOT during the early years may account for the gradual increase in the number of birds received between 1990 and 1994, and the low numbers in 1997 and 1998 could be due to reduced population size.

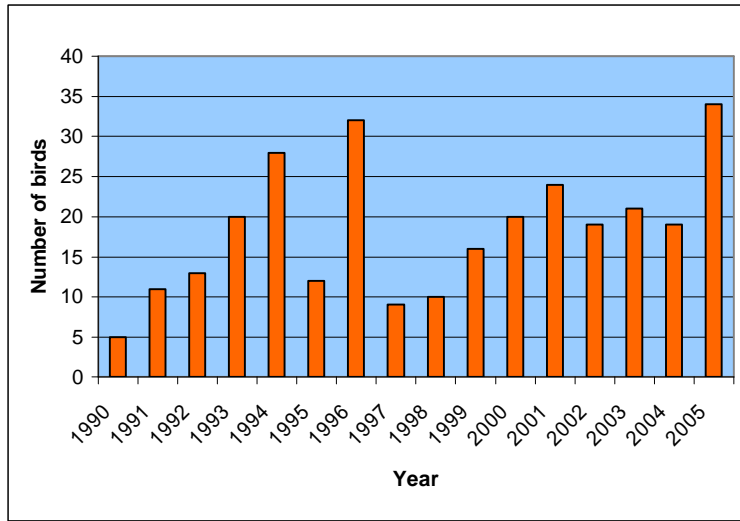


Figure 3. Total number of birds received by the BOT in each calendar year

2.4 WHAT ULTIMATELY HAPPENED TO THE BIRDS RECEIVED BY BOT

Figure 4 shows what happened to the birds received by the BOT during the study period. Almost half of them (143 out of 293) were released. The birds that died (82) were mainly those that were put to sleep or that died shortly after arrival. 'Kept' refers to those birds that were permanently disabled and became resident in the Trust's sanctuary or BOT-approved foster homes. The 20 birds that were passed on to other rehabilitators were mainly diurnal birds of prey. A small percentage (2.4% or 7 birds) were escaped or lost captive birds that were returned to their owners.

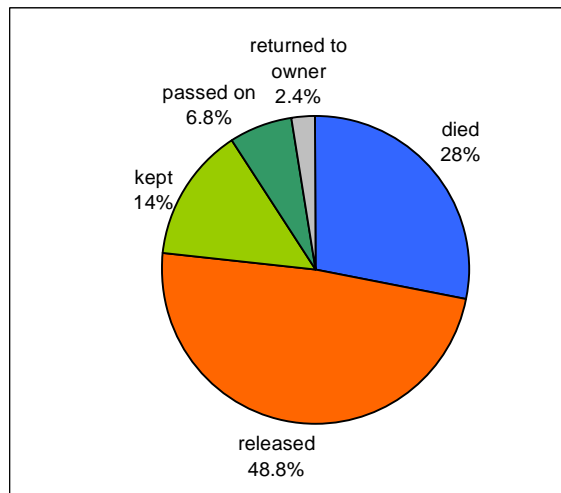


Figure 4. Outcome of the birds received by the BOT, including those of captive origin

2.5 OTHER BIRDS/ANIMALS RECEIVED

Figure 5 shows the other species that were received by the BOT. The available rehabilitation records show that more than half of them (64.1%) were Hedgehogs. The majority of these had been passed to BOT by the RSPCA for release. Jackdaws represented 17.4% - mainly fledglings found in the nearby town. The remaining 18.5% included a wide variety of species.

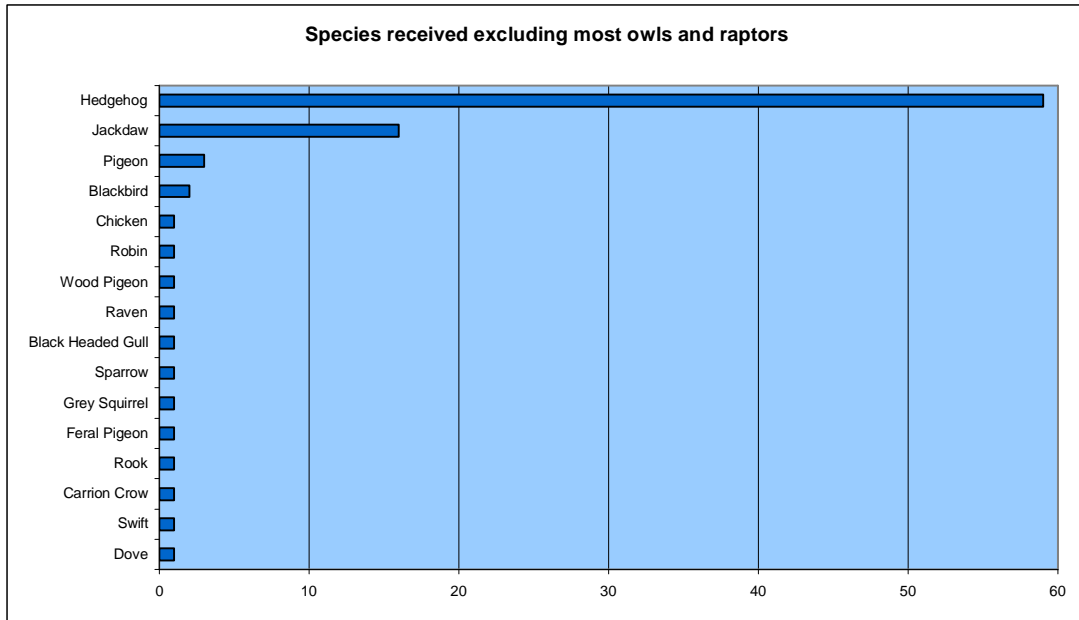


Figure 5. Other birds/animals received by the BOT

CHAPTER 3 WILD BARN OWLS

3.1 YEARLY AND SEASONAL TRENDS

The BOT received 118 Barn Owls during the study period, 106 birds were from the wild population as opposed to birds that became casualties in captivity or as the result of escape. 28 of these were 'nestlings' and 78 were 'adults' (see definitions below).

Definitions:

Nestlings = birds that have obviously not fledged yet and birds that may have attempted their first flights but are considered to be largely nest-bound.

Adults = birds that are fully-fledged juveniles (wing feathers fully grown) or older.

The number of wild Barn Owls admitted each year is illustrated in Figure 6. The highest value corresponds to the 2005 record of 23 birds, with the second highest being in 2004 (12 birds). Apart from the null value of 1990, the lowest record was in 1997 with just one individual.

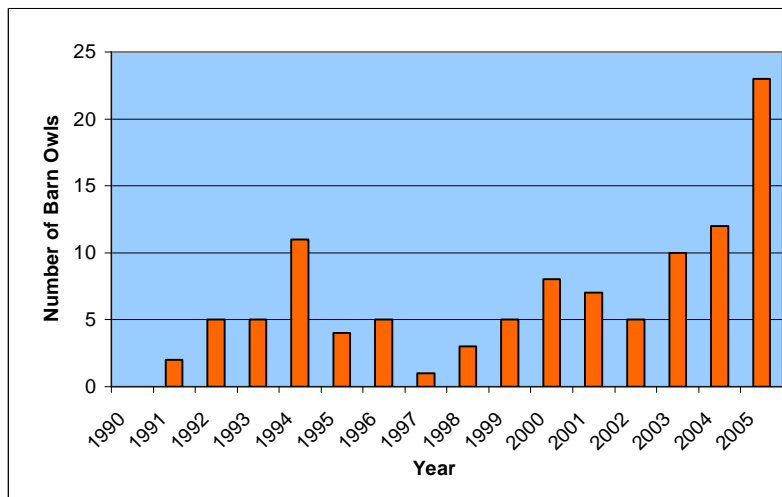


Figure 6. Number of wild Barn Owls received per year.

There seems to be a cyclic trend in the number of Barn Owls received. A first cycle occurred in the period 1990-97, a second one in the period 1998-2002, and the current one started in 2003. Overall, the average number of Barn Owls received has gradually increased, rising from about 4 per year in the period 1990-99 to about 11 per year in the period 2000-05. This trend could be due to increased awareness of the work of the BOT resulting in more Barn Owls being admitted, rather than an indication of population increase.

Figure 7 shows the seasonal distribution of the Barn Owls received (all years combined) and is divided according to two age classes: one for nestlings and the other for adults (see definitions above). As expected, most of the Barn Owls were admitted during the summer months, with a large proportion being nestlings (23 out of 48 summer recoveries). Barn Owls usually lay their eggs in April and May, the young start to fly when they are approximately 9 weeks old and are fully fledged in July/August. A small proportion of nestlings were found in the autumn as second broods can occur if conditions are favourable.

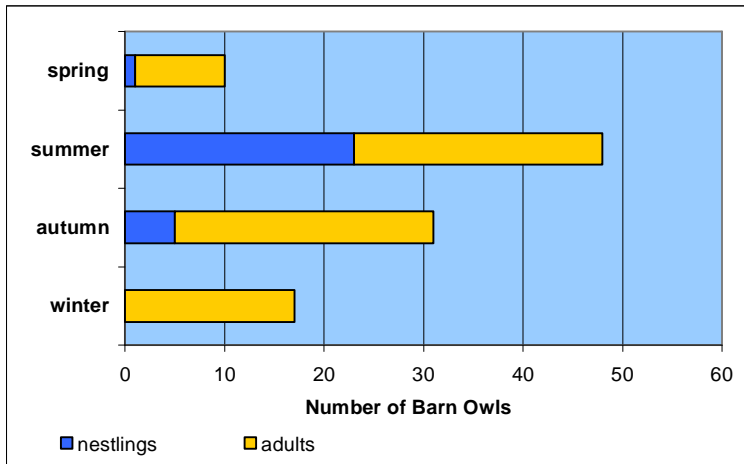


Figure 7. Seasonal trend of wild Barn Owls received (all years combined), divided according to age class

3.2 FINDING CIRCUMSTANCES

Figure 8 shows the finding circumstances of casualty Barn Owls received by the BOT. The category “road casualty” includes all birds found on or immediately next to roads - it is reasonably safe to assume that these birds had been involved in a vehicle collision (although a minority may not have). In the chart in Appendix 1 this category is divided into three classes: birds found on major roads, birds found on minor roads and road traffic accidents on unknown road type. As can be seen, the number of birds found on major roads is higher than the number of birds found on minor roads (as reported by Ramsden (2003), Percival (1991) and Taylor (1994).

23 birds were found below nest boxes or nests. They were all nestlings or fledglings. This figure includes 3 birds whose nests appeared to have been abandoned by the adults, and 9 birds whose nests appeared to have been destroyed. 17 out of the 23 Barn Owls had some injury related to falling from the nest. Reports of nestlings that had fallen from the nest were much more common than these figures suggest but in most cases the finders were (with BOT’s guidance) able to check the birds over (the majority showed no signs of injury) and return them to the nest.

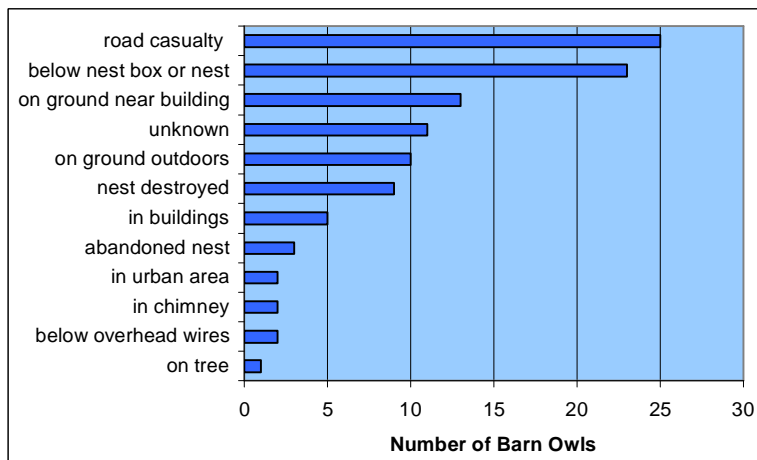


Figure 8. Finding circumstances of wild Barn Owls received at the BOT

3.3 TYPES OF INJURY

The different types of injury sustained by the Barn Owls received at the BOT are illustrated in Figure 10. Many birds had more than one injury and could have appeared twice or more in the chart. To avoid this, only the most significant injury was considered for each bird - for example, if a bird was emaciated and had a broken wing, the latter was given priority.

Cases of emaciated birds were the most frequent. However, if wing injuries are considered as one group (broken wing, dropped and dislocated wing combined), then they have by far the highest value. The category 'dropped wing' includes all birds that obviously had a wing injury of some description but the wing did not appear to be broken or dislocated.

The high numbers of birds with no apparent injury (Fig. 9) were mostly nestlings that had fallen from the nest or whose nest had been destroyed (nests in trees that had fallen naturally or been felled).

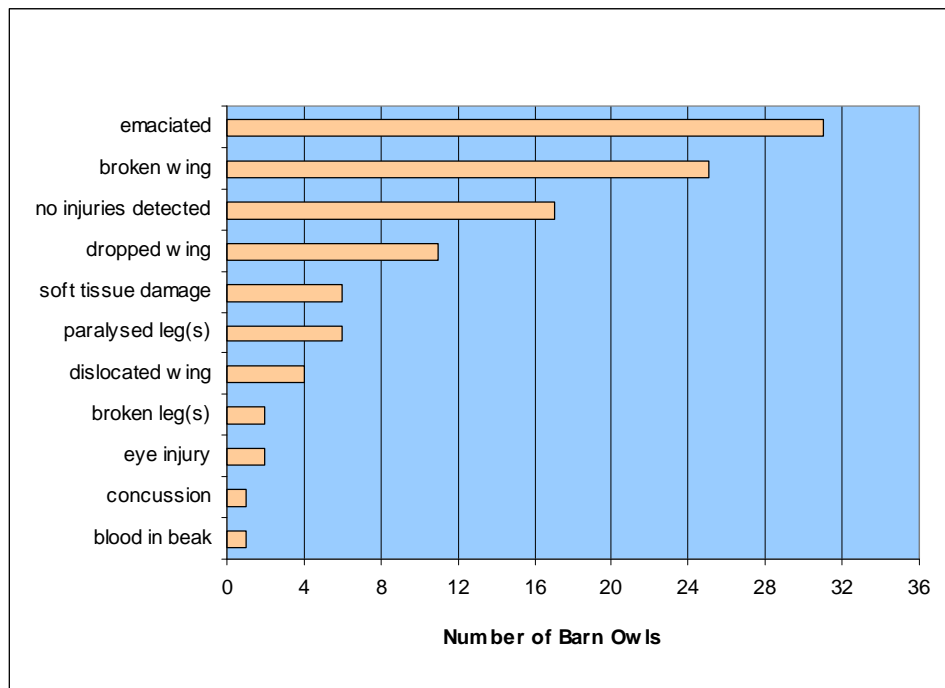


Figure 9. Types of injury of wild Barn Owls received by the BOT

Figure 10 shows the average time spent in captivity in relation to injury type but excludes very infrequent injury types (those giving insufficient sample size). The category “tissue damage” excludes one bird that was kept for almost two years before it was fit for release.

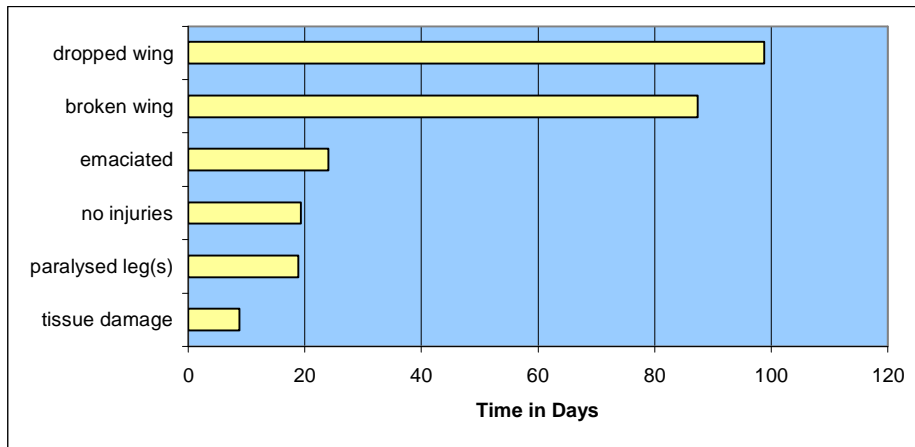


Figure 10. Average time spent in captivity of wild Barn Owls received at the BOT in relation to injury type

As wing injuries were the most common, further analysis of them was made. Figure 11 shows the percentage values of fractures and dislocations of both wings and legs.

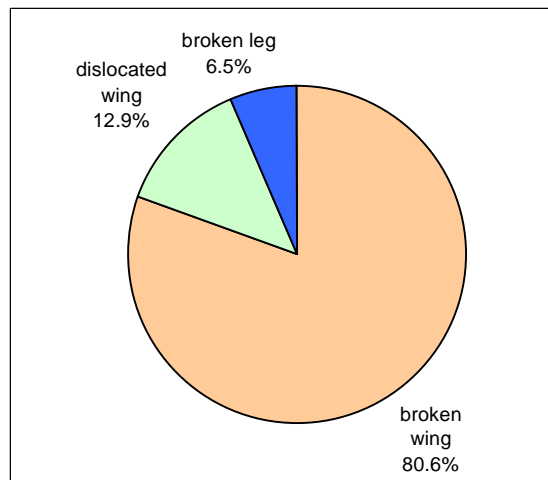


Figure 11. Fractures and dislocations of wings and legs in wild Barn Owls received by the BOT

Humerus fractures were the most frequent injury (Fig.12). Injuries to left wings were far more frequent than injuries to right wings (Fig. 13). This seems to conflict with the hypothesis that in Great Britain right wing fractures outnumber left wing fractures because we drive on the left (Ratcliffe, 1977), the theory being that birds taking off and crossing a road will fly lowest across the first half of the road and are therefore more likely to be struck from the right than from the left.

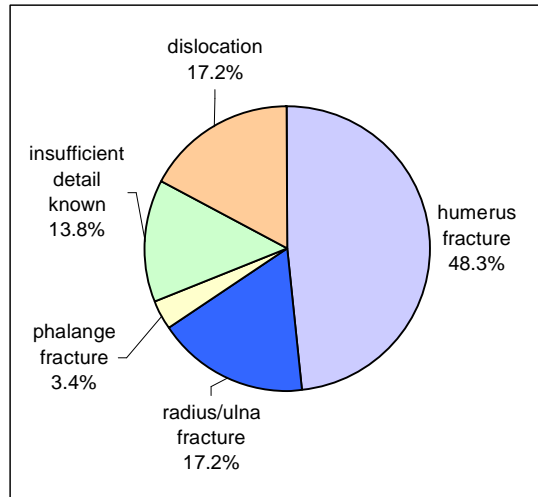


Figure 12. Type of wing injuries in wild Barn Owls received by the BOT

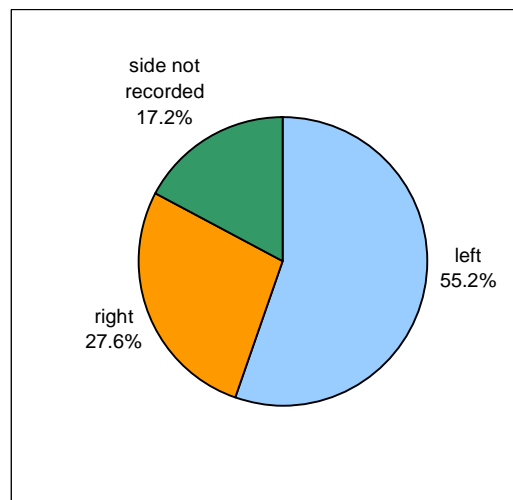


Figure 13. Right or left wing dislocation or fracture in wild Barn Owls received at the BOT

Figure 14 shows the treatment given to wing injuries. Strapping involves the application of slightly sticky tape around the folded wing, and sometimes around the body, to temporarily immobilise it. Pinning normally involves the insertion of a metal pin through the humerus. Some pins protrude and are removed once the bones have knitted together, others are internal and permanent. Cases belonging to the category 'other' refer to three birds that had to be put down by a vet straight away and one bird with a wing fracture which was neither strapped nor pinned. 'Strapped' refers to injured wings that were not pinned whereas most of the wings referred to as 'pinned' were also strapped for a while.

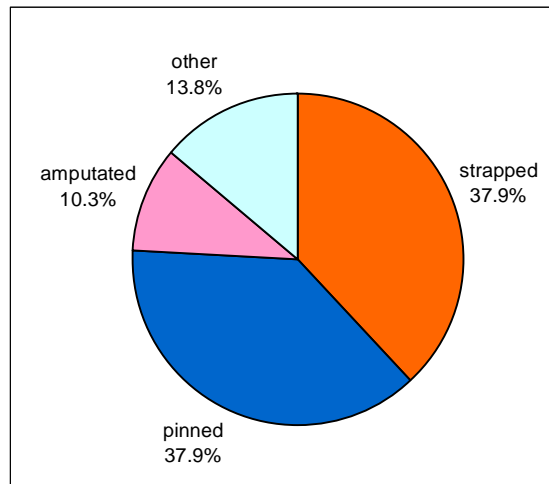


Figure 14. Treatment given to wing injuries in wild Barn Owls received by the BOT

Taking into consideration all the birds that were underweight - emaciated or starved - and including those that also had other injuries and were released after rehabilitation, the average weight on arrival was 261g, and the average weight just before release was 326g – this is an average increase of 65g.

3:4 OUTCOME

Figures 15a & 15b allow us to make a comparison between the outcome of Barn Owls received as nestlings and those received as adults (see definitions). With respect to adult Barn Owls, well over half of those received made a full recovery. Almost two-thirds of these survivors were subsequently released, whilst one-fifth will spend the rest of their lives (often many years) in captivity. Conversely, none of the Barn Owls received as nestlings became permanently captive and over 82% made a full recovery and were released.

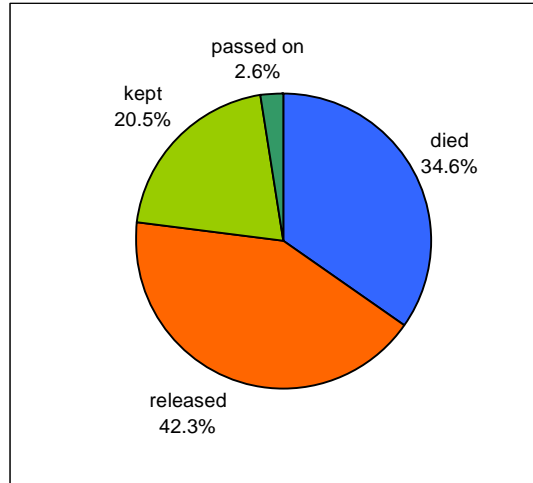


Figure 15a. Outcome of adult Barn Owls received by the BOT

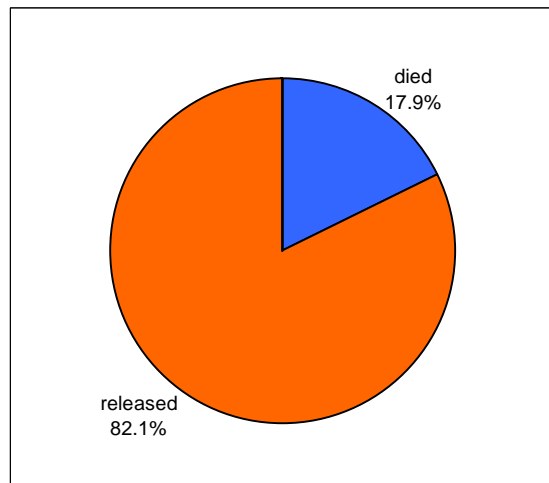


Figure 15b. Outcome of nestling Barn Owls received by the BOT

The relationship between the type of injury and the outcome is shown in Figure 16. The two birds with no apparent injuries that died were owlets. One had been found below a nest (a fallen owlet) and the other was the only one to die from a brood of 6 owlets that were picked up after their nest had been accidentally destroyed.

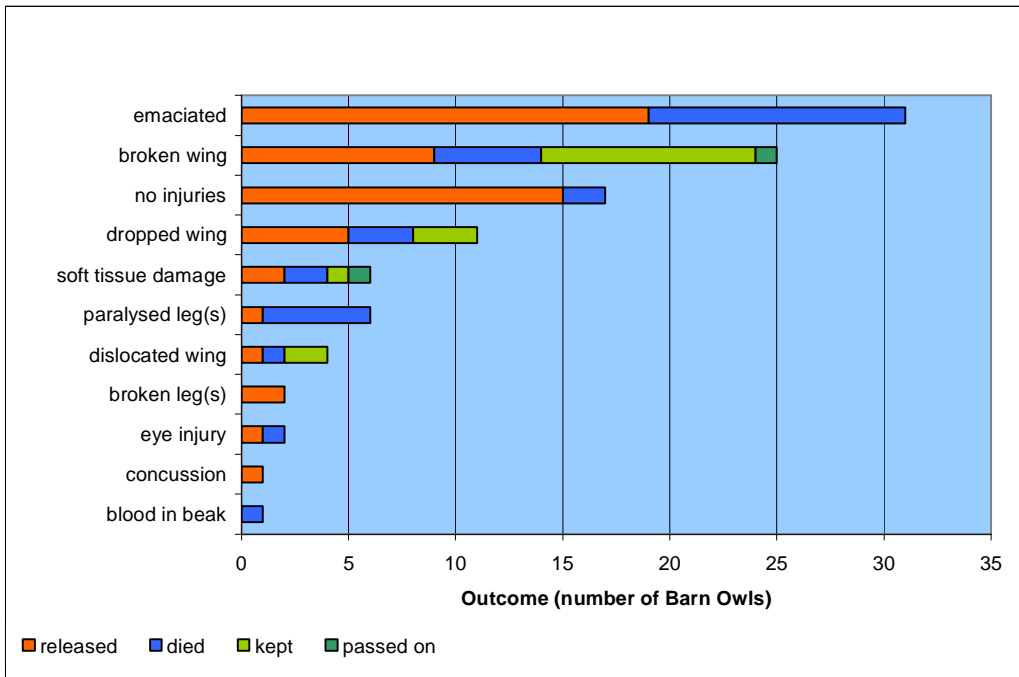


Figure 16. Type of injury and outcome of wild Barn Owls

A similar chart has been produced to show the relationship between the outcome and the finding circumstance (Fig.17). A large proportion of the dead birds were road casualties, whereas most of the birds found below nest boxes or nests were released.

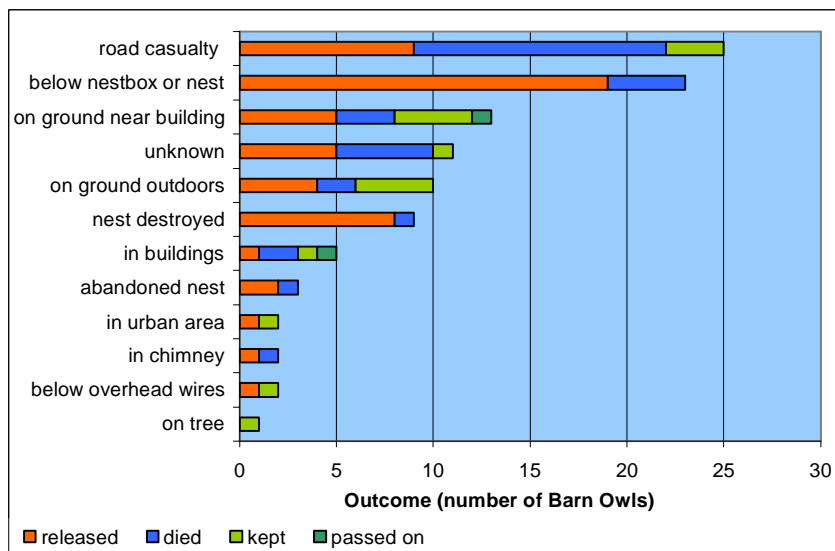


Figure 17. Outcome of wild Barn Owls in relation to finding circumstance

3:5 RELEASE METHODS

Figure 18 shows the release methods used for rehabilitated Barn Owls. The category 'nestling release' covers three slightly different release methods. The nestlings were returned to their original nest, fostered-in to another nest containing similar-aged young, or placed in a nestbox at a site where there were no Barn Owls and food items were provided nightly at the nest by humans. Importantly, this latter method could only be used with birds that were not due to fledge for at least a week or two as it did not involve any shutting-in of the birds - a factor which is essential in order for the method to be successful. Birds that were too close to fledging (and could not be returned to their natal site) were kept until fully fledged and later released from a top opening aviary.

Top opening aviary releases are divided into two types – static and mobile. The top opening aviary release method involves shutting a bird in the aviary for at least two weeks and then carefully propping the aviary top wide open at dusk without flushing the bird out. The bird is then free to come and go to collect food that continues to be provided until about a week after the last food item is taken. The relatively low number of birds released from the static version is due to the fact that it is in an area of sub-optimal Barn Owl habitat. Additionally, birds that have been independent should always be released close to their finding place. In spite of the fact that it was not introduced until 1997, the mobile aviary was used to a much greater extent than the static aviary because it enabled birds to be released close to where they were found and/or it enabled releases to occur in areas of good habitat.

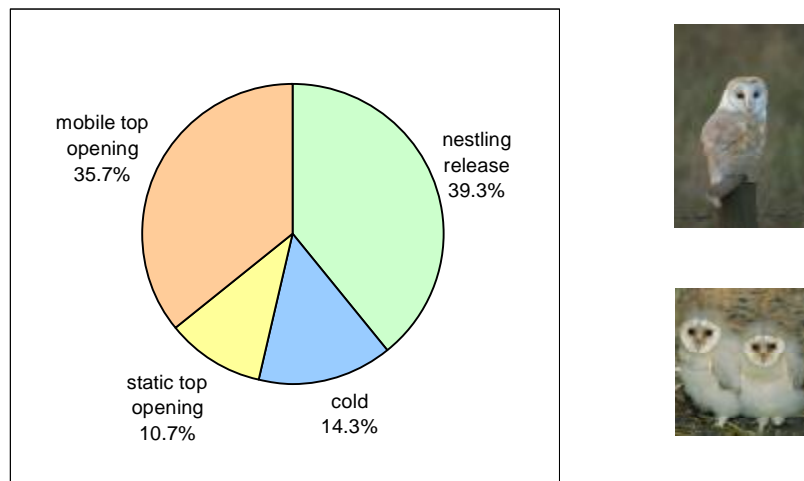


Figure 18. Release methods used for wild Barn Owls received by the BOT

Although it is preferred, it is not always possible to release a bird at its finding place, as shown in Figure 19. For birds that have never been self sufficient (young birds that have never established a home range) there is little or no advantage in releasing them where they were found – rather it is better to select a release site on the basis of habitat quality (food availability). Adult birds that are found as motorway or dual carriageway road traffic accidents are obviously not released at their exact finding place. The survival value of home range familiarity has to be weighed against the danger facing birds in close proximity to major roads. Some such birds were released elsewhere and some up to 1km from their finding place. Finally, birds that had been in captivity for relatively long periods (six months or more) were sometimes released elsewhere as it was felt their home range knowledge may have been lost. It is impossible to know how long the highly detailed local knowledge that sedentary birds almost certainly acquire is retained in their memory.

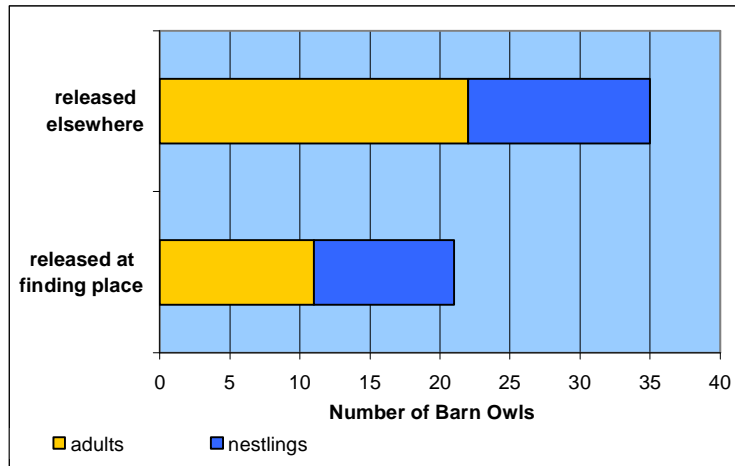


Figure 19. Release place of wild Barn Owls, divided according to the age class

CHAPTER 4 WILD TAWNY OWLS

4.1 YEARLY AND SEASONAL TRENDS

The BOT received 105 Tawny Owls during the study period, 102 birds were from the wild as opposed to birds that became casualties in captivity or as the result of escape. 17 of these birds were 'nestlings' and 85 were 'adults' (see below).

Definitions:

Nestlings = birds that have obviously not fledged yet and birds that may have attempted their first flights but are considered to be largely nest-bound.

Adults = birds that are fully-fledged juveniles (wing feathers fully grown) or older.

The number of wild Tawny Owls admitted each year is illustrated in Figure 20. Two main cycles can be identified, one from 1990 to 1998 and a second one from 1999 to perhaps 2004. However, some exceptional peaks seem to break this pattern.

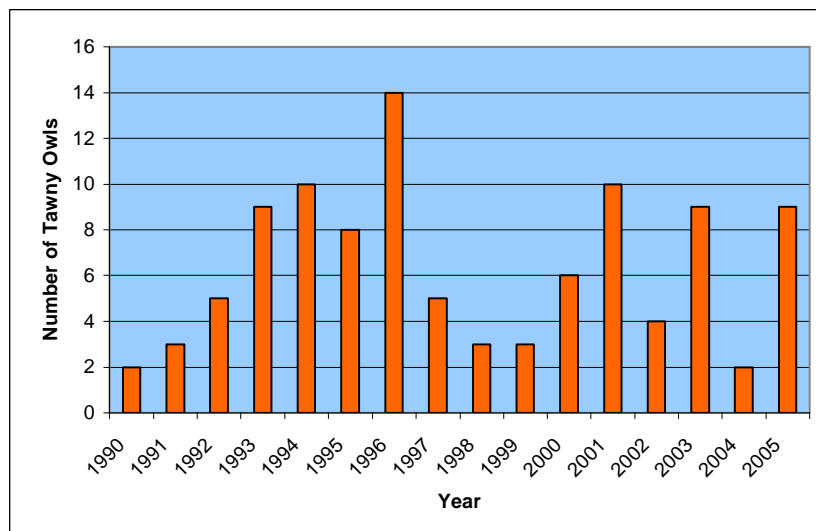


Figure 20. Number of wild Tawny Owls received by the BOT per year

The seasonal trend for wild Tawny Owls (Fig. 21) shows the highest value in the summer, as was the case for Barn Owls. However, Barn Owl nestlings were received mainly in the summer and autumn months, whereas Tawny nestlings usually arrived in springtime. This correlates with the breeding behaviour of the two species as Tawny Owls tend to breed earlier in the year than Barn Owls.

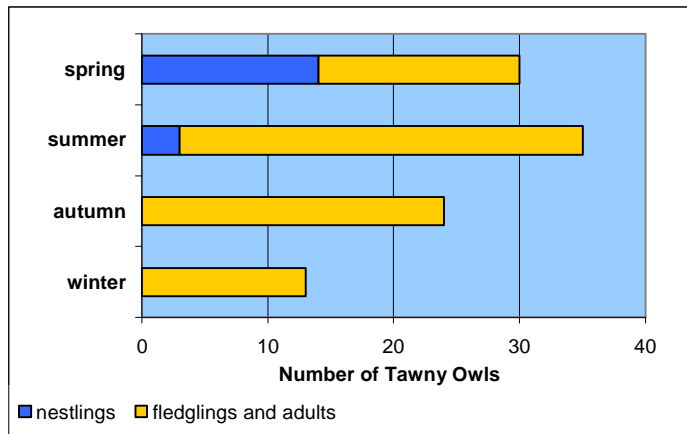


Figure 21. Seasonal trend of wild Tawny Owls received, this refers to the entire research period. Each column is divided according to the age class (nestlings, fledglings/adults)

4.2 FINDING CIRCUMSTANCES

Figure 22 shows that more Tawny Owls were found on roads than in any other situation (43%). The relatively large proportion of birds recorded as 'found on the ground outdoors' (29%) refers mainly to nestlings or fledglings. Such reports were much more common than these figures suggest as in most cases the finders were able to check the birds over and return them to their finding place (all birds that didn't actually come to the BOT are excluded from this report).

During the spring, nestling or fledgling Tawny Owls are often found and many people pick them up thinking they have fallen from the nest and have been abandoned. However, this is generally not the case. After leaving the nest, young Tawny Owls go through a phase called 'branching' when they walk, climb, jump and flutter around in the trees at night. During this period it is normal for them to spend some time on the ground. A small proportion remain on the ground during daylight and are subsequently found by humans. Fortunately, adult Tawny Owls will feed their young anywhere and abandonment is rare. The young are remarkably adept at tree climbing and providing they are not predated or removed by humans will usually be all right.

Being woodland birds, Tawny Owls are not particularly building-orientated so it is interesting to note the number of birds that became trapped in buildings or chimneys.

The relatively high number of uninjured Tawny Owls (17 of the 24) is due to the high proportion of nestlings (as was the case with respect to Barn Owls).

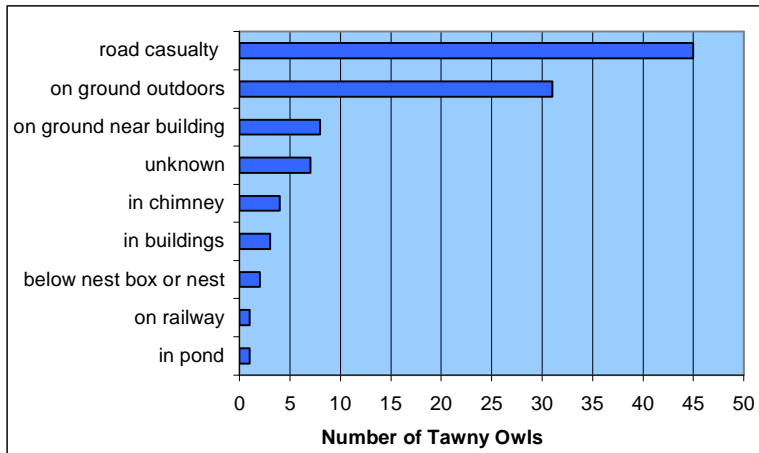


Figure 22. Finding circumstances of wild Tawny Owls received at the BOT

4.3 TYPES OF INJURY

The number of nestlings received also influences the distribution of the different types of injury, the 'no injury detected' category being the most common (Fig. 23).

The number of Tawny Owls found to be emaciated or with broken wings was significant. If we consider all types of wing injuries together (broken, dislocated and dropped wing) they were the most frequent type of injury.

It is interesting to notice that there was quite a high proportion of Tawny Owls that received eye injuries (12 birds), compared to the relatively low number of Barn Owls with eye injuries (2). Tawny Owl eyes are relatively large and prominent and so are more likely to become damaged.

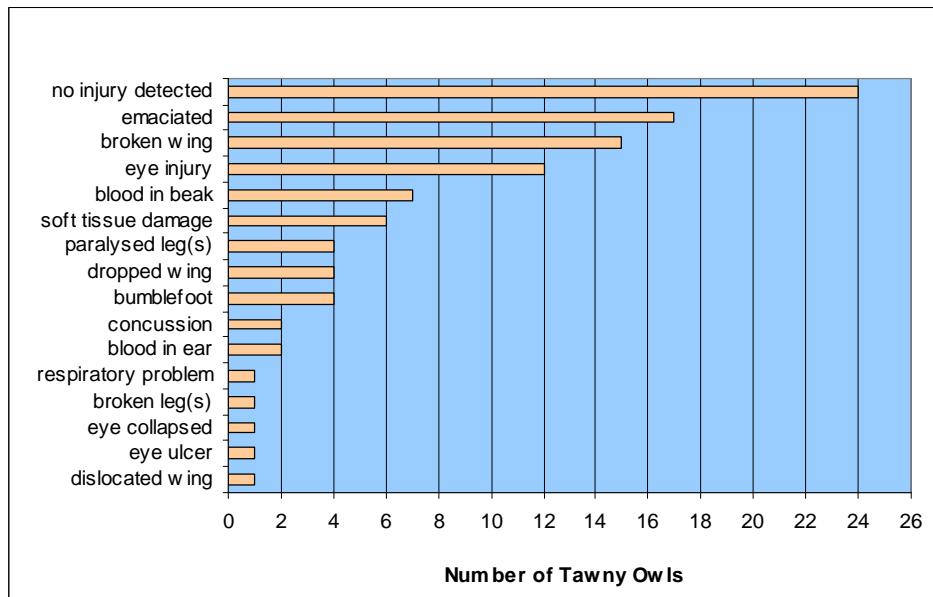


Figure 23. Types of injury to wild Tawny Owls received by the BOT

The longest time spent in captivity corresponds to the 'dropped wing' category (Fig. 24), though the number of birds with this type of injury was very small (only 4). The second highest average value corresponds to the 'no injury detected' class, as most of these were very young Tawny Owls received by BOT that could not, for some reason, be taken straight back to their finding place. Such birds were generally kept from April through to August and then released from a top-opening aviary when fully fledged.

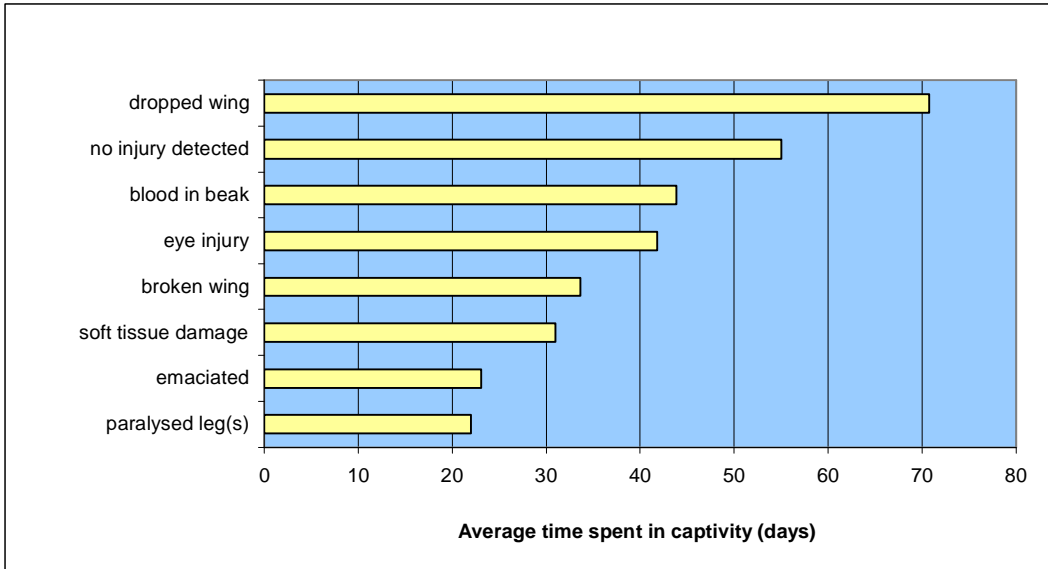


Figure 24. Average time spent in captivity of wild Tawny Owls received by the BOT in relation to type of injury

Wing injuries far outnumbered leg injuries (Fig. 25), as was the case with respect to Barn Owls.

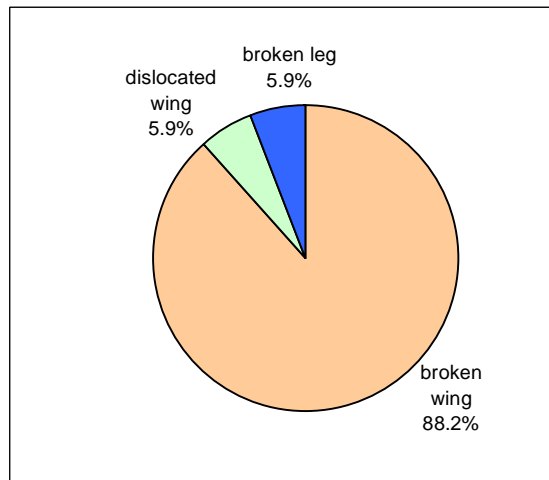


Figure 25. Fractures and dislocations of wings and legs in wild Tawny Owls received by the BOT

Humerus fractures were by far the most common injury, as shown in Figure 26. In addition, radius/ulna fractures made up quite a large proportion. Unfortunately, almost 19% of casualties have no detailed record of the type of fracture.

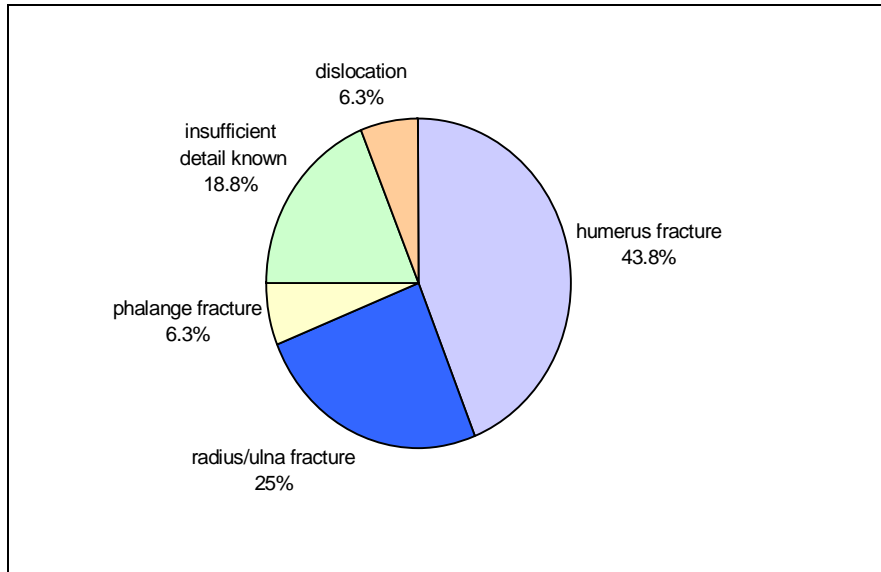


Figure 26. Type of wing injuries in wild Tawny Owls received by the BOT

Left wing injuries were more frequent than right ones (Fig. 27), as was the case with respect to Barn Owls.

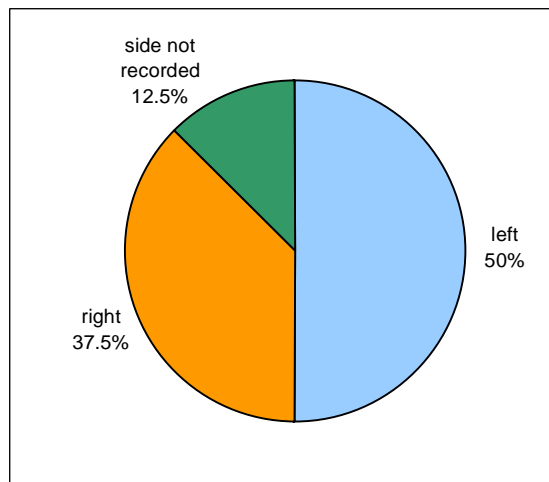


Figure 27. Right or left wing dislocation or fracture in wild Tawny Owls received by the BOT

A relatively high proportion of wing-injury Tawny Owls were put down or passed on to other rehabilitators (Fig. 28).

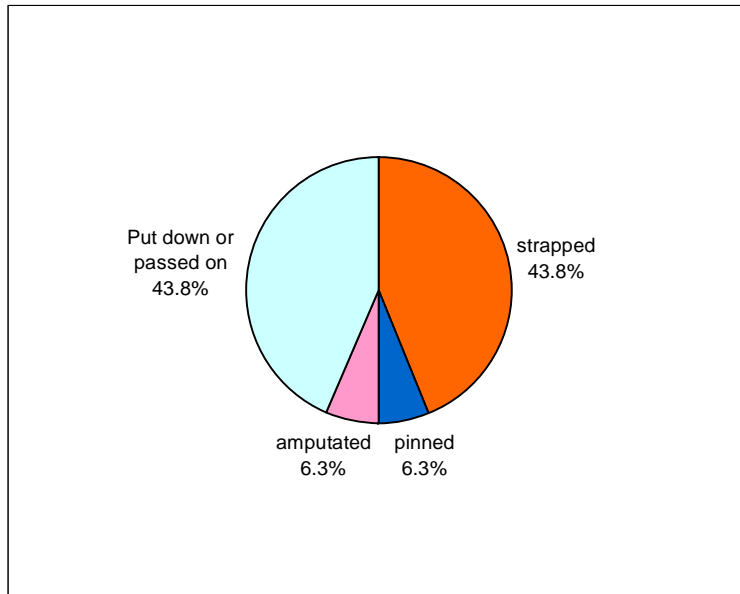


Figure 28. Treatment given to wing injuries in wild Tawny Owls received by the BOT

The types of eye injuries encountered are shown in Figure 29. Many of the birds with eye injuries also had concussion or blood in an ear opening (further signs of head trauma).

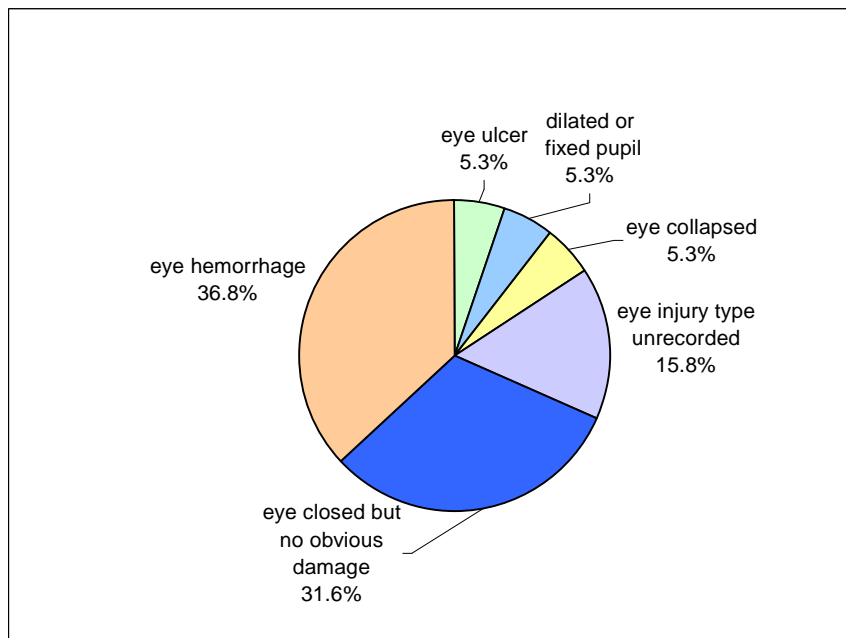


Figure 29. Type of eye injuries in wild Tawny Owls received by the BOT

The average weight of Tawny Owls on arrival was 349.5g and the average weight before release was 430g – this is an average increase of 80.5g.

4.4 OUTCOME

Almost half of all the adult Tawny Owls received were later released, although the percentage of dead birds was relatively high (Fig. 30a). This was also the case with respect to Barn Owls.

The outcome for nestlings (Fig. 30b) has a different pattern to that of Barn Owls, with a small number of birds being kept in the sanctuary and some being passed on to other rehabilitators. Well over half of all those received were later released.

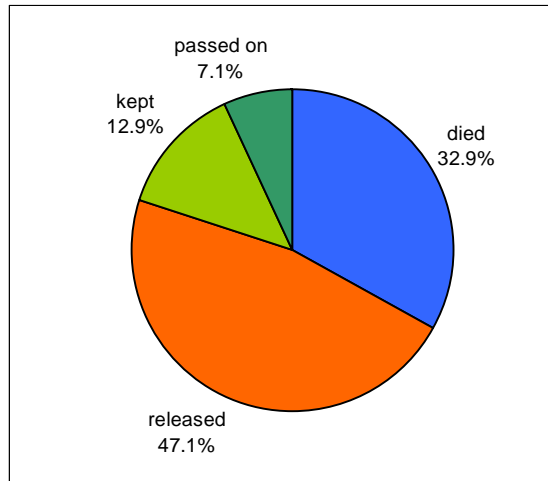


Figure 30a. Outcome of wild fledgling and adult Tawny Owls received by the BOT

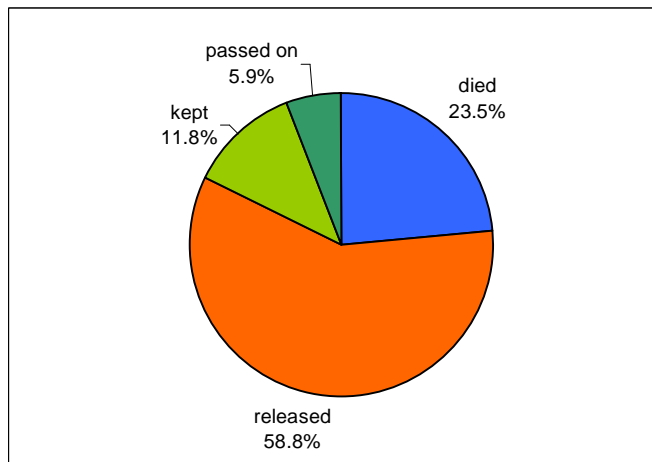


Figure 30b. Outcome of wild nestling Tawny Owls received by the BOT

Figures 31 and 32 show the relationship between Tawny Owls outcome, respective injury types and finding circumstances. As expected, all the birds that had no injuries were released. Deaths occurred especially in underweight, broken wing, eye injury and paralysed leg cases.

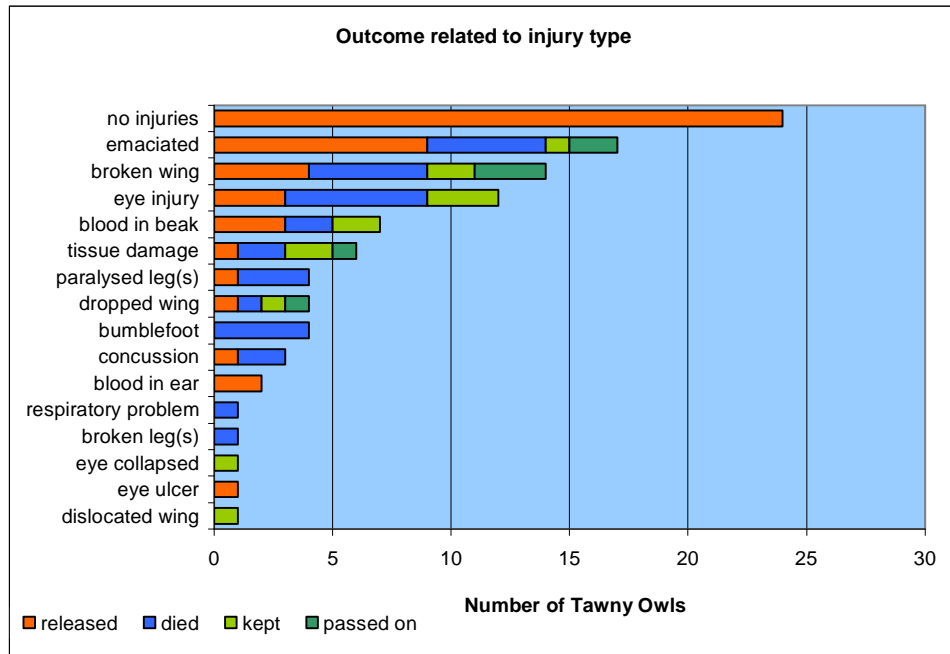


Figure 31. Outcome of wild Tawny Owls related to type of injury

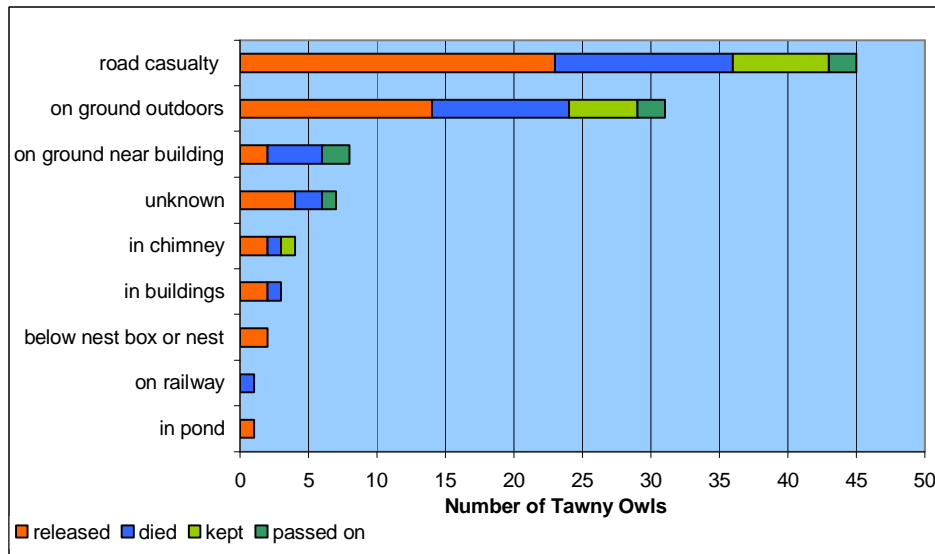


Figure 32. Outcome of wild Tawny Owls related to finding circumstance

4.5 RELEASE METHODS

Please see the final section of Chapter 3 for a full description of the release methods. Figure 33 shows which release methods were used for Tawny Owls. It is immediately apparent that the cold (unsupported) release method was used far more with Tawny Owls than it was with Barn Owls. Of the 22 Tawny Owls released by this method, 19 were either (apparently) uninjured or only slightly injured and had recovered quite quickly. The remaining three were kept for between 2 and 4 months before being cold-released in 2000, 2003, and 2005. This is less than ideal but the mobile aviary did not exist at the time and the static release aviary was not always available as it was often in use by other birds (Barn Owl releases etc.).

The static top-opening aviary was used a lot more than the mobile aviary (used in only 5 cases) but fortunately the static aviary was situated in an area of ideal Tawny Owl habitat ideally suited to Tawny Owl releases.

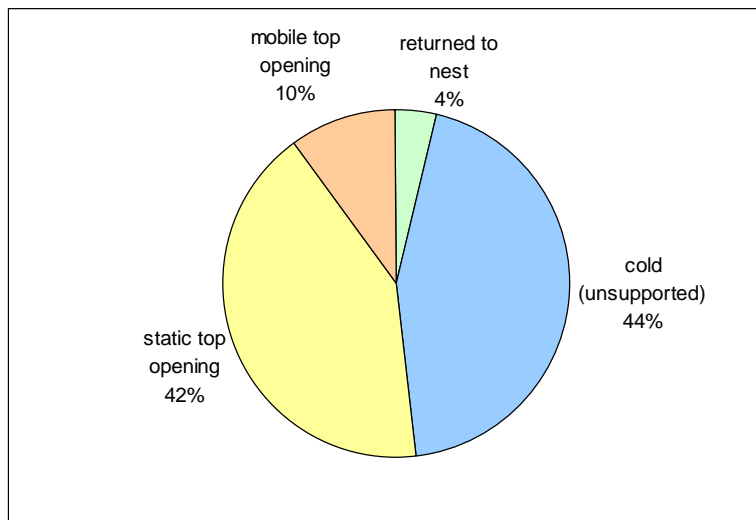


Figure 33. Release methods used for wild Tawny Owls received by the BOT

In comparison with the Barn Owl, the number of Tawny Owls released at the place of finding (Fig. 34) is higher. This is largely due to the greater proportion of cold releases (Fig. 33). The 2 nestlings (in Fig. 34) released at the place of finding were taken back to their nest. This very small proportion was because BOT generally only received those nestling Tawny Owls that could not be returned to their natal site.

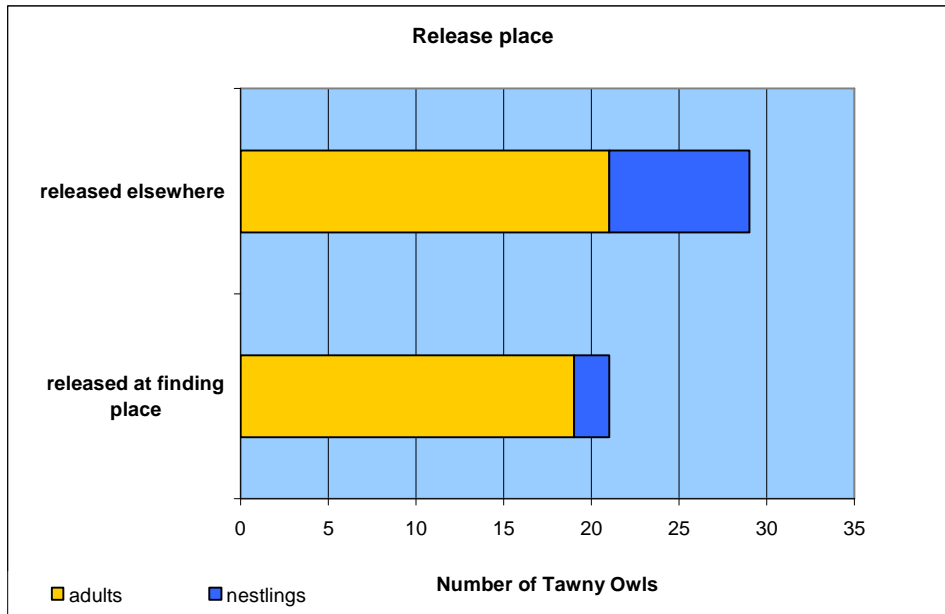


Figure 34. Release place of wild Tawny Owls divided according to the age class

CHAPTER 5 WILD LITTLE OWLS

5.1 YEARLY AND SEASONAL TRENDS

The BOT received 40 Little Owls during the study period, 39 came in from the wild and only 1 was a captive bird. 11 of the 39 wild birds were 'nestlings'.

Definitions:

Nestlings = birds that have obviously not fledged yet and birds that may have attempted their first flights but are considered to be largely nest-bound.

Adults = birds that are fully-fledged juveniles (wing feathers fully grown) or older.

Unlike Barn Owls and Tawny Owls, the yearly trend for Little Owls was much more irregular (see Fig. 35).

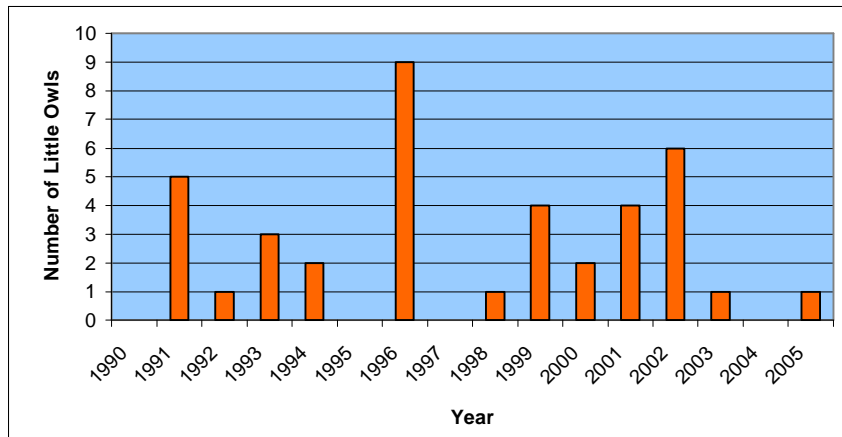


Figure 35. Number of wild Little Owls received per year

Little Owls almost always lay their eggs during April and May, and owlets generally leave the nest after 30-35 days. The relatively high number of birds in Figure 36 that were found in the summer months is due to the fact that all of the Little Owl nestlings (11) arrived at this time.

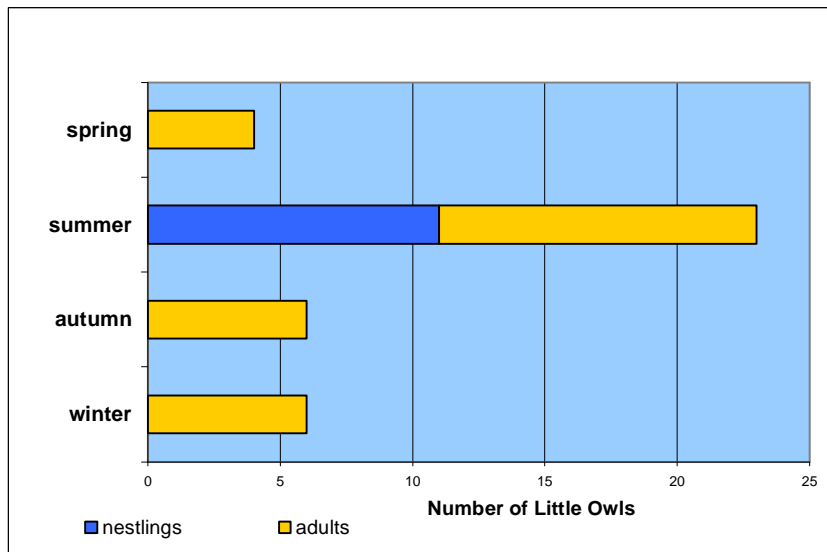


Figure 36. Seasonal trend of wild Little Owls received (all years combined), divided according to the age class

5.2 FINDING CIRCUMSTANCES

Figure 37 shows that the majority of Little Owls (11) were found below nest boxes or nests. Roads were the second most frequent finding circumstance. The chart in Appendix 3 shows that out of the total number of road casualties (9), the number of birds found on major roads is higher than the number of birds found on minor roads - as was the case with respect to Barn Owls (Appendix 1) and Tawny Owls (Appendix 2).

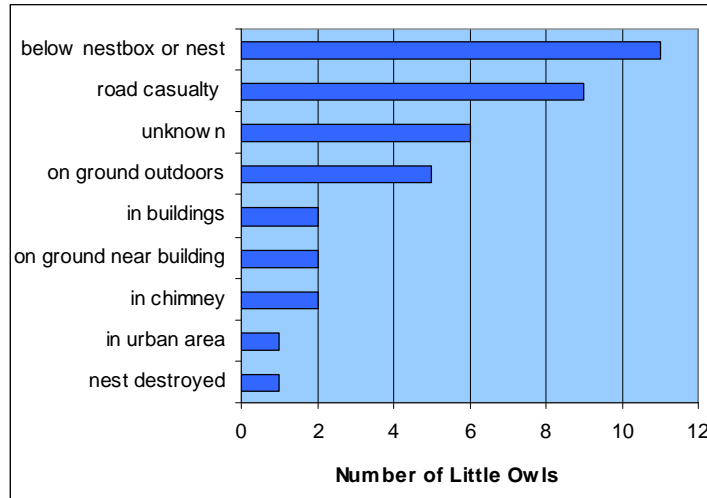


Figure 37. Finding circumstances of wild Little Owls received by the BOT

Of the 11 birds that were found below a nest box or nest, 5 of them had injuries relating to the fall (Fig. 38, 'fallen from nest') and the other 6 had no apparent injuries.

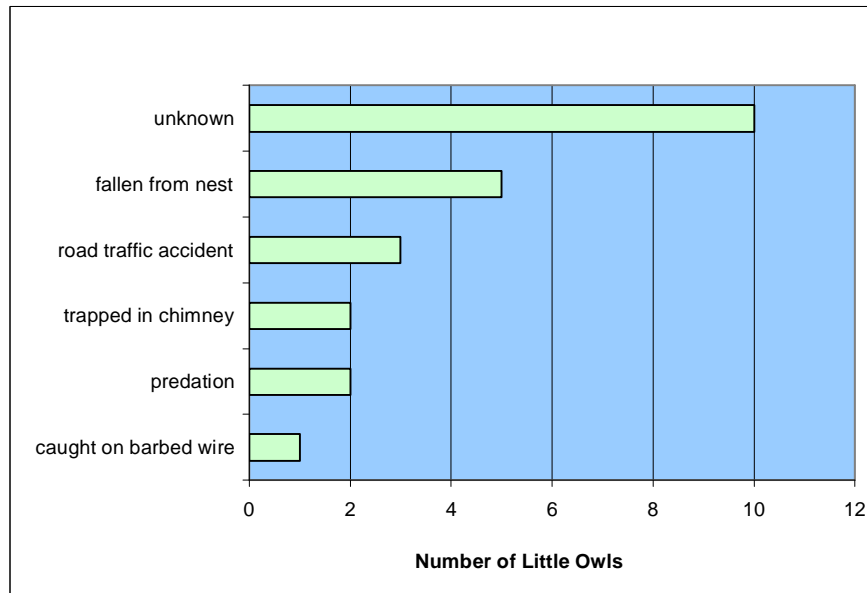


Figure 38. Cause of injury to wild Little Owls received at the BOT

5.3 TYPES OF INJURY

Approximately one third of Little Owls received had no apparent injuries (Fig. 39) and the main reason for them being brought to the BOT was emaciation. Due to limitations of sample size, no analysis of the average time spent in captivity in relation to the injury type has been carried out.

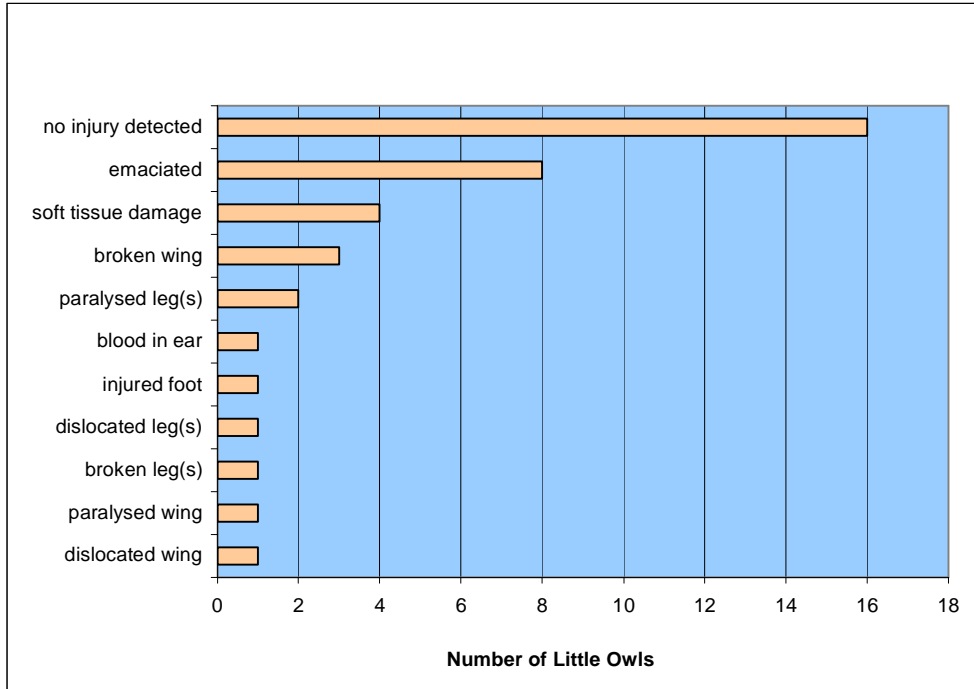


Figure 39. Types of injury to wild Little Owls received by the BOT

5.4 OUTCOME

Of the 39 wild Little Owls received, 25 were released as shown in Figures 40a and 40b.

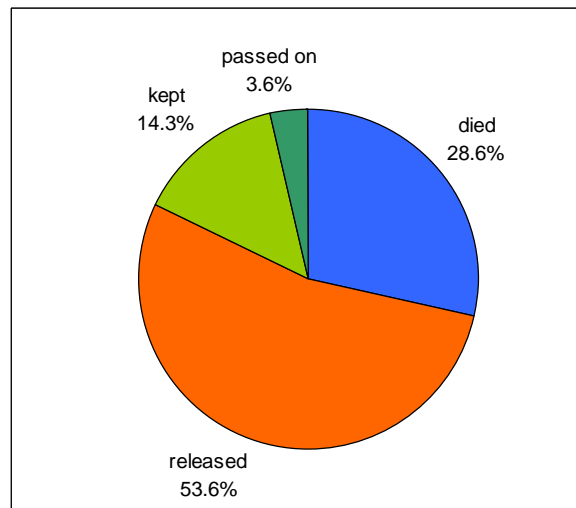


Figure 40a. Outcome of wild fledgling and adult Little Owls received by the BOT

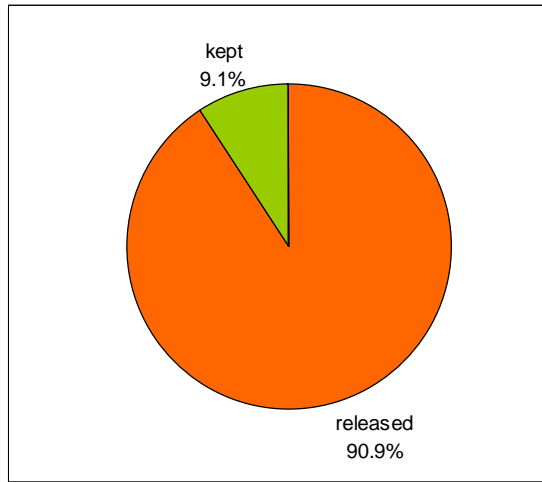


Figure 40b. Outcome of wild nestling Little Owls received by the BOT

Figure 41 shows the relationship between outcome and type of injury. The birds with the most serious injuries such as wing/leg injuries or tissue damage had the highest death rate, whereas all the birds brought in underweight were successfully rehabilitated and released. Nearly all of the birds that had no apparent injuries on arrival were released. The only bird retained was a juvenile kept in the BOT sanctuary because it was, for some unknown reason, semi-tame and deemed unlikely to survive in the wild.

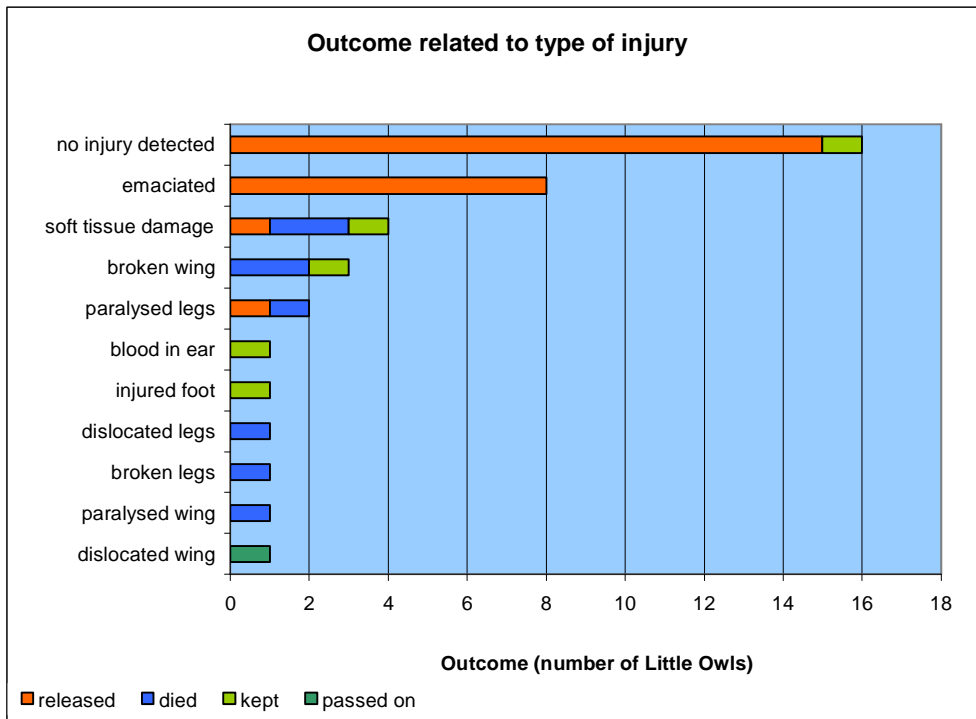


Figure 41. Type of injury and outcome of wild Little Owls

Figure 42 shows the relationship between outcome and finding circumstances. All the nestlings found below a nest box or nest were successfully released. Road casualty birds however, had a high fatality rate (due to injuries sustained).

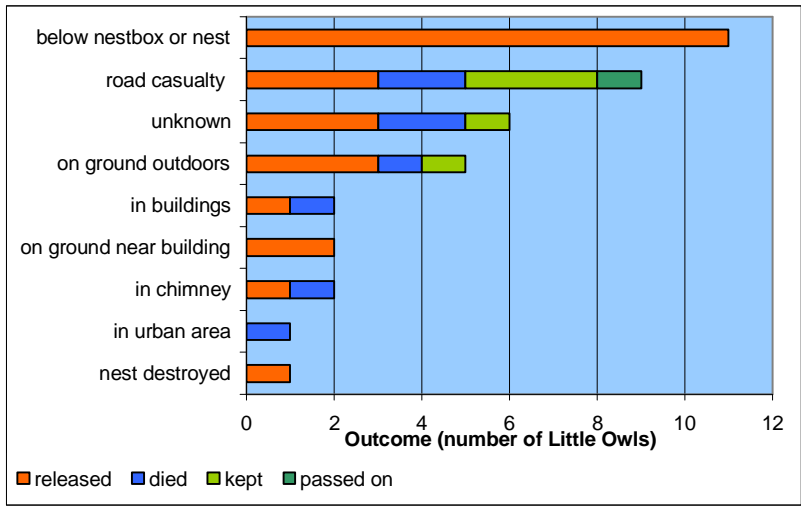


Figure 42. Outcome of wild Little Owls related to finding circumstance

5.5 RELEASE METHODS

All Little Owl nestlings were kept until fully fledged and released using a mobile or a static top-opening aviary system (Fig. 43). Thus, none of the nestlings were released whilst they were still nestlings, i.e. none of them were returned to a nest or simply placed in a nestbox and fed by humans. This is because Little Owl nest entrances proved to be very hard to find and Little Owl fledging behaviour is such that a pattern of return for food was most unlikely to be established in orphaned individuals.

The static top-opening aviary was the most common method used. This was partly because the habitat in the area around the Barn Owl Trust’s base is reasonably suitable for Little Owls, and also because the availability of the mobile release aviary was limited.

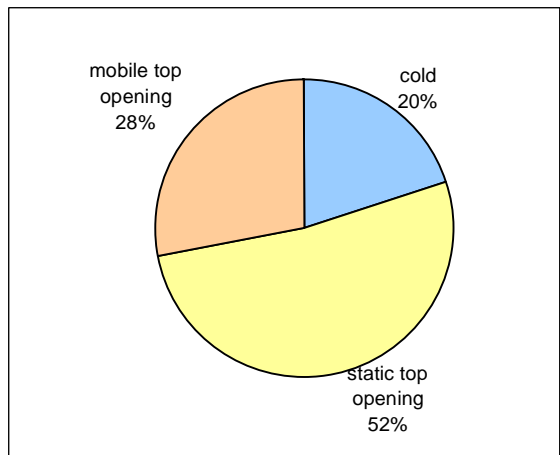


Figure 43. Release methods used for wild Little Owls received by the BOT

All the birds that arrived as nestlings were released in a different place from where they were found (Fig. 44). The cold release method was used for all the releases that were undertaken at the place of finding. Interestingly, the use of a mobile aviary does not necessarily mean that the release was done at the place of finding - this is for two reasons: a) many of the birds had never been self sufficient and had never held a home range to which they could have been returned, b) the mobile aviary was sometimes used in order to select release sites with optimum habitat.

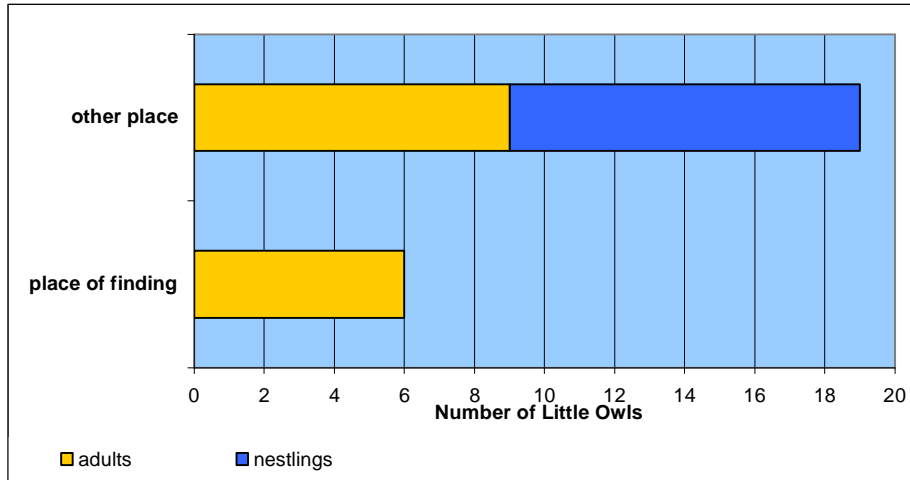


Figure 44. Release place of wild Little Owls divided according to the age class

CHAPTER 6 WILD BIRDS OF PREY

6.0 YEARLY AND SEASONAL TRENDS

Kestrel, Sparrowhawk and Buzzard were the three species of diurnal raptor received at the BOT during the study period. There were 26 in total: 9 Kestrels, 7 Sparrowhawks and 10 Buzzards, all of wild origin. Only one of them was a nestling, the others were mostly adults/juveniles. Because of the small sample size most of the analysis refers to the three species all together in order to give a clearer vision of the results.

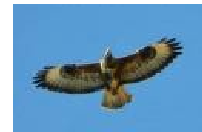
There was no particular yearly or seasonal trend (Fig. 45 and 46).



Kestrel



Sparrowhawk



Buzzard

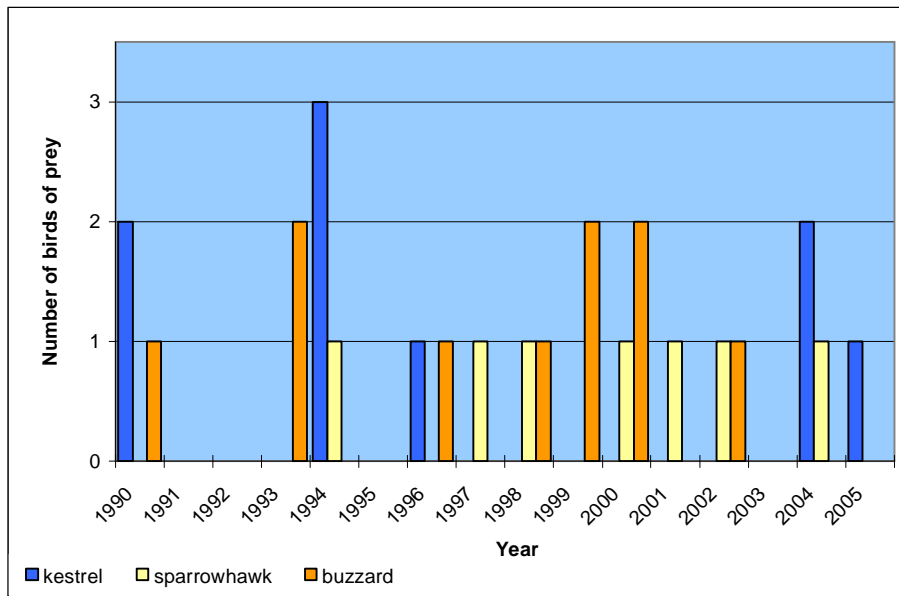


Figure 45. Number of wild birds of prey received per year

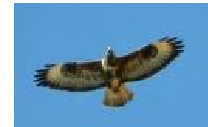
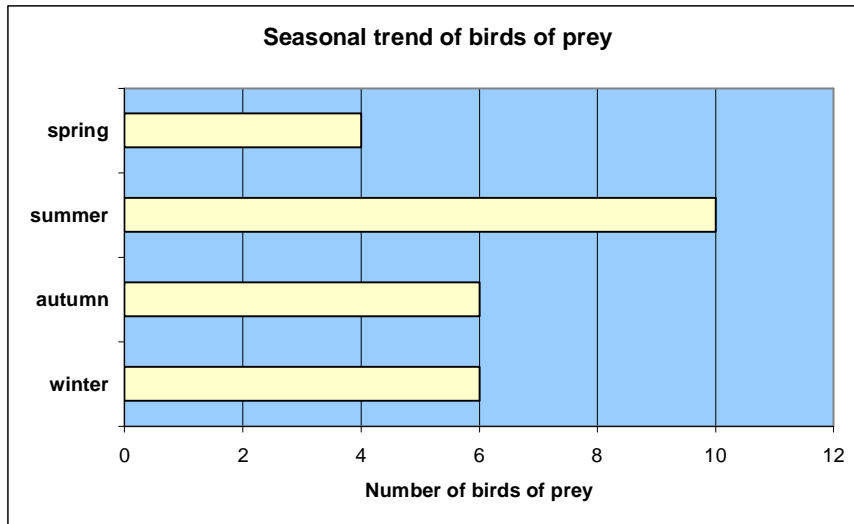


Figure 46. Seasonal trend of wild birds of prey received (all years combined)

6.1 FINDING CIRCUMSTANCES

Of the 26 birds, 7 were reported simply as ‘found on the ground’ and 7 were found on roads - although one of these had been shot. The road types are given in Appendix 4.

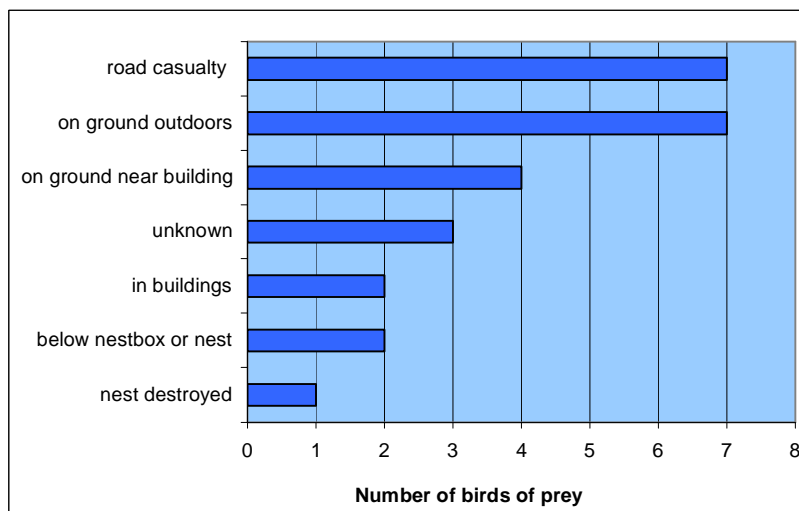


Figure 47. Finding circumstances of wild birds of prey received at the BOT

6.2 TYPES OF INJURY

Wing injuries and emaciation were the most common problems (Fig. 48). One wild bird was brought to BOT after having been placed in an aviary (elsewhere) where it had fought with other birds.

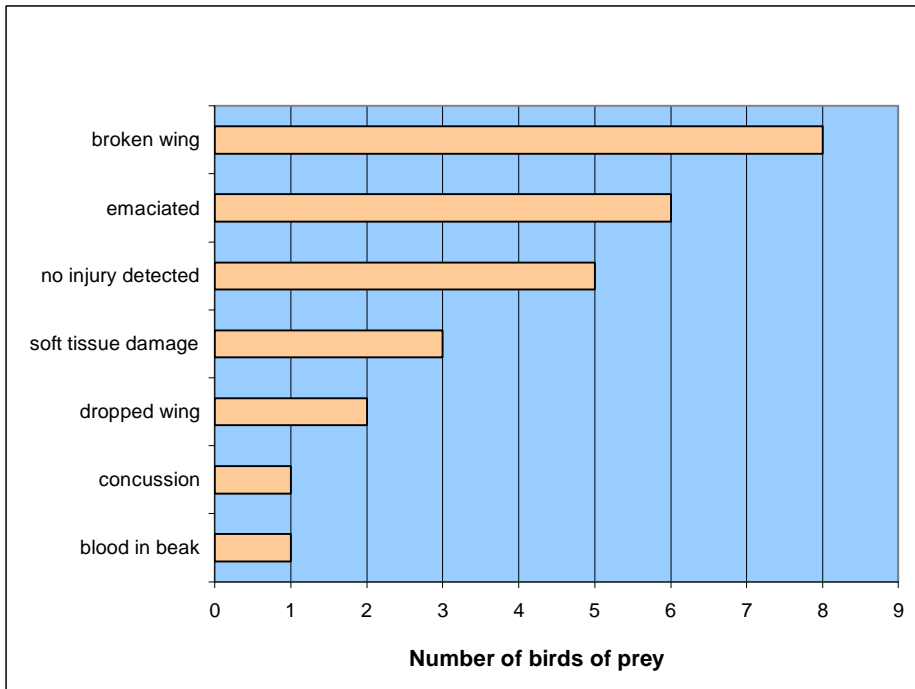


Figure 48. Types of injury of wild birds of prey received at the BOT

Four cases (50%) of wing fractures occurred in the radius/ulna and 1 case (12.5%) at the carpus (Fig. 49). Unfortunately, the precise details of the other 3 fractures were not recorded.

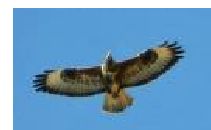
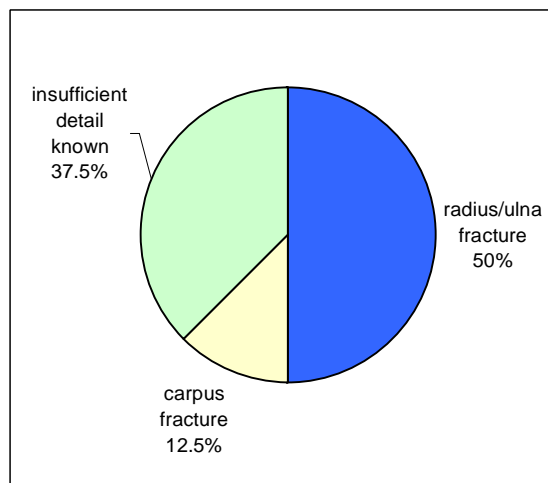


Figure 49. Type of wing fractures in wild birds of prey received at the BOT

The majority of fractures were on the left side (Fig. 50). Of the 8 wing fractures, 5 were not strapped or pinned (Fig. 51). In 2 cases the birds were put down by the vet, in another case the bird died 5 minutes after arrival. 2 birds were passed on to other rehabilitators.

These figures do not include a significant number of raptor casualties reported that were (on BOT's recommendation) taken straight to other rehabilitators rather than brought to the Trust.

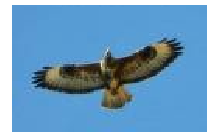
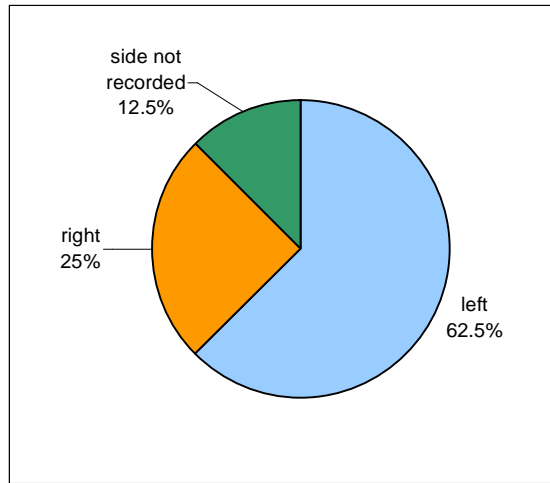


Figure 50. Right or left wing fracture in wild birds of prey received at the BOT

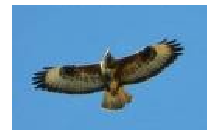
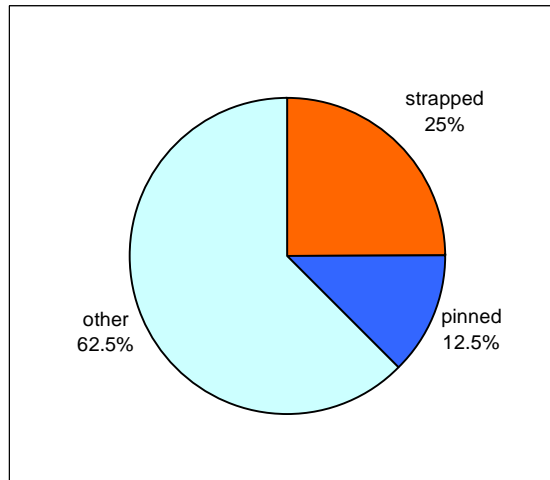


Figure 51. Treatment given to wing fractures in wild birds of prey received at the BOT

6.3 OUTCOME

Although many of the birds of prey received at the BOT have been released, a good proportion – most of the Buzzards and some Sparrowhawks - were passed on to other rehabilitators who specialize in diurnal raptors (Fig. 52).

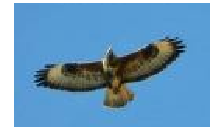
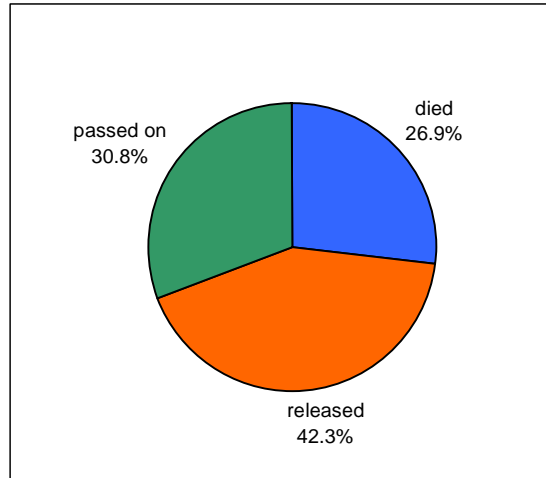


Figure 52. Outcome of wild birds of prey received at the BOT

Figure 53 shows the relationship between the outcome and type of injury suffered.

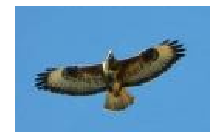
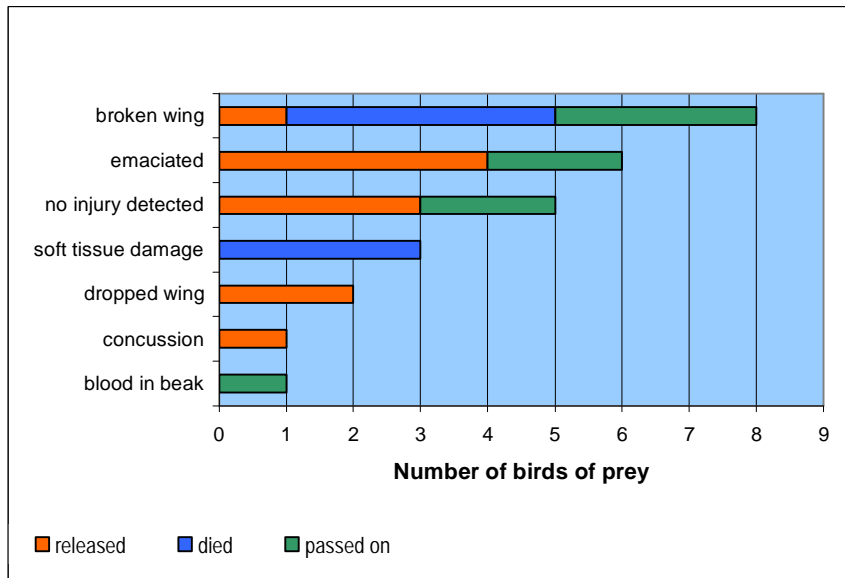


Figure 53. Type of injury and outcome of wild birds of prey

Figure 54 shows the relationship between outcome and finding circumstances of the birds.

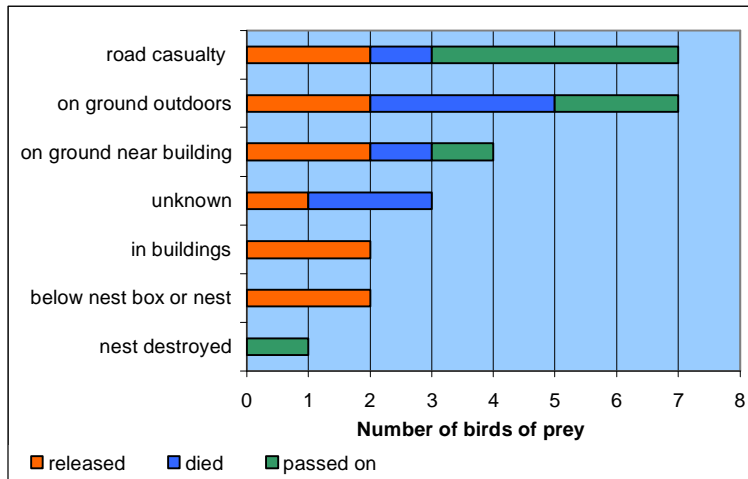


Figure 54. Outcome of wild birds of prey in relation to finding circumstances

6.4 RELEASE METHODS

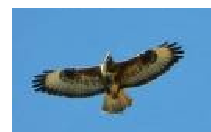
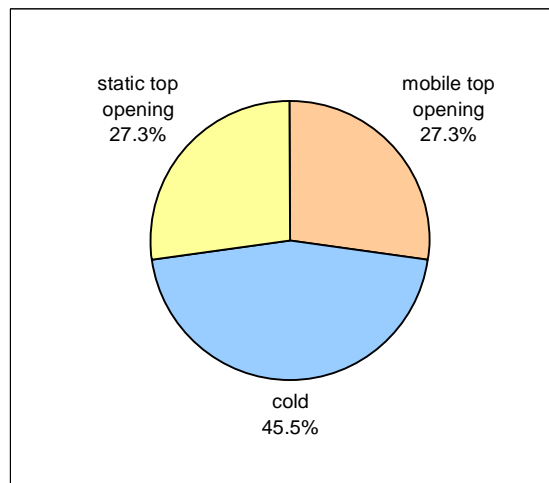


Figure 55 Release methods of wild birds of prey after rehabilitation at the BOT

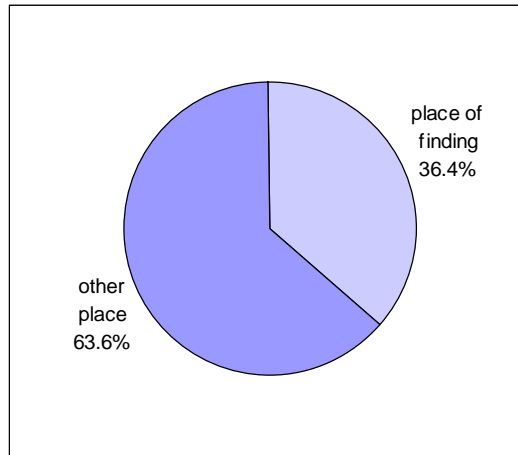
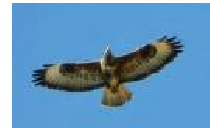


Figure 56 Release place of wild birds of prey



CHAPTER 7 OTHER WILD OWLS

Three owls belonging to two different species were brought to the BOT: two Long-eared Owls and a Short-eared Owl.

7.0 LONG-EARED OWLS



The two Long-eared Owls were brought to the BOT, one in June 1992 and the other in November 2004. The first Owl was found simply 'on the ground' with a fracture to the right humerus that was pinned. Unfortunately, it was not flying well enough to be released and died in captivity after almost 5 months.

The second Long-eared Owl was found on a minor road with a fracture to the left radius/ulna. The wing was strapped and after about two months the bird was released at the finding place using the mobile aviary.

7.1 SHORT-EARED OWLS



The only Short-eared Owl received was found in November 1999 with a fracture to the left humerus. It never recovered well enough to be released and was kept in the Trust's sanctuary.

CHAPTER 8 SUMMARY

In 1990 the Barn Owl Trust started to keep standardised records of the casualty birds it received, about half of which were subsequently rehabilitated and released. This report shows the results of this activity, carried out between 1990 and 2005, not only with Barn Owls but also with Tawny Owls, Little Owls other owl species and some diurnal birds of prey. Key information regarding the rehabilitation process was recorded this included, finding circumstances, type of injury, description of casualty treatment, outcome and the release methods used.

As the report shows, BOT has received and rehabilitated 293 birds over the years, although 17 of them were not considered in this report as they were captive birds. Barn Owls and Tawny Owls were the most frequently received species (118 and 105 respectively), followed by Little Owls (40), diurnal birds of prey (26) and three other owl species. Of all the wild birds 57 were nestlings. The number of fledglings and juveniles was approximately 70, although this figure may be higher as in some cases the age of birds could not be reliably determined.

The casualties were originally found in a wide range of circumstances. The most frequent were birds found on roads, starving birds and nestlings or fledglings that were found below or near nests.

The most common type of injury was wing damage (broken, dislocated and dropped wings), followed by emaciation. There was also great proportion of birds without injuries, mainly nestlings and fledglings.

In terms of their outcome, more than half of the birds received were released (143 out of 276). Others were kept permanently in the BOT sanctuary (35) or passed on to other rehabilitators (18). Unfortunately, the number of birds that died was also quite high (80).

With respect to the release methods used, gradual (supported) release was the most frequent and successful. This involves the use of a specially designed top-opening aviary. Cold (unsupported) releases were also carried out, particularly with birds that were only in captivity for a short time or at times when a top-opening aviary was not available. In 1997 the Trust designed and built its mobile release aviary and this quickly became the preferred release method as it allowed birds to be released in the most appropriate place (for that particular individual bird) using the best release method.

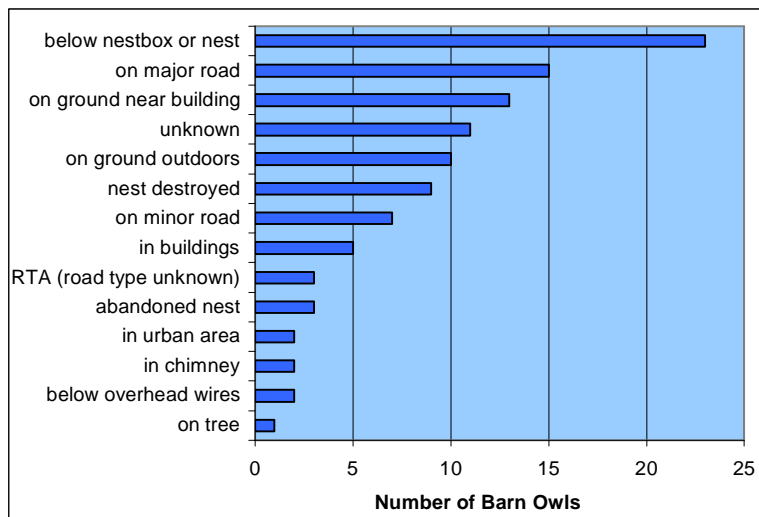
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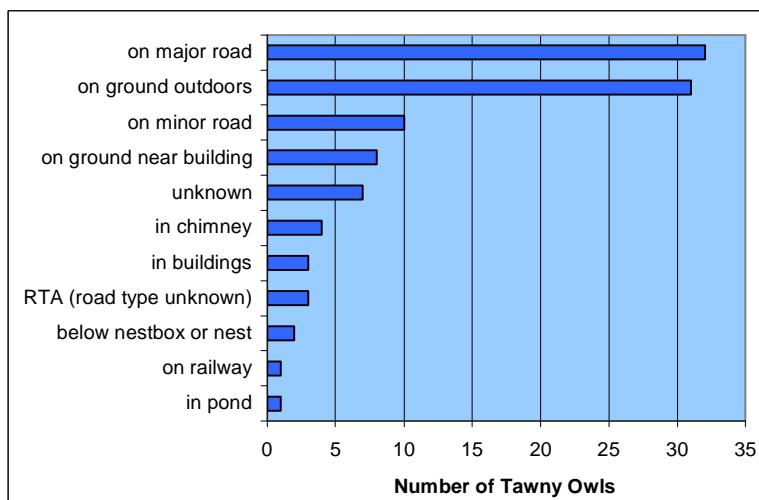
Appendices

With respect to the appendices below the category 'road casualty' has been divided into 3 separate classes: 'on major road', 'on minor road' and 'RTA (road type unknown)' where RTA means 'Road Traffic Accident'.

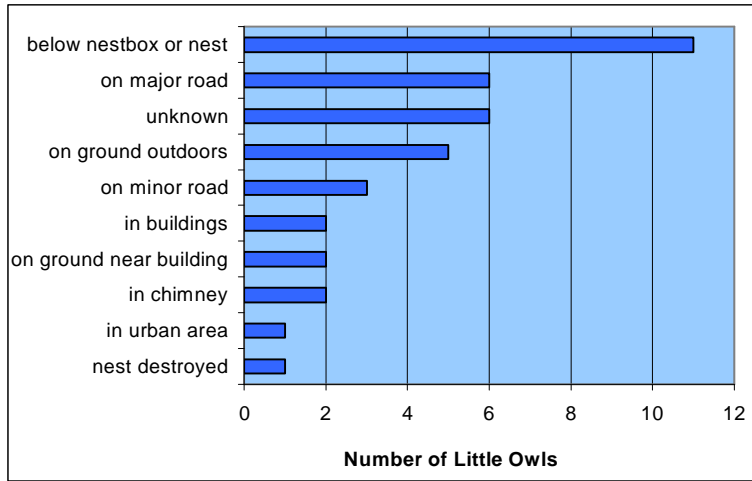
Appendix 1: Finding circumstances of wild Barn Owls



Appendix 2: Finding circumstances of wild Tawny Owls



Appendix 3: Finding circumstances of wild Little Owls



Appendix 4: Finding circumstances of wild birds of prey

