



**AWWF**

**A Beginners Guide to Birdwatching**

This a comprehensive guide for anyone who is looking to partake in birdwatching, whether a complete beginner or looking to expand upon current knowledge.

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The AWF has been established some two decades and works on four continents on an expanding range of conservation and humanitarian projects.

To inspire positive action in the defence and protection of habitats, endangered species and threatened communities through raising awareness, globally; to encourage concerned, enthusiastic individuals to share our passion, so that we pass on a better world to future generations.

For further information visit: <http://www.awf-volunteeringabroad.com>

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## Introduction

### What is Birdwatching?

Birdwatching is a harmonious activity and one that can be enjoyed by everyone. An escapade that encompasses nature, culture, travel, learning, intuition and a hobby that can last a lifetime. Birds have always delighted people all over the world because of their beauty, sounds and their power of flight. Birdwatching or birding is the observation of birds as a recreational activity. It can be done with the naked eye, through binoculars and telescopes, or by listening for bird sounds.

Ask any bird watcher what they most enjoy about birding and they will say they do it for fun. For some, it is the thrill of the chase, or racking up a long list of bird sightings. Others are just content to get to know a few of the common birds. Where others, do it as a profession to help in their conservation. Whatever your inclination, it is knowing in the fact that you are doing something worthwhile, productive and positive.

### When's the Best Time to Watch Birds?

The most active times of the year for birding in temperate zones are during the spring or fall migrations when the greatest variety of birds may be seen. On these occasions, large numbers of birds travel north or south to wintering or nesting locations. Prime wildlife viewing hours for most species are the first few hours of daylight and the last few hours before sunset as the birds are more active and vocal making them easier to spot. Although hawkwatching, one of the most exciting wildlife-watching events, is frequently best enjoyed during the middle of the day. The procedure for nocturnal, or night-active animals doesn't get going until after the sun goes down. Hook up with an owl prowl, and your day won't start until night time!

### Where Can I Watch Birds?

Birding is something you can do in your own garden; it's a natural habitat too. Your local park, anywhere you travel or on an organised birding tour to see birds that live in a unique environment with experts that can help you enjoy the world of birds to its fullest capacity. Certain locations such as a local patch of forest, wetland or coast can harbour a diverse array of bird life according to location and season. For example, 'Seawatching' is a type of birdwatching where observers based at a coastal watch point, such as a headland, watch birds flying over the sea. This is one form of pelagic birding, another form is where avid birders view pelagic species from seagoing vessels.

### The Value of Birds...

Due to their accessibility and ubiquity; birds are a useful tool in environmental education and awareness of environmental issues. Birds easily transmit values on respect for nature and the fragility of ecosystems for moulding a sustainable future.

***Just follow this simple step-by-step guide you'll be well on your way to enjoying the awe-inspiring world of birds!***

## **Part 1 – Code of Conduct**

### **The Birdwatchers' Code**

Following the birdwatchers' code is good practice, common sense and should enable everyone to enjoy seeing birds. The code puts the interests of birds first and respects other people, whether or not they are interested in birds.

It applies not just when you are at a nature reserve, but whenever you are watching birds at home or abroad.

It will be most effective if people lead by example and sensitively challenge the minority of birdwatchers who behave inappropriately.

### **5 things to keep in mind...**

#### **1. The interests of the bird come first**

Birds respond to people in many ways, depending on the species, location and time of year. Avoid disturbing birds and their habitats at all costs, as it may keep birds from their nests, leaving chicks hungry or enabling predators to take eggs or young.

#### **2. Be an ambassador for birdwatching**

Think about your field craft and behaviour, not just so that you can enjoy your birdwatching, but so others can too. Respect the wishes of local residents and landowners, and don't enter private land without permission unless it is open for public access on foot.

#### **3. Access to the countryside**

Legislation provides access for the public to open areas of countryside and includes measures to protect the wildlife residing there. Note that rules and codes are different in each part of a country, so plan ahead and make sure you know where you can go and what you are permitted to do.

#### **4. Make your sightings count**

Get involved in national monitoring schemes where your sightings can contribute to local knowledge and help map the population of a particular species, which can aid in the conservation of a particular site and species of bird. By uploading your sightings to [www.worldbirds.org](http://www.worldbirds.org).

#### **5. Rare birds**

Think about the interests of wildlife and local people, respect legislation before passing on news of a rare bird, especially during the breeding season. Think about whether the site can cope with a large number of visitors and whether sensitive species might be at risk.

## Part 2 – Getting Started

### 10 things to remember...

#### 1. Field guide

Get a good field guide which identifies British breeding birds and common migrants. A field guide may also tell you where you can observe different species.

#### 2. Learn to identify birds by their calls

You can download bird songs online and it's a great idea to put it on an mp3 player that you can take with you when you go into the field.

#### 3. Binoculars

One of the most important pieces of kit. You don't have to spend a fortune on purchasing binoculars when you start out but try and get the best you can afford.

#### 4. Begin by watching birds in your garden or Local Park.

This way you'll be able to learn about identification techniques and there shouldn't be too many different species that might confuse you.

#### 5. Research the area

Before you go off on a birding trip read up on what birds you may see with relevance to time of day and year.

#### 6. Join a local bird watching group

You'll get to know other bird watchers and share your knowledge and meet experienced birders who can help hone your skills.

#### 7. Record your sightings

Keep track of what you have seen, where and when, this way you can begin to map populations

#### 8. Take pictures

Visual records are a great tool for identifying species if eye-to-eye observation proves too difficult.

#### 9. Go on an organised birding tour

You'll have the opportunity to visit a great bird watching area under the guidance of an experienced birder.

#### 10. Have fun!

Birdwatching is a fantastic medium for experiencing wildlife, travelling to new places and meeting new people.

## Birdwatching Field Bag

A field bag is useful for carrying all your supplies when you go out bird watching. Although, every individual will have different requirements, there is some equipment that it is essential to pack in your field bag...

**Binoculars:** Optics should always be on hand, carrying them on a neck strap is always wise for quick access and ease of use upon.

**Field Guide:** Choose a field guide that is specific to the local area and contains photographs or illustrations that can aid in your identification of a particular species.

**Notebook:** Keep a pen and paper handy for making notes from field observations. Waterproof notebooks are more practical depending on the location.

**Camera:** Useful for taking snapshots of birds that you want to identify later as well as recording your sightings. Take a supply of batteries and memory cards too in case they become exhausted.

**Identification:** You may find it useful to carry proper identification particularly if you are visiting areas near private or restricted land.

**Local Map:** A map of the area you will be birdwatching in can help you plan a route of your trip and prevent the occurrence of becoming lost.

**Water:** Birdwatching may involve periods of prolonged walking so keeping hydrated is essential, as depending on your location, water sources may be few and far between.

**Mobile Phone:** Birdwatching can take place in remote locations so keeping in contact in case of emergency is essential. Also if you have a smart phone there are a number of birding apps available to enhance your hobby.

**First Aid Kit and Emergency Equipment:** In the unfortunate event of an accident and generally keeping yourself safe from the elements sunglasses, sunscreen and lip balm, insect repellent, aspirin, plasters, antiseptic cream, torch and flares can facilitate.



## Part 4 – Identifying Birds

### 10 Top Tips in Identifying Birds

Identifying a bird can be challenging. Birds are active, energetic animals and you need a keen quick eye to spot as many details as possible in a short space of time. There are many obstacles are many—the light may be dim, you could have the sun in your eyes, or the bird may dive into a bush. So to stand the best chance of landing a name for a bird, you'll want to know what to look for—what matters most and how to spend your precious viewing time.

#### 1. Keep Your Eye on the Bird

When you spot a bird, don't immediately try to flip through the pages of a field guide to identify it. Every moment of viewing time is precious. Keep your eye fixed on the bird and study it—absorb details of its markings, movements, song, feeding habits, and size. You may want to jot down notes or quickly sketch things that catch your eye. But don't focus too much on your jottings, try to maximize the time you have the bird in view, as this is your time to study it and you don't know how long it will be before the bird dashes off, out of sight.

#### 2. Listen for Calls and Song

Listening out for a bird's vocalizations is simple but it's also easy to forget to do. The odds are, if you don't make a conscious effort to listen, you won't remember the bird's song and you'll miss out on one of the best bird identification tools there is. The good news is that you can listen to a bird while you look at it—it's easy to do both at the same time. Look out for bill movements along with the calls you hear, to ensure you're associating the correct song with the bird you're trying to identify.

#### 3. Estimate General Size and Shape

A general picture of the bird, that is its approximate size and shape, will often give you many clues when placing it into the correct family of birds. Therefore, begin with an assessment of the bird's overall appearance. What is the approximate size of the bird? It's easiest to estimate size in relation to well know birds. For instance, is the bird you're observing about the size of a sparrow? A robin? A pigeon? A crow? A turkey? Think in terms of silhouettes and try to get inkling for its general body shape. Does it stand upright and walk with ease, or is it unsteady and awkward on land?

#### 4. Make Note of Facial Markings and Bill Characteristics

After determining its general size and shape, then you're ready to start noticing details. Start at the head first. Look for distinctive strips and patches of colour including crown stripes, eye lines, nape colour, eye arcs or rings. Does it have a black 'hood' on its head? Do its feathers form a crest atop its head? Also note the colour and shape of the bird's bill. How long is the bill in relation to the bird's head? Is it straight or curved, conical or flattened?

#### 5. Look for Wing Bars and Tail Shape

Next look for details on the bird's body, wings, and tail. Keep an eye out for wing bars, colour patches, and markings on the bird's body, when it is stationary or in flight. What colour is its back

and its belly? How long is its tail in relation to the bird's body length? How does it hold its tail? Does it have a forked tail or is it square or rounded?

### **6. Observe Leg Colour and Length**

Now study the bird's legs. Does the bird have long legs or short legs? What colour are its legs? If you can catch a glimpse of its feet, try and determine if its feet are webbed, or if it has talons. Some birds even have toes that arranged differently than others and if you're fortunate enough to have a close-up view, see how many of its toes point forwards or backwards.

### **7. Study Movement and Flight Patterns**

Observe the way the bird walks, how it holds its tail, or how it jumps from branch to branch. If it flies off, watch for a pattern in its flight, does it swoop up and down in gentle arcs with each wing beat or does it glide gently and steadily?

### **8. Determine Feeding Habits**

If you can, try and determine what the bird is eating or how it feeds. Does it cling to a tree trunk and dig at the bark looking for insects? Or does it forage across your lawn, tilting its head to watch for insects scurrying amongst blades of grass. Does it sway its bill through the water at the edge of a pond?

### **9. Describe Habitat, Region, and Climate**

Make note of the habitat in which you have observed the bird. You can do this even after the bird has flown off, so it's best to leave this step until last. Did you spot the bird in a wetland or woodland? Are you in an urban setting or a farm field? Each species of bird has a typical region that they inhabit and making note of the region you're in when you observe a bird can narrow the possibilities when you try to identify that bird. Also, birds migrate and species composition in a region changes throughout the seasons, so make note of the time of year (or specific date you observe the bird).

### **10. Record Your Observations**

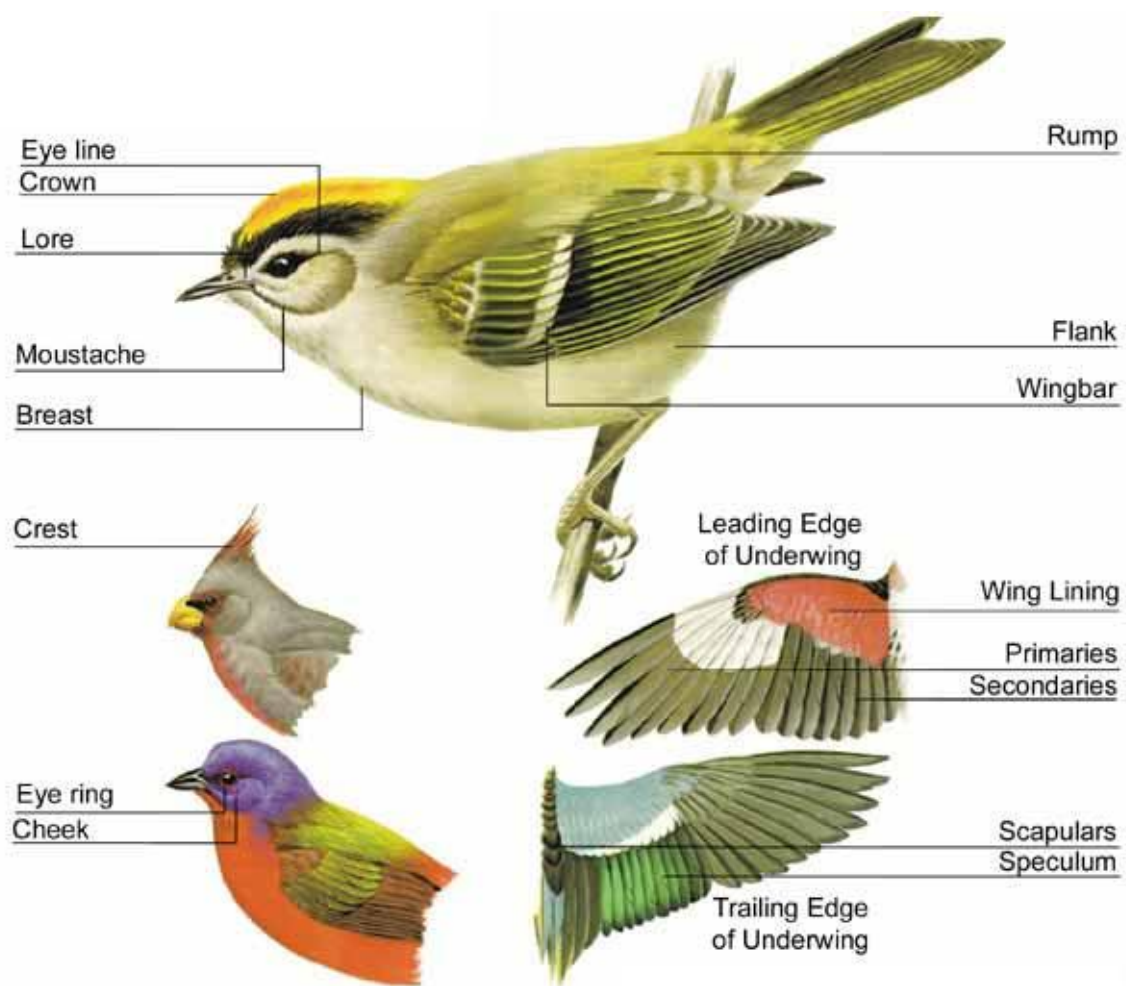
After viewing the bird, jot down your observations for later reference. From markings to behaviour, write down anything you noticed, it can all help when you later sit down with a field guide to confirm the bird's species. Also, note the location, date, time of day of the sighting.

## Parts of a Bird

Learning to identify birds is fun and ultimately rewarding. For practicing birders being able to narrow your ID down to a particular family is the first point of call (e.g. is it a sparrow or a thrush?). If difficulty arises in deciphering a particular bird you observe then you can then refer to a field guide to pin down a particular species. With practice, you may no longer need to refer to a field guide and be able to identify birds first hand.

Knowing particular parts to a bird's morphology (i.e. specific structural features) is key in identifying birds. There are many different elements to a bird's complex configuration and knowing at least some helps by not confusing one species from another (e.g. incomplete eye ring or the presence of a crest). These unique adaptations allow for improved efficiency, in any of birds many activities. Whether it be aiding in flight, for speed in the Peregrine Falcon's streamline wings when capturing prey. Or by aiding in foraging, for sifting in the Whimbrel's curved bill when probing soft mud for small invertebrates. The parts of a bird and their names are shown in 'Figure 1'. These names can be used in describing a bird.

Figure 1: Parts of a bird's body



## Silhouette Identification

Size and shape are the first pieces of information you should examine. With just a little practice and observation, you'll find that differences in size and shape will jump out at you. The first steps are to learn typical bird silhouettes, find reliable ways to gauge the size of a bird from surrounding features (e.g. parts of vegetation, other animals or man-made objects), and notice differences in telltale parts of a bird such as the bill, wings, and tail.

Beginning birdwatchers can often get sidetracked by a bird's bright colourful plumage, only to be frustrated by difficulty when searching through a field guide. Finches, for example, can encompass a variety of colours may it be red, yellow, blue, brown, or green but they're always shaped like finches. Each bird family have unique often distinctive parts; learn silhouettes, and you'll always be close obtaining a correct ID.

## Silhouette Identification Activity

Below is a series of bird species each within different bird families, use the matching numbered clues below for the respective bird to figure out the particular species, once you're confident enough check your prediction with the correct numbered photo. Don't be disheartened if you don't succeed at first, it takes time and practice in identifying birds.

1. Small, graceful songbirds with very long wings, small heads, and small but wide bills. Note the distinctive long and deeply forked tail.
2. A medium-sized songbird with a long tail, pointed crest, and a short, thick beak perfect for crushing sunflower seeds.
3. Similar in size to warblers but tend to look plumper, and their bills are much shorter, thicker, and more powerful.
4. Long, chisel-like bills and large heads. They have long, stiff tail feathers which they lean against as they hitch around on trees.
5. A smaller, more compact bird than most other birds in this family: with the same dagger-like bill, but shorter with a thicker neck and shorter legs.
6. Small, plump shorebirds, with a fairly large, round head and a bill that is always shorter than the head.
7. Plumper and shorter-tailed than their blackbird relatives, but they still have the blackbird's characteristic long, slender, but thick-based bill.
8. Small, slim songbirds with fairly large heads, short wings, and slender tail. Their bills are slender, pointed, and straight.



1.



2.



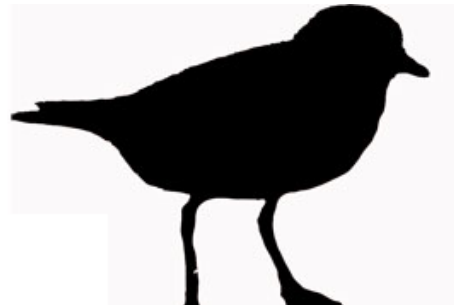
1.



4.



5.



6.



7.



8.



1. Barn Swallow



2. Northern Cardinal



3. American Tree Sparrow



4. Red-headed Woodpecker



5. Green Heron



6. Piping Plover



7. Western Meadowlark



8. Prairie Warbler

## Bird Song

As a novice birder matures, it quickly becomes apparent that a large percentage of birding is requires listening. An experienced birder rarely relies solely on sight when either casually birding or seriously conducting surveys and counts. In fact, since some species frequently forage and skulk entirely hidden from view and other species look nearly identical to one another, song recognition is imperative if you wish to raise your birding skills to a higher level.



### Why Do Birds Sing in the First Place?

A song indicates the type of bird, its sex, its age, its breeding condition, and whether it is paired and mated. For example in the image above, a male Robin may be singing, "I am a virile, male robin; I have an established territory of six acres with a view; and I am looking for a mate to share same and raise a family."

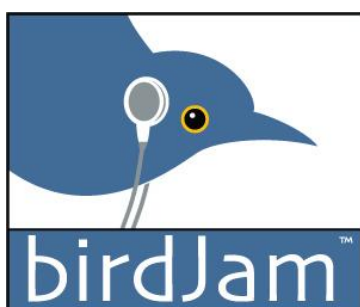
Birds also make other noises, like chip notes, for many reasons including: to hold a flock together in dense foliage or during nocturnal migrations, to intimidate and drive away enemies or competitors, to convey information about food or predators, and to serve as an identification "password".

## What Does It Take To Learn Bird Song?

Learning bird songs takes patience, perseverance, and persistence, along with a good ear, a good tutor, and a good deal of practice. The best method is to bravely venture out with a patient teacher who never tires of endlessly telling you, "that's a Carolina Wren; that's a Carolina Wren, that's a Carolina Wren, that's a Carolina Wren."

With or without a tutor, nothing is better than watching a bird sing. It always seems like the more effort you put into finding a bird and watching those beautiful notes pour out of its little throat, the better you will learn that song.

## How Do I Learn Bird Song?



First, forget everything you have ever heard or wished about bird song identification being easy and quickly learned. Only extremely gifted people can master birding by ear quickly. Birders who point out and label a faint "zipp" from a brushy field half a mile away without even pausing in their conversation have been at this a long time.

A tried and tested method is watching a video of a bird singing. There are a variety of companies that distribute birding CD-ROMs targeted at this specific market, such as 'birdJam'. These are great mediums as they can be listened to in a variety of settings. There are now also plenty of widely distributed online resources that provide downloadable mp3 format files and videos that are available on sites such as 'YouTube'.

New technology such as an iPod can also provide you a real boost up the learning curve. An iPod can organize all your bird tunes into playlists by families, habitat, sound-alikes, or any other convenient system you desire for learning bird songs. Compiling a diverse library of bird song.

## Top Tips

1. **Learn your common birds first.** Use them as your standard for new songs that appear during migration or when you travel. In other words, if you know a song of a particular bird then you can compare to other birds with a similar tune.
2. **Train yourself to listen for each song, not the entire chorus.** It's like listening to a symphony played by your favourite orchestra. You want to pick out the oboe, then the flute, the viola the cello, etc.; finding individual notes from each instrument. This is probably the most difficult part of hearing bird songs because some are quieter than others, or farther away, higher pitched, shorter in duration, or sung only once every three minutes. Try to hear and identify the closest, loudest, most obvious songs first. Then ignore them and listen in between for farther away, softer songs.

3. **Use gimmicks.** If a bird sounds like squeaky brakes, make a note of it. If another one sounds like your mother-in-law, write that down. You can make up your own voice gimmicks or you can use the widely accepted ones that even the best birders in the world use. These gimmicks are called mnemonics or memory hints for bird songs. Keep this list handy or commit it to memory and you will be surprised how much these little birds have to say to you.

## Part 4 – Counting Birds

### Why Count Birds?

There are many reasons for counting and studying a population of birds in a particular area. Birds are among the best known animals of Earth's vast biodiversity. Yet soundly quantified knowledge is far from complete for most species and regions. This incompleteness is a constant strive for knowledge which may act as a bridge to the conservation of birds which ornithologists can help rectify. Birds are relatively easier to count than most other wildlife and ornithologists can make a distinct contribution in making biodiversity conservation a reality; by improving our understanding of the planet, the location of biodiversity and threats facing it from non-sustainable practices (Bibby *et al.*, 1998).



### Surveying Birds

If a reliable estimate or index of a population size is needed for a particular species in a given area, then a survey is undertaken. There may be a number of reasons for wishing to do this. For example, an owner of a nature reserve may wish to know how many individuals of a particular species of bird are present, it may be that baseline information for an area, or a species that is poorly known is still required. If surveys are repeated at regular intervals, counts allow for trackable changes in bird populations (Gregory *et al.*, 2004).



Many different birding organisations recruit the help of willing birdwatching volunteers to aid in the mapping of bird populations for a particular area. There are a variety of schemes encompassing varying habitats and thus bird species within that area. For example the British Trust for Ornithology (BTO) conducts a vast array of surveys. The bird populations of the British Isles have been monitored more effectively and for longer than those of most other parts of the world. This has produced a uniquely rich and

detailed body of scientific work. Helping to understand the complex challenges facing wild birds at a time of great change in the environment.

Here is a simple step by step guide to surveying birds in your area:

1. Plan to count birds for at least fifteen minutes on one or more days of the count to ensure the data you collect is of substantial quantity small efforts are unlikely to have sufficient sample sizes to perform one of the key functions of monitoring; detecting changes in bird abundance. Count birds in as many places and on as many days as you like—one day, two days, or all four days. Submit a separate checklist for each new day. You can also submit more than one checklist per day if you count in other locations on that day.
2. Count the greatest number of individuals of each species that you see together at any one time. You may find it helpful to print out your regional bird checklist to get an idea of the kinds of birds you're likely to see in your area. You could take note of the highest number of each species you see on this checklist.
3. When you're finished, enter your results through our web page. You'll see a button marked "Enter Your Checklists!" on the website home page beginning on the first day of the count. It will remain active until the deadline for data submission.

## Monitoring Birds

Monitoring is a simple step on from a survey, in that by undertaking repeat surveys we can estimate the population trend of a particular species over time. Here consistency of method is crucial to measuring genuine population fluctuations. Trend data are central to setting species conservation priorities. All other things being equal (e.g. population, range size and productivity), a species whose population is declining will be of higher conservation priority than one that is not (Gregory *et al.*, 2004).

## Types of Counts

There are dozens of different methods used to sample birds and there is no single method to sample all the birds of an area (Fancy & Sauer, 2002). Survey methods tend to be developed to sample groups of species that share common habitats (e.g., shorebirds or waterfowl), although some surveys are aimed at single species (e.g., Long-tailed tits). A common mistake is to be overambitious and try to collect much more information than is strictly required to the point where this compromises quality and other activities. A useful technique is to list your goals, the data required to fulfil them, the time required to collect these data and then revisit and prioritize your aims. Then the correct method can be selected. There are two types of transect most commonly used in bird surveying, line transects and point transects/counts. Line and point transects are the preferred survey methods in many situations. They are highly adaptable methods and can be used in terrestrial, freshwater, and marine systems. They can be used to survey individual species, or groups of species. They are efficient in terms of the quantity of data collected per unit of effort expended, and for this reason they are particularly suited to monitoring projects.

## Setting Up Your Transect

At its simplest, a line transect involves travelling a predetermined route and recording birds on either side of the observer. Transects can be usefully supplemented and, to some degree, verified in combination with other count methods such as sound recording, mist netting, and tape playback (e.g. Whitman *et al.*, 1997; Haselmayer & Quinn, 2000). In this instance maintaining the distance between sample points is important in improving efficiency and ultimately avoiding bias.

1. Distance is estimated by eye from the line, given practice and periodic checking against known distances; fixed distances can also be marked unobtrusively in the field using marker posts or colored tape to aid recording.
2. Observers may be able to visually mark the position of a bird when detected and then use a tape or range finder to measure the distance when they are perpendicular to where the bird was recorded.
3. Bird observations can be plotted on to high quality maps and the distance measured subsequently. This requires good mapping skills and is helped by having fixed markers in the field.
4. Observers can use a sighting compass to estimate the angle between the transect line and a line from the observer to the bird, and use a tape or range finder to measure the distance from that point to the bird.

A 500 metre transect has been chosen to use as an example. Use flagging tape to mark out the start and finish points and then five points, 100 metres apart are marked out along the transect. Point one is located 50 metres from the beginning of the transect and all other points are 100 metres apart (see Figure below).

Figure 2: Example of 500 metre transect

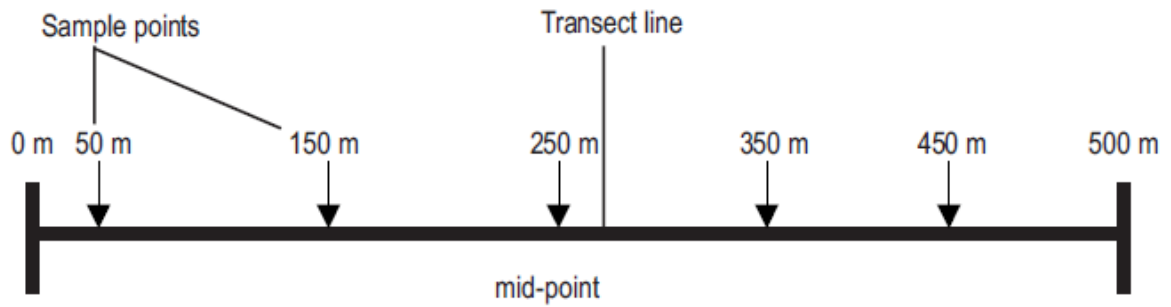
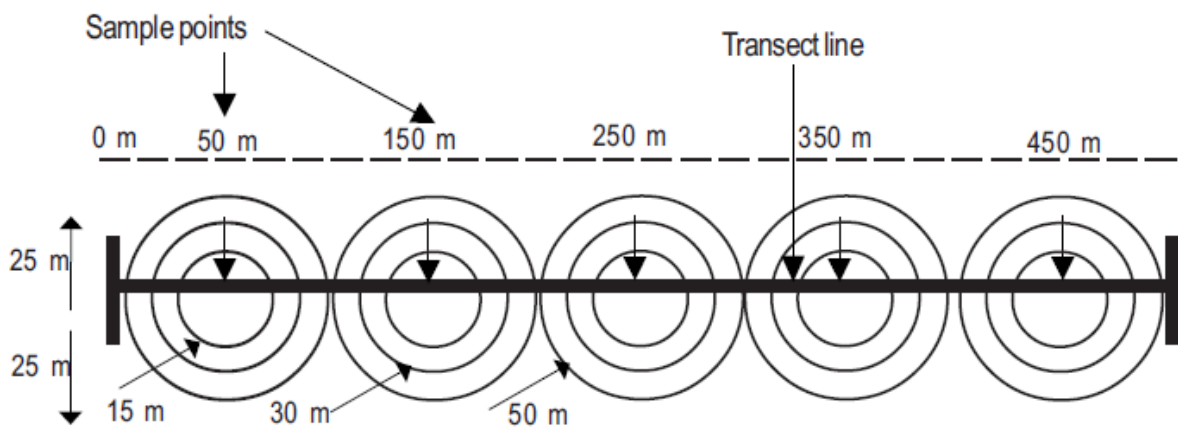


Figure 3: Laying out the bull's-eye targets on a 500 metre transect



## Comparison of Line and Point Transects

**Table 1:** Comparative table of line and point transect bird monitoring methods. Adapted from Gregory *et al.* (2004).

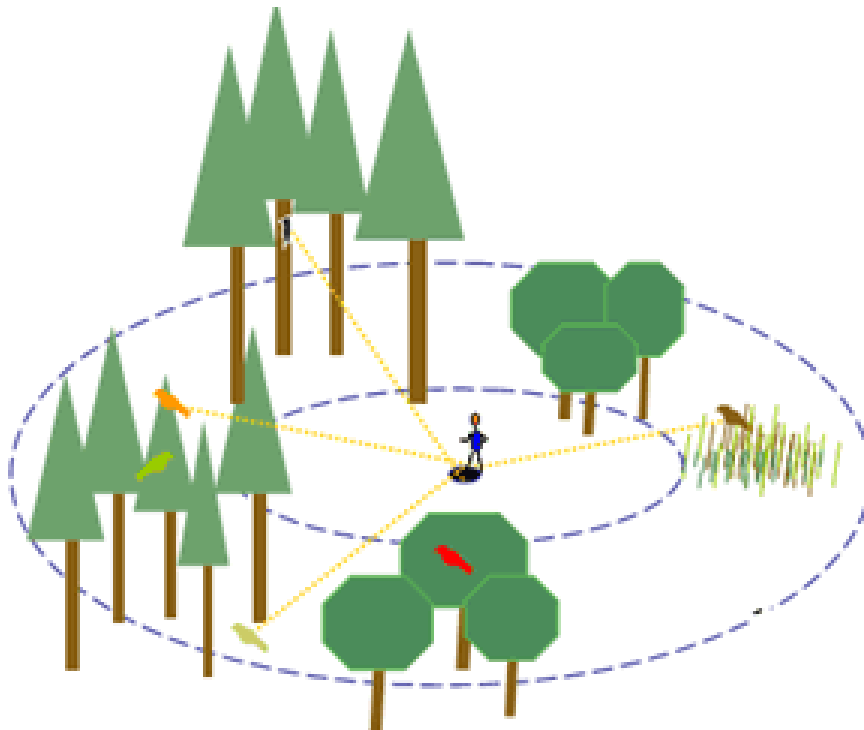
Line transects	Point transects/counts
Suit extensive, open, and uniform habitats	Suit dense habitats such as forest and scrub
Suit mobile, large or conspicuous species, and those that easily flush	Suit cryptic, shy, and skulking species
Suit populations at lower density and more species poor	Suits populations at higher density and more species rich
Cover the ground quickly and efficiently	Time is lost moving between points, but recording many birds counts give time to spot and identify shy birds
Double counting of birds is a minor issue, as the observer is continually on the move	Double counting of birds is a concern within the count period—especially for longer counts
Birds are less likely to be attracted to the observer	Birds may be attracted to the presence of observers at counting stations
Suited to situations where access is good	Suited to situations where access is restricted
Can be used for bird–habitat studies	Better suited to bird–habitat studies
Errors in distance estimation have a smaller influence on density estimates	Errors in distance estimation can have a large influence on density estimates

## Point Counts

This is a count made in one area in a stationary position; in your back garden for example. In this case, simply report the highest number of each species seen together at one time. To compare bird counts at different times (e.g. trends) or sites, you want to compare apples to apples. A point count produces these apples as a field method by fixing duration and area; the observer stands at a fixed point and records everything they hear and see within the constraints.

- ✓ Concentrate fully on the birds and habitats without having to watch where you walk;
- ✓ More time available to identify contacts;
- ✓ More likely to detect the cryptic and skulking species;
- ✓ Easy to relate bird occurrence to habitat features.

Figure 4: Point count in the field

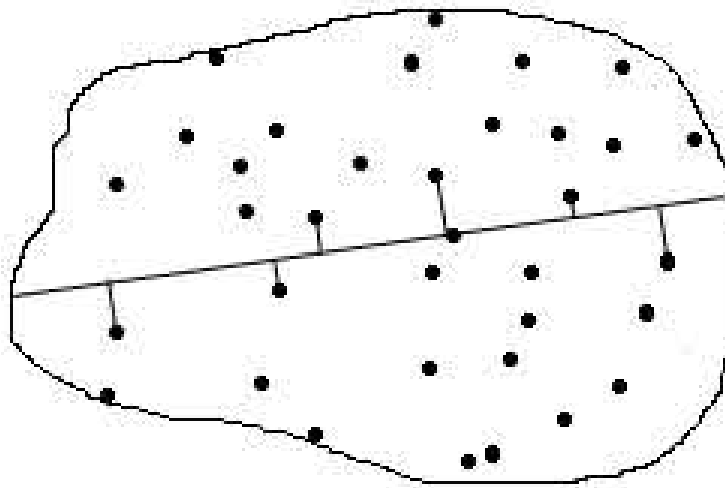


## Line Transects

This is a count made over a distance whilst travelling or walking at a set pace, such as birding on a trail or measured transect in an area of forest. In this case you will count new birds of each species as you progressively move along, but only if you can be relatively certain you did not count them previously. You should add the numbers for each species at the end of your walk.

- ✓ Cover ground more quickly and record more birds;
- ✓ Less chance of double recording the same bird;
- ✓ Good for more mobile, more conspicuous species and those which 'flush' easily;
- ✓ Errors in distance estimation are less serious than for point counts.

Figure 5: Line transect sampling method



## Mist-Net Capture

Mist nets are an effective tool for capturing birds, typically those found primarily within 2 to 3 m of the ground. To sample birds that spend all or part of their life cycle in the higher vegetation strata of these habitats, it is necessary to elevate mist nets (Jenni *et al.*, 1996). For more than two decades, analysis of capture rates of birds by mist nets has played a prominent role in studies of avian ecology (Remsen & Good, 1996). The basic principle of mist-netting is simple; an inconspicuous mesh net is erected vertically on poles and deployed in areas of high activity to intercept birds as they go about their normal daily routines.



The most enticing advantage of mist nets for assessing relative abundance is that their use avoids the obvious biases of censusing techniques (i.e. point counts and line transects) that rely on the visual and auditory ability of human observers (Karr, 1981, 1990).

### Factors Influencing Capture Rates

1. Weather
2. Differences in net location
3. Variability in net tension
4. Habitat structure
5. Differences in vertical movements and the proportion of time spent within the 2-m sampling zone
6. Differences in flight distance
7. Differences in flight frequency

## Mist-Net Installation Guide

### Construct your Own Mist Net - Materials

The following materials needed to construct the elevated mist net system can be obtained in any good hardware store:

- ✓ Six 2.5 cm (1 in) by 3 m (10 ft) electrical metallic tubes (EMT).
- ✓ Four 2 cm (3/4 in) by 10 cm (4 in) black pipe nipples.
- ✓ 85 m (280 ft) of 0.5 cm (3/16 in) diameter "clothesline cord" (148 kg [325 lb] breaking strength and 1% stretch with 16 kg [35 lb] load recommended).
- ✓ Two single pulleys designed for a 0.5 cm (3/16 in) diameter rope size.
- ✓ One double pulley designed for a 0.5 cm (3/16 in) diameter rope size.
- ✓ One mid size rope cleat.
- ✓ Ten metal shower curtain pins.
- ✓ Correct size nuts, bolts, and washers necessary to attach pulleys and rope cleat.

### Purchase Your Own Mist Net

If you have neither the time nor the money to construct your own mist net capture apparatus then do not fret. There are a variety of reputable companies and organisations on the web that retail these at competitive prices.

*Avinet* - <http://www.avinet.com/>

*ECOTONE* - <http://www.mistnets.com/>

*Hotfoot – Bird repellents* - <http://www.hotfoot.com/home.html>

*King Mist Net* - <http://kingmistnet.comoj.com/>

### Observation

Find the path that birds use to enter or exit the particular area you envisage the mist-net to be placed. Note the time when the birds are most active. Plan to position the net across the observed flight path during the most active times of the day. Some knowledge of the target species' daily movements and activity patterns is essential before deploying nets. Identifying the target species' nesting areas, feeding areas, roosting sites and the preferred flight paths between them is an important step in ensuring capture success.

### Support Post

Posts are the most widely used method of providing support for mist nets. Make sure posts are of a suitable length and strong enough to hold the mist net directly in the observed flight path.

### Setup

The setup of these innovative nets is unlike other bird nets as mist nets are set up 'loose'; cushioning the bird upon impact. At each end, thread a post through the 4 mounting loops. Space the loops in the post so each of the 3 pouches has a 'pocket' of net (3-5 inches deep) at the bottom of the pouch. This is where most birds end up after flying into the netting.

### Remember!

It is the responsibility of the proprietor to check local, regional and federal laws or restrictions regarding the capture of any wildlife prior to implementing mist netting. Do not use mist nets to capture protected, threatened or endangered species.

Figure 6: Basic set-up of a mist-net (FAO, 2007).

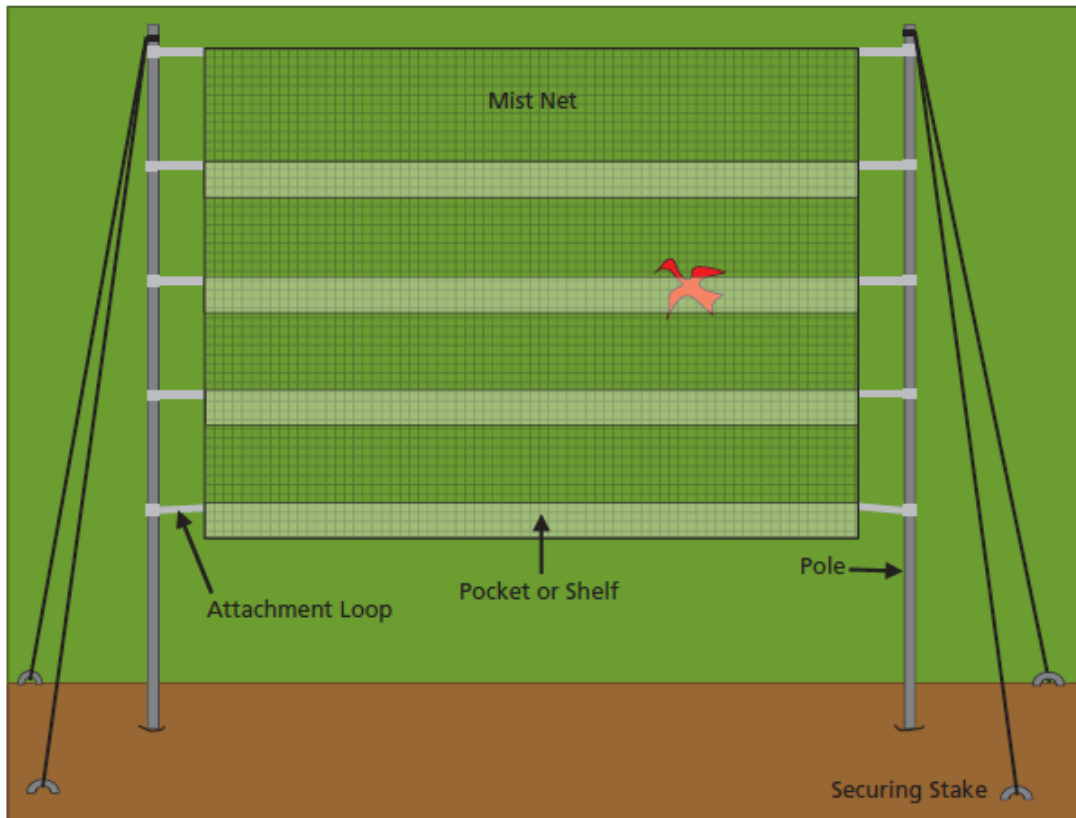
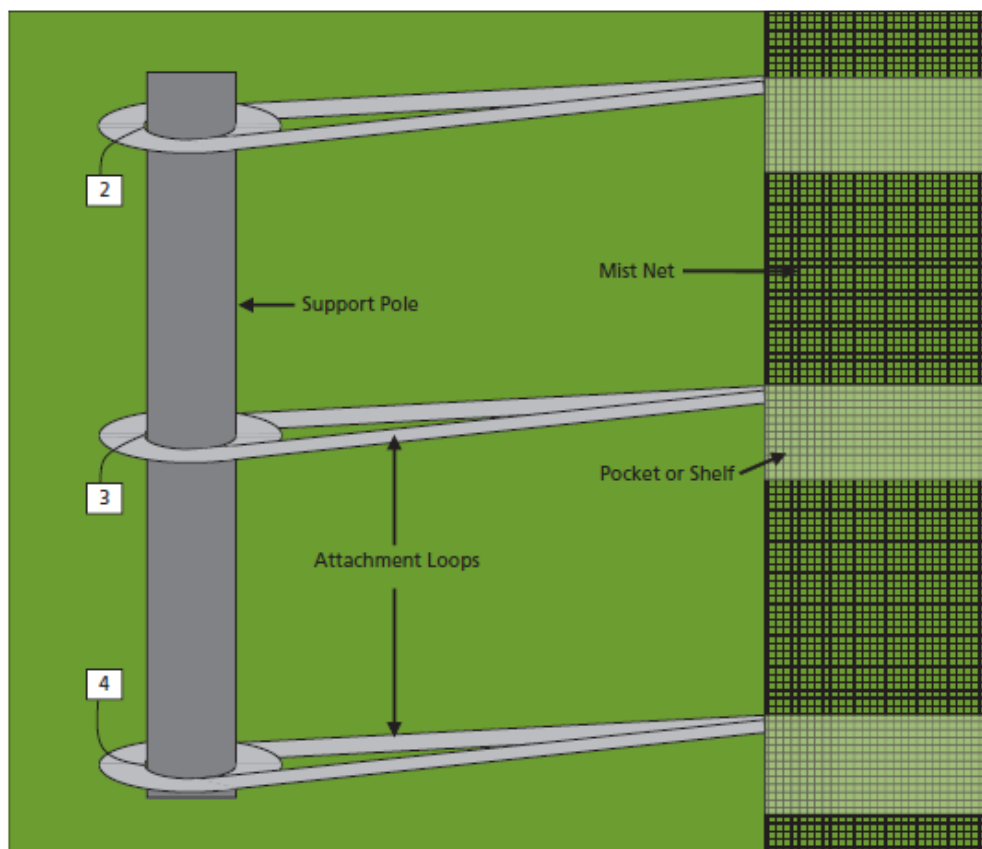


Figure 7: Correct method of placing the mist net loops on the support pole (FAO, 2007).



## Extracting Birds from a Mist Net

Extracting entangled birds from a mist net (Figure ) can be a challenge; however, with patience and experience, even seemingly inextricable birds can be removed without injury or resorting to cutting the mist net. Each entangled bird may pose a different set of problems, but the following guidelines will usually facilitate quicker removal:

- Regularly monitor mist nets and try to remove a bird as soon as possible after it hits the net; the more time the bird spends struggling to escape, the more tangled it will become.
- Determine from which side the bird entered the net; this is accomplished by finding the bird's bare belly.
- Immediately immobilise the bird, especially the wings and feet, to prevent struggling while extracting the bird from the net; this is done by wrapping your index and middle finger around either side of the birds neck while cradling the body with the palm of your hand and other fingers (i.e. small passerines), taking care not to squeeze the bird too tightly. Large birds may take two people.
- In almost all cases, the feet should be untangled first then immobilised to prevent the bird becoming entangled again; always hold the bird by the upper leg (tibia) and never by the lower part of the leg (tarsus).

Figure 8: Black-capped Chickadee (*Poecile atricapillus*) trapped in the pocket of a mist net.



- Lift the bird out of the pocket and gently pull it away from the net; often the net will simply fall away, but if not inspect the bird to determine how best to proceed.

## AWF

- In most cases, it is easier to free the tail and one wing, then re-examine the situation to determine if the head or other wing should be freed next.
- If it is clear a bird is hopelessly entangled, do not hesitate to begin cutting individual strands of the net to free it; usually cutting one well chosen strand is enough to free a bird.
- In the worst cases, the net wraps tightly around the bird's closed wing or tongue; in such instances it is best to request assistance from experienced handlers and snip individual strands until the bird is released.
- Take care to avoid the bird pecking or scratching you with its claws while you extract it from the net. Some birds like parakeets (*Psittacula* spp), shrikes (*Lanius* spp), herons (*Ardea* spp), falcons (*Falco* spp) and hawks (*Accipiter* spp) need to be handled with special care as they will often try to peck or scratch.

## Tape Playback

Tape playback is often the only efficient to survey secretive birds (Leagre *et al.*, 1999). They can be hard to see and hear; examples of such species are those that have skulking behaviour, live in dense habitats and/or are nocturnal.

Figure 9: Electronic listening and recording device for birds



Playing the call or song of a species will often produce a response, determining the presence of the elusive bird in question (Marian *et al.*, 1981). The bird can then be recorded if the individual of that species is within earshot of the tape recorder, once confirmation is made by the bird either coming out into the open or calling in reply.

The songs and calls of many bird species are unique and often identifiable at the level of an individual, if not by ear, then from a sonogram. Acoustically distinct calls of this kind have considerable potential in monitoring and conservation, particularly for birds that occur in dense vegetation or are otherwise difficult to observe, but this potential has not always been realized (McGregor *et al.*, 2000).

Many species of bird show intra-specific vocal variation due to age, sex, geographical variation and individuality. Consistent individuality of voice may exist in most species of birds. For example work in Britain concerning Bitterns (*Botaurus stellaris*), a typically elusive species has shown that their booming calls are individually quite distinct. This has allowed their numbers to be monitored more accurately and their year-to-year survival to be estimated (Gilbert *et al.*, 2002).

Figure 10: Eurasian Bittern (*Botaurus stellaris*)

#### Advantages

- It is non-intrusive, which might be particularly useful in studying rare and endangered species.
- Provide a useful tool in the study and management of species that should not be caught - e.g. rare or endangered species (Saunders & Wooller, 1998).

#### Disadvantages

- Requires high quality recording of birds that often live at low densities across scattered sites; ideally, one needs an independent means of identification, such as marking or radio tracking, to corroborate the findings;
- It requires specialist and quite expensive equipment; it often tells us only about breeding males; and it can be time-consuming, unless the analysis is automated (Rebbeck *et al.*, 2001).

### Materials

- ✓ 1 microphone
- ✓ 1 windscreen for microphone
- ✓ 1 portable cassette tape recorder or R-DAT recorder
- ✓ 1 pair of headphones for listening to tape recorder during recording, and for listening to computer during sound analysis
- ✓ Batteries for microphone and recorder
- ✓ 1 cassette or R-DAT recording tape
- ✓ 1 clipboard with data sheets



For a discussion of recording equipment specifications, see the Internet web page of the Cornell Laboratory of Ornithology's Library of Natural Sounds (LNS); <http://birds.cornell.edu/lns/Equipment/equipment.htm>.

Minimum requirements are a directional microphone with a windscreen and a cassette tape recorder with a tape counter so you can keep track of where different sounds are recorded on the tape.

Recording birds provides a permanent record of their songs and calls and allows comparisons over time and between species and individuals. Computer-assisted sound analysis reveals details of song and call structure and sonograms (a graph representing sound, showing the distribution of energy at different frequencies) provide a powerful tool to help visually-oriented ornithologists train themselves to delineate sounds by ear.

## 10 Top Tips in Recording Bird Vocalisations

1. Set the record level for the loudest element in the target vocalization, then leave it there unless the distance between you and the animal changes.
2. Plan to arrive at the field site before first light to capture sounds just ahead of and at dawn where vocalisations will be most prevalent.
3. Position the stem of the microphone so that the head is pointing directly at the bird to ensure quality of recording.
4. Try to record with as few obstacles as possible between you and the bird. Intervening vegetation can cause reverberations that may distort the sound.
5. Try to keep any wind from blowing directly toward the microphone. Since wind speed drops off sharply very close to the ground, kneeling to hold the microphone as close to the ground as possible (and angling the microphone up toward the bird will help reduce wind interference. Alternatively you can use your body or nearby vegetation to shield the microphone from the wind. Windscreens can also help to reduce wind noise, but also may reduce recording amplitude.
6. Periodically listen through headphones while you are recording; this will allow you to identify and correct any problems quickly. Including helping you to move the microphone so it is pointing directly at the bird you are trying to record.
7. Cover one ear with a headphone earpiece, and use the other exposed ear to listen for other birds that are vocalizing at the same time as the one being recorded.
8. If the bird that you are recording stops vocalizing, or you lose sight of it but think that it is still nearby, playing the tape of it that you have just recorded may well entice it to reappear

and/or start vocalizing again. It may react as if your speaker is a rival in its territory, so its vocalisations and behaviour may differ from the previous.

9. Record for at least one minute, longer if the bird allows.
10. Review and organize your field tapes at the end of each day.

**Remember!**

When using these techniques the welfare of the bird should always be carefully considered as the excessive use of tape playback can cause disturbance to breeding birds.

## **Choosing the Correct Method**

As demonstrated, a wide variety of different approaches can be used in surveying birds, but a series of questions need to be asked before work can begin. For example, are we interested in relative or absolute abundance, or a population index instead of a population estimate?

As seen, it is vital to establish the objectives of the survey at the outset and consider their practicality and relative priority. The survey objectives will interact with, and be influenced by, the sampling strategy (choosing where to count) and the field method (how to count); these taken together define the survey design (Gregory *et al.*, 2004). So think methodically and logically to ensure the quality and ultimately the constructive outcome of your surveys.

## Part 5 – Pursuit of Knowledge

There is an urgent need to know more about the world’s most threatened bird species, a combined effort of conservation initiatives is needed to evaluate their status. These statuses are officially listed in the ‘IUCN Red List of Threatened Species’.

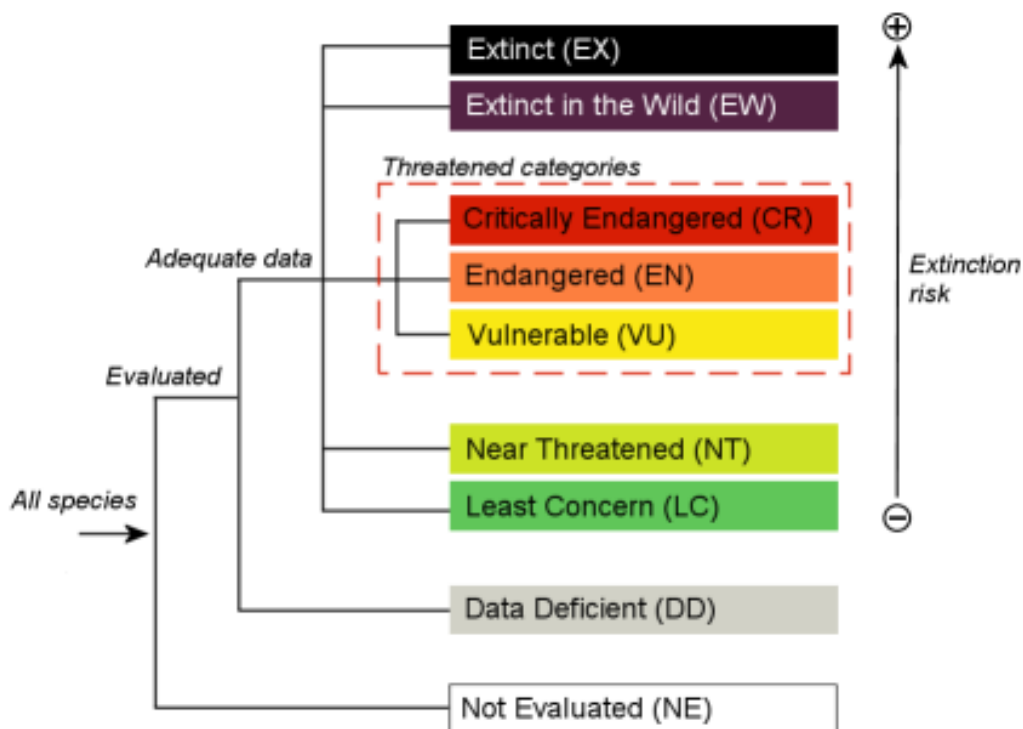
### IUCN Red List of Threatened Species



The IUCN Red List is the world's most comprehensive inventory of the global conservation status of plant and animal species. It uses a set of criteria to evaluate the extinction risk of thousands of species and subspecies. These criteria are relevant to all species and all regions of the world. With its strong scientific base, the IUCN Red List is recognized as the most authoritative guide to the status of biological diversity.

The categories and criteria of this list are intended to be an easily and widely understood system for classifying species at high risk of global extinction. The system puts different species into categories according to a set of criteria. The most important data are population size and range, and trends in one or other of these. Many countries have official lists of species of national priority. These are often based on similar ideas about range, numbers and trends but with lower thresholds.

Figure 11: Categories for classifying extinction risk



## Criteria for Classifying Extinction Risk

### **EX** EXTINCT (EX)

A taxon is Extinct when there is no reasonable doubt that the last individual has died. A taxon is presumed Extinct when exhaustive surveys in known and/or expected habitat, at appropriate times (diurnal, seasonal, annual), throughout its historic range have failed to record an individual. Surveys should be over a time frame appropriate to the taxon's life cycle and life form.

### **EW** EXTINCT IN THE WILD (EW)

A taxon is Extinct in the Wild when it is known only to survive in cultivation, in captivity or as a naturalized population (or populations) well outside the past range. A taxon is presumed Extinct in the Wild when exhaustive surveys in known and/or expected habitat, at appropriate times (diurnal, seasonal, annual), throughout its historic range have failed to record an individual. Surveys should be over a time frame appropriate to the taxon's life cycle and life form.

### **CR** CRITICALLY ENDANGERED (CR)

A taxon is Critically Endangered when the best available evidence indicates that it meets any of the criteria A to E for Critically Endangered (see Section V), and it is therefore considered to be facing an extremely high risk of extinction in the wild.

### **EN** ENDANGERED (EN)

A taxon is Endangered when the best available evidence indicates that it meets any of the criteria A to E for Endangered (see Section V), and it is therefore considered to be facing a very high risk of extinction in the wild.

### **VU** VULNERABLE (VU)

A taxon is Vulnerable when the best available evidence indicates that it meets any of the criteria A to E for Vulnerable, and it is therefore considered to be facing a high risk of extinction in the wild.

### **NT** NEAR THREATENED (NT)

A taxon is Near Threatened when it has been evaluated against the criteria but does not qualify for Critically Endangered, Endangered or Vulnerable now, but is close to qualifying for or is likely to qualify for a threatened category in the near future.

### **LC** LEAST CONCERN (LC)

A taxon is Least Concern when it has been evaluated against the criteria and does not qualify for Critically Endangered, Endangered, Vulnerable or Near Threatened. Widespread and abundant taxa are included in this category.

### **DATA DEFICIENT (DD)**

A taxon is Data Deficient when there is inadequate information to make a direct, or indirect, assessment of its risk of extinction based on its distribution and/or population status. A taxon in this

category may be well studied, and its biology well known, but appropriate data on abundance and/or distribution are lacking.

Data Deficient is therefore not a category of threat. Listing of taxa in this category indicates that more information is required and acknowledges the possibility that future research will show that threatened classification is appropriate. It is important to make positive use of whatever data are available.

In many cases great care should be exercised in choosing between DD and a threatened status. If the range of a taxon is suspected to be relatively circumscribed, and a considerable period of time has elapsed since the last record of the taxon, threatened status may well be justified.

**NOT EVALUATED (NE)**

A taxon is Not Evaluated when it is has not yet been evaluated against the criteria.

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## Bird Field Data Recording Sheet

Observer(s):	Start time (24 hour):	Finish time (24 hour):
Date:	Temperature at start (°C):	Temperature at finish (°C):

Site location including description (*brief description of habitat including vegetation*):

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Map Name: \_\_\_\_\_ Northing: \_\_\_\_\_  
*(7 digits; should be recorded mid-point along transect)*

Map scale: \_\_\_\_\_ Easting: \_\_\_\_\_  
*(topographic map gives AMG zone, easting and northing) (6 digits; should be recorded mid-point along transect)*

Altitude (*from topographic map, written in metres*)

- Wind (✓)  1. No rain  
 2. Light drizzle  
 3. Constant drizzle  
 4. Heavy rain  
 5. Mist, fog or heavy haze

- Rain (✓)  1. Calm  
 2. Light, leaves rustle  
 3. Moderate, branches move  
 4. Strong, tops of trees move

Cloud cover (%) \_\_\_\_\_



