

# **E-CONTENT PREPARED BY**

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**NAAC Accredited "A" Grade College  
(*Recognized under Section 2(f) and 12(B) of UGC Act 1956*)**

**E-Content prepared for students of  
M.Sc.(Semester-III) in Conservation Biology**

**Name of Course:  
Wildlife Management**

**Topic of the E-Content:  
Handling of wild flora and fauna**

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# Bird Ringing



# Bird ringing or Bird banding

- Bird ringing or bird banding is a technique used in the study of wild birds, by attaching a small, individually numbered, metal or plastic tag to their legs or wings, so that various aspects of the bird's life can be studied by the measurements taken during the capture
- *Bird ringing* is the term used in the UK and in some other parts of Europe; elsewhere it is known as *bird banding*, as the shape of the tag is more band-like than ring-like.



Capture



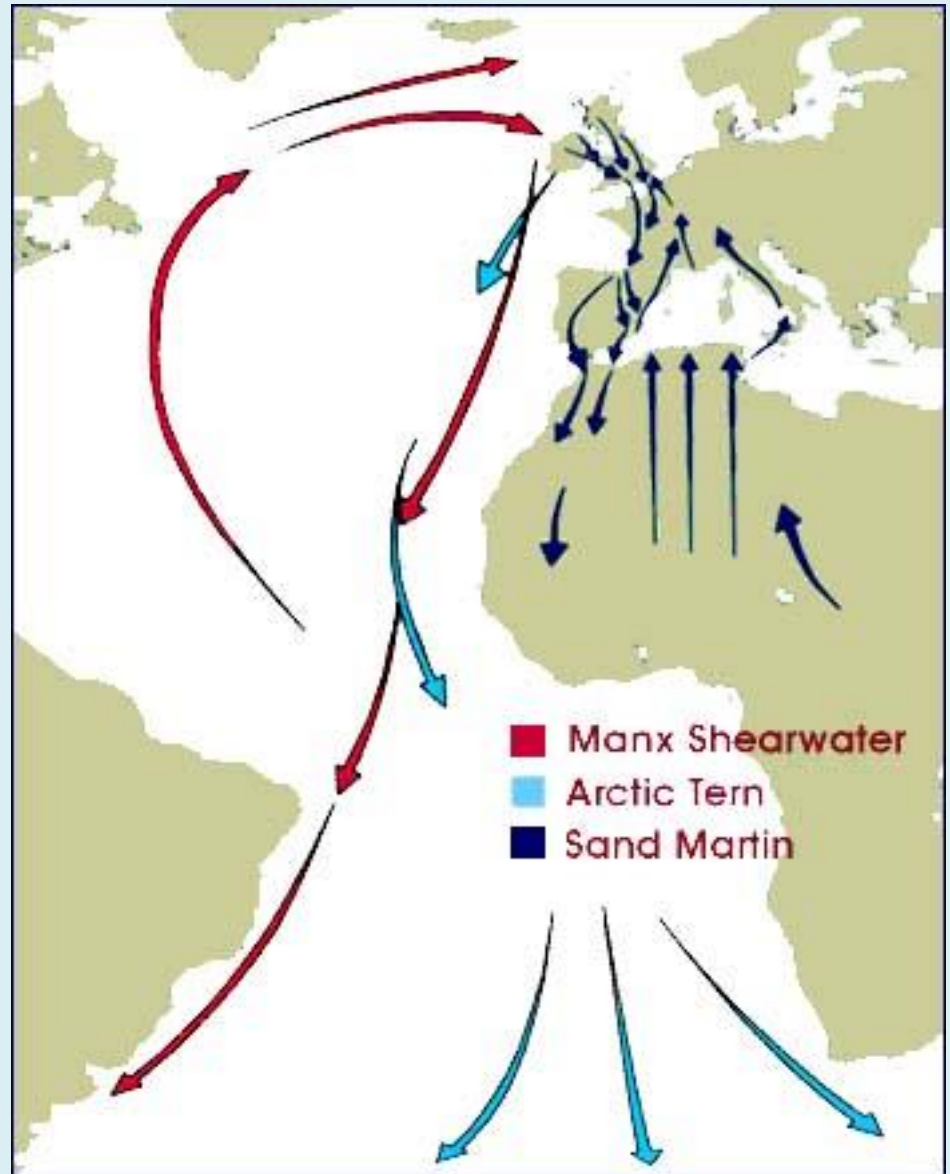
Banding



Release and monitoring

# Purpose of bird banding

- Morphometry
- Moult
- Age
- Sex
- Fat content
- Population
- Migration
- Longevity
- Territoriality
- Feeding behaviour





# Steps of Bird banding: 1. Capture

- Birds are either ringed at the **nest**, or after being captured in fine **mist nets, baited traps, Heligoland traps, drag nets, cannon nets**, or by other methods.
- Raptors may be caught by many methods, including **bal-chatri traps**.



Nest



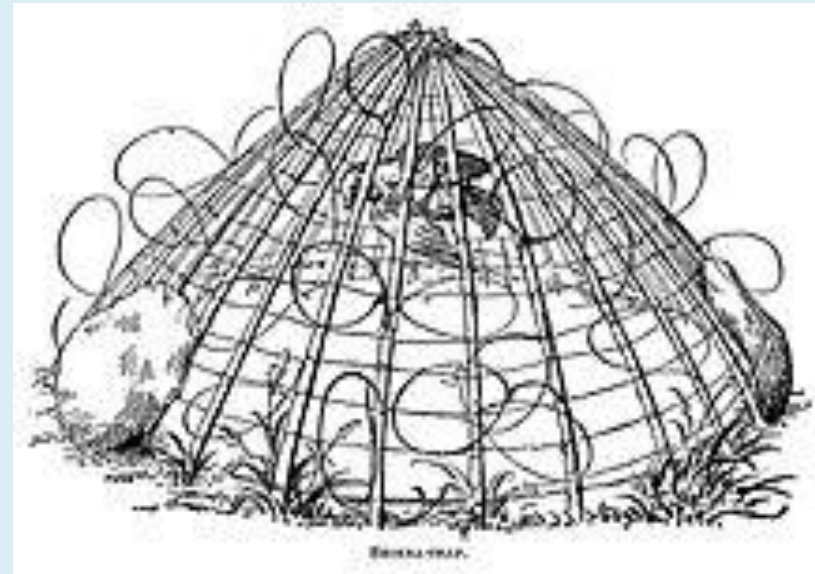
Mist net



Heligoland traps



Cannon net



Bal-Chatri trap

## 2. Setting up- nets

- Metal poles with spikes attached
- Nets: come in 6, 9, or 12 meters
- Rope and stakes: used to stabilize poles
  - Don't forget to tie down net
- Will be shown how to properly set up and secure nets



# Setting up- nets



# 3. Net checks

- Number of nets open ranges from 4-8; usually open from ~8am-4:30pm
- All nets checked every 20 min (sometimes called 'check time' or 'net run')
- More often if gusty or rainfall
- Carefully scan entire area of net, if any part not clearly visible, go over and look; check bottom line in pole nets specifically for birds by tugging
- Wiggle pole slightly to check for stability- reset if loose
- If net is caught in vegetation, loosely try to pull free and readjust net. If doesn't come out, leave and tell trained person upon return

# 4. Extracting a bird

- Only fully trained banders may take birds out unsupervised
- Getting a bird out of a net (for volunteers with some experience only)
  - First: figure out what side of net the bird flew in- this is vital
  - Get a good grip on bird, and begin “backing” them out- usually tail first, then feet, wings, and finally head- more of an art than a science
  - Keeping the bird from bending into unnatural positions, and careful movements are key to preventing injury
  - Lots of nasty ways a bird can be caught: thighed, tongued, backpacked, double bagged
  - If having trouble, always acceptable to let an experienced bander take over, particularly if you’ve been working for a while and/or bird seems stressed (eyes closing, lethargy, open mouth)
- Lots of practice is the only way to learn this skill, don’t get frustrated if it is difficult at first



# Extracting a bird



# The grips

- 2 most common:
- The banders grip= neck between pointer and index finger of non-dominant hand, bird resting in palm
- The photographers grip=pointer and index behind bird's thighs, with thumb for support, dominant hand
- In large birds, occasionally use ice cream cone grip, which is just like it sounds



# The 2 main grips



Bander's grip



Photographer's grip

# 5. Banding

When a bird is caught, a ring of suitable size (usually made of aluminium or other lightweight material) is attached to the bird's leg, and has on it a unique number, as well as a contact address.

## Types of Leg Bands:

1. Butt end

2. Lock-on

3. Rivet



**A. B. B. A.****RECORD OF BIRD Banded**

No. 22368

SPECIES *Corvus b. brachyrhynchos* juv.

WHERE Banded Berwyn Pa.

DATE May 14, 1914 Banded BY F. L. Burns.

REMARKS (Data sent by J. T. N.)

**RECORD OF RECOVERY****REMARKS**

DATE

LOCALITY

BY

DATE	LOCALITY	BY	REMARKS
5/17/1920	Near Pottsville Pa.	R. E. Davis	shot because it was stealing chickens.

- The rings are very light, and are designed to have no adverse effect on the birds
- The whole basis of using ringing to gain data about the birds is that ringed birds should behave in all respects in the same way as the unringed population
- The birds so tagged can then be identified when they are re-trapped, or found dead, later

# Other ways of bird banding

- Wing tags

- Brightly coloured plastic tags are attached to wing feathers of large birds. Each has a letter or letters, and the combination of colour and letters uniquely identifies the bird.



- These can then be read in the field, through binoculars, no need to re-trap the birds.

Another method is imping in a brightly coloured false feather instead of a natural feather



# Other ways of bird banding

- Field-readable rings



Field-readable ring or rings, usually made from plastic and brightly coloured, which may also have conspicuous markings in the form of letters and/or numbers.

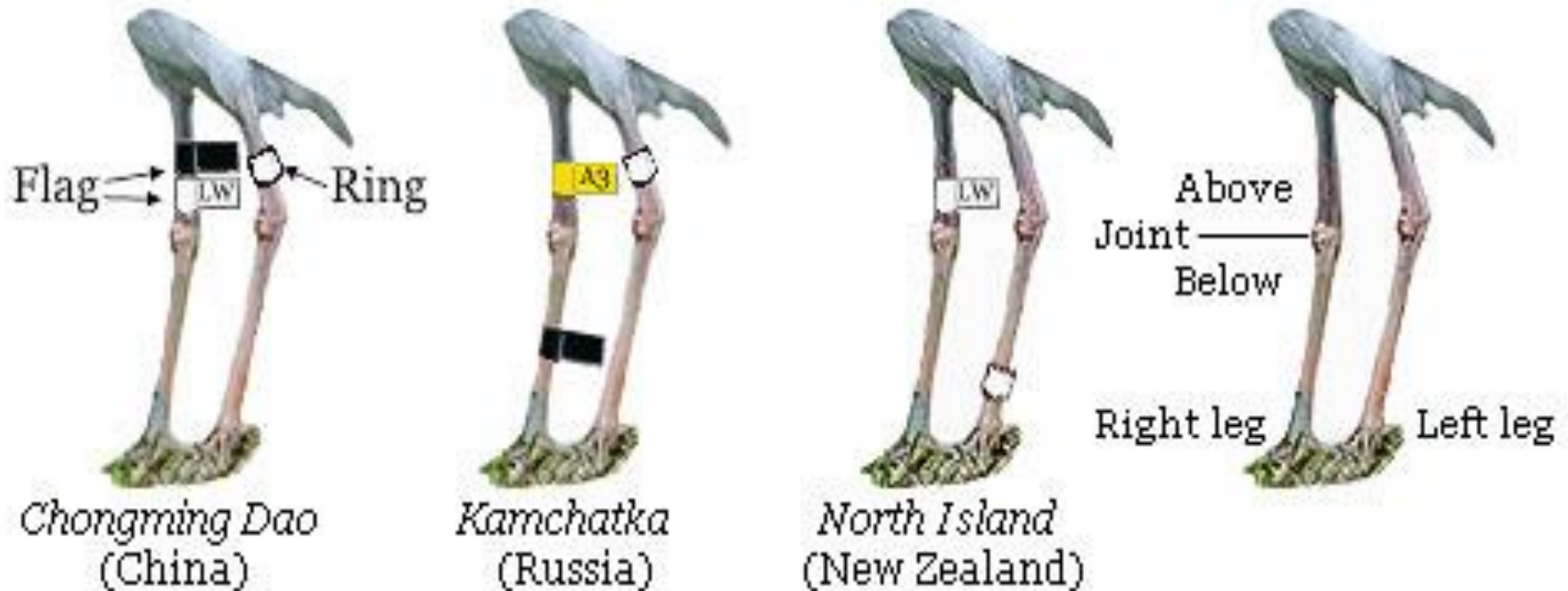
To identify individual birds without recapture and with a minimum of disturbance to their behaviour.

Rings large enough to carry numbers are usually restricted to larger birds

# Other ways of bird banding

- Leg-flags
- Used in addition to numbered metal bands
- Have individual codes for the banding sites
- To elucidate their migration routes and staging areas

## Colour Flagging Protocol: Migratory Shorebirds in the East Asian-Australasian Flyway



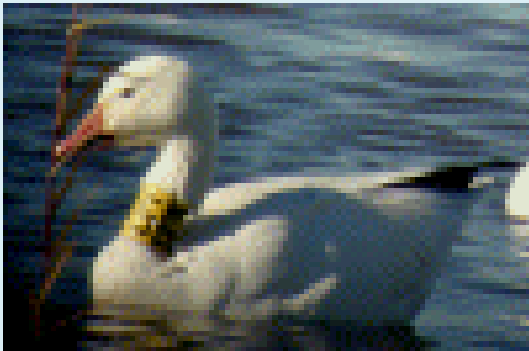
# Other ways of bird banding

- Other markers

**Head and neck markers** are very visible, and may be used in species where the legs are not normally visible (such as ducks and geese)

**Neck collars** made of expandable, non-heat-conducting plastic are very useful for larger birds such as geese

The use of **satellite transmitters** for bird movements is currently restricted by transmitter size – to species larger than about 400g. They may be attached to migratory birds (geese, swans, cranes, penguins)





## Some Interesting Results

An **Arctic Tern** ringed as a chick not yet able to fly, on the **Farne Islands** off the **Northumberland** coast in eastern **Britain** in summer 1982, reached **Melbourne, Australia** in October 1982, a sea journey of over 22,000 km (14,000 mi) in just three months from fledging.





# Some Interesting Results

A **Manx Shearwater** breeding on **Copeland Island, Northern Ireland**, is the oldest known wild bird in the world: ringed in July 1953, re-trapped in July 2003, at least 55 years old. Manx Shearwaters migrate over 10,000 km to waters off southern **Brazil** and **Argentina** in winter



# National Agencies and Consortia

North American  
Banding Council  
Canadian Banding  
Programmes  
Bird Banding  
Laboratory

British Trust for  
Ornithology

European Union for Bird  
Ringing (EURING)

**Bombay Natural  
History Society  
(BNHS)**



National Centre  
for Bird  
Conservation  
(CEMAVE)

South African  
Union for Bird  
Ringing (SAFRING)

Australian Bird and Bat  
Banding Scheme

# Bird ringing in India



**Bar-headed Goose (Anser indicus)**

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# What to do when you find a tagged bird in India ?

## Forward these information

1. Name and contact address of observer(s):
2. Species:
3. Location (with latitude and longitude if available):
4. Kinds of band(s) (metal ring/ flag/colored ring):
5. Color and number of color band if observed:
6. Position of bands:

*Right or left leg:*

*Above the joint (type of marker / color):*

*Below the joint (type of marker / color):*

7. Date and time of observation:
8. Number of birds of the same species spotted:
9. Photo, if available, attached:

The above information can be sent or shared at:

Dr. S. Balachandran, [bnhsbala@rediffmail.com](mailto:bnhsbala@rediffmail.com). BNHS maintains Indian ring recovery records and is the Key Banding Scheme Contact for India.





.....Grip

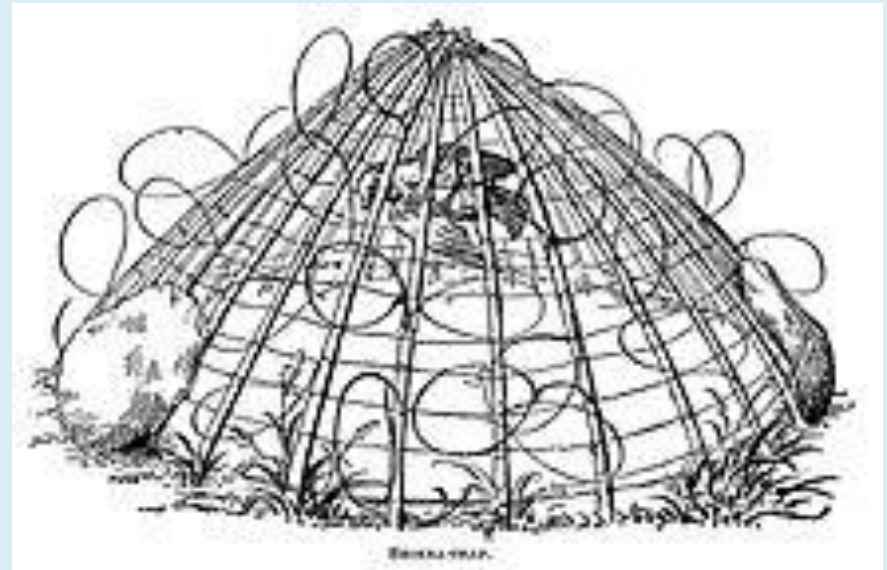


A



Which will be appropriate, A or B, to catch the bird in the photograph?

B



Neck Collar will be an appropriate tag for which of these birds?

A



B



C







..... Tag





Actions can  
save wildlife!  
cwwild.org.au

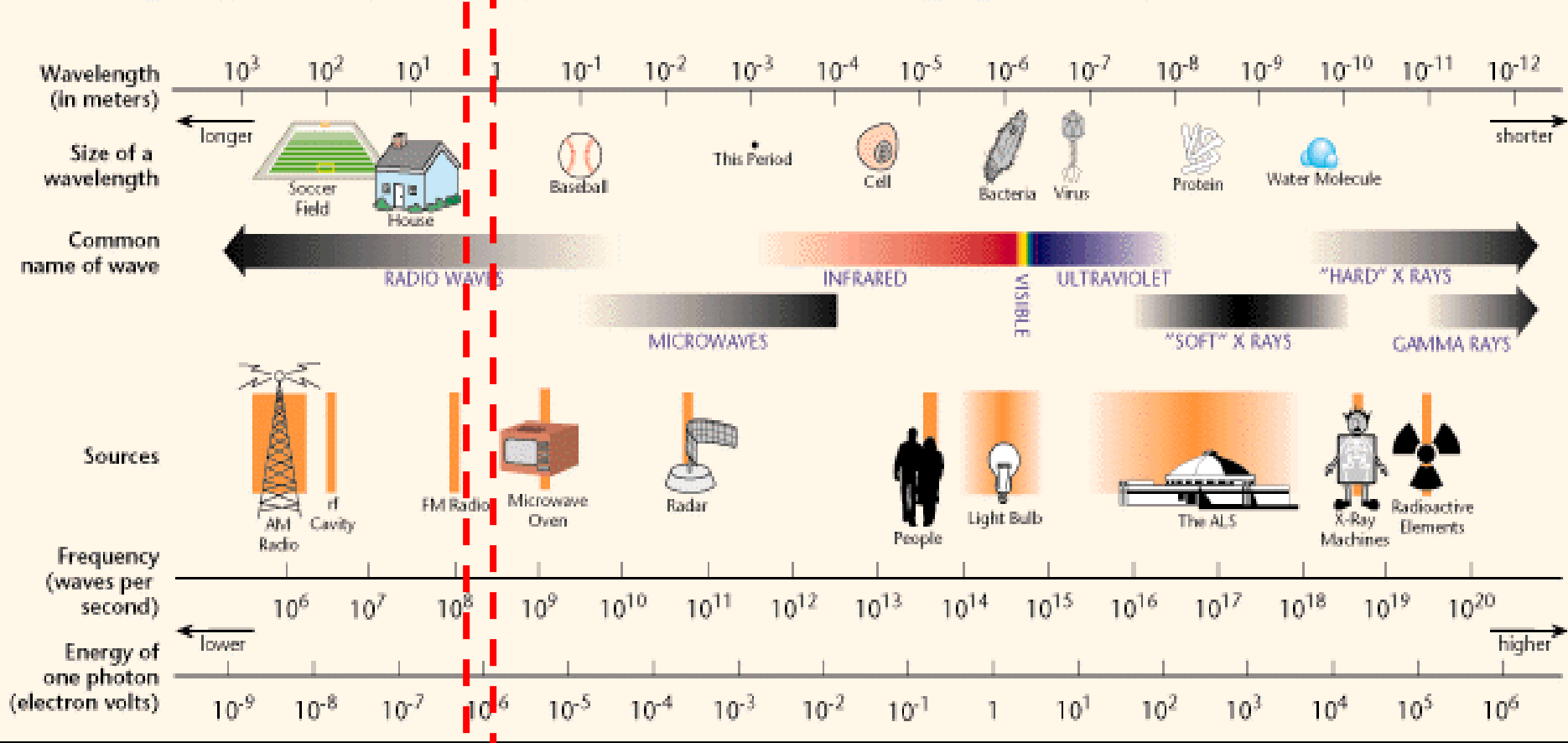


# What is Wildlife Radio telemetry

- Transmission of information from a transmitter on a free-ranging wild animal to a receiver.
- Radio-tagging, Radio-tracking or simply 'tagging' or 'tracking'
- Very common throughout the current wildlife literature

# The Electromagnetic Spectrum

## THE ELECTROMAGNETIC SPECTRUM



Lawrence Berkeley National Laboratory 2003

← **Radio telemetry**

# What are needed?

## Transmitter

### Transmitting Antenna

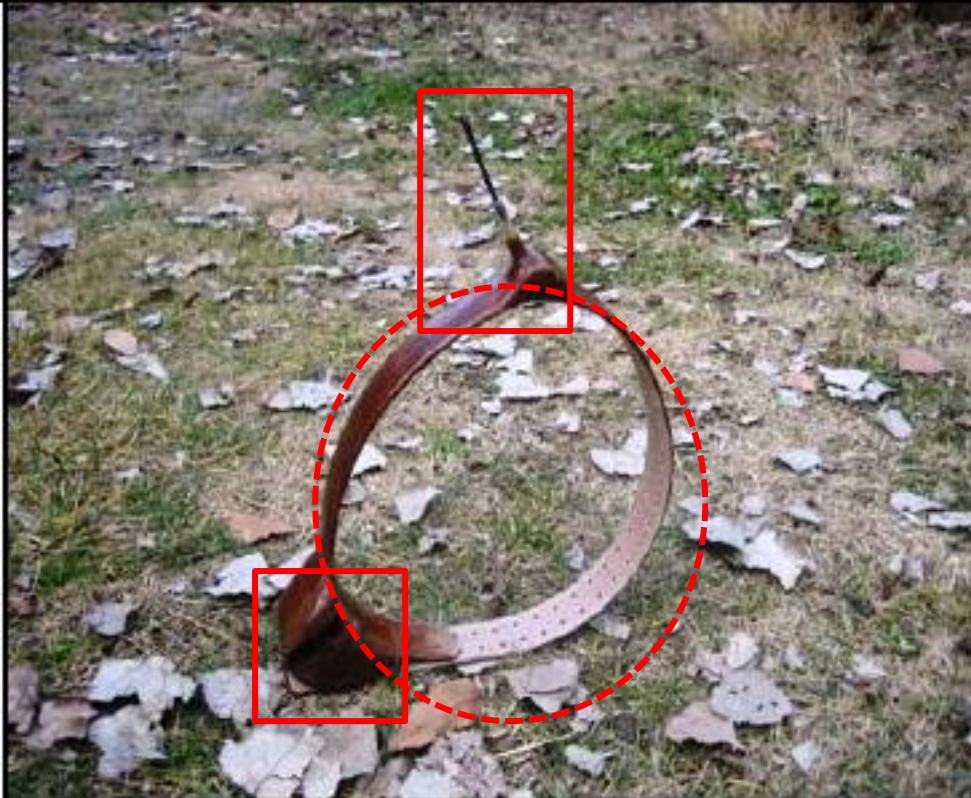
Whip or Loop antenna

Whip antenna most frequently used, Omnidirectional

### Transmitter Attachment

Collars, tail mounts, back-pack modules, implantations etc.

Should be durable, comfortable and safe for the animal



### Transmitting unit (Tag)

Generate radio frequency energy depending on battery capacity, operational life and duty cycle requirements



# What are needed?

## Receiver



**Receiving antenna:** Pick up the signals, directional antennas (Yagi or H) concentrate the radiated energy to the front of the antenna

**Coaxial cable:** connect antenna to receiving equipment



**Receiving equipment:** Amplify the signal picked up by antenna and make it audible

# Why Radio telemetry

- Potential applications of telemetry
  - Analysis of animal movements
  - Analysis of habitat use
  - Estimation of population parameters

# Field Procedure



Chemical immobilization



Physical capture

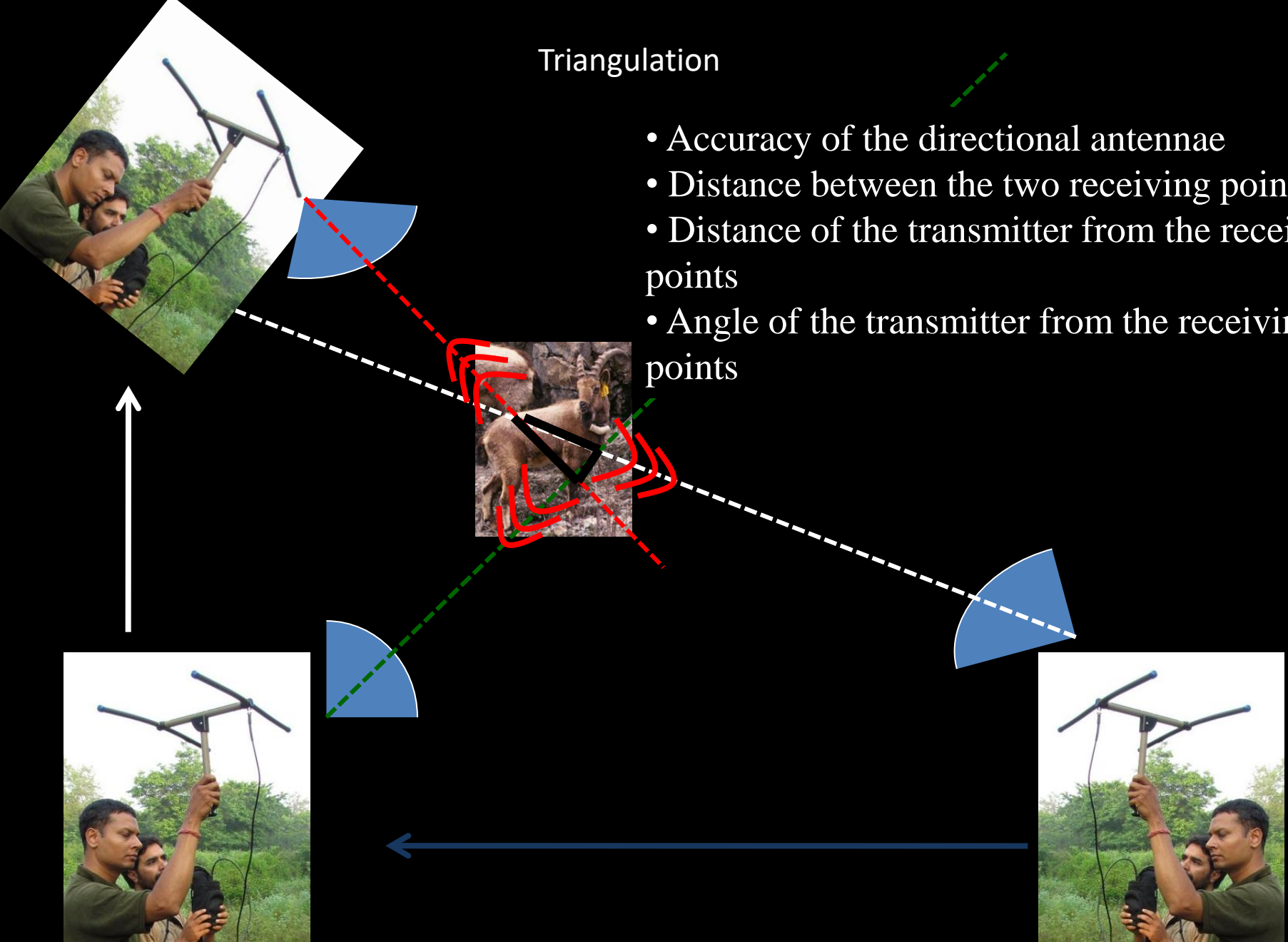
Safe Release



Collaring and measurement

# Triangulation

- Accuracy of the directional antennae
- Distance between the two receiving points
- Distance of the transmitter from the receiving points
- Angle of the transmitter from the receiving points



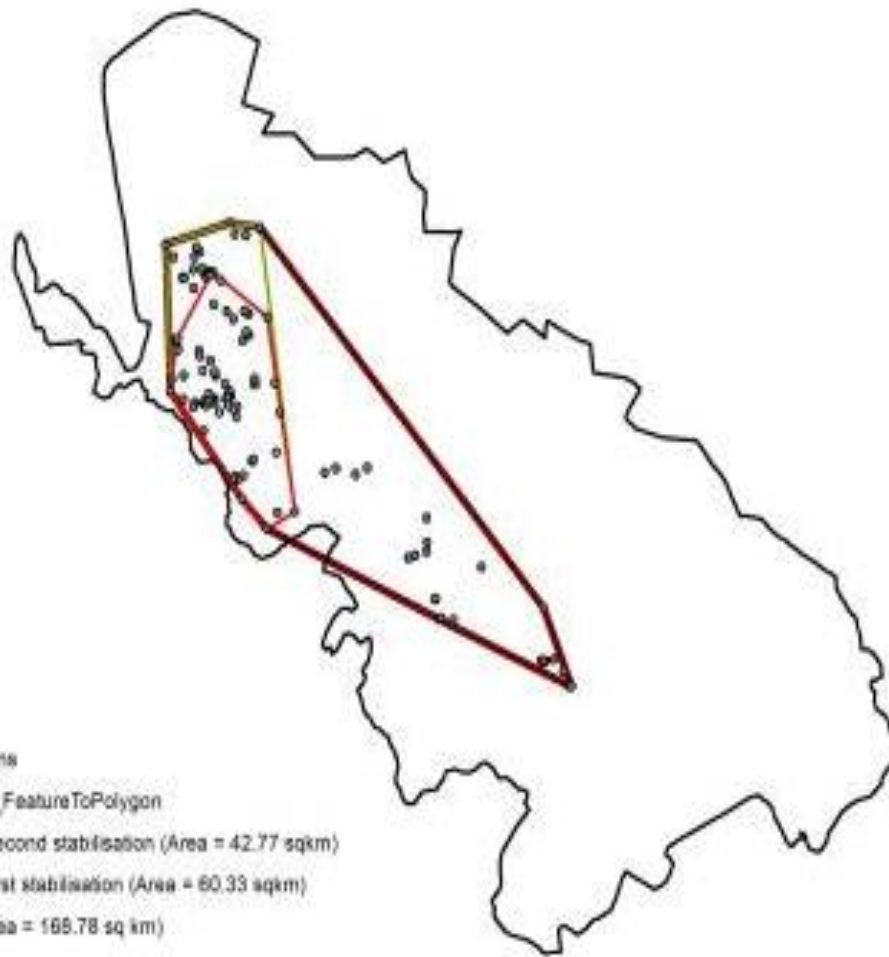


# Potential Applications of Telemetry

- Analysis of animal movements



# Potential Applications of Telemetry: Home range analysis





# Hunting





# Recruitment





## Feeding strategy for cubs





## Rearing the cubs



For most techniques this is most important!

Sampling design

Is it possible to count or collect data for all the individuals in a population?

A good sampling design eliminates bias!

Types of sampling

Random

Stratified-random

# Which method and which sampling design?

Questions, answers and right search parameters?

What are you investigating?

What kind of data will answer the question?

What method and sampling will help get adequate, unbiased data?

Include logistics in planning!

Solution to good planning: **Read, consult and clarify**





**Thank you!**