#### **HERONRY SURVEY**

#### Roshnath R. and C., Sashikumar

#### **Difficulties** ?

#### Indian Cormorant Little Cormorant Black eyes Shallow forehead (oval) Emerald green eyes Steep, flat forehead with a hint of feather tuft Short, stout and fleshy beak Long & Slender beak No yellow in gular region Yellowish gular

Indian cormorant (v/s Little)

- 1) Emerald green eyes
- 2) Long & slender beak
- 3) Yellowish gular region
- 4) Shallow forehead (oval shaped)
- 5) Larger size (though this feature is difficult to appreciate on field)

Little Cormorant (v/s Indian)

- 1) Black eyes
- 2) Short, stout and fleshy beak
- 3) Whitish gular region (no hint of yellow)
- 4) Steep forehead with a hint of feather tuft
- 5) Smaller size (though this feature is difficult to appreciate on field)

8				
9				

Heronry Data Sheet											
Nam	e of the place where H	lernory is situated									
Loca	tion (Road, Village/Tov	vn)									
Distr	ict										
Date	of Survey										
Start	Time of the Survey (in	24H format)									
End	Time of the Survey (in 2	24H format)									
Latit	ude (e.g. 12.25)										
Long	itude (e.g. 78.05)										
Habi	tat (Wetland, Roadside	e, Mangrove, Forest, I	Reside								
Compound, Non-residentital Compound, Other											
Approximate distance of the nearest wetlar LOP											
Disturbance and threats (Natural predatio											
Stray	dogs, Weak branches	, Nest robbing,	Inact		will it be possible?						
Age	of the Heronry (in year	s)	(nest								
Nam	e(s) of the Survey Tear	n									
Emai	I Address of the Conta	ct Person									
Phor	ne Number of the Cont	act Person									
			Predomine				Height of				
			nt			No of	the nest				
			Reproducti	No. of	No of	young	tree	Owership (address of owner) of land			
No	Species of Nest Tree	Bird Species	ve Stage	nests	adults	birds	(meters)	where Nest tree stands			
1											
2											
3											
4											
5											
6											
7											
8											
9											

# Survey team ?





# Multiple observer count



## **SURVEY TEAM**

Counts in small heronries can be recorded by a single observer but in large heronries like mangrove islets in Naniyoor and trees with >100 nests in Mahe areas are very difficult to count. There is high chance of error while counting a large heronry by a single observed hence multiple-observer methods(Elphick, 2008) are advised. It is also advised to have a same survey team because when **same observer(team)** is involved in counting from year to year there is much less variation that when counted by different individual (Marguiss, 1989).

## SITE SELECTION

Survey area should be selected from published data on nesting locations in the study area or know places. Even when we think we know where all the individuals we want to count are located, it is hard to be certain that others do not occur elsewhere (Murchison, 2007). It is the same case as year passes new heronry sites are been identified. Earlier in 2013 we have identified 10 new sites in Kannur where the heronry birds nest, of which most of the sites are too small to be called as heronry (Roshnath et al., 2013). Another useful way to gather information is to have a press release about the census and an appeal for information with the telephone number of the coordinator for contact. By press release in 2014 we had recorded two new sites in Kannur. New heronry sites need not mean that birds are nesting there for the first time but implies it was been just scientifically recorded for the first time. Example this year (5-8year) old heronry in Kottakapara (Iritty) came into notice by information given by a local well-wisher.

Map showing the locations of heronry sites in Kannur District of Kerala during the survey



#### **SURVEY TIME**

Heronry birds synchronize their breeding periods according to monsoon period to maximize their young ones survival, when there is abundant of food resources were available. Colonial nesting water birds are particularly easy to census during the breeding season, when that season is reasonably well defined. (Sutherland, 2006). But variation in peak breeding period was noted (Roshnath et al., 2013) hence we lack information for well-defined the peak period. When the rainfall data for the past nine years from 2004 to 2013 in Kannur area was compared, a shift in the peak rainfall period was observed from the month of June to July. Correspondingly there is shift in peak breeding period from June to July months that was reported earlier (Subramanya, 2004) to July and August.

Hence July last- August first week would be apt time to count the birds. Also there are chances of missing early and late nesters. Multiple sampling is the only way to standardize this problem. But in some areas like Mahe were birds are observed to be nesting very early than other places are issues and are found to have few nest most of the months. To standardize all those error it's better to stick on to a time period year after year to draw favorable conclusions

# COUNTING HERONRIES IN INACCESSIBLE MANGROVES

- In areas like Kannur having heronry site in mangrove islet surrounded by water, it is very difficult to access and count. Hence the counts are to be taken from nearby ground were the visibility to the heronry is high.(Similar to perimeter count as described by Dodd and Murphy, 1995). So only nests in the sides will becounted and thereare high errors in the total count of the site as the nests in the centers and interiors of mangroves will not be noted. But making it as a protocol which will be followed year after year the nest density in the area can be understood.
- Most of the heronry in mangrove will be large; hence block count method is preferably used eg In the Naniyoor mangrove (Fig 3) the area can be divided into equal blocks and nests of each species (eg. A, B and C) in each block should be separately counted. Total count is taken by adding each block (Block1+2+3+4...)



# WHAT CAN BE COM HERON

How can we say a place as heronry site?

- Site composition (species and habita
- Distance between sites.
- There is lack of clarity in clubbing such sites.
- Nesting colonies that were within 500 m radius were considered as discrete colonies by Hilaluddin(2005).
- Bryan *et al.*, (2003) opined birds nesting in different clumps of shrubs or trees within the same habitat were considered to be one colony if the groups of nests could be enclosed within 1200m diameter circle.
- But this case is not practical in our area since most of the heronries in Kannur are located along the stretch of main roads which might be less than 1km separation.
- Hence we have taken sites within 300m radius as one heronry cluster. Examples of clustering heronry are described below.







# Feather collection and DNA Study



# Objective

- To study inter and intra relationship between species in heronry sites.
- To study the population genetics (Variability)
- To study the dispersal and site fidelity character of the birds



- Collect clean feather in a zip bag
- Mark the details of the site
- Send it to us
- Analysis will be done in Dept. Genomic Science, CUK





Cells are lysed using a detergent that disrupts the plasma membrane. Cell contents are treated with protease to destroy protein, and RNAase to destroy RNA.

Cell debris is pelleted in a centrifuge. The supernatant (liquid) containing the DNA is transferred to a clean tube.

The DNA is



#### "BIRDS COULD EXIST WITHOUT HUMANS BUT HUMANS WOULD PERISH WITHOUT BIRDS"

