

# Bird Atlas

Requirements & Broad Plan

# How to divide Kerala spatially?

- ▶ Align to Survey of India Toposheets
  - 7.5' x 7.5' is the most finest scale available.
    - 13.3km x 13.3km cells
    - This is good for a country, state can be finer.
  - Use a factor of this scale as cell size for the state.
    - Option 1: 3.750'x3.750' [6.6 x6.6km]
    - Option 2: 1.875'x1.875' [3.3 x3.3km]
- ▶ Sub-cell Size is uniform across the country
  - 0.625' x 0.625' [1.1 x 1.1km]
  - Only cell size can vary

# Statistics

- ▶ Kerala Size: 38500 sq.km
- ▶ Forest : Non-forest: 11000:27500
  
- ▶ # 7.500' x 7.500' Cells: 218
- ▶ # 3.750' x 3.750' Cells: 870
- ▶ # 1.875' x 1.875' Cells: 3535

Note: Even if we select 3.75' x 3.75', it will have to be divided into four quadrants (each of size 1.875' x 1.875') and random sub-cells selected in each of the quadrants. This is to avoid quadrant bias in a cell.

# When do we sample?

- ▶ Twice a year
  - E.g. August & February
- ▶ Avoid months of passage migration
  - Moving population requires more sampling
- ▶ Can we have  $>1$  month for 1 cycle ?
  - 1.5 months ? 2 months ?
    - July–mid – August–end or August start – Sept–mid
- ▶ What time of the day would we sample ?
  - Forests: As in surveys, 6:00–10:00, 16:00–18:00
  - Non–forests: No constraints ?
    - E.g wetlands can be covered in midday
    - Avoid after dark hours.

# What is each sample ?

- ▶ Every team should have at least two observers
    - One expert birder and one enthusiast
    - Can we have more ?
  - ▶ Protocol = Traveling, Duration = 15 minutes
  - ▶ Estimate the distance traveled.
  - ▶ Mark all the species and estimate the number of birds seen during birding.
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# How frequently do we sample?

- ▶ 4 lists/ sub-cell in each cycle
- ▶ If possible, different teams do the replicates.
- ▶ If possible, replicates done on different days.
- ▶ If possible, every team attempts to cover different parts of a sub-cell. E.g.
  - Team 1 does 2 different walk-paths on Day 1
  - Team 2 does same 2 walk-paths on Day 2

# How many sub-cells to sample?

- ▶ Alappuzha proto-atlas covered 12.5% of the district in four days.
  - Two 1.1x1.1 sub-cells in each cell.
- ▶ We can choose a variable model for different districts based on birder density
  - 10-40%
  - Alappuzha might be able to do even 40%
    - E.g. 4 out of 9 sub-cells.
  - 10% => 1 sub-cell in a set of 9 sub-cells.
- ▶ If sub-cell sample density is high, distribution data at a smaller scale (1.875'x1.875') is possible.



Microsoft Word  
Document

# How do cover entire Kerala?

- ▶ Pilot work in two districts
- ▶ Attempt 2 or 3 districts each year
- ▶ We complete the atlas in 5–7 years.

Year	Districts
2015–16	Alappuzha, Thrissur
2016–17	[Please volunteer]
2017–18	[Please volunteer]
2018–19	[Please volunteer]
2019–20	Idukki,

- ▶ Alternatively, do one shot in 2016–17 or 2017–18 whenever we are ready.

# What is the expected output ?

- ▶ Out of 500 species of birds in Kerala
  - ~100 are vagrants (or sea birds). E.g. Red Knot
  - ~100 are very rare (or nocturnal). E.g. Malay Night-Heron
  - CBMP outputs roughly 250–275 species
- ▶ Hence, densities of ~300 species mapped across Kerala would be an expected output.
  - Nocturnal bird densities may not reflect true status

# Bird Atlas

Detailed Plan & Coordination

# Where to bird in a sub-cell?

- ▶ Cells and sub-cells marked in Google Earth and toposheet.
- ▶ Identify at least 2–3 walk-paths in a sub-cell looking at the maps & GE.
- ▶ Attempt to cover all habitat types
- ▶ Forest areas should have sufficient buffer planned.
  - Allow time for extra walks (rain, elephant, logistics)
- ▶ Report eBird list links in an excel sheet.

# How to handle non-forests?

- ▶ A team visits each cell for a day ?
  - ▶ Or two teams visit four cells and complete half the replicates
  - ▶ Next day, they swap and complete four cells.
  - ▶ Combined survey style meeting during weekends to split responsibilities
  - ▶ Let us take an example and work out...
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# How to handle forests?

- ▶ Identify base camps and assign cells.
  - ▶ One day 0.5 cell for each team.
  - ▶ Next day the teams swaps
  - ▶ Lets take an example and work out
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# Edge-cases

- ▶ What happens in border areas ? Do we leave the random sub-cells out ?
  - ▶ What happens when cells are at sea ?
  - ▶ What happens when cells are inaccessible lakes ?
  - ▶ What happens if a cell is not visited during a season ?
  - ▶ What happens in inclement weather ?
  - ▶ What happens in cloudy overcast ?
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# Data Quality

- ▶ Bird Atlas vs CBMP
- ▶ Pairing Bird-watchers vs Free for all
- ▶ Dropping lists that are sub-optimal
  - Rains, Winds, Unusual crowd, Flooding
  - Lead observer pre-occupied / absent.

# Estimates for the two districts

- ▶ How many birders ?
  - ▶ How many expert birders ?
  - ▶ How will birders from other districts contribute ?
  - ▶ How many days ?
  - ▶ How to split the district amongst core leads ?
  - ▶ How to cover forests ?
  - ▶ What directions to be given to KFD
  - ▶ Who will lead and where ?
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# Outreach



Powered by: **eBird**

## CBMP Kerala

COMMON BIRD MONITORING PROGRAMME 2015

FEB 13-16

Counting BIRDS is a simple & fun way to **STUDY BIRDS** and help **CONSERVE NATURE**

**WHAT TO DO?**  
Look for BIRDS for exactly 15min. and upload the list of all species seen to [www.ebird.org](http://www.ebird.org)  
Upload as many as you like

[www.birdcount.in/events/kerala-cbmp/](http://www.birdcount.in/events/kerala-cbmp/)

Photo: Vijesh Vallikunnu

**Grey-headed Canary-flycatcher**

Coordinated by:

**SOCIAL FORESTRY**  
KERALA FOREST AND WILDLIFE DEPARTMENT  
A Community Conservation Initiative

**Bird Count India**  
[www.birdcount.in](http://www.birdcount.in)

# Outreach Targets in Districts

Ready for Atlas	Need <i>eBird</i> Outreach	Need Birding Outreach
Alappuzha	Kottayam	Idukki
Thrissur	<i>To be discussed</i>	<i>To be discussed</i>

# How can we improve

- ▶ eBird penetration among bird-watchers from the districts of 2<sup>nd</sup> category ?
  - ▶ General bird-watching knowledge amongst our target audience in the 3<sup>rd</sup> category of districts ?
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