BE A SCIENTIST FOR A DAY: A CITIZEN SCIENCE PROJECT FOR BIODIVERSITY SURVEYS AT BNHS NATURE RESERVE

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1. **Introduction:** Overview of Citizen Science
2. **Methods:** About Be a Scientist for a Day Programme
3. **Results:** Profile of Citizen Scientists and Data collected by them
4. **Discussion:** Learning of Citizen Scientists and their contribution to science
5. **Conclusion:** Future Plans
OVERVIEW

- What is Citizen Science?
- Why is Citizen Science Important?
- Study area
- Introduction to Be A Scientist for A Day
What Is Citizen Science Programme?

- Involving citizens in scientific studies
- Oldest Citizen Science Activity: Audubon Society’s Christmas Bird Count since Christmas of 1900
- In India the first Citizen Science Programme was started by National Centre for Biological Sciences in 2007; MigrantWatch & SeasonWatch
Why Citizen Science?

- Scientific community - aloof from society
- Lack of awareness about field science
- Gaping hole in scientific data
- Locals can be an important source for scientific data collection
- Large amounts of data is collected in shortest time.
Study Area

- **Name:** BNHS Nature Reserve (BNR)
- **Area:** 33 acres
- **Location:** Sandwiched between Sanjay Gandhi National Park (SGNP) & Filmcity, Mumbai.
- **Type of Forest:** Semi Moist Deciduous
Map Of Study Area

LEGEND:
- **Karvi Trail**
- **Salim Ali Trail**
- **Leopard Trail**
- **Stream Trail**
- **Temple Trail**
Be A Scientist for A Day

- Launched on 26 January 2011
- Biodiversity Survey of BNHS Nature Reserve
- Monthly surveys
- 5 Survey themes: Plants, Birds, Insects, Herpeto fauna, Birds and moth studies
Field Surveys

Surveys conducted by experts

Participants learn:

- Research orientation - Slide illustrated talk
- Identification
- Survey techniques - Hands on field work
- Use of gadgets like GPS, Thermohygrometer
- Use of field guides
- Data entry
METHODOLOGY

- Field survey techniques
- Materials and Equipment
- Announcement, Publicity and Registration of Programme
- Conduct survey
- Data analysis
- Feedback
Field Survey Techniques

- Monthly Surveys
- Five existing nature trails used as transect
- Set up 15 m X 15 m quadrants at every 100 m distance
- 13 quadrants on 33 acres
  - For Flora and Insects study: Quadrants
  - For Birds: Point-Transect
  - For Herpeto fauna- Direct Point-Transect
  - Nocturnal insects- Light traps.
Equipment And Resources

- Compass
- Ropes
- Measuring tape
- Paint and ribbons
- GPS unit - Garmin E-Trex
- Thermo-hygrometer
- Field Guides
- Data sheets
Programme Publicity

- Monthly announcement
- Publicity:
  - Press release
  - Online groups, Facebook, Twitter, Orkut
  - Radio
  - BNHS membership circular
  - BNHS website
- Registration form for prior registration
RESULTS

- Who were the Citizen Scientists?
- How they contributed to science?
- How they benefitted from science?
Participant’s Profile

- 271 participants till June 2012
- 150 individuals and 121 school and college students

Gender wise profile of participants

- 43% Females
- 57% Males

Theme Preferences

- Birds 28%
- Insects 37%
- Trees 29%
- Moths 6%
Participant’s Profile

Age profile of Participants

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Data Collection on Plants

- 27 Trees, 9 Shrubs, 26 Herbs and 10 Climbers species
- Most dominant species
  - Tree - Lannea coromandalica
  - Shrub - Carvia callosa
  - Herb - Curcuma pseudomontana
  - Climber - Cocculus hirsutus
Data Collection on Insects

- 200 species belonging to 15 Orders
- Dominant order was Hymenoptera
- Lepidoptera showed most species diversity
  - 46 species of butterflies
Data Collection on Moths

- Common moth *Asota sp.* belonging to family Erebidae.
- Infestation by mangrove moths (*Hyblea sp.*) during the month of September.
- Over 200 species of moths.
11 species of reptiles and five amphibians.

Among the reptiles the Geckos were dominate,

The snakes were sighted rarely during the survey.

Common Indian Toad was the dominant amphibian.
Data Collection on Birds

- 2317 individuals of 53 species belonging to 29 families
- Dominant family Corvidae with 849 individuals of two species.
Participants’ Feedback

- Help Extended by Faculty and Staff
  - Very Effective: 55%
  - Effective: 36%
  - Somewhat Effective: 8%

- Guidance on How to Reach
  - Very Effective: 48%
  - Effective: 37%
  - Somewhat Effective: 9%

- Registration Process
  - Very Effective: 41%
  - Effective: 45%
  - Somewhat Effective: 9%

- Program Layout
  - Very Effective: 49%
  - Effective: 38%
  - Somewhat Effective: 10%

- Program Duration
  - Very Effective: 92%
  - Effective: 2%

- Program Conclusion
  - Very Effective: 41%
  - Effective: 12%

- Data Entry
  - Very Effective: 49%
  - Effective: 39%
  - Somewhat Effective: 11%

- Field Work and Data Collection
  - Very Effective: 49%
  - Effective: 43%
  - Somewhat Effective: 6%

- Presentation
  - Very Effective: 37%
  - Effective: 13%

- Setting up Light Trap
  - Very Effective: 49%
  - Effective: 33%
  - Somewhat Effective: 5%

- Program Introduction
  - Very Effective: 34%
  - Effective: 55%
  - Somewhat Effective: 11%
Benefits to the Participants

- Awareness: 57%
- Academic: 29%
- ID Skills: 14%
DISCUSSION

Participants

- Youth were attracted to the module with a sizable chunk (225 individuals) being between 14-25 years.
- The students benefit by learning the research methodologies through hands-on training.
- The BNHS benefits through completion of Biodiversity study of BNR.
- The community benefits through having an army of citizens undertaking scientific presentation.

Data Interpretation

- The dominance of *Carvia callosa* and *Curcuma pseudomontana* could be attributed to the undulating terrain of the BNR.
- The infestation by *Hyblea* sps. needs to be further investigated.
- Dominance of Crow population along the periphery could be attributed to proximity to Shooting locations.
CONCLUSION

- The “Be A Scientist for A Day” programme has been well received by audiences
- The programme succeeded in infusing interest among amateurs for field research
- The uniqueness of the programme could be one reason it was covered repeated in print media including cover stories.
- Contributes to Aichi Target 1.
FUTURE PLANS

- Make “Be A scientist for A Day” a regular feature of BNHS- CEC programmes
- Apply for grant, so that the module can be subsidized.
- Publish a scientific paper
- Increase the purview of the study to include more sites.
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Our Participants

THANK YOU

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