MATERIALS AND METHODS
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Location of work

The present research work was conducted in Allahabad. Allahabad is a major city in the north Indian state of Uttar Pradesh of India. It is the administrative headquarters of the Allahabad District (Plate 1). Allahabad is the seventh most populous city in Uttar Pradesh having an area of 63.07 km² (24.35 sq mi), with an estimated population of 1.74 million living in the city and district area. Original name of city is Prayaga ("place of sacrifice"), representing the sacred union of the rivers Ganges, Yamuna and Saraswati. Large numbers of Siberian birds reported in sangam and nearby wetlands during winter season (Aggarwal, 2009).

Allahabad's comes under the larger Gangetic Plain region in its north; it includes the Ganges-Yamuna Doab and the Terai which is responsible for the city's unique species of flora and fauna (Kala, 2000; Mishra and Verma, 1992).

The geographical area of Allahabad district is 5,137 square km. Here, moderate dense forest area is 27 square km while open forest area is 68 square km as per 2011 assessments (Plate 2) (Indian State of Forest Report (2011)).

Methodology

A detailed study on the wildlife biodiversity was carried out by extensive field based survey and review of literature. The information on wildlife offenses was collected from the forest department and by direct observations. A detailed questionnaire survey and interview was conducted involving local peoples, traders and personals from forest department college and university academicians. Apart from this data from the zoo collections in the city was also collected.

I. DATA COLLECTION FROM PRIMARY RESOURCES

Primary data were collected by field evaluation, site inspection, interviews, group discussion with urban and rural communities and questionnaire survey.

MULTISTAGE RANDOM SAMPLING

Singh and Sharma (2011)

A multistage random sampling was used to select the study area and respondents. Discussions were made with the local residents and forest officials to have the basic idea about
various wildlife issues. From views of these peoples a questionnaire was framed. The pretesting of this questionnaire was done. Based on the answers got during pre test, a close ended questionnaire was made.

**QUESTIONNAIRE SURVEY**

A semi-structured questionnaire was prepared to collect necessary information. All questions were in the regional language, questions had multiple options and respondent had to chose one of these. The pre-testing of questionnaire was done on the theme areas of present study (n=20). As per the detail and information obtained in the pre testing, a closed ended questionnaire was designed. However, some open ended questions were also included to have the better understanding about different aspects of the wildlife conservation.

**DIRECT OBSERVATION**

In direct observation, visits were made to study the wildlife biodiversity and issues pertaining to wildlife management.

Ad-libitum opportunistic observations were made to study the biodiversity in Allahabad.

**II. DATA COLLECTION FROM SECONDARY RESOURCES**

- Secondary data analysis is literally defined as “second-hand” analysis. It is the analysis of data or information that was either gathered by someone else (e.g., researchers, institutions, other NGOs, etc.) or for some other purpose than the one currently being considered, or often a combination of the two (Cnossen, 1997).

- The information’s in the form of published literature such as management plan, previous studies on the wildlife health, offense and trade, government document, official statistics, technical report, scholarly journals, review articles, books, computerized database, the world wide database magazines and newspaper were recorded (Shell, 1997)

- Information was collected from the data available with the government departments and deer parks.

**Information gathered from forest department.**

1. Management and working plan (Prasad and Dubey, 2005).
2. Information about the wildlife trades
3. Information about wildlife seizures
Data on human wildlife conflict
Data on causes of wild animal mortality
Records on disease reports in wild animals

The surveillance of parasitic diseases was conducted in animals present in different zoos in Allahabad. The faecal samples were collected and screened /analyzed for gastrointestinal parasites.

1. Deer Park, UCL Chattanag,
   Jhunsi- Allahabad
2. Triveni Environmental Park,
   HQ Central Air Command, IAF
   Bamrauli, Allahabad
3. Cheoki Ecological Park, COD
   Naini, Allahabad

Collection of Faecal Samples

The freshly voided faecal samples were collected from the animals (Plate 3). The faecal samples were kept in ziplock polythene bags. The faecal samples were examined for gastrointestinal parasitic infections.

Qualitative Estimation of Faecal Samples for Gastrointestinal Parasites

The freshly laid faecal samples were collected and sent to CADRAD, IVRI for qualitative estimation. Qualitative Estimation of faecal samples was made by employing flotation and sedimentation techniques (Sloss et al., 1994).

Evaluation of body condition

The body condition of wild animals will be evaluated on point scale, as suggested by Riney (1960) and modified by Shrivastav and Sharma (2000). The key areas for the assessment were be skin coat, flank, ribs, pelvic girdle, vertebral column and lumbar shaft, and on the basis of these, points will be allotted to each animal. Animals scoring 0-5 points will be graded in poor, 6-8 fair and 9-12 in good body condition.
**Body condition evaluation**

The body condition of wild herbivores (including chital, nilgai and black buck) was evaluated on point scale, as suggested by Riney (1960) and modified by Shrivastav and Sharma (2000). Body condition evaluation involved judging the physical condition of the animals based on visual examination of the degree of protuberance of bony processes on the body surface and the condition of skin coat. The key areas for the assessment were skin coat, flank, ribs, pelvic girdle, vertebral column and lumbar shaft, and on the basis of these, points were allotted to each animal (plate 6). The recommended scores for the corresponding condition quality of different body parts are given in Table 2. Animals scoring 0-5 points were graded in poor, 6-8 in fair and 9-12 in good body condition.

**Table 1. Areas along with respective scores to evaluate body condition**

<table>
<thead>
<tr>
<th>Body Part</th>
<th>Point = 2</th>
<th>Point = 1</th>
<th>Point = 0</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Skin coat</strong></td>
<td>Smooth with lustre</td>
<td>Dull, without or with lustre</td>
<td>Rough and thick with folds</td>
</tr>
<tr>
<td><strong>Flank</strong></td>
<td>Depression is barely visible, outline is distinct</td>
<td>Slightly concave and outline visible</td>
<td>Depression concave and tucked in</td>
</tr>
<tr>
<td><strong>Ribs</strong></td>
<td>Thoracic surface is smooth, ribs not visible</td>
<td>Ribs are visible but all are not countable</td>
<td>Ribs clearly visible within costal depression</td>
</tr>
<tr>
<td><strong>Pelvic girdle</strong></td>
<td>Bony projections are barely visible</td>
<td>Slightly visible</td>
<td>Clearly visible</td>
</tr>
<tr>
<td><strong>Vertebral column</strong></td>
<td>Laterally it is smooth without any break, lumbar process visible</td>
<td>Lateral process of the lumbar are visible</td>
<td>Lateral processes prominent</td>
</tr>
<tr>
<td><strong>Lumbar shelf</strong></td>
<td>Areas almost round from behind without any depression</td>
<td>Slight depression on either side</td>
<td>Depression deep and concave</td>
</tr>
</tbody>
</table>
Screening of carcass of wild animal:

Postmortem examination findings of the carcasses of wild animals reported were noted to know the cause of death of animals.

Statistical analysis

The data obtained from the study were compiled and tabulated and interpretations were made.

Justification of present study:

1. The study will be helpful to know the wildlife biodiversity and important wildlife habitats in Allahabad and analyze the factor threatening the existence of wildlife.

2. The survey on the people perception and awareness status will be helpful to access the effectiveness and conservational plans and develop future strategies.

3. The study will be helpful to generate the database on wildlife health, offenses and trade and develop a plan for the management of health, offense and trade.

4. The information obtained from the study of wildlife health status of zoo animals will be useful in scientific zoo management and thus will promote ex-situ conservation.

5. The information and survey on Human Wildlife Conflict will be helpful to understand the gravity of this issue and effectively plan the management strategy.