INFLUENCE OF RAINFALL IN THE REPRODUCTION OF MALE SPOTTED MUNIA, *LONCHURA PUNCTULATA*.

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Influence of rainfall in the reproduction of spotted munia was studied. Experiment was conducted during early and peak breeding periods. Both the times rainfall did not appear to have a direct effect in the reproduction of this bird.

Tropical birds are mostly seasonal breeders. Reproductive season, however, varies from species to species depending on the environmental factors, such as temperature, rainfall, photoperiod etc. Out of all these factors, photoperiod has received greater attention of the scientists 1–2. Although rainfall has been suggested as an environmental factor regulating sexual cycle in birds 3–5, direct evidence is practically nil, except in some arid zone breeders 6. Looking to the paucity of information in this aspect of avian reproduction, it was thought to undertake a preliminary study on the effect of rainfall, if any, in the reproduction of a tropical bird, spotted munia.

In the month of June, 1989 (early breeding period) adult spotted munia were procured from the local bird supplier and were acclimatized in the laboratory condition for a week. Birds were than sexed by laparotomy and only the healthy males were used in the experiment. Two groups of seven each were established in two separate cages (16 x 14 x 12 inches). Water was sprinkled (to simulate the rainfall) to all the cages. Experimental birds of group-1, once in a day at a constant time period (10.30 A.M.). Birds of group-2, without receiving any water treatment served as control. Water treatment was continued for 30 days before the experiment was terminated. This treatment was continued for 30 days before the experiment was terminated. This experiment was repeated in the month of September (the peak breeding period). Both times left testis of each bird was measured in situ and the gonadal volume was recorded (calculated from the size of long and short axes of testis). Student’s ‘T’ test was used for statistical analysis of data 7.
No significant change in gonadal volume of control and experimental birds was observed both in early and peak breeding times (Table-1). This clearly indicates that water sprinkling has no significant effect on the gonadal status of the bird.

Table—1: Effect of daily water sprinkling for 30 days on the testicular volume of spotted munia.

<table>
<thead>
<tr>
<th></th>
<th>Control</th>
<th>Treated</th>
<th>P values Control Vs. treated</th>
</tr>
</thead>
<tbody>
<tr>
<td>Expt. 1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>June (Initial)</td>
<td>5.03</td>
<td>4.82</td>
<td>NS</td>
</tr>
<tr>
<td>±0.39</td>
<td>±0.26</td>
<td></td>
<td></td>
</tr>
<tr>
<td>July (Final)</td>
<td>9.01</td>
<td>10.84</td>
<td>NS</td>
</tr>
<tr>
<td>±1.56</td>
<td>±1.49</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Expt. 2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sept. (Initial)</td>
<td>23.98</td>
<td>23.17</td>
<td>NS</td>
</tr>
<tr>
<td>±3.75</td>
<td>±7.32</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Oct. (Final)</td>
<td>42.99</td>
<td>47.79</td>
<td>NS</td>
</tr>
<tr>
<td>±4.38</td>
<td>±6.13</td>
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</tbody>
</table>

NS—Not significant.

This is probably the first attempt where effort has been made to see the direct effect of rainfall in the reproduction of a tropical bird. Rainfall as a proximate inductive factor controlling this process has been suggested in some avian species. Among the Indian birds, so far only one preliminary report is available where high humidity has been shown to cause gonadal regression.

In spotted munia, initiation of breeding coincides with the onset of monsoon (June/July), suggesting that the rainfall could be the regulatory factor for the development and maintenance of its gonads. However, from the present finding it appears that rainfall may not have any direct impact on the reproduction of spotted munia. Earlier investigations on this bird indicate that Day length acts only as synchronizer. One possibility is the involvement of other environmental factors such as humidity and temperature that are directly related with rainfall. Second possibility is
that nest of reproduction in this bird is governed by the result of precipitation (such as green vegetation, improved food supply) rather than actual rainfall as has been suggested in some xerophilous species\textsuperscript{13}. Experiments are now in progress to explore the possible role of all these factors in the reproduction of Indian birds.

ACKNOWLEDGEMENTS

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REFERENCES: