

**RELATIONSHIP BETWEEN PINEAL GLAND
ACTIVITY AND BREEDING ACTIVITY
IN THE INDIAN PIED MYNA,
STURNUS CONTRA CONTRA L.**

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PINEAL gland participation in diverse physiological activities of birds is still not completely known. Some of the known functions include its involvement in photoreception, circadian rhythms, hypothalamo-hypophysial-gonadal axis, thermo-regulation, etc¹. The present study in the Indian pied myna is the first report in birds revealing pineal gland interaction with breeding activity. Recent investigations have shown that the annual reproductive cycle of this species comprises four phases viz. pre-breeding, breeding, post-breeding and non-breeding²⁻⁴. The breeding phase (April–May) is marked by display of field activities like nest-building, egg-laying, incubation and feeding the nestlings²⁻⁴.

Adult male specimens of *Sturnus contra contra* were captured from their natural breeding grounds near Calcutta during April–May. They were killed by cervical dislocation immediately after capture (9.00 to 13.00 h). The pineal glands were dissected out, fixed in Bouin's fluid and processed for histological preparations. Sections (5 μ m) were stained with galloyanine-ponceau-light green. Diameters of at least 200 oval or nearly round nuclei of pinealocytes were measured from random sections for each specimen⁵. The pinealocyte cell density was determined from counts of nuclei per microscopic field⁵:50 random fields per gland. Data were analysed statistically by Student's *t* test⁶.

The results (figure 1) show that nuclear diameter of pinealocytes was significantly increased during the incubation period as compared to that in the nest-building or egg-laying period and remained high during the nestling period. On the contrary, cell density was maximum during the nest-building and

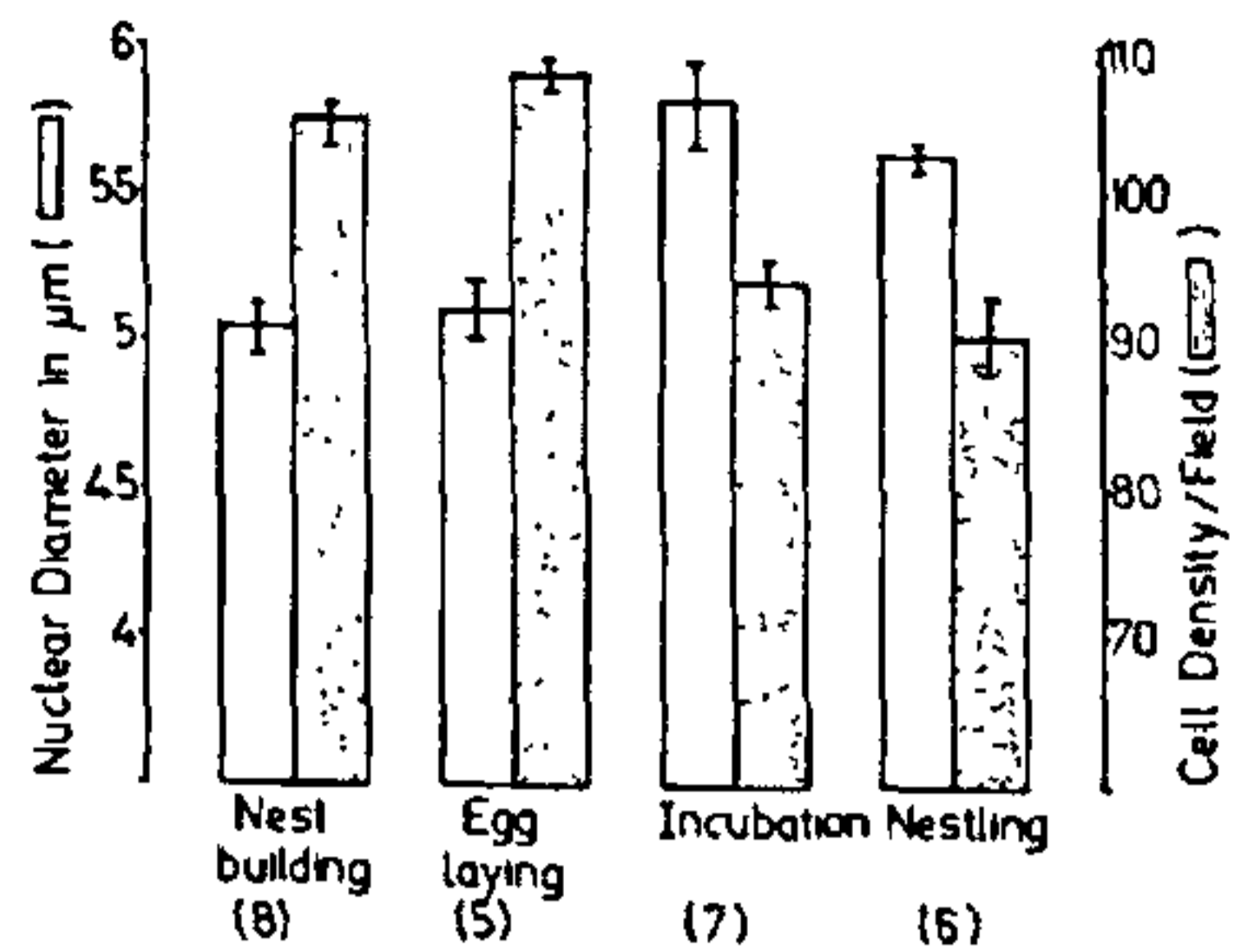


Figure 1. Correlations between pineal gland activity and breeding activity in the Indian pied myna. Vertical bars indicate standard error mean.

egg-laying periods, decreased significantly in the incubation period and remained low during nestling.

Since an increase in nuclear diameter reflects hyperactivity and decrease in cellular density indicates hypertrophy⁷ of the pinealocytes, the present findings show that in the Indian pied myna the pineal gland activity is related to the breeding activity, being low during nest-building and egg-laying but high during incubation and nestling periods.

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