

**POPULATION ECOLOGY, BREEDING AND CONSERVATION ISSUES OF  
STORK-BILLED KINGFISHER (*HALCYON CAPENSIS*) AND PIED  
KINGFISHER (*CERYLE RUDIS*)**



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DHAKA, BANGLADESH.**

*Dedicated*  
*To*  
*My Beloved Parents*  
*And*  
*Supervisors*

### **SUPERVISORS' RECOMMENDATION**

The undersigned certify that the author himself did the work presented here base to the style and contents, the dissertation is suitable for submission in partial fulfillment of the requirements for the Degree of Master of Philosophy (M. Phil.) in Zoology (Wildlife Biology).

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## DECLARATION

I do hereby declare that the work presented in this thesis, entitled, “Population ecology, breeding and conservation issues of stork-billed kingfisher (*Halcyon capensis*) and pied kingfisher (*Ceryle rudis*)”, is the result of my own investigation. I further declare that this thesis has been composed by myself and no part of it has been submitted anywhere in any form for any academic degree.

**(Jadab Kumar Biswas)**

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## ABSTRACT

The population ecology, breeding and conservation issues of stork-billed kingfisher (*Halcyon capensis*) and pied kingfisher (*Ceryle rudis*) were studied in the Chittagong University Campus, Chittagong, Sher-e-Bangla Agricultural University Campus, Dhaka, and Raipura and Belabo upazilas, Narsingdi of Bangladesh during January 2011 to June 2014. The both kingfisher species used five types of habitat (pond, lake, stream, agricultural land/channel and forest/tree), of which forests/trees were utilized maximum (43.23%) and agricultural lands/channels minimum (3.76%) by the stork-billed kingfisher; whereas pied kingfisher spent the highest time (40.66%) in the streams and the lowest (11.67%) in the agricultural lands/channels. The perch height used by stork-billed kingfisher was 1 to 30 m (mean  $11.03 \pm 7.76$  m, n = 92), while it was 1 to 15 m (mean  $5.74 \pm 3.58$  m, n = 95) for pied kingfisher. Eighteen food items were identified for two kingfisher species of which fishes were the highest consumed by both species (Stork-billed Kingfisher: 33.33%; Pied kingfisher: 38.89%), and amphibians, reptiles and rodents were the lowest (5.56% each) for stork-billed kingfisher; while amphibians were the lowest (5.56%) for pied kingfisher. Eight activity patterns were recorded for the two kingfisher species of which both species spent the highest time (Stork-billed kingfishers: 45.82%, Pied kingfisher: 31.87%) in resting/perching and the lowest (Stork-billed kingfishers: 1.90%; Pied kingfisher: 4.83%) in preening. The breeding season of stork-billed kingfisher was observed between late January and June; whereas it was recorded from early February to June for pied kingfisher. The nest of stork-billed kingfishers was recorded in the hole of different trees and in the bank of earth; whereas the nests of pied kingfisher were observed only in the hole of vertical bank of water-bodies. The eggs of both kingfisher species are nearly oval, rounded and shiny white. Seventy eight events were observed associated with the eight major threats (habitat loss, nest destruction, hunting, human interruption, predation, recreational activities, fisherman and fire), of which habitat loss was the highest (38.46%) and predation was the lowest (3.85%) during the present study.