

trematodes and cestodes were fixed in warm AFA solution, for 24 hours to a week. The preserved parasites were then thoroughly washed in tap water to remove the fixative. The parasites then were stained in Gower's solution for overnight. After staining, the worms were dehydrated in ascending grades of alcohol, cleaned in methyl salicylate and mounted in DPX. In case of nematodes the collected worms were washed in 1% saline water and immediately dropped into boiling 70% alcohol or 5% formalin. They were preserved in 70% alcohol with 50% glycerin. It was difficult to stain the nematodes, so they were directly mounted in Canada balsam without staining. The parasites were identified after mounting.

A total of seven helminth species were recorded from the fishes examined. Among them, two parasites belonged to class cestoda, three to trematoda and two nematoda. The parasites were identified only up to generic level. The parasites belonging to class cestoda were *lytocestus sp.* and *Pseudocapingentrides*

sp. Class trematoda includes *Ophiocorchis sp.*, *Ascocotyle sp.* and *Aspidogaster sp.* and class trematoda were *Travenema sp.* and *Philometra sp.* Out of 900 fishes examined, 364 (40.44%) were found to be infected by helminth parasites.

Regarding frequency distributions it was found that 133 (14.8%) fishes carried trematodes, 43 (4.8%) fishes carried cestodes and 210 (23.3%) carried nematodes. Analysis revealed that a single or a multiple group of parasites infected a fish. In general, the severity of infection was heavy in August and low in March. The quality of water didn't play any significant role in the infection. The analysis showed that the infection was equal in both kinds of fishes from clean to contaminated water.

On the topic, only few workers (Chubb 1967, Sinha 1986) have done work. It is unfortunate that very few studies from Nepal have been reported on the subject.

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5. Role of Birds in Agricultural Pest Control

Birds are more glorious animals for recreational value than others. Birds have always fascinated mankind with their intrinsically beautiful plumage, melodious songs and artistic

behaviour (Shrestha 2000). Besides this, birds are valuable for many aspects. They are sensitive indicator of pollution. They also play great role in pest control. According to Robert Van Den

Bosch "A pest is a species that, because of its great numbers, behaviour or feeding habit is able to inflict substantial harm on man or his valued resources." Pests have different categories. Insects are key or major pests, which occur perennially and cause serious and persistent economic damage in an ecosystem in the absence of effective control measures.

Dead sewer rat, offal, carrion, kitchen scraps and refuse, locusts, termites, fruit, grain and eggs or fledgling birds as the food of House crow (*Corvus splendens*) is described by several workers (Inskipp and Inskipp 1985, Ali 1989, Richard 1993, Thirumurthy and Annamalai 1994). A significant contribution to Nepalese ornithology has been made by Fleming Sr. and Fleming Jr. (1952 to 1980). Permeable of literature about the role of birds in agricultural pests control in Nepal is scanty. In context of Biratnagar, Subba (2001) has published articles on garden birds.

The paper deals with the research work carried out in Biratnagar (Latitude N 26o 29', Longitude E 87o 16', altitude 72m), which is the second largest city of the country. It stretches over an area of 760 sq. km. Human settlement and agricultural lands in the eastern and western sides cover the central part of the Biratnagar.

Birds were watched regularly in the agricultural land of Biratnagar, viz. northeast (Kanchanbari), northwest (Air port), southeast (Jatuwa) and southwest (Bakhary) It was done once in a week during Sept. 2001 to Aug. 2002. Binocular, Camera, Field books (Fleming *et al.* 1984, Inskipp and Inskipp 1985, Ali and Ripley 1994, Shrestha 2000) were used to study the feeding behaviour and its role in pest control.

The softer parts of Garden snail (*Achatina fulica*) was found to be eaten by Crow pheasant (*Centropus sinensis*) in large amount in early morning and afternoon. Crabs, destructive to paddy, were seen eaten by House crow (*Corvus splendens*). Cattle egret (*Bubulcus ibis*), Crow pheasant (*Centropus sinensis*), Small green bee

eater (*Merops orientalis*), Blue-tailed bee eater (*Merops philippinus*), Common myna (*Acridotheris tristis*), Bank myna (*Acridotheris ginginianus*), Indian tree pie (*Dendrocitta vegabunda*), House crow (*Corvus splendens*) and Red-vented bulbul (*Pycnonotus cafer*) fed on Grasshopper.

Many species of moths and butterflies were controlled by Magpie robin (*Copsychus saularis*), Black drongo (*Dicrurus adsimilis*) and Jungle babbler (*Turdoides striatus*). Weevils were eaten by Indian treepie (*Dendrocitta vagabunda*). Large-pied wagtail (*Motacilla maderaspatensis*) was found to control the aphid. Owl, Housecrow (*Corvus splendens*) and Jungle crow (*Corvus macrorhynchos*) ate the most destructive pest like rats and mice

Feeding behaviour of birds depends on various environmental factors such as geographical location, habitat, seasons, water quality, competition (intraspecific and interspecific) and scarcity of food etc. According to Ali (1990), caterpillars, large insects, lizards, young mice and birds eggs and nestlings are the food of Crow pheasant. Due to the scarcity of food and drastic alteration in environment, food habit of Crow pheasant and House crow was found to have changed. The investigation also revealed the secret of Crow pheasant using Garden snail as food. Besides, the result corroborated the foods and feeding habits of other birds like Cattle egret, Small green bee eater, Blue-tailed bee eater, Common myna, Bank myna, Indian tree pie, Red-vented bulbul, Pied myna, Magpie robin, Black drongo, Jungle babbler, Pied crested cuckoo, Gray - headed myna, King fisher, Flycatcher, Large pied wagtail, Owl and Jungle crow already recorded by earlier workers (Inskipp and Inskipp 1985, Ali 1990, Richard 1993, Subba 2001).

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6. Oxygen Uptake of German Carp *Cyprinus carpio var communis* L.

The oxygen uptake is a valid measure of energy requirements that is largely influenced by various extrinsic and intrinsic factors *viz.* temperature, photoperiod, pollutants, season and time, pH, salinity, oxygen, carbon dioxide tensions, body weight, state of activity, nutrition, stage in life cycle, sex, gonadal cycle and hormones etc in organisms. Several workers have studied the quantitative relationship between body weight and oxygen uptake in Indian major carps (Singh 1977, Roy and Munshi 1984). A deep body, short head, protractile mouth with two pairs of barbels, completely and uniformly covered with scales are the characteristic feature of the German Carp. The carp is bottom and margin feeder, which is commonly cultivable.

Live specimens of *Cyprinus carpio var. communis* L. of different weight were brought from Tarahara agricultural fish farm and acclimatized for a week in the cemented

cistern of P. G. Campus, Biratnagar. They were fed with kneaded flour and oilcake. Before 24 hours of experimentation, netting was done using nylon net and desired weight of fishes were sorted out and kept in a rectangular aquarium (76×45×45cm³). The experimental fish was starved for 12 hours. The oxygen uptake rate from water was measured in a cylindrical respirometer (24 cm long and 7 cm diameter) having volume of 722 ml. One end of respirometer was connected to a water reservoir (69×30×30 cm³) aquarium. The outlet was connected to two conical flasks in series for collection of expired water. Metal clips were used to control the water flow. The experimental fish was weighed and introduced into the respirometer of completely filled water. The flow of water from the reservoir to respirometer was maintained slowly to 15ml/min so that fish did not show any symptom of suffocation and stress. The