INSECTIVOROUS BIRDS ASSOCIATED WITH TEAK PLANTATIONS

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As a part of identifying the natural enemies of various pests of teak (*Tectona grandis*), a detailed survey and study was conducted between 1994 and 1996. Besides the Forest College and Research Institute campus at Mettupalayam, other predominant teak plantations in Siruvani and Topslip areas were covered. The teak nurseries near Pasur in Periyar district were also visited to survey the natural enemy complex affecting nursery pests. Special attention was given to identify the insectivorous birds associated with teak insects and assess the specific prey-predator relationships. In order to include the winter visitors and to cover peak season of pest incidence particulary that of defoliator (*Hyblaea puera*), leaf skeletoniser (*Eutectona macheralis*) and a variety of nursery pests, the survey was conducted during the months of September to Feburary. The plantations were visited from 0630 to 0830 hours and 1730 to 1900 hours and a total of 300 hours of bird watching was done during the survey period. Binoculors of 8x40 dimensions and a telescope with 20x50 power were used in the survey. The species identifications were done with reference to field guides by Woodcock (1980) and Ali and Ripley (1987). The pest insects associated with teak were collected and identified using the manuals of Fletcher (1914), Ayyar (1940) and Beeson (1949)

A total of 49 species of insectivorous birds were found to be associated with teak insects (Appendix-I) of which 36 species were resident and 13 winter visitors. Swallows, Flycatchers, Wagtails and Orioles constitute the bulk of visitors. The birds belong to 9 orders, 23 families and 34 genera. Passeriformes was the largest order with 13 families, 19 genera and 31 species followed by coraciiformes with 3 families, 3 genera and 4 species. The genus Motacilla was represented by 4 species and Hirundo by 3 species while six other genera were represented by 2 species each.

In teak nurseries the avian predators could exercise effective control of several insect pests particularly when the latter ones were in a low population density. During the present survey, the cutworm, *Spodoptera litura* affecting the teak seedlings in mother beds was found checked by wagtails, Crow-Pheseant, Mynas, Peafowl, Crows and Babblers. These birds could

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AMPHISTONE INFECTION IN SWAMP DEER (*Cervus duvauceli branderi*)

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Amongst the parasitic diseases of trematode origin in domestic ruminants like sheep, goat, cattle and buffalo, amphistomiasis is a common and important infection. The disease is caused by flukes commonly known as amphistomes. The flukes are present in the rumen and reticulum of their respective hosts. Adult flukes are not harmful but the immature forms are very harmful producing a condition known as Immature amphistomiasis. The disease is very common in young animals in almost all parts of the country. Developing flukes cause haemorrhagic diarrhoea, oedema, anaemia and at times death. Disease occurs in the form of outbreaks after rainy season and in early winter.

Cotylophoron cotylophorum, Parmphistomum cervi and *Gastrothylax crumennifer* have been commonly reported from sambar, nilgai, black buck and barking deer have been reported by Patnaik and Acharjyo (1970). *Gastrotylax* spp. have also been reported in barasingha, gaur, black buck and sambar (Schaller, 1967; Verma *et al.*, 1993; Acora *et al.*, 1985).

Post-mortem examination of a herd of swamp deer in Kanha National Park (Madhya Pradesh) revealed the presence of several amphistomes from the rumen. The amphistomes collected were identified as *Gastrothylax crumenifer* and *G. glandiformis*. Both of these species of amphistomes are parasites of sheep, goat, cattle and buffalo. Their occurrence in this wild host suggest that swamp deer can play a role of potential host for amphistomes.

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Common Name	Species	Status	Potentials
Order: Ciconiiformes			
Pond Heron	*Ardeola grayii*	R	Minor*
Order: Galliformes			
Common Peafowl	*Pavo cristatus*	R	Minor*
Order: Charadriiformes			
Redwattled Lapwing	*Vanellus indicus*	R	Minor*
Yellow-wattled Lapwing	*Vanellus malabaricus*	R	Minor*
Little Ringed Plover	*Charadrius dubius*	V	Minor*
Order: Cuculiformes			
Koel	*Eudynamys scolopacea*	R	Minor*
Crow Pheasant	*Centropus sinensis*	R	Major*
Order: Strigiformes			
Jungle Owlet	*Glaucidium radiatum*	R	Minor
Order: Caprimulgiformes			
Jungle Nightjar	*Caprimulgus indicus*	R	Minor*
Indian Nightjar	*Caprimulgus asiaticus*	R	Minor*
Order: Coraciiformes			
Green Bee-eater	*Merops orientalis*	R	Minor
Chestnut Bee-eater	*Merops leschnaulti*	R	Minor
Indian Roller	*Coracias benghalensis*	R	Major
Hoopoe	*Upupa epops*	R	Minor*
Order: Piciformes			
Goldenbacked Woodpecker	*Dinopium benghalense*	R	Major
Mahratta Woodpecker	*Picoides mahrattensis*	R	Minor
Rufous Woopecker	*Micropternus brachyurus*	R	Minor
Order: Passeriformes			
Dusky Crag Martin	*Hirundo concolor*	V	Minor
Common Swallow	*Hirundo rustica*	V	Minor
Redrumped Swallow	*Hirundo daurica*	V	Minor
Golden Oriole	*Oriolus oriolus*	V	Minor
Blackenaped Oriole	*Oriolus chinensis*	V	Minor
Black Drongo	*Dicrurus adsimilis*	R	Major
Whitebelled Drongo	*Diicrurus caerulescens*	R	Major
Common Myna	*Acridotheres tristis*	R	Major*
Jungle Myna	*Acridotheres fuscus*	R	Major*
Brahminy Myna	*Sturnus pagodarum*	V	Minor
Common Crow	*Corvus splendens*	R	Major
Jungle Crow	*Corvus acrorhynchos*	R	Major
Treepie	*Dendrocitta vagabunda*	R	Minor
Scarlet Minivet	*Pericrocotus flammeus*	R	Minor
Common Iora	*Aegithina tiphia*	R	Minor
Redvented Bulbul	*Pycnonotus cafer*	R	Minor
Redwhiskered Bulbul	*Pycnonotus jocosus*	V	Minor
Jungle Babbler	*Turdoides striatus*	R	Major*
Common Babbler	*Turdoides caudatus*	R	Minor*
Brown Flycatcher	*Muscicapa latirostris*	V	Minor
Whitebrowned Fantail Flycatcher	*Rhipidura aureola*	V	Minor
Whitespotted Fantail Flycatcher	*Rhipidura albicollis*	V	Minor
Paradise Flycather	Trepsiphone paradisi	R/V	Minor
Magpie Robin	*Copsychus saularis*	R	Minor*
Pied Bush Chat	*Saxicola caprata*	R	Minor
Indian Robin	*Saxicoloides fulicata*	R	Minor*
Grey Tit	*Parus major*	R	Minor
Forest Wagtail	*Motacilla indica*	V	Minor*
Yellow Wagtail	*Motacilla flava*	V	Minor
White Wagtail	*Motacilla alba*	V	Minor*
Large Pied Wagtail	*Motacilla maderaspatensis*	R	Minor*

Major: Species foraging in large numbers, Minor: Species foraging in fewer numbers,
R=Resident,
V=Winter Visitors

also manage other minor pests such as grasshoppers *Eurybrachis tomentosa*, *Myllocerus* weevils, pentatomid *Nezara virudula*, whitegrubs and larvae of the defoliator *Hyblaea puera*. The hoopoe, nightjars, robins and chats also fed on nursery termites.

Most of the aerial hunters such as Bee-eaters, Roller, Drongos, Flycatchers and Swallows were found to flock the trees affected by defoliators and skeletonisers during moth flight and devoured the adults in mid air. Occasionally Crows, Minivets and Ioras also joined the venture. The Grey Tit, Ioras, Minivets, Owlets, Crow-pheseants, Koel and Bulbuls searched for the Caterpillars from affected leaves. The Woodpeckers, particularly the Goldenbacked woodpecker and Marhatta woodpecker chiseled the affected portions in the tree and extracted the larvae of the moth borer *Cossus cadambae* and *Zeuzera coffeae*. These birds were found to be active in Siruvani and Topslip areas. The Woodpeckers also control barkboring caterpillars of *Indarbela tetraonis* and *I. quardrinotata*. It was also found at Mettupalayam and Erode that when teak trees are affected by termites these woodpeckers come and prey upon them effectively.

Observations in nurseries also indicated that the insectivorous birds were repelled with the spray of certain insecticides. The studies at Mettupalayam have revealed that application of methyl parathion, BHC dust, qunalphos and fenthion could keep away the birds such as Wagtails, Drongos, Mynas, Rollers, Pond heron and Lapwings for about two days.

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