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PHALANTHA PHALANTHA DRURY (LEPIDOPTERA : NYMPHALIDAE) - A MAJOR NURSERY PEST OF POPLAR, *POPULUS DELTOIDES* BARTR.

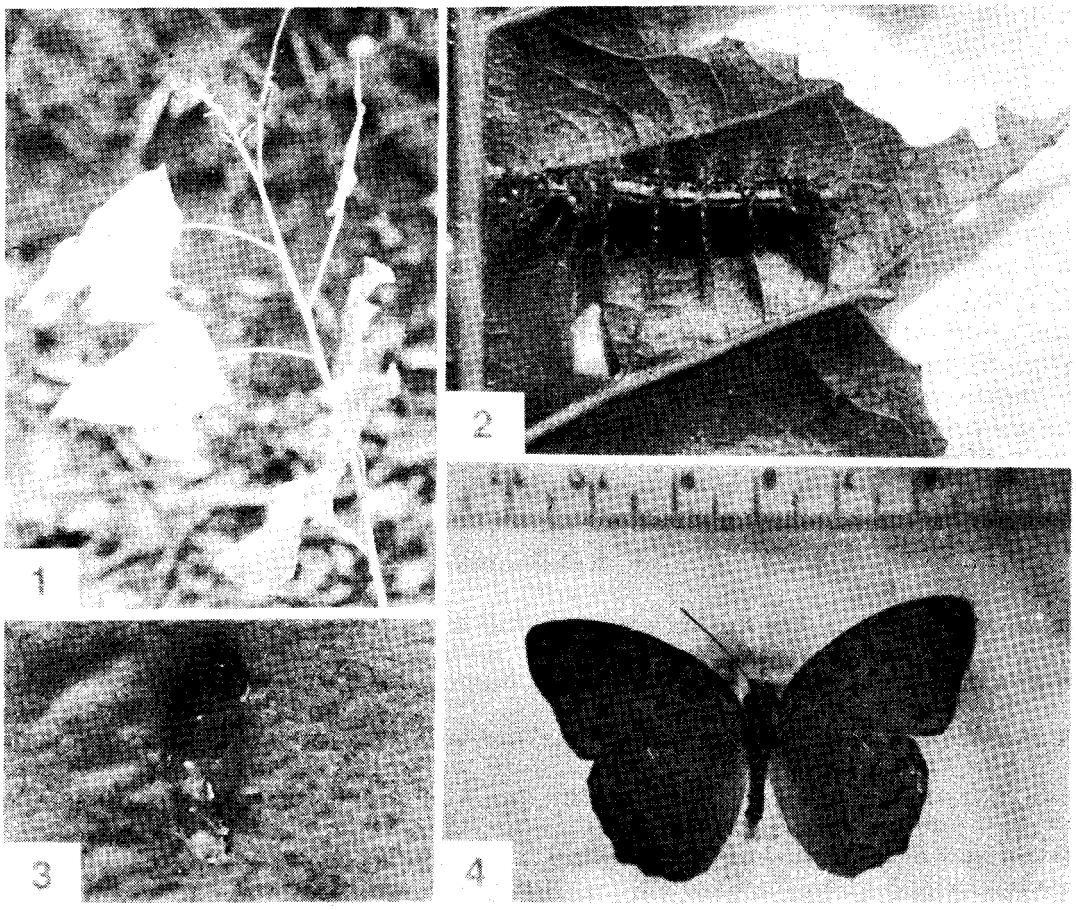
Poplar constitutes an excellent raw material for a number of wood based industries like matchwood, plywood, fibreboard, paper, pulp, rayon etc. Thus, Poplar farming offers great scope in agroforestry system, social forestry programmes and in meeting the growing need of wood-based industries besides providing cash benefits to the farmers. Among the successful exotics, Poplar, *Populus deltoides* Bartr. commonly called as "Eastern Cottonwood" or "Caroline Poplar", is the most widespread and largely used in India (Mathur and Sharma, 1983). Surprisingly, its cultivation is being threatened by a good number of insect pests. Browne (1968) has reported 17 species of such insects. Joshi *et al.* (1984) have recorded and described 13 more species of insects from North-East India. Recently, Roychoudhury *et al.* (1994) have added another one species from Central India. 31 species of insects have been so far reported on *P. deltoides*, but pest status of most of them is still unknown.

To investigate insect pests damaging this potential species, periodical surveys were conducted in nurseries and plantations of *P. deltoides*, at Tropical Forest Research Institute, Jabalpur (M.P.). The study was carried out for three years 1992-1995. During the course of study, it was observed that in nursery stage, this species suffers from serious attack of a caterpillar which was later identified as *Phalantha phalantha* Drury (syn. *Atella phalantha*) (Lepidoptera : Nymphalidae : Nymphalinae). The insect was determined by comparing identified specimen of CAB, International Institute of Entomology, London, UK and preserved in Forest Entomology Division, Tropical Forest Research Institute, Jabalpur (M.P.), under the Accession No. 45.

It was noticed that *P. phalantha* starts appearing with the initiation of rainfall and causes severe damage only in nurseries (Fig. 1), but was never recorded in plantations. This pest was available in abundance only during the rainy season of the year (July-October). The peak period of occurrence was observed during August-September, when the maximum larval population occurred. The damage caused by the larvae of this insect was so serious that the entire plants were defoliated by having as many as 5-7 larvae in a plant. The percentage incidence of this pest was recorded to be 70-83%.

According to Beeson (1941), the family of this insect pest, Nymphalidae, is one of the largest of the butterflies. Many species feed on forest trees but none have so far been recorded as regular pests. The butterflies are true sun-lovers and very

Figs. 1-4



Phalantha phalantha on Poplar
1. Damage impact in nursery; 2. Full-grown larva; 3. Pupa; 4. Adult butterfly

active in flight. *P. phalantha* is one of the commonest butterflies, occurring throughout the year in the plains and in suitable seasons in the outer Himalayas up to 8,000 ft (De Niceville, 1886). The larva of this butterfly is reported to cause frequent damage but not severe defoliation of *Populus* spp. in Uganda (Browne, 1968). Joshi *et al.* (1984) has mentioned it as a minor pest of *P. deltoides*, having about 8.6% incidence in North-Eastern region. However, *P. phalantha* distributed throughout India, the Malay Peninsula, Siam, Sumatra, Java and China (De Niceville, 1886). This insect also feeds on *Salix tetrasperma, Flacourtia* sp. and *Ixora* sp. (Beeson, 1941).

The larvae of this butterfly are active, voracious feeders, purple-brown and bear six rows of black erect spines on the body (Fig. 2). The vertex of the head is orange-red whereas the anterior ends of parietals are black and enclose a triangular white

frons in between. The larvae attain a full-grown length of about 24-27 mm. The pupae are beautiful green and bear golden pink warts dorsally (Fig. 3). They remain attached to the leaves and petioles of the host plant by means of anal crochets. The pupal period varies from 10-15 days. Beeson (1941) has mentioned that the pupal duration is about three weeks on *S. tetrasperma* during the month of November. The butterfly is orange with black markings on the wings (Fig. 4). The head, thorax and first four abdominal segments remain covered with orange coloured scales. The remaining segments are dark brown dorsally. Ventrally, the wings are light orange with light brown patches and around black spot between cubitus and anal veins on the outer side of the forewing. The body is white in colour and the coiled proboscis is present. The wing expansion varies from 52-56 mm. The female butterfly lay a good number of yellow coloured oval eggs, singly on the young leaves in daytime. After hatching, the first instar larvae start feeding on the epidermis of young leaves and then, gradually start defoliation. This insect shows overlapping generations. The present study clearly indicates that *P. phalantha*, is a potential defoliator and a major nursery pest of Poplar, *P. deltoides*.

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