PROCEEDINGS

XVIII INTERNATIONAL CONGRESS OF ENTOMOLOGY

Vancouver, B.C., Canada
July 3 to 9, 1988

ABSTRACTS AND AUTHOR INDEX

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#40

STUDIES ON THERMAL CONSTANTS AND SEASONAL OCCURENCE OF THE HEMISPHAERICAL BROWN SCALE SAISSETIA COFFEAE WLK.(HOMOPTERA:COCCIDAE). M.A.ALI*,S.A. EL-DESSOUKI,M.M.METWALLY and K.Y.EL-SHOUNY, Department of Plant Protection, Faculty of Agriculture, Al-Azhar University,Nasr City, Cairo, Egypt.

Population dynamic and seasonal occurence of the Hemisphearical Brown Scale (BHS),Saissetia coffeae Wlk. on guava trees were investigated through two consecutive years: 1984 & 1985. Results showed 4 peaks (March,May ,Sept.,Nov.)in 1984 and only 3 peaks (March,Aug., Nov.) in 1985 Consequently, the insect could develop into 3-4 generations annualy. The effect of weather factors on the population density was discussed.

Developmental threshold of S. coffeae was calculated as 11.4 C. A total of 163.09, 177.58, 178.71, 354.83 and 874.2 thermal units (T.U.) or day-degrees were required for the development of immature and mature stages ofbthis species. Causes of variations in the insect phenology from 1984 to 1985 were discussed on the basis of th -ermal units accumulation. These calculations were also applied for forecasting the peaks of the insect activity.

#41

THE SPATIAL AND TEMPORAL DISTRIBUTION OF ENTOMOFAUNA IN A QUARRY POND. I. Ansaloni, A. Spampanato and R. Zunarelli-Vandini, Department of Animal Biology, University of Modena, 41100, Modena, Italy.

Quantitative and qualitative sampling of the macrobenthos, especially insect larve, was carried out between 1985 and 1986 in an artificial pond derived from an open quarry (9700 sq.m.; maximum depth 4.5 m). Information concerning physico-chemical variables was also collected. The pond is fed from the water bearing stratum and lacks an effluent. It shows wide seasonal variations in depth. Thermal stratification of the pond and bottom layer oxygen deficiency were not detected.

The spatial distribution and temporal succession of the littoral and benthic macrofauna is described and discussed. Biological and chemio-physical data allow the evaluation of the trophic condition of the pond.

#42

FEEDING OF BITING MIDGES (DIPTERA,LEPTOCONOPIDAE) ON LIZARDS. G.A.AUEZOva*,Z.K.Brushko, R.A. Kubykin. Institute of Zoology of the Kazakh Academy of Sciences, Alma-Ata 480032 USSR.

Biting midges Leptoconops specialis and L.minutus attacked resting or hunting reptiles at the desert mountains of Dghungarsky Alatau (South-East of Kazakhstan).Eremia velox,E.intermedia, Phrynocephalus versicolor are among their providers. Females of biting midges sat on the stomachs, necks,heads and extremities of lizards,mainly casting their coat. Attacks were tangible for lizards - they tried to get rid of bloodsuckers.Females took the full portion of blood during 2,5-10 minutes of feeding. It is know,that biting midges Leptoconops feed on mammals and birds. Our observations extend the circle of their providers and are of interst to understanding of origin of bloodsucking.

#43

GENERALIST PREDATORS AS A SELECTION PRESSURE FOR NARROW HOST RANGE IN HERBIVOROUS INSECTS. E.A. Bernays, Division of Biological Control, University of California, Berkeley, 1050 San Pablo Avenue, Albany, CA. 94706, USA.

The background is given for development of alternative or additional reasons for the generally narrow host ranges found in herbivorous insects. Chemical bases or mating requirements are found to be inadequate. The role of natural enemies is considered. The possibility that specialist parasitoids provide a selection pressure for host switching and increased host range is contrasted with the possibility that more generalist predators provide a selection pressure for narrow host range. A corollary of this is that polyphagous herbivores are relatively vulnerable to generalist predators. Results in three different systems are presented which support this thesis.

#44

SPATIAL HETEROGENEITY OF INSECT-PLANT RELATIONSHIPS IN THE SUBARCTIC. I.A.Bogacheva, Institute of Plant & Animal Ecology, USSR Academy of Sciences, Sverdlovsk 620 008, U.S.S.R.

Since 1970 insect groupings on the common tree and shrub species and leaf consumption have been studied in the Low Ob region and on the Polar Urals.Biotopical variability was shown to be the highest as compared with other (geographical, local, individual) forms of spatial heterogeneity; the differences of leaf consumption in various biotopes can be 10-15-fold.Microclimatic conditions are believed to be responsible for biotopical variability. Local differences in herbivory are low;individual variations also were shown to be not higher than twofold. We believe that plant chemistry does not concern to individual variations; induced chemical defence (long term effect) was demonstrated only in the most favourable biotopes. The herbivory on Salix phylicifolia declines abruptly after the year of heavy injury,when the mean losses for the whole biotope were 23%. Consumption in such biotopes remains nevertheless the highest,because they continue to be attractive for phyllophagous insects.

#45

DEVELOPMENTAL RATE OF THE SQUASH BUG, ANASA TRISTIS (HETEROPTERA:COREIDAE) AT CONSTANT TEMPERATURES AND ON MULTIPLE HOSTS. E.L. Bonjour* and W.S. Fargo, Department of Entomology, Oklahoma State University, Stillwater, Oklahoma, USA, 74078-0464.

Developmental rates of the squash bug, Anasa tristis DeGeer, were observed at 12 constant temperatures between 20.0 and 40.0°C on yellow straight neck squash. Times required for development for each life stage, as well as total development time, followed the classical "backwards-J" shape for each temperature. A nonlinear biophysical model was fit to data representing each individual life stage as well as to several combinations of life stages. In most cases, a four-parameter model was selected with high temperature inhibition.

The individual models indicate that the use of heat unit accumulation techniques to predict development times are valid within the linear response range between 23.3 and 31.3°C. Within this temperature range, A. tristis requires a mean of 379.8 degree days above a developmental threshold of 15.6°C. Development time was constant for each life stage as well as for total egg to adult development. The mean degree day accumulations were not significantly different across temperatures but development times in days were significantly different for each case.

Development of the squash bug was also observed on six cucurbit cultivars at a constant temperature of 26.7°C. On pumpkin and squash seedlings, 87.9 and 55.0% of the insects had complete development, respectively. Only six of 60 insects reached the adult stage on watermelon and only one insect became an adult on buffalo gourd. No survival occurred on cucumber or muskmelon with all insects dying in the second instar. Death in this early stadium may indicate an antibiotic effect.