MONITORING METULJEV Z VIDIKA INTEGRIRANE PRIDELAVE HMELJIŠČ V RADLJAH OB DRAVI

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IZVLEČEK

Na hmeljskem posestvu v Radljah ob Dravi že od leta 1999 načrtno, vsak dan v sezoni, spremljamo ulov metuljev na svetlobno vabo, ki ima za vir svetlobe živosrebrno 150 W žarnico. Vaba je obratovala vso noč. Hmeljišča obsegajo več kot 80 ha strnjenih zemljišč, vaba pa je postavljena ob poti sredi hmeljišč. Vzorce ujetih metuljev smo analizirali po dnevih ulova, glede posameznih vrst in števila osebkov posamezne vrste. Podatke o evidentiranih vrstah in številu osebkov smo po ulovih vpisovali v aplikacijo Lepidat, končne rezultate pa smo poleg omenjene aplikacije obdelali še v programih MS Access in MS Excel.
Namen spremljanja favne metuljev v hmeljišču je usmerjenost posestva v integrirano pridelavo hmelja, ob čim manjši uporabi fitofarmacevtskih sredstev. S tem načinom smo natančno sledili pojavljanje posameznih vrst metuljev v rastni dobi, tako glede časa, kot številčno. Ob pojavu večjega števila primerkov za hmelj gospodarsko pomembnih vrst smo z vizualnim opazovanjem pojava gosenic presodili o potrebah za izvedbo varstvenih ukrepov. Z omenjenim načinom spremljanja gospodarsko pomembnih vrst metuljev, aktivnih ponoči smo zmanjšali število škropljenj glede na hmeljišča v Savinjski dolini za eno do dve škropljenji na leto. Poleg tega smo favnistično gledano v petih letih zbrali 12.249 podatkov o 598 različnih vrstah metuljev. Od tega je 222 vrst majhnih metuljev (4.337 podatkov, 12.851 primerkov) in 376 velikih metuljev (7.912 podatkov, 17.393 primerkov). Vzrok manjšega števila vrst majhnih metuljev v favni je njihova manjša sposobnost letenja na velike razdalje in delna selektivnost vabe, ki je zaradi višine lovila le višje leteče vrste. Razlike v številu ujetih primerkov pa so precej manjše. Maksimalno število vrst v vzorcih smo določili v obdobju od srede junija do srede avgusta, ki je bilo v tem obdobju precej konstantno. Pojavljala so se le nihanja med leti in nihanja odvisna od vremenskih dejavnikov. Po gostiteljih lahko favno razdelimo na vrste, ki so vezane na hmelj, vrste, ki so vezane na plevele in na vrste, ki so v preletu. Slednjih je bilo v vzorcih največ, vendar pa so vrste hmelja in plevelne vegetacije po številu primerkov najpogostejše. Vrsta z največjim številom primerkov in največ podatki v času proučevanja je *Xestia c-nigrum* L. Po skupnem številu ujetih primerkov ji sledijo: *Udea ferrugalis* Hb., *Pleuroptya ruralis* Sc., *Plutella xylostella* L., *Rivula sericealis* Sc., *Crambus perlella* Sc., *Helicoverpa armigera* Hb., *Spodoptera exigua* Hb., *Ochropleura plecta* L., *Nomophila noctuella* D.& Sch., *Agrotis exclamationis* L., *Thera variata* D.& Sch. in *Dioryctria abietella* D.& Sch. Vse razen zadnjih dveh se v fazi gosenice hranijo na hmelju ali na plevelni vegetaciji, zadnji dve pa živita na iglavcih, ki so od svetlobne vabe oddaljeni vsaj 500 m. Poleg pogostih vrst smo ugotovili tudi selivce mediteranske favne, ki so bili *Helicoverpa armigera* Hb., *Acantholeucania loreyi* Dup., *Spodoptera exigua* Hb. in *Hellula undalis* F. Vse izmed naštetih se v notranjosti Slovenije pojavijo le v izjemno vročih letih. Ker so polifagne, se hranijo tudi na hmelju.

Ključne besede: Lepidoptera, favna, Slovenija, metulji, svetlobna vaba, monitoring, škodljivci, hmelj

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ABSTRACT

MONITORING OF MOTHS IN THE LIGHT OF INTEGRATED PRODUCTION IN HOP PLANTATION IN RADLJE OB DRAVI

Monitoring of moths on an everyday basis in a season, by the means of light traps with mercury 150-watt bulbs, has been carried out in a hop plantation in Radlje ob Dravi since 1999. The trap has been operating for the whole night. It has been situated near a path in the middle of the hop plantation with the surface of more than 80 ha. Samples of the caught moths have been analysed by day of catch, so as to determine the presence of individual species and the number of representatives of a species. Data on the recorded species and the number of specimens have been entered in the application Lepidat. The final results has been processed in the application Lepidat and by programmes MS Access and MS Excel. The monitoring of moths in the hop garden aims at integrated production of hops with minimum application of plant protection products. Thus the occurrence of individual species of butterflies was possible to be monitored accurately, with respect to a season as well as their number. If a species, which is economically important for hops, occurred in high numbers, the need for protective measures had been assessed on the basis of visual examination of the occurrence of caterpillars. Such monitoring of economically important species of moths resulted in the number of spraying of hop gardens in Savinjska dolina to be decreased for one to two sprayings a year. Furthermore, from the faunistic point of view, 12.249 data related to 598 species of moths have been obtained in a five-year period. The number includes 222 species of Microlepidoptera (4.337 data, 12.851 specimens) and 376 species of Makrolepidoptera (7.912 data, 17.393 specimens). Small numbers of species of Microlepidoptera in the fauna are due to their not being as capable of flying over long distances, and to partial selectivity of the trap, which due to its high positioning has been catching only species capable of flying higher. However the differences in the number of caught specimens are significantly smaller. The maximum number of species in samples was being determined within the period from the middle of June till the middle of August, which turned out to be quite constant. Fluctuations occurred between particular years and due to weather conditions. The fauna may be classified by host plants into species, associated with hops, species, associated with weeds and species in over-flight. The latter were the most numerous, however species of hops and weed vegetation proved to be the most frequent as regards the number of specimens. A species which possessed the highest number of specimens and data in the time of examining was *Xestia c-nigrum* L. In respect of the total number of the caught specimens, it is followed by: *Udea ferrugalis* Hb., *Pleuroptya ruralis* Sc., *Plutella xylostella* L., *Rivula sericealis* Sc., *Crambus perlella* Sc., *Helicoverpa armigera* Hb., *Spodoptera exigua* Hb., *Ochropleura plecta* L., *Nomophila noctuella* D.& Sch., *Agrotis exclamationis* L., *Thera variata* D.& Sch. and *Dioryctria abietella* D.& Sch. In the phase of caterpillar all of them, except the last two, feed on hops or weed vegetation, however the last two live on conifers, which are at least 500 m distant from the light trap.In addition to the most frequent species also migrants of the Mediterranean fauna were found, namely *Helicoverpa armigera* Hb., *Acantholeucania loreyi* Dup., *Spodoptera exigua* Hb. and *Hellula undalis* F. The occurrence of all above species in central Slovenia is conditioned by extremely high temperatures. Since they are polyphagous, they feed also on hops.

Key words: Lepidoptera, fauna, Slovenia, moths, light trap, monitoring, harmful organisms, hops