

## NEW FINDINGS OF THE WOODLAND BROWN *Lopinga achine* (Scopoli, 1763) (Lepidoptera: Nymphalidae: Satyrinae) IN CROATIA

Martina ŠAŠIĆ & Iva MIHOČI

Department of Zoology, Croatian Natural History Museum, Demetrova 1,  
10000 Zagreb, [martina.sasic@hpm.hr](mailto:martina.sasic@hpm.hr)

Accepted: 2007 – 03 -20

The Woodland Brown butterfly *Lopinga achine* (Scopoli, 1763) was found during several fieldtrips in summer 2000 and 2001 in continental Croatia and discovered for the first time in Istria. The discovery in Istria represents the western limit of the distribution range in Croatia. The Woodland Brown is considered rare in Croatia, according to previous findings. In this paper we discuss the distribution and possible threat status of this species in Croatian butterfly fauna.

### ***Lopinga achine*, distribution, habitat, Croatia**

ŠAŠIĆ, M., i MIHOČI, I., Novi nalazi leptira šumskog okaša *Lopinga achine* (Scopoli, 1763) (Lepidoptera: Nymphalidae: Satyrinae) u Hrvatskoj, Zoološki odjel Hrvatskog prirodoslovnog muzeja, Demetrova 1, 10000 Zagreb, [martina.sasic@hpm.hr](mailto:martina.sasic@hpm.hr): Entomol. Croat. 2007, Vol. 11. Num. 1-2:63-67.

Tijekom terenskih istraživanja ljeti 2000. i 2001. na području kontinentalne Hrvatske i prvi put na području Istre pronađen je leptir šumski okaš *Lopinga achine* (Scopoli, 1763). Nalaz u Istri zapadna je granica rasprostranjenja u Hrvatskoj. Vrsta se smatra rijetkom u Hrvatskoj. U radu se govori o rasprostranjenosti navedene vrste i o mogućem stupnju ugroženosti u fauni danjih leptira Hrvatske.

### ***Lopinga achine*, rasprostranjenost, stanište, Hrvatska.**

## Introduction

The Woodland Brown *Lopinga achine* (Scopoli, 1763) is the only member of the genus in Europe, distributed from Spain, Central Europe and Russia to Siberia. It appears in one generation per year occurring in June and flying until the end of July. It hibernates in the larval stage. The females oviposit their eggs on

the ground one by one without attaching them to plants (Bergman, 2000). Larval host plants are grasses (fam. *Poaceae*): *Brachypodium* spp. (SBN, 1987; Tolman & Lewington, 1997), *Molinia* and sedges (fam. *Cyperaceae*): *Carex montana* (Bergman, 2000) and *C. alba* (Lafranchis, 2000). There are in addition at least 15 other species of grasses and sedges suggested as host plants (Bergman, 2000).

The butterfly occurs in Croatian fauna locally in the continental part of the country. *Lopinga achine* is one of the threatened butterflies in Croatia. It is classified as DD-data deficient in the Red List of endangered butterflies in Croatia (Šašić & Kučinić, 2004) and in the Red Data Book of European butterflies (van Swaay & Warren, 1999). It is also mentioned in Annex IV of the Habitats Directive (www1).

Habitat requirements of Woodland Brown are well known in the western European range. The species inhabits open deciduous woodlands where average bush and tree cover is at least 60 %, has glades that allow flying in the sun of at least 100 m<sup>2</sup> and where the vegetation structure comprises both tree and bush layers (Bergman & Landin, 2001). The habitat is a succession stage, before the canopy closes if not managed or grazed. In Sweden the adults frequently inhabit glades in partly open oak woodland (*Quercus robur* L.) with interspersed hazel (*Corylus avellana* L.). Females and caterpillars are restricted to a narrow zone under the tree and bush canopy along the edges of clearings where the host plant must be present (Bergman, 2001).

According to Bergman (1999) the species occurs on the edges because the egg survival is higher in the edges than in the sun or under the shade of a closed bush or tree canopy. The eggs are sensitive to dry conditions and they are more vulnerable than some other Satyrini eggs (Bergman, 1999).

### **Material and Methods**

Butterflies were collected using an entomological net at the locality Čepić polje near the town of Oprtalj in northern Istria and observed at Žgano Vino (Mt Ivančica) and at Varoški Lug near Vrbovec. The specimen from Istria is stored in the butterfly collection of the Department of Zoology in the Croatian Natural History Museum in Zagreb.

Identification was made according to Tolman & Lewington (1997), and the butterfly nomenclature used was that of Karsholt & Razowski (1996).

### Results and Discussion

On June, 10<sup>th</sup> 2001, while studying the population of the False Ringlet (*Coenonympha oedippus*) at the locality of Čepić polje, northern Istria, a female specimen of *Lopinga achine* occurred. This is the first finding of the Woodland Brown in Istria and the western distribution range in Croatia (Fig. 1). The locality is in a valley enclosed with submediterranean communities of deciduous vegetation and cultivated pines at an altitude of 315 meters. It is regularly mowed grassland, part of it being used for cattle grazing.

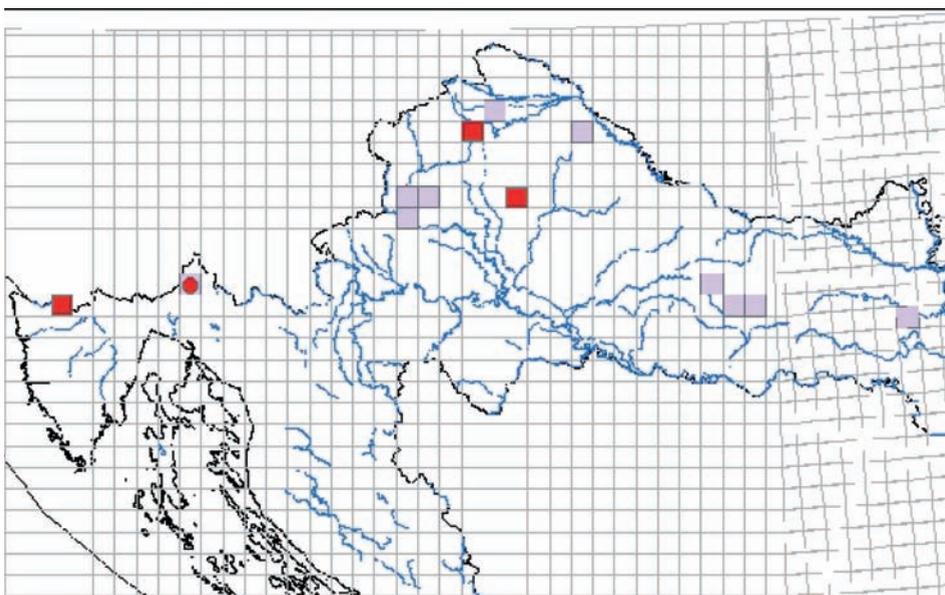


Figure 1. The distribution of the Woodland Brown (*Lopinga achine*) in Croatia. New findings - red squares, old findings - grey squares.

Woodland Brown was also observed during several field trips in Hrvatsko Zagorje on Žgano Vino, Mt Ivanščica at July, 2000 (obs. Mihoci) and at a locality near the city of Vrbovec at Varoški Lug in June, 2001 (obs. Mihoci).

According to previous findings, the Woodland Brown *Lopinga achine* is locally distributed and rare in the Croatian butterfly fauna. Hitherto it has been found only at a few locations in small populations in the inland lowland area

between the rivers the Sava, Kupa, Drava and Danube. The last published overview of the distribution of the Woodland Brown is Jakšić's (1988) provisional distribution maps of the butterflies of Yugoslavia. Dots on the UTM distribution map are the same as the localities from the collections in the Croatian Natural History Museum.

Several specimens of the species are preserved in the central butterfly collections of the Department of Zoology and in Lorković's butterfly collection in the Croatian National History Museum. Findings are around Zagreb (Maksimír, June 9<sup>th</sup> 1921, June 2<sup>nd</sup> 1945; Kraljičin zdenac, June 14<sup>th</sup> 1917; Sljeme - Puntijarka, July 1<sup>st</sup> 1956, leg. Lorković; Kraljičin zdenac, June 23<sup>rd</sup> 1911; Sljeme, July 21<sup>st</sup> 1907, leg. Taborski), Turopolje (July 5<sup>th</sup> 1912, leg. Steiner), around Samobor (Samobor, July 1939; Osredek, June 21<sup>st</sup> 1942, leg. Lorković), Vinkovci (1889, leg. Koča; June 1906, leg. Gušić), Hrvatsko zagorje (Zelenjak, June 19<sup>th</sup> 1932, leg. Lorković; Trnovec, 1914, leg. Igalffy) and Kupa Valley (Ložec, June 11<sup>th</sup> 1977; Grintovec, June 12<sup>th</sup> 1977, leg. Mladinov).

According to Koča (1900) and Koča (1901) *Lopinga achine* was collected at Papuk, Bazjaš and Zvirinci near Vinkovci and near Velika. Lidija Mladinov collected a few specimens at the upper course of the Kupa River on the nearby Croatian-Slovenian border in Ložec and Grintovec (Mladinov, 1978). Specimens mentioned in the published paper are preserved in the museum collection. Also, Kranjčev (1985) and Sijarić (1991) found a few specimens of the species in the city of Koprivnica with an abundance of 5 (locally common). According to previous findings in the surroundings of Zagreb and Turopolje, only few of these data have been confirmed.

The Woodland Brown has not been found in recent studies of Maksimír (Zagreb) and Turopolje, but it has been confirmed in the Kupa river valley (Pauć, July 2006 obs. Mihoci, Šašić and Tvrtković). Observed Woodland Browns flew almost constantly and were very difficult to approach while resting, which lasted only for a short time.

Future studies on the distribution of the species should be focused on the continental lowland part between the Sava, Drava and Danube rivers where more findings can be expected. For effective management, detailed ecological studies must be done to identify the key factors for successful butterfly conservation. For this species, it is necessary to study the trees, bushes and openness of the site.

### Acknowledgements

The research was supported by grant of the KEC project. We are grateful to Dr Nikola Tvrtković (CNHM Zagreb) for supporting the investigations.

### References

- BERGMAN, K.-O., 1999. Habitat utilization by *Lopinga achine* (Nymphalidae: Satyrinae) larvae and ovipositing females: implications for conservation. *Biological Conservation*, 88: 69-74.
- BERGMAN, K.-O., 2000. Oviposition, host plant choice and survival of a grass feeding butterfly, the Woodland Brown (*Lopinga achine*) (Nymphalidae: Satyrinae). *Journal of Research on the Lepidoptera*, 35: 9-21.
- BERGMAN, K.-O., 2001. Population dynamics and the importance of habitat management for conservation of the butterfly *Lopinga achine*. *Journal of Applied Ecology*, 38: 1303-1313.
- BERGMAN, K.-O. & LANDIN, J., 2001. Distribution of occupied and vacant sites and migration of *Lopinga achine* (Nymphalidae: Satyrinae) in a fragmented landscape. *Biological Conservation*, 102: 183-190.
- JAKŠIĆ, P., 1988. Privremene karte rasprostranjenosti dnevnih leptira Jugoslavije (Lepidoptera, Rhopalocera). *Jugoslavensko entomološko društvo. Posebna izdanja 1. Zagreb*, pp. 171.
- KARSHOLT, O. & RAZOWSKI, J., 1996. *The Lepidoptera of Europe. A Distributional Checklist*. Apollo Books, pp. 380.
- KOČA, GJ., 1900. Prilog fauni gore Papuka i njegove okoline. *Glasnik Hrvatskog naravoslovnog društva*, 12: 1-35.
- KOČA, GJ., 1901. Prilog fauni leptira Hrvatske i Slavonije. *Glasnik Hrvatskog naravoslovnog društva*, 13: 1-67.
- KRANJČEV, R., 1985. Odnos faune makrolepidoptera prema prirodnim i antropogenim staništima Podravine i podravskih pijesaka I. *Podravski zbornik*, 11: 200-226.
- LAFRANCHIS, T., 2000. *Les Papillons de jour de France, Belgique et Luxembourg et leurs chenilles* Collection Parthénope, éditions Biotope, Mèze, pp. 448.
- LEPIDOPTEROLOGEN - ARBEITSGRUPPE, 1987. *Tagfalter und ihre Lebensräume*. Schweizerischer Bünd für Naturschutz, Basel, pp. 516.
- MLADINOV, L., 1978. Prvi dodatak poznavanju poznavanju faune Macrolepidoptera iz doline gornjeg toka rijeke Kupe. *Acta entomologica Jugoslavica*, 14 (1-2): 63-67.
- ŠAŠIĆ, M. & KUČINIĆ, M., 2004. The Red Data List of Croatian Butterflies. In Marković, D. (ed.). *Državni zavod za zaštitu prirode*.
- TOLMAN, T. & LEWINGTON, R., 1997. *Butterflies of Britain and Europe*. Harper Collins Publishers, pp. 320.
- VAN SWAAY, C. & WARREN, M., 1999. *Red Data Book of European Butterflies (Rhopalocera)*. Nature and environment, No. 99, Council of Europe Publishing. pp. 260.
- www1: [ec.europa.eu/environment/nature/nature\\_conservation/eu\\_enlargement/2004/habitats/annexiv\\_en.pdf](http://ec.europa.eu/environment/nature/nature_conservation/eu_enlargement/2004/habitats/annexiv_en.pdf)