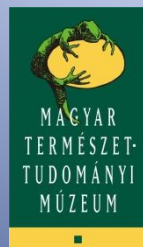


A Mezei boglárka (*Polyommatus dorylas*) minden körülmények között ragaszkodik kék színéhez

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Kertész Krisztián (2), Piszter Gábor (2) és Biró László Péter (2)

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Mezei boglárka

Ismerős, de ismeretlen tápnövény specialista

Ahogy elkezdődött...

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Neue Ent. Nachr.	14	14 - 20	D - 7538 Keltern, 21. 2. 1985
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Plebicula dorylas magna nov. ssp. (Lep.: Lycaenidae) from the Eastern Carpathians, Rumania

ZSOLT BÁLINT

Abstract: A new subspecies of *Plebicula dorylas* DEN. & SCHIFF. is described. Some remarks on its habitat and ethology are given.

Budaörs
(Budapest környéke)

Bükkhavaspataka
(Keleti-Kárpátok)





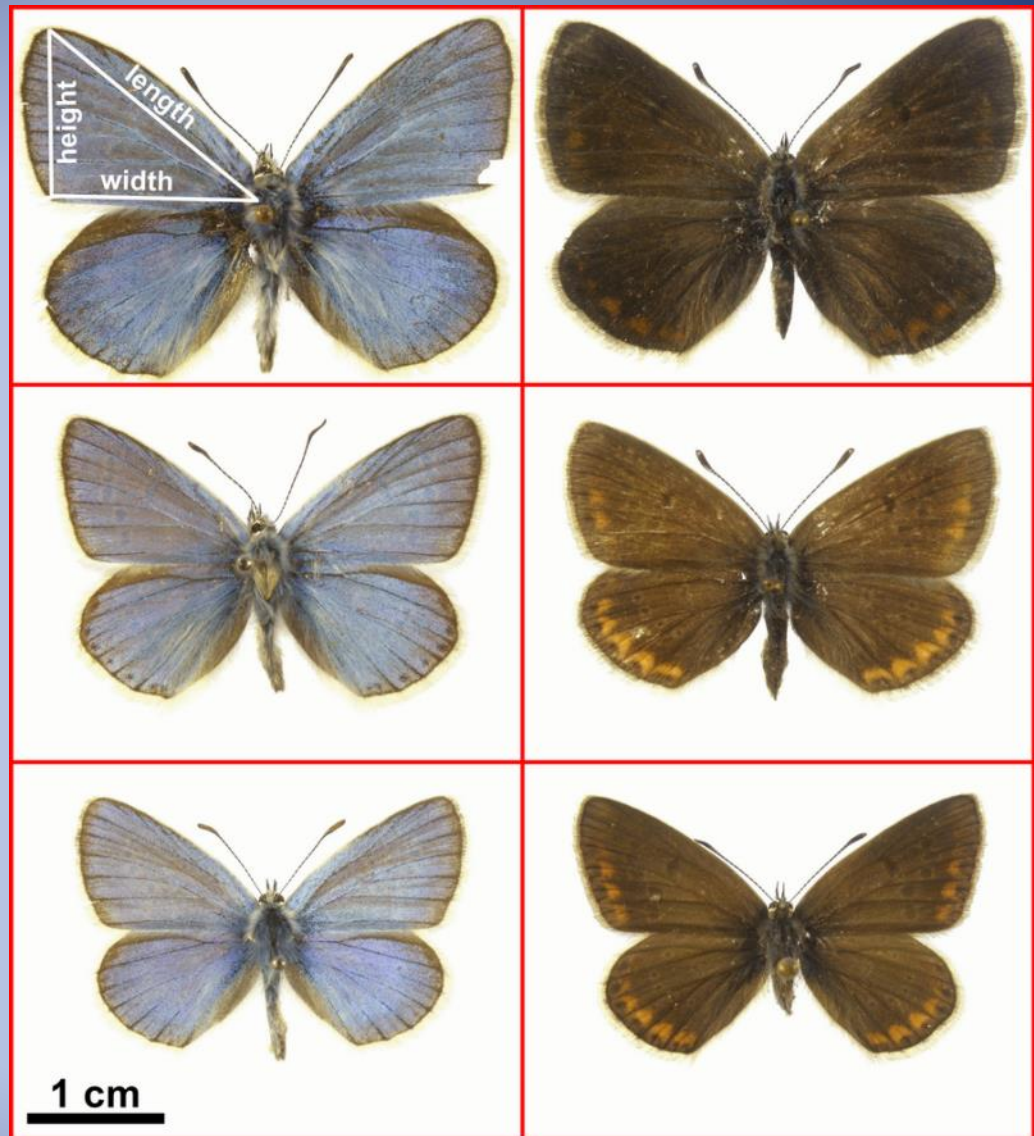
SZÁRNYFELSZÍN NAGYSÁGA ÉS A PIKKELYEK MÉRETE

Imágók

Imagines of *P. dorylas* in dorsal view.
The left column shows males while the right column shows females.

Upper row = univoltine *P. dorylas* (Magna) (Eastern Carpathians);
middle row = first generation of bivoltine *P. dorylas* (Pannonian region);
lower row = second generation of *P. dorylas* (Pannonian region).

On the left forewing of a *Magna* male it is indicated in white how measurements were taken.

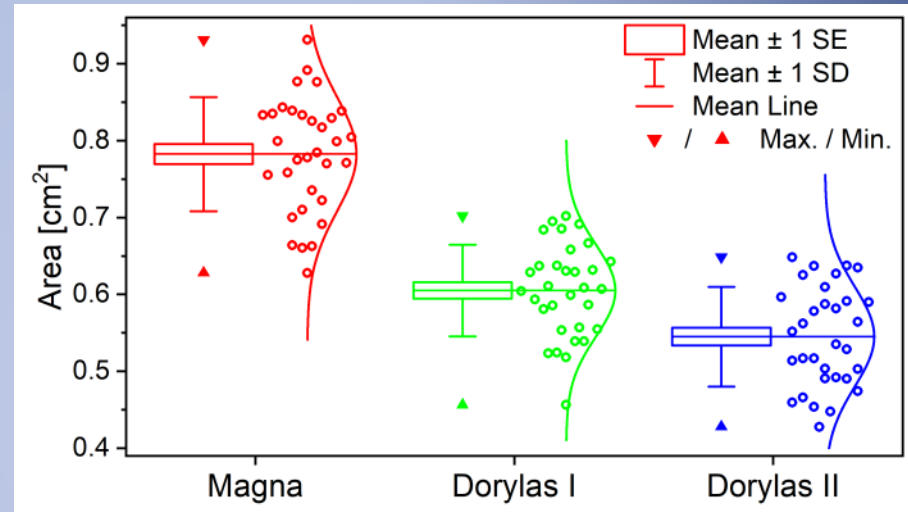


Szárnyfelület

Area statistics for mountainous *Magna*, lowland *Dorylas I* and *Dorylas II*. To understand how measurements were carried out.

The boxes denote the standard error of the mean, while the bars show the standard deviation of the mean. Maximum and minimum values are shown as triangles.

One-Way ANOVA and post hoc Tukey's test evaluation showed significant differences between the three groups.



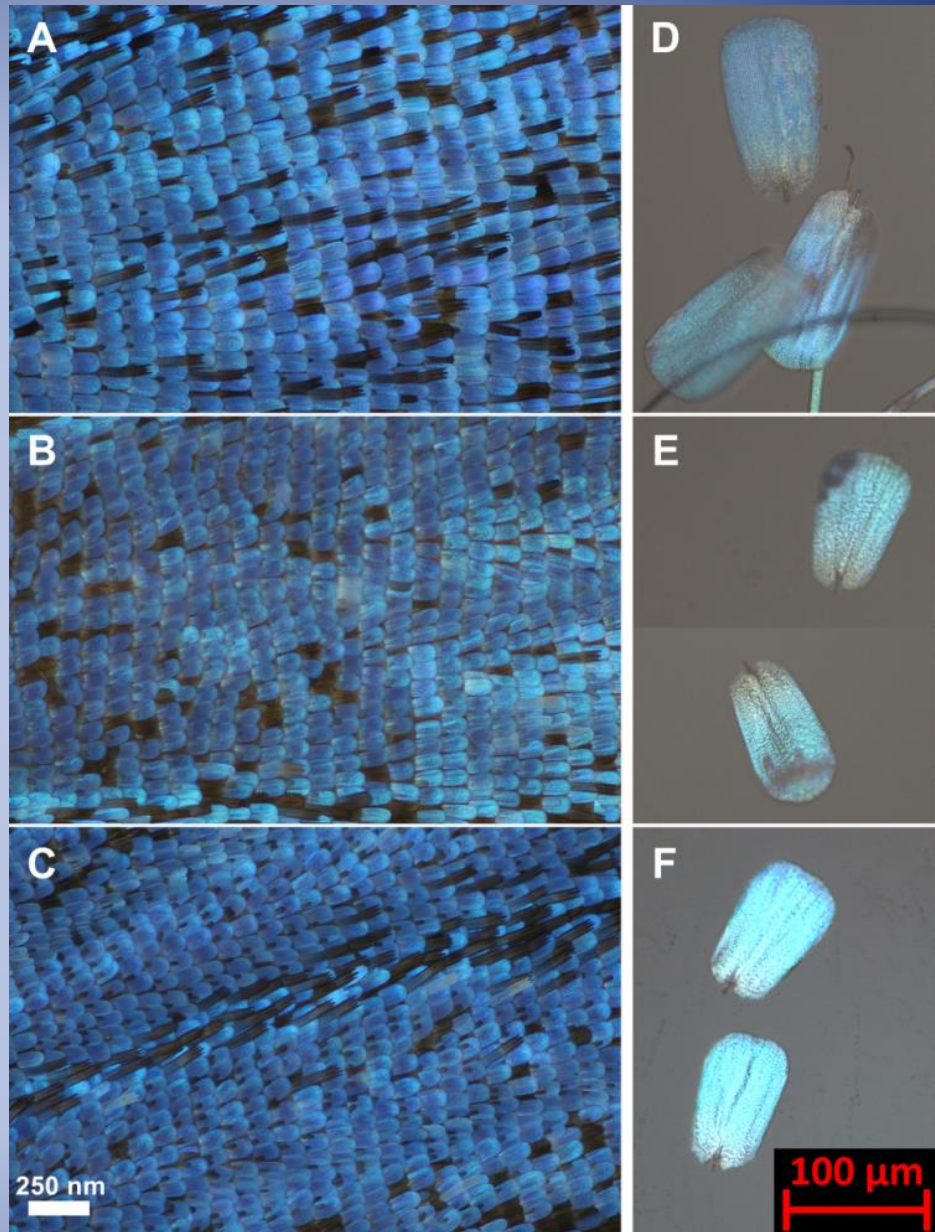
Pikkelyméret

Optical microscopic images of *P. dorylas* male forewing surfaces taken in the medial area below the cubital vein, along with individual scales from the same area.

A and D = *Magna*,

B and E = *Dorylas I*,

C and F = *Dorylas II*.



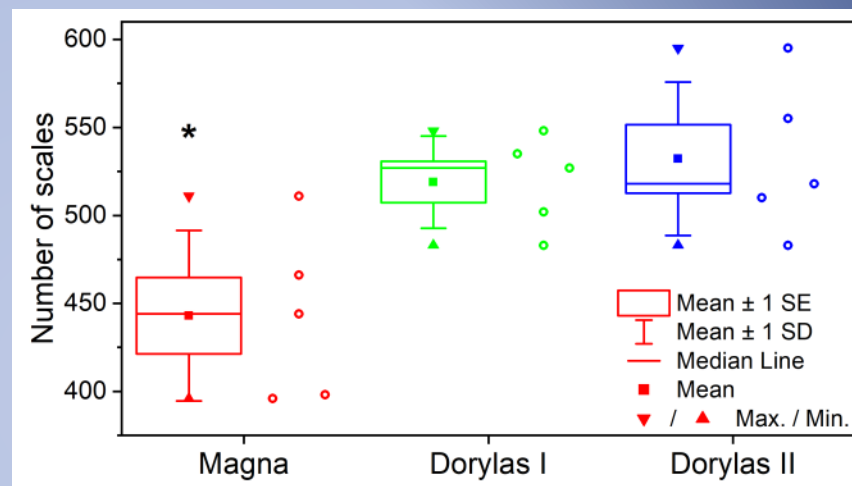
Pikkelyszáma

Number of wing scales counted for *Magna*, *Dorylas I* and *Dorylas II* on a 1.96 mm² area.

The boxes denote the standard error of the mean, while the bars show the standard deviation of the mean.

Maximum and minimum values are shown as triangles.

One-Way ANOVA and post hoc Tukey's test evaluation showed significant differences between the *Magna* and the other two groups.





PIKKELYEK NANOARCHITEKTÚRÁJA ÉS SPEKTRUMA

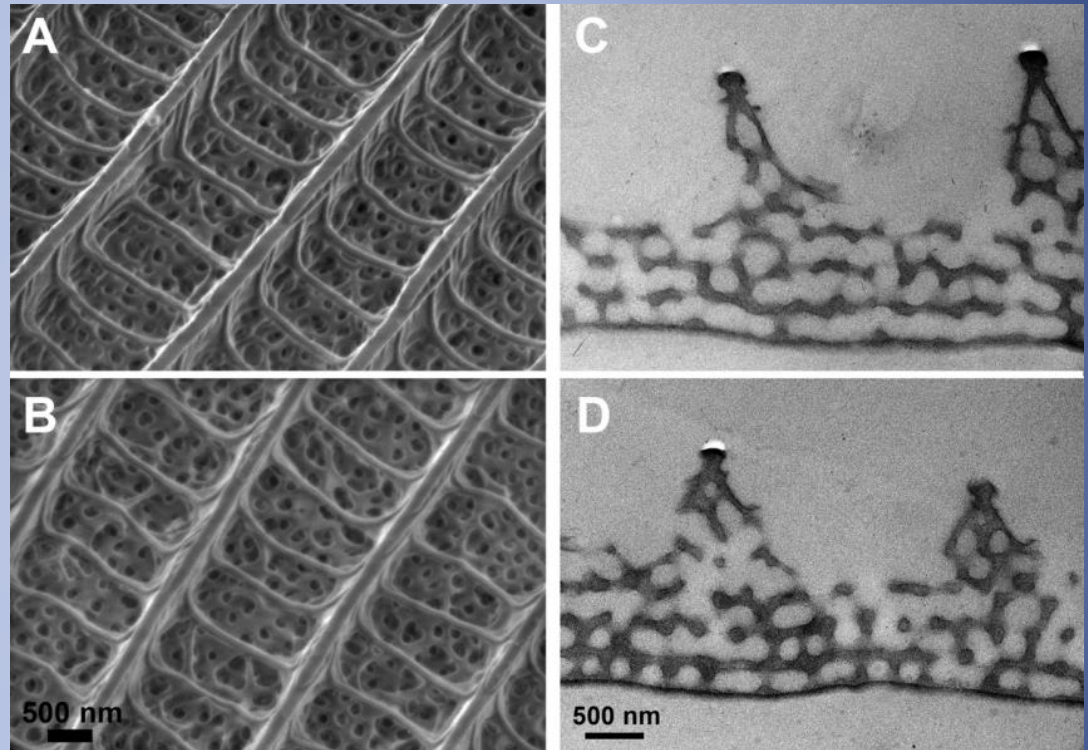
A szárnyak mikro- és nanoarchitektúrája

Micrographs of *P. dorylas* scales.

A, B = scanning electron micrographs,
C, D = transmission electron micrographs.

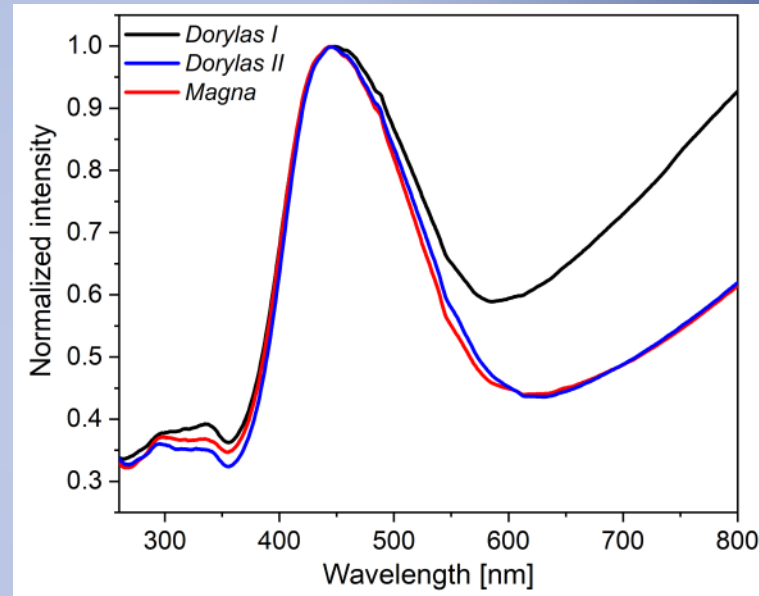
A and C = *Magna*, B and D = *Dorylas I*.

There was no difference in the internal structure of the scales, and the nanoarchitectures generated the same color.



A szárnyak reflektanciája

Mean wing reflectance of univoltine *P. dorylas* (*Magna*; $n = 10$), bivoltine *P. dorylas* first generation (*Dorylas I*; $n = 9$), and second generation (*Dorylas II*; $n = 8$) male specimens measured with an integrating sphere optical setup. The spectra were normalized to the maxima of the reflectance peaks in the blue wavelength region. One can observe that reflectance peaks of the structural blue colors are coincident. The portion of reflectance originating from melanin pigmentation (> 600 nm) in *Dorylas I* specimens was higher but there was no difference in the blue structural color. This effect of melanin bleaching has been described earlier (Kertész et al., 2019) and shows the older age of these specimens.





TÁRGYALÁS

A három szabály

- **A Bergmann szabály:** Az egy rokonsági körbe tartozó állatok testmérete annál nagyobb, minél hidegebb éghajlaton élnek. A hőmérséklet leadása a testfelszínnel arányos, a hő termelése pedig a testtömeggel. Minél nagyobb egy állat, arányaiban annál kisebb felszín jár a testtömeghez.
- **Allen szabály:** A hideg éghajlaton élő állatok végtagjai és egyéb kiálló részei rövidebbek a meleg éghajlaton élő rokonaiknál.
- **Hesse-szabály:** Egy fajon belül a hidegebb éghajlaton élő példányok szíve nagyobb...

Méret, hőmérséklet és megfelelés

- Jobb a nagyobb (Bergmann-szabály)
- A kisebb melegebb (Allen-szabály)
- A melegebb jobb

(Kingsolver & Huey, 2008, Evolutionary Ecology Reserach)

Életmenet

Life history diagrams of *P. dorylas* compiled on the basis of specimens preserved in the Hungarian Natural History Museum.

A = bivoltine *Dorylas* population from the Pannonian lowlands; B = univoltine *Magna* population from the Eastern Carpathians.

In the opening columns, the developmental stages are indicated, months are represented in the first row. The lengthened time for larval development of Magna is highly evident.

A

<i>Dorylas</i>	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
imago												
ovum												
larva												
pupa												

B

<i>Magna</i>	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
imago												
ovum												
larva												
pupa												

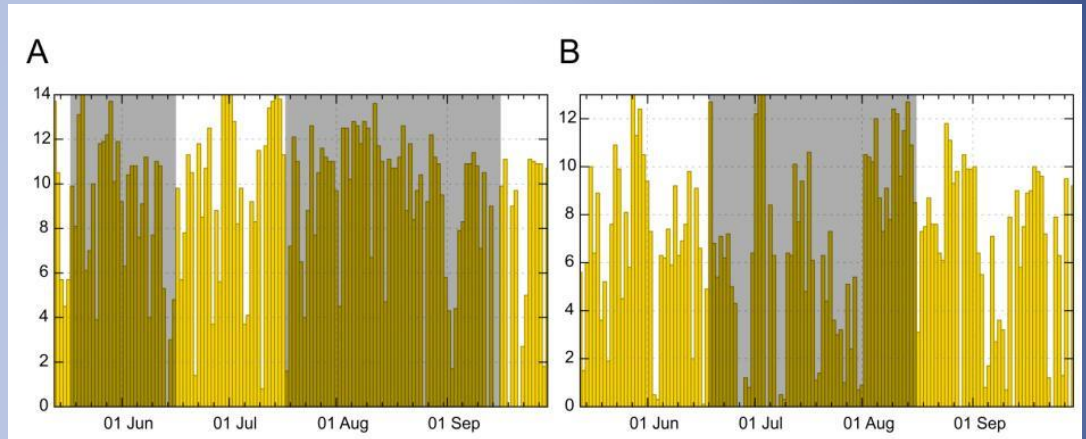
Napos órák

Sunshine hours during the summer of 2018. Flight periods of the butterflies are indicated by grey blocks.

A = bivoltine *Dorylas I-II* in Pannonia (a vicinity of Budapest),

B = univoltine *Magna* in Transylvania (Eastern Carpathians).

The far less number of hours with sunshine for *Magna* is highly evident (data source: weatheronline.co.uk)



Köszönjük a figyelmet!