



The Albanian expeditions ... and the story of *Pseudochazara* *misjai* sp. nov., new to science



24 jan 2026 - V.V.E. Werkgroep dagvlinders

dr. Laurian Parmentier



Overview

Intro

- De eerste expedities
- Centraal Albanië

- Een nieuwe vondst binnen het genus *Pseudochazara*

- De wetenschappelijke beschrijving

- Kadering en nieuwe inzichten

- Vervolg



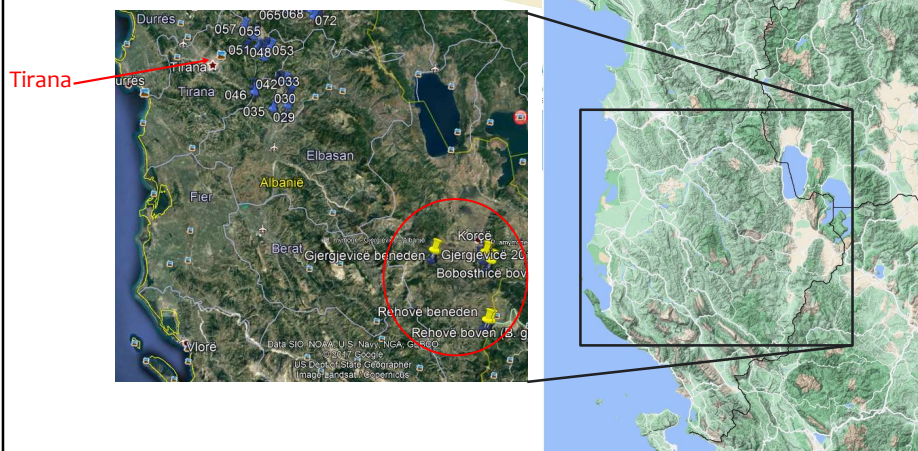
Overview



- ✦ Intro
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- ✦ Een nieuwe vondst binnen het genus *Pseudochazara*
- ✦ De wetenschappelijke beschrijving
- ✦ Kadering en nieuwe inzichten
- ✦ Vervolg

De eerste expedities 2015-2017

1. Zuid-oost Albanië



De eerste expedities: 2015-2016

1. Zuid-oost Albanië+ grensgebied Griekenland & Noord-Macedonië





Albanië: de eerste expedities:

2017: Eerste contact met Universiteti i Tiranës, Faculteti i Natyrës

Afspraak met Prof. K. Misja – A. Papparisto
Overlopen interessante biotopen





Albanië: de eerste expedities

Boek Misja 2005

Eerste overzichtswerk met verspreidingskaartjes

Tot dan quasi ongekend referentiewerk in entomologische wereld



Albanië: de eerste expedities: 2017

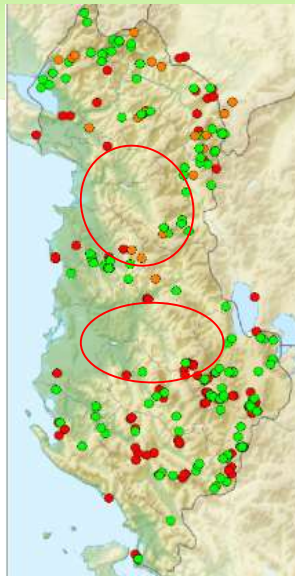
Boek Misja 2005

Kaart met hyaten
Albanië,

Vb. *M. jurtina*

Rood: observaties tot
2017

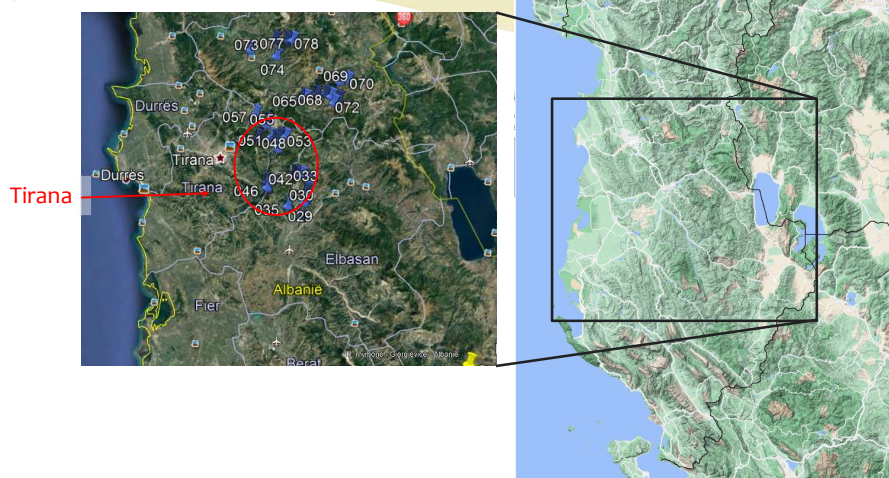
Groen: > 2017



Cuvelier S., Parmentier L., Paparisto A. &
Cockuyt J. 2018. Butterflies of Albania – Fluturat
e Shqipërisë.



De eerste expedities 2015-2017 2. Midden Albanië

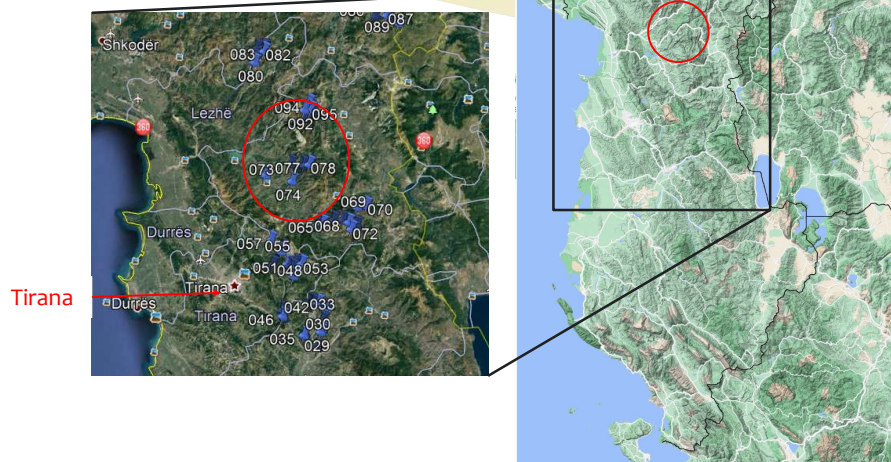


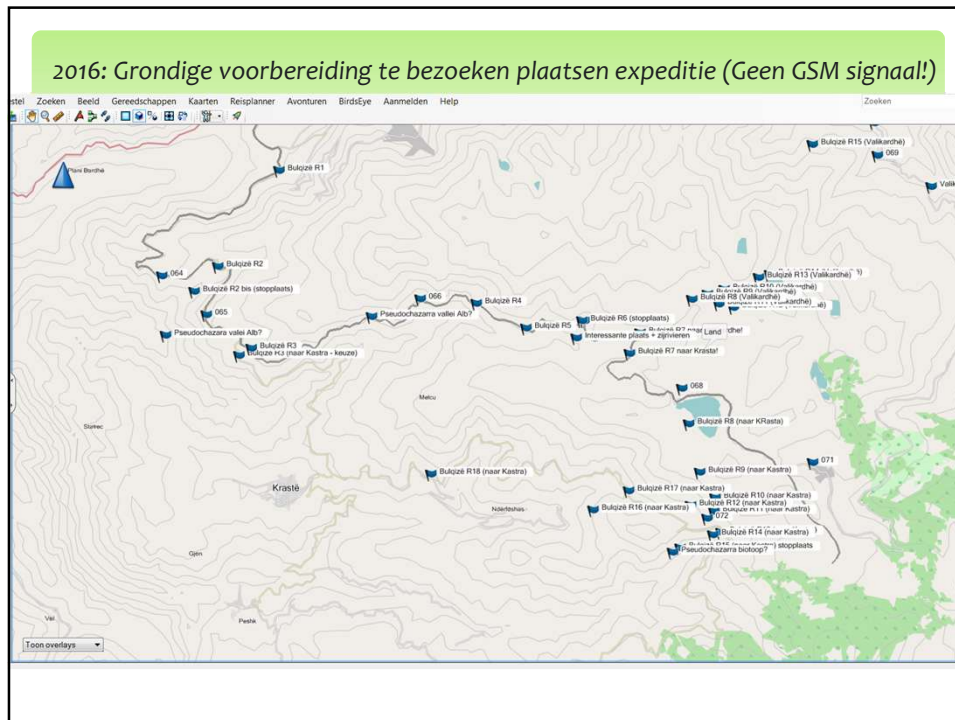






De eerste expedities 2015-2017 3. Midden-Noordoost Albanië







Krasta: mijnbouw sites



Foto: G. Kroop - Laurien Parmentier

De eerste expedities 2015-2017

Bulquizë/Krasta – Lurë region

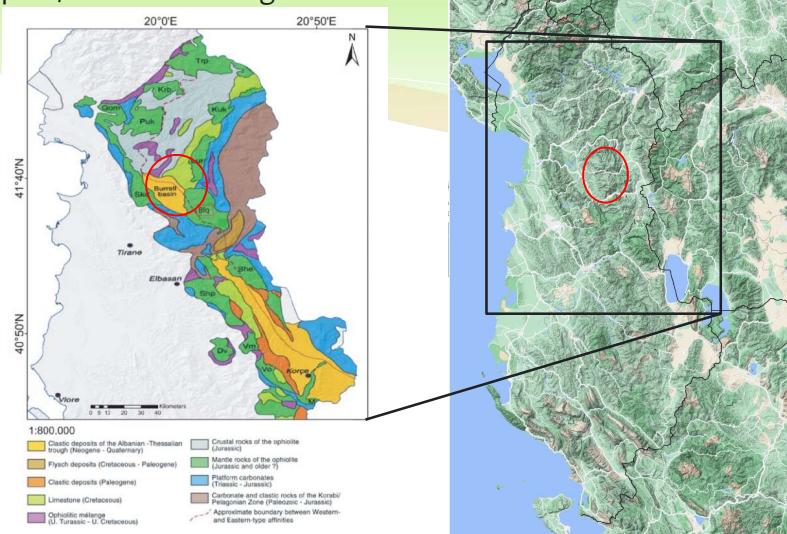




Foto biotoop © Laurian Parmentier



Foto biotoop © Jurgen Couckuyt



Albanië: de eerste expedities: 2015-2017

Intussen: 2018 publicatie Cuvelier S., Parmentier L., Paparisto A. & Couckuyt J. 2018.
Butterflies of Albania – Fluturat e Shqipërisë. New surveys, new species and a new checklist
(Lepidoptera: Papilionoidea)

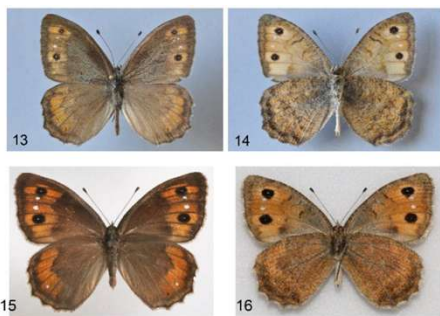
Butterflies of Albania – Fluturat e Shqipërisë. New surveys, new species and a new checklist (Lepidoptera: Papilionoidea)

Sylvain Cuvelier, Laurian Parmentier, Anila Paparisto & Jurgen Couckuyt

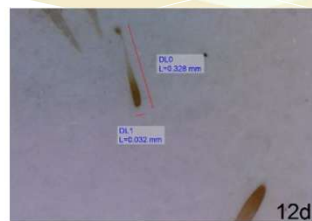
Abstract. Three new butterfly species were recorded for Albania during two recent surveys: *Pyrgus andromedae* (Wallengren, 1853), *Colias caucasica* (Staudinger, 1871) and *Leptidea juvernica* Williams, 1946. Also *Boloria titania* (Esper, 1793) is new for the current Albanian territory that had previously been described by Rebel from the historical, larger Albania but situated now in Kosovo. Two data deficient species from the last checklist are confirmed: *Carterocephalus palaemon* (Pallas, 1771) and *Hipparchia semele* (Linnaeus, 1758). The status of six species is changed from present to data deficient or potential presence because of lacking recent evidence: *Pontia chloridice* (Hübner, 1813), *Satyrrium pruni* (Linnaeus, 1758), *Neptis rivularis* (Scopoli, 1763), *Euphydryas maturna* (Linnaeus, 1758), *Coenonympha glycerion* (Borkhausen, 1788) and *Kirinia climene* (Esper, 1783). The geographical distribution for *Pseudochazara tisiphone* Brown, 1980 is significantly expanded to central Albania. Dot distribution maps are provided for all Albanian butterfly species. In addition to the new data, the available literature is screened, resulting in a mandatory update of the checklist for the Albanian butterflies: 196 species with recent evidence, 4 are data deficient and at least 9 have the potential to be discovered with future surveys.

Albanië: de eerste expedities: 2015-2017

Intussen: 2018 publicatie Cuvelier S., Parmentier L., Paparisto A. & Couckuyt J. 2018.
Butterflies of Albania – Fluturat e Shqipërisë. New surveys, new species and a new checklist
(Lepidoptera: Papilionoidea) S4: distribution map *P. tisiphone*.



5.vii.2017; Figs 13-14. *Pseudochazara tisiphone* ♂ (upper- & underside), Bulqizë, 1617 m, 13.vii.2017; Figs 15-16. *Pseudochazara tisiphone* ♀ (upper- & underside), Krastë, 1484 m, 13.vii.2017 (all specimens in Figs 1-14 coll. SC; © SC; specimens in Figs 15-16 coll. LP; © LP).



(© SC).

Fig. 12b. *Pseudochazara tisiphone* ♂, Bulqizë, 1617 m, 18.vii.2017 (© LP).

Fig. 12c-d. Androconial scales of *Pseudochazara tisiphone*, Bulqizë, 1617 m, 13.vii.2017 (© SC).

Fig. 12e. Androconial scales of the two *Pseudochazara* species as published in Misja (1993).



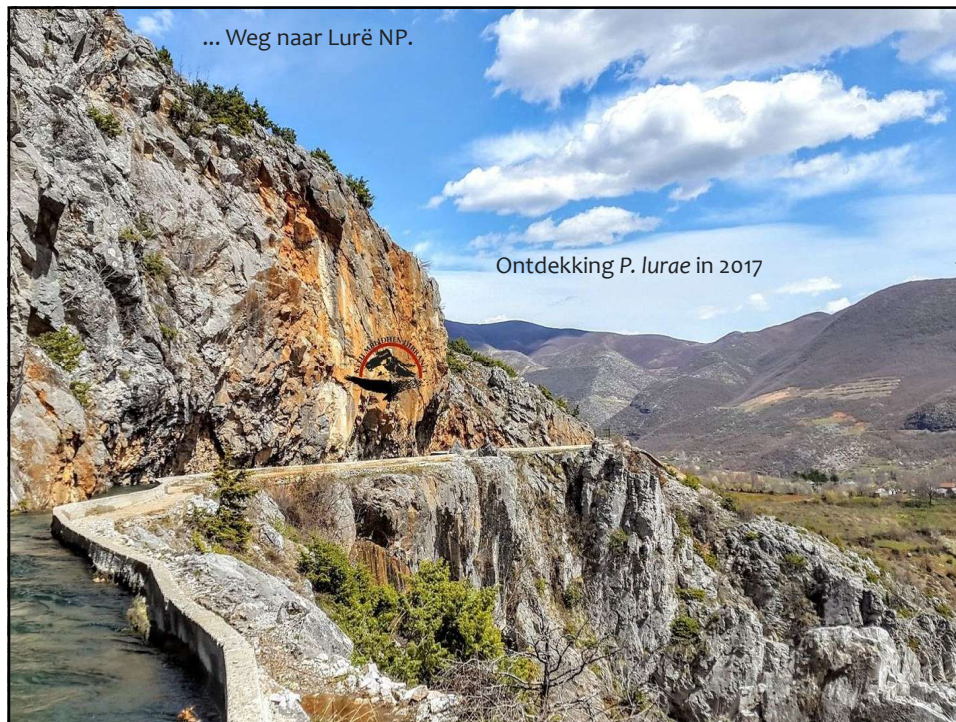
Fig. 4. Les androconies de *Pseudochazara cingovskii*.

Chronologisch overzicht

- 2015-2016** expedities rond midden Albanië + kaart/satelliet analyse door L. Parmentier, biotoopexploratie samen met Th. Maertens en D. Vincke
- 13.07.2017** Eerste **mannetje** ongekende *Pseudochazara* populatie ontdekt rond Bulquizë door Jurgen Couckuyt (VVE1)
- 18.07.2017** Eerste **vrouwtje** van ongekende *Pseudochazara* populatie wordt onafhankelijk ontdekt rond Krasta door Laurian Parmentier (VVE2)
- 2017- 2018** Alle samples (verzameld door zowel VVE1 en VVE2) worden door S. Cuvelier zelf doorgegeven aan lab Barcelona (R. Vila) voor barcoding
- 2018** Belangrijke nieuwe publicatie van gecollecteerde gegevens VVE1 en VVE2 in Phegea en eerste grondige update verspreidingsatlas sinds Misja 2005
Nieuwe populatie Bulquizë-Krasta wordt geüniformeerd onder *Ps. tisiphone*, op basis van een (on nauwkeurige) androconiën meting door S. Cuvelier

Albanië + Noord-Griekenland + Noord-Macedonië: verschillende nieuwe expedities na 2018

- Exploratie grenszone met Noord-Griekenland
- Exploratie grenszone met Noord-Macedonië
- Exploratie hyaten in Albanië



Intussen (2022): publicatie mtDNA atlas EU butterflies*

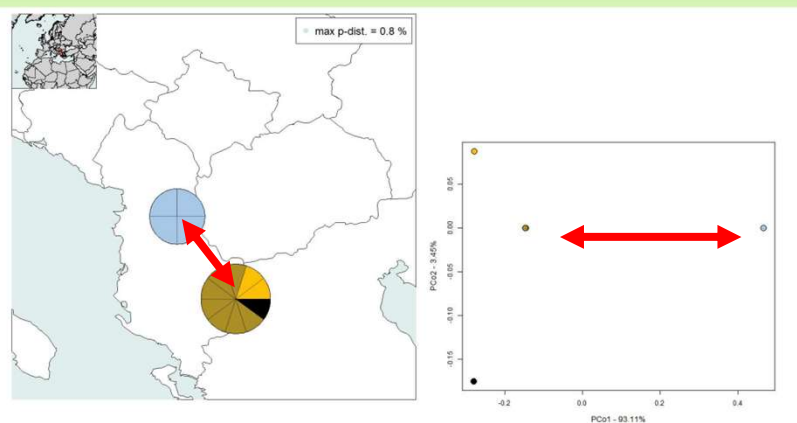
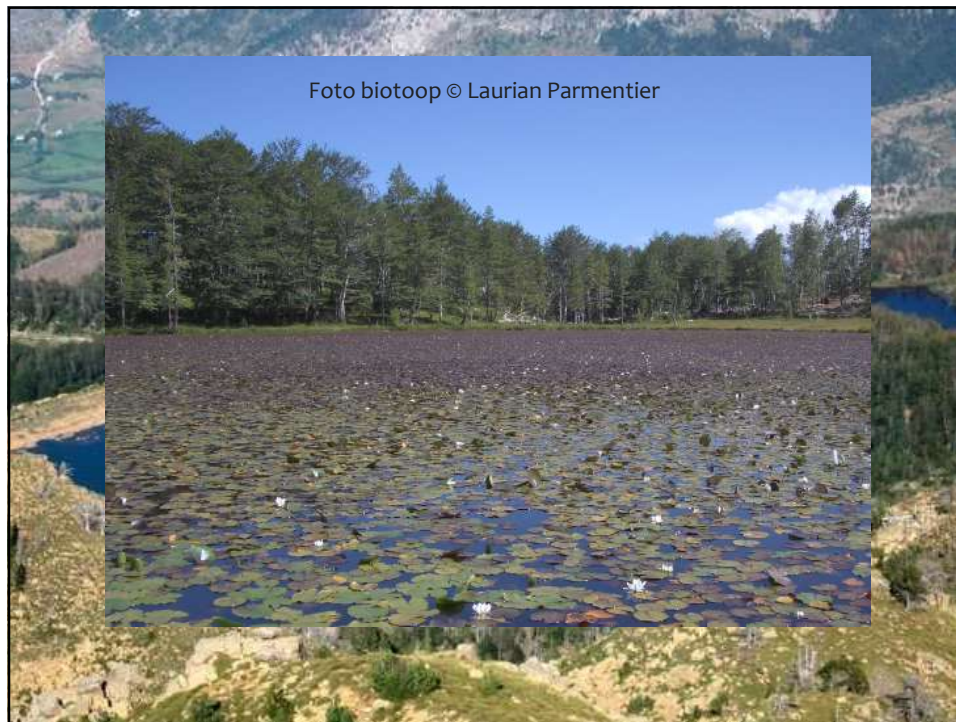


Figure 960 Map of *Pseudochazara tisiphone* showing the localities of the sequenced specimens (left). Nearby localities are grouped in pies. Colours match the bidimensional colour space of the PCoA projection (right) of max p-dist among sequences (dots). Sequences= 14; Hap obs.= 5; Hap asympt.= 7.8; Hap % obs.= 64.2%; GST= 0.679; DST= 0.0023; HD= 0.703; ND= 0.0033; max p-dist= 0.8%.

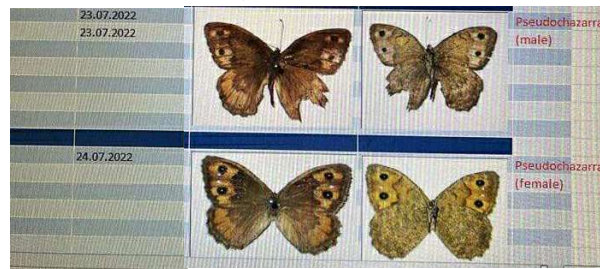
* Dappporto L et al. (2022) The atlas of mitochondrial genetic diversity for Western Palearctic butterflies. *Global Ecology and Biogeography* 31:2184-2190. doi: 10.1111/geb.13579



23-24.vii.2022, Xhuliana Qirinxhi, accompanied with Rigela Fero and Laurian Parmentier found two worn males and two relatively fresh females of "*P. tisiphone*" on ophiolite substrate, in the Lurë-Dejë National Park.

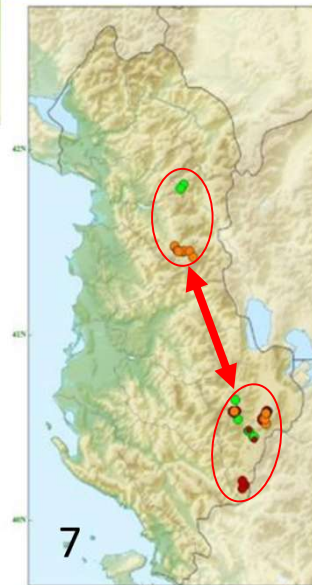


Foto specimen © Xhuliana Qirinxhi



23-24.vii.2022, Xhuliana Qirinxhi, accompanied with Rigela Fero and Laurian Parmentier found two worn males and two relatively fresh females of "*P. tisiphone*" on ophiolite substrate, in the Lurë-Dejë National Park.

Intussen (2023): nieuw publicatie met update atlas vlinders Albanië *



*Cuvelier S, Parmentier L, Qirinxhi X, Paparisto A, (2023) Butterflies of Albania: new data and going online – Fluturat e Shqipërisë – Të Dhëna Të Reja Dhe Faqja online (Lepidoptera: Papilionoidea). BSHN 32/2022

Chronologisch overzicht: vervolg

- 2015-2016** Eerste verkennende expedities rond midden Albanië + kaart/satelliet analyse door L. Parmentier, biotoopexploratie samen met Th. Maertens en D. Vincke
- 13.07.2017** Eerste mannetje ongekende *Pseudochazara* populatie ontdekt rond Bulquizë door Jurgen Couckuyt (VVE1)
- 18.07.2017** Eerste vrouwtje van ongekende *Pseudochazara* populatie wordt onafhankelijk ontdekt rond Krasta door Laurian Parmentier (VVE2)
- 2017- 2018** Alle samples (verzameld door VVE1 en VVE2) worden door S. Cuvelier zelf doorgegeven aan lab Barcelona (R. Vila) voor barcoding
- 2018** Publicatie update verspreidingsatlas sinds Misja 2005; Nieuwe populatie Bulquizë-Krasta wordt door S. Cuvelier geïdentificeerd als *P. tisiphone*
- 2022** Uitgifte genetische atlas dagvlinders EU op basis van mtDNA barcoding. Populatie Bulquizë-Krasta als ongekende nieuwe haplogroep, zonder benaming
- 2018- 2022** Grondig bijkomend onderzoek op verschillende mogelijke ongekende biotopen voor *Pseudochazara* (Noord-Griek, NMK, Albanie verschillende plaatsen door L. Parmentier en in 2022 samen met X. Qirinxhi en R. Fero (Lurë regio)
- 2023** Update verspreidingsatlas met opname nieuwe populaties als "*P. tisiphone*"
- 2023-2024** Extra onderzoek (genetica, biotoop,...) populatie Bulquizë-Krasta + hyaten tussen Griekenland en Midden-Albanië grondig onderzocht door L. Parmentier



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Onderzoek *Pseudochazara* specimen Krasta en Lurë: wat is het?

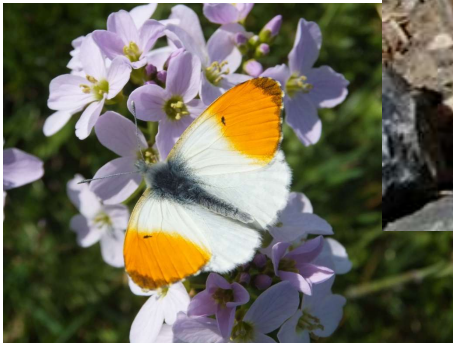
Ongekend haplotype: zeker
Ondersoort?
Soort?

=> Diepgaander onderzoek nodig!

Eerst wat herhaling over het soorten-concept...

1) Morfologische kenmerken

- * Roodbandheremiet
- vs. oranjetipje
- => **2 soorten**



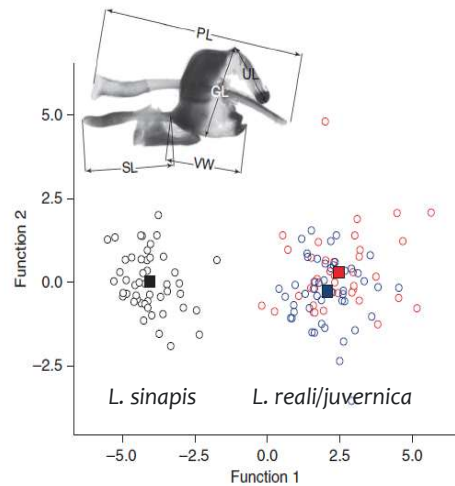
2) Genitaliën geslachtskenmerken/... ~ consistente morfologische verschillen

Vb: *Leptidea* sp. studie

L. sinapis

L. reali/juvernica ?

Figure 4 | Discriminant analysis based on male genitalia morphometry.
L. sinapis (black) is identifiable based on male genitalia, but there is broad overlap between *L. reali* (red) and *L. juvernica* stat. nov. (blue). Circles represent individuals and squares represent centroids for each species. Elements of the male genitalia measured were PL, SL, VW, GL and UL. The discriminant variables were PL and SL for function 1 and SL and VW for function 2. The upper left corner image indicates the variables measured for *Leptidea* male genitalia.



3 mtDNA barcoding

Per soort ook nog variatie van mtDNA binnen de soort
Haplotypes

=> Interspecifiek (tussen soorten) ?

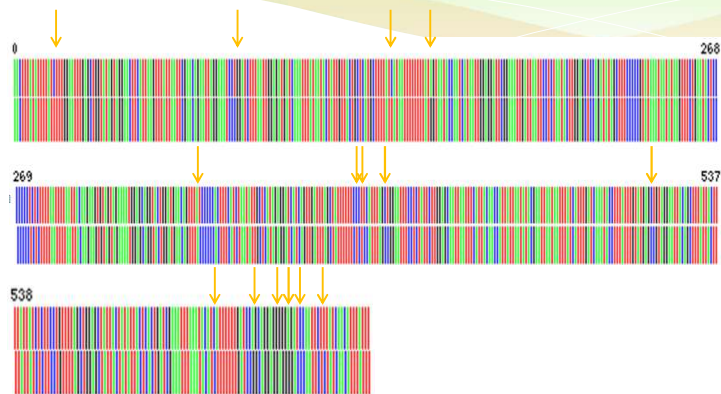
=> Intraspecifiek (binnen soorten) ?

2022: "Atlas of mitochondrial diversity of Western Palearctic butterflies"

=> mt DNA bezorgt ons interessante informatie over de evolutie van en binnen soorten en soortvorming.

vb: *L. reali* – *juvernica*

Vergelijk 42 – 63 (via het gekende mtDNA barcoding)



15 verschillen (op 658 bp)

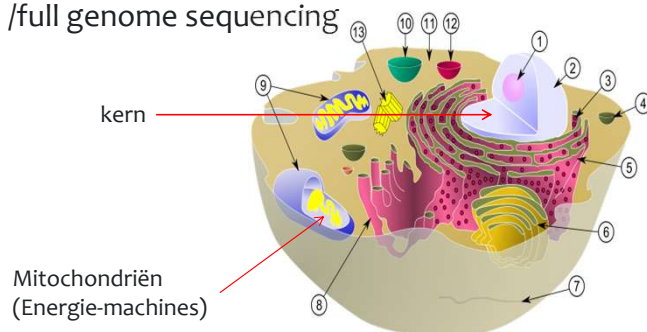
~ 2,3 % genetisch verschil in 'barcode'

4) karyotyping/ multiple genes/ whole genome sequencing

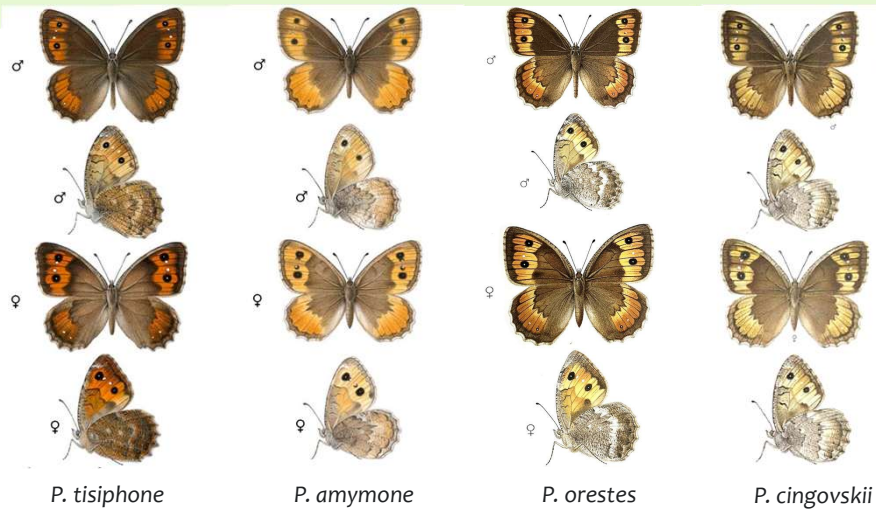
Per soort ook variatie van kern DNA:

Echte soorten zijn ook in hun kernDNA verschillend

~ genoom /full genome sequencing



Toegepast op enkele gekende Balkan *Pseudochazara bona* sp. soorten



Onderzoek specimen Krasta-Lurë: wat is het?

Nu kunnen we aan de slag...





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Verder onderzoek specimen Krasta nodig: wat is het?

Best = integratieve aanpak

1. Uiterlijk: licht afwijkend... bleker grondkleur + minder bruin
2. Mt DNA (barcode): sterk verschillend?
3. Morphometrische analyse habitus?
4. Geografisch gescheiden – unieke biotoopkenmerken?

Indien zo, mogelijks wél nieuw taxon!...
Gedetailleerd onderzoek zal dit uitwijzen

1. Mt DNA barcoding

Vergelijken van mt DNA met aanliggende (cryptische) soorten

Pseudochazara misjai voucher LP17_AL072_1 cytochrome c oxidase subunit I (COX1) gene, partial cds; mitochondrial

GenBank: PQ612762.1

[FASTA](#) [Graphics](#)

Go to: [Details](#) [History](#) [References](#) [Links](#) [Annotations](#) [Blast](#) [Download](#) [Help](#)

DEFINITION Pseudochazara misjai voucher LP17_AL072_1 cytochrome c oxidase subunit I (COX1) gene, partial cds; mitochondrial.

ACCESSION PQ612762.1

VERSION PQ612762.1

KEYWORDS .

SOURCE [mitochondrion](#), [Pseudochazara misjai](#)

ORGANISM [Pseudochazara misjai](#); [Eukaryota](#); [Metazoa](#); [Eurysozoa](#); [Arthropoda](#); [Hexapoda](#); [Insecta](#); [Pterygota](#); [Neoptera](#); [Endopterygota](#); [Lepidoptera](#); [Glossata](#); [Ditrysia](#); [Papilionoidea](#); [Nymphalidae](#); [Satyrinae](#); [Satyrini](#); [Satyrinae](#); [Pseudochazara](#).

REFERENCE 1 (bases 1 to 658)

AUTHORS Parmentier, L. and Qirinxhi, X.

TITLE Unexpected cryptic diversity revealed through integrative analysis within isolated populations of the Graylings (Lepidoptera: Satyrinae) in the western Balkans

JOURNAL Phegea 53 (1), 22-38 (2025)

REFERENCE 2 (bases 1 to 658)

AUTHORS Parmentier, L.

TITLE Direct Submission

JOURNAL Submitted (18-NOV-2024) Crop Protection, University Ghent, Coupure Links 653, Ghent, Belgium

COMMENT ##Assembly-Data-START## Sequencing Technology :: Sanger dideoxy sequencing ##Assembly-Data-END##

FEATURES

source Location/Qualifiers

1..658

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/organelle="mitochondrion"

/mol_type="genomic DNA"

/specimen_voucher="LP17_AL072_1"

/db_xref="taxon:3381454"

/sex="male"

/geo_loc_name="Albania: Diber, Kraste, Melcu Mts."

/altitude="1508 m"

/collection_date="19-Jul-2017"

/-----

/collection_date="19-Jul-2017"

Customize view

Analyze this sequence

Run BLAST

Pick Primers

Find in this Sequence

Related information

Protein

Taxonomy

Recent activity

Turn Off Clear

Pseudochazara misjai voucher LP17_AL072_1 cytochrome c oxidase Nucleotide

Pseudochazara misjai voucher LP17_AL066_1 cytochrome c oxidase Nucleotide

Pseudochazara misjai voucher LP17_AL064_2 cytochrome c oxidase Nucleotide

Pseudochazara misjai voucher LP17_AL064_1 cytochrome c oxidase Nucleotide

misjai (5)

Nucleotide

See more...

1. Mt DNA barcoding

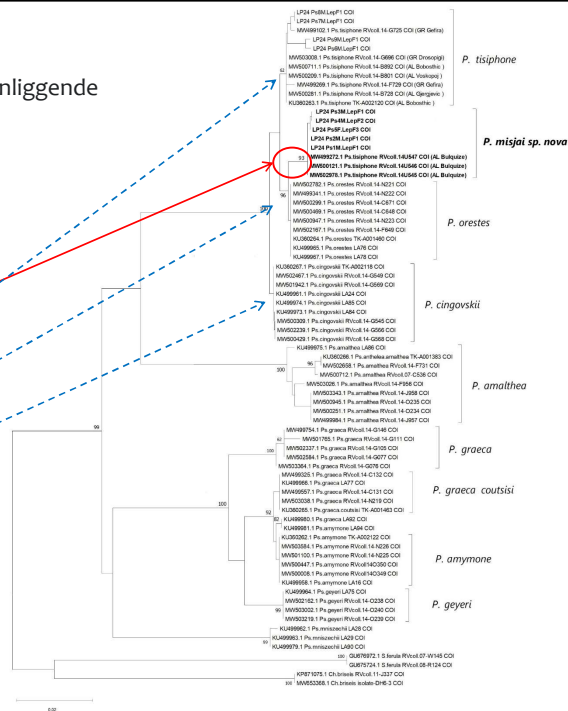
Vergelijken van mt DNA met aanliggende (cryptische) soorten

Conclusie 1.

Mt DNA phylogenetic tree
Geeft duidelijke, nieuwe monofyletische outgroup.

Verschillend van zowel *P. tisiPHONE* en andere zustersoorten

P. orestes en *P. cingovskii*



2. Andoconiën (morfologisch)

Pseudochazara tisiphone

Pseudochazara misjai sp. nov.

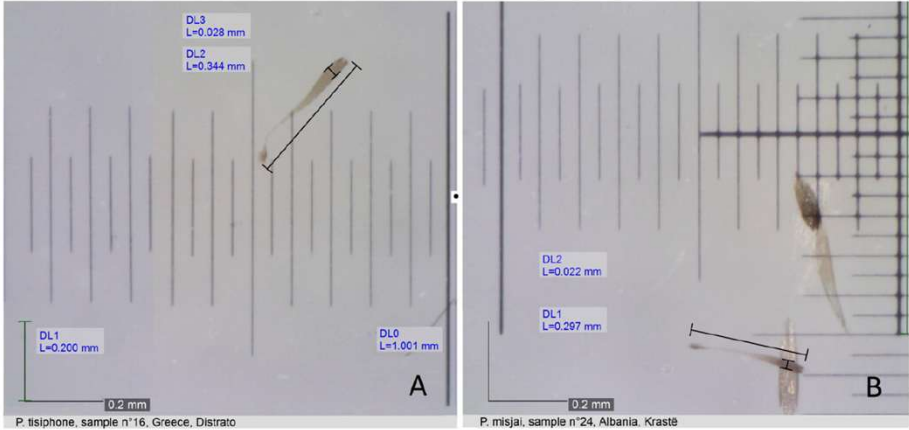


Fig 4. Androconial scale measurements of male *P. tisiphone* (A) and *P. misjai* sp. nov. (B) voucher specimen. Androconial length (AL) and androconial scale breadth (AB) are given, as explained in the methods section; background lines from gridded cover slip (spacing = 50 µm); microscope calibration length: 0.200 and 1.001 mm. Microscope bar = 0.2 mm. © L. Parmentier.

2. Andoconiën (morfometisch)

Table 1. Results of morphometric analysis on androconia (A), male (B) and female (C) traits (see main text for details) of voucher specimens. N = number of investigated specimens; av = average value. P values ($\alpha = 0.05$) of comparative statistics of traits that are significantly different between species are in bold.

A. Morphometric analysis of androconial scales

Taxon	Samples (N)	repeats (N)	AL (av. mm)	AB (av. mm)	ratio (AL/AB)	stdv (AL)	stdv (AB)	stdv (ratio)
<i>P. misjai</i> sp. n. (av)	9	65	0.3	0.022	13.82	0.008	0.001	0.572
<i>P. tisiphone</i> (av)	10	68	0.309	0.025	12.26	0.013	0.002	0.653
Univariate, P value			0.084	< 0.001	< 0.001			
Δ difference (%)			3%	14%	11%			

Conclusie 2:
Androconia metingen
(breedte en verhouding L/B)
significant
verschillend tussen de twee
pupulaties

3. Habitus kenmerken mannetjes en vrouwtjes (morfometrisch)

Males

Trait 0 (basis). FW length from thorax to wing apex (mm);

Trait 1. FW width at the submarginal band across the centre of the ocellus in cell S2 (mm);

Trait 2. FW width at the narrowest position of the submarginal band in the centre of cell S1b (mm);

Trait 3. Hindwing (HW) width at the submarginal band at the position of vein M₃;

Trait 4. HW thickness at the marginal grey/brown band.



Females

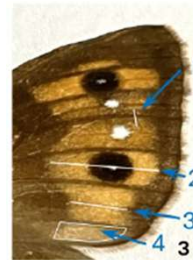
Trait 0 (basis). FW length from thorax to wing apex (mm);

Trait 1. FW breadth of the (darkened) veins in the postdiscal band, next to the position of the small white ocelli (situated between the eyespots);

Trait 2. FW width of the submarginal band across the centre of the ocellus in cell S2 (mm);

Trait 3. FW width of the narrowest position of the submarginal band in the centre of cell S1b (mm);

Trait 4. FW surface of the orange zone at the end of the post-discal band in cell S1a (generally surrounded by darkened brown colouration between vein v1B-wing edge and postmedian-marginal zone).



3. Habitus kenmerken mannetjes en vrouwtjes (morfometrisch)

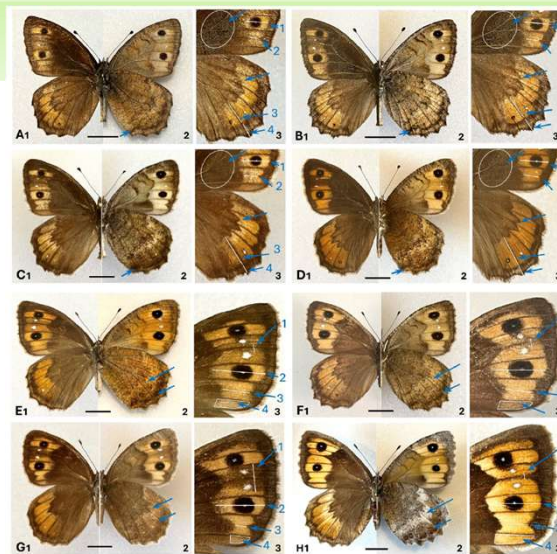


Fig. 1. Habitus and typical traits of males (A-D) and females (E-H) of *P. misja* sp. n. (A-B, E-F) and closely related taxa *P. trisphone* (C-D) and *P. arestes* (G-H). Figure small index numbers: 1, upper side, 2, underside, 3, detail of wings. Blue arrows indicate habitus traits; analysed wing traits indicated with blue numbers [see method section for details]. A, E, Albania, Dibër prov., env. Bulqizë, 18-19.vii.2017. B, F, Albania, Dibër prov., 19.vii.2017. C, Greece, Ioannina, env. Distrato, 18.vii.2016. D, Albania, Dibër prov., env. Boboshticë, 19.vii.2018. G, Albania, Dibër prov., env. Gjergjevicë, 20.vii.2023. H, Greece, Thessaloniki, env. Granito 14.vii.2016. All specimens: leg. & coll. and © L. Parmentier.

3. Habitus kenmerken mannetjes en vrouwtjes (morphometrisch)

B. Morphometric analysis of male wing traits

	Samples (N)	Trait 0	Trait 1	Trait 2	Trait 3	Trait 4	ratio Tr.1	ratio Tr.2	ratio Tr.3	ratio Tr.4
<i>P. misjai</i> (av)	9	28.665	5.222	2.013	5.666	3.087	0,182	0.071	0.198	0.108
<i>P. tisiphone</i> (av)	10	30.128	7.158	3.334	7.829	2.185	0,238	0.111	0.26	0.073
stdev (<i>misjai</i>)		1.544	0.393	0.418	0.327	0.24	0,013	0.018	0.018	0.007
stdev (<i>tisiphone</i>)		1.142	0.517	0.491	0.513	0.262	0,015	0.018	0.013	0.008
t. test, P value <i>misjai</i> - <i>this</i> .		0.041	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	0.0002	< 0.001	< 0.001

C. Morphometric analysis of female wing traits

	Samples (N)	Trait 0	Trait 1	Trait 2	Trait 3	Trait 4	ratio Tr.1	ratio Tr.2	ratio Tr.3	ratio Tr.4
<i>P. misjai</i> (av)	9	30.45	1.337	9.29	4.56	6.358	0.044	0.305	0.15	0.209
<i>P. tisiphone</i> (av)	10	30.56	3.74	9.238	3.041	3.205	0.122	0.302	0.1	0.105
<i>P. orestes</i> (av)	4	32.42	0.712	9.772	5.046	9.223	0.022	0.302	0.156	0.284
stdev (<i>misjai</i>)		1.135	0.147	0.398	0.399	0.77	0.006	0.011	0.011	0.022
stdev (<i>tisiphone</i>)		0.86	0.924	0.68	0.794	1.265	0.029	0.02	0.026	0.042
stdev (<i>orestes</i>)		0.649	0.265	0.249	0.116	0.842	0.008	0.01	0.002	0.024
t. test, P value <i>misjai</i> - <i>this</i> .		0.821	< 0.001	0.834	< 0.001	< 0.001	< 0.001	0.678	< 0.001	< 0.001
t. test, P value <i>misjai</i> - <i>orest</i> .		0.004	0.012	0.03	0.011	0.002	0.005	0.576	0.193	0.002
t. test, P value <i>this</i> - <i>orest</i> .		0.003	< 0.001	0.038	< 0.001	< 0.001	< 0.001	0.925	< 0.001	< 0.001

3. Habitus kenmerken mannetjes en vrouwtjes (morphometrisch)

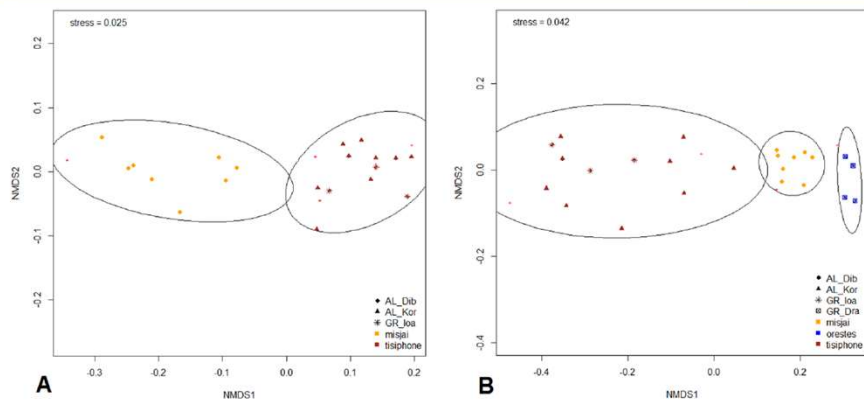


Fig 6. NMDS plots based on morphometrics of all wing traits (see text for details), visualized per sexe. A, males, B, females; Colours represent different species; symbols represent different regions where the samples were taken: AL_Dib = Albania, Dibër prov.; AL_Kor = Albania, Korçë prov.; GR_Ioa = Greece, Ioannina distr.; GR_Dra = Greece, Drama distr.

Conclusie 3:
Morphometrische metingen
(vleugelkenmerken M & F) significant
verschillend tussen de twee populaties

4. Biotoop en reproductieve isolatie

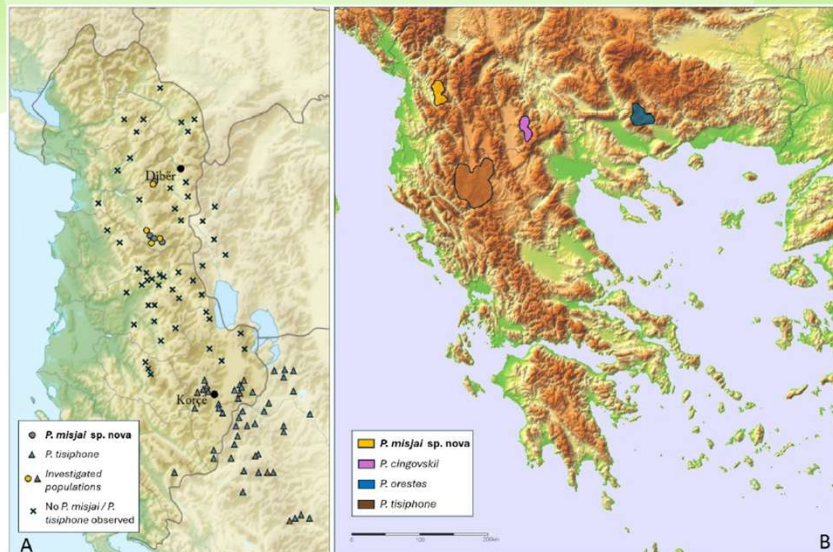
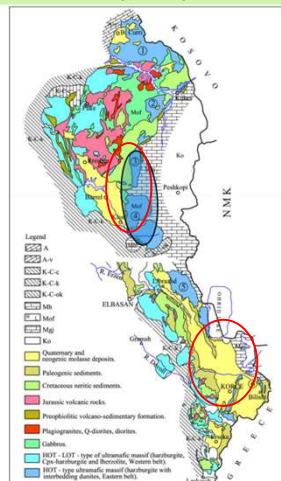


Fig. 2. A. Map with *Pseudochazara* observations in the western Balkans: Albania and bordering countries of Greece and North Macedonia. Localities of *P. tisiphone* and *P. misjai* sp. nov. are indicated, as well as localities with zero-observations, based on literature records and new unpublished observations during the 2015–2023 expeditions. Voucher specimens of investigated populations in this study are indicated with coloured symbols. B. Overview map of the central-western Balkans with an indication of the distribution of the new taxon and the closely related taxa *P. cingovskii*, *P. orestes* and *P. tisiphone*.

4. Biogeografisch – Reproductieve isolatie?

Vergelijken van biotoop vindplaatsen *P. lurae* vs. *P. orphicus*



Legend:

A: Albanian Alps; K-C: Krasta-Cukali zone; M: Mirdita zone; Mof: Mirdita ophiolites; Ko: Korabi zone
 Ultramafic massifs, eastern ophiolitic belt: 1: Tropoja-Has, 2: Kukesi, 3: Lura, 4: Bulqiza, 5: Shebeni
 Pogradeci, 6: Bitincka.

○ : distribution of *P. misjai* sp. nova in the Eastern ophiolitic belt of the Mirdita zone, massifs ne Lurë and Bulqizë

Conclusie 4:
 Reproductieve isolatie ifv.
 afstand en biotoop
 (verschillen in bodemtypes,
 klimatologische
 omstandigheden,
 oorsprong)

Vergelijking *P. misjai* sp. nov versus *P. tisiphone* in hun biotoop



Fig. 3. Habitats and specimens from *Pseudochazara* populations within the 'hippolyte' clade found in the eastern belt (A–D) and western belt (E–F) of the ophiolitic Mirdita zone in the Inner Albanides, Albania. **A.** Biotope near Bulqizë, Dibër prov.; note heavy mining works still active in these biotopes; **B.** ♀ nectaring in its biotope, Krastë, 19.vii.2017; **C.** Biotope near Krastë, Dibër prov.; **D.** ♂, Krastë, 18.vii.2017; **E.** ♀ *P. tisiphone* in its biotope near Gjerjevicë, Korçë prov., 17.vii.2022; **F.** Typical biotope near Gjerjevicë. © L. Parmentier.

Conclusie 1-4.

Op basis van verschillende analyses (DNA-barcoding, androconiën + habitus –morfometrisch, gescheiden verspreiding en andere biotoopkenmerken) + literatuur analyses samen met actuele erkenning van gekende zustersoorten

Conclusie = best te beschrijven als nieuwe (cryptische) soort in het genus *Pseudochazara* ('hippolyte' subgroep)

=> *Pseudochazara misjai* Parmentier (2025) **sp. nova**

Publicatie naam *P. misjai*: **18.xi.2024**, online op Genbank (open source reference database) op **07.i.2025**

The screenshot shows the NIH National Library of Medicine Submission Portal. The main heading is 'Submission Portal'. Below it, there's a 'Your submissions' section with a 'Start a new submission' button and a list of submission types: GenBank, Sequence Read Archive, Genome, TSA, BioProject, BioSample, Supplementary Files, and API. A table lists one submission: SUB14839155, titled 'Mezozoa Mitochondrial COX1 / Balkan Pseudochazara'. The submission status is 'GenBank: Processed' with a date of 'Nov 18'. A table of accession numbers is shown, with a red circle highlighting the date '07/01/2025'.

2025: Artikel Parmentier & Qirinxhi gepubliceerd in Phegea 53(1)

The screenshot shows the Phegea 53 - 2025 newsletter page. The page contains several articles, including 'An extremely melanistic form of Melanargia galathea', 'Cyclodinus constrictus', 'A new subspecies of Carabus (Morphocarabus) schneideri', and 'Unexpected cryptic diversity revealed through integrative analysis within isolated populations of the Graylings (Lepidoptera: Nymphalidae: Satyrinae) in the Western Balkans'. The date '16.1.2025' is circled in red.

2025: Artikel ingediend op **7.vii.2024**, geaccepteerd voor publicatie op **15.xi.2024**, online op **16.1.2025**

Chronologisch overzicht: verder er volg

- 2015-2016** Eerste verkennende expedities midden Albanie olv. L. Parmentier
- 13.07.2017** Eerste **mannetje** ontdekt rond Bulquizë door Jorgen Couckuyt (VVE1)
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- 2023** Update verspreidingsatlas met opname nieuw populaties als "*P. tisiphone*"
- 2023-2024** Extra onderzoek (genetica, biotoop,...) populatie Bulquizë-Krasta + hyaten tussen Griekenland en Midden-Albanië door L. Parmentier
- 07.07.2024** Artikel Parmentier & Qirinxhi, ingediend voor publicatie in Phegea
- 15.11.2024** Publicatie artikel *P. misjai* **sp. nov.** geaccepteerd voor publicatie in Phegea
- 18.11.2024** Indienen nieuwe mtDNA barcodes en nieuwe taxon naam in genbank
- 07.01.2025** Publicatie online van nieuwe mtDNA barcodes en *P. misjai* **sp. nov.** in Genbank
- 16.1.2025** Publicatie artikel *P. misjai* **sp. nov.** online op Phegea website

Video: *P. misjai* **sp. nov.** in zijn biotoop...





Overview



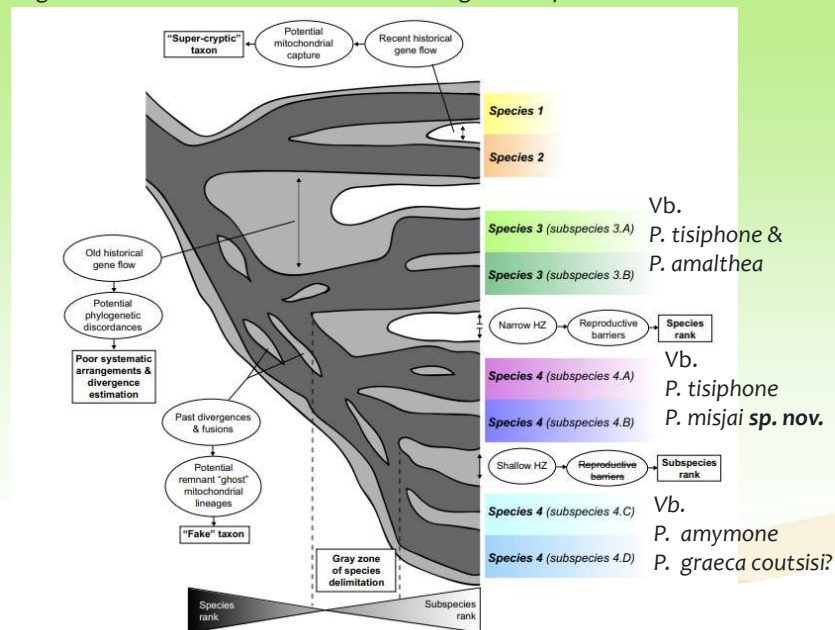
- ★ Intro
 - De eerste expedities
 - Centraal Albanië
- ★ Een nieuwe vondst binnen het genus *Pseudochazara*
- ★ De wetenschappelijke beschrijving
- ★ Kadering en nieuwe inzichten
- ★ Vervolg

Reflectie in PNAS artikel

Should All Lineages Be Species?

While evolutionary biologists tend to leave phylogeographic lineages unnamed, taxonomists tend to oversplit them into multiple species (20, 21). In principle, the scientific community largely agrees that species correspond to diverging populations that eventually become biologically isolated (the endpoint of speciation) (22). However, disagreements remain around how to delimit them in practice, i.e., whether to put the emphasis on divergence and evolutionary independence (the lineage species concept, ref. 23), or the process that leads to it, i.e., reproductive isolation (the biological species concept, ref. 24). Diagnosability, i.e., setting up applicable criteria of identification and delimitation, is central to the practice of taxonomy, and because reproductive isolation is hard to assess, most candidate species are preferentially characterized based on their molecular or phenotypic divergence, combining genetic, morphological, behavioral, and ecological evidence (e.g., integrative taxonomy, ref. 25). The overreliance on molecular analyses to define species has progressively led to consider any diagnosable phylogeographic lineage as a "species under construction", and by extension, to their recognition as species (26). This shift of paradigm now reaches its climax, with the species rank being frequently claimed to be the only relevant terminal rank in alpha-taxonomy (27).

Kadering: evolutie soorten + ondersoorten + lineages: veel plastischer



Kadering: evolutie soorten + ondersoorten: multi-gene analysis

Molecular Phylogenetics, Phylogenomics, and Phylogeography

Colonization, diversification and speciation of the genus *Hipparchia* (Lepidoptera: Nymphalidae) in the Canary Islands

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²Facultad de Biología, Universidad de Barcelona, Gran Via de les Corts Catalanes 585, Barcelona, 08007, Spain

³Museo Nacional de Ciencias Naturales (MNCN – CSIC), José Gutiérrez Abascal 2, Madrid, 28006, Spain

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⁵The Israeli Lepidopterist Society, Beit Arye, 7194700, Israel

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[†]Equal contribution.

Subject Editor: Marko Mutanen

The Canary Islands harbor numerous endemic species, showcasing a wide array of colonization and diversification patterns. Butterflies belonging to the genus *Hipparchia* inhabit 5 of the 7 major islands in the archipelago, but their origin, colonization history, and taxonomic status are uncertain. In this study we contribute a molecular dataset representing the species of these butterflies on the 5 islands and all the related mainland taxa and provide insights on these questions. Our analysis points to an initial colonization of the Canary Islands circa 5.4 Mya, followed by a rapid expansion to the high-altitude islands then present or as soon as they emerged. The old age of the Canarian taxa and their position within the subgenus *Pseudotergumia* challenge previous hypotheses based on morphological characteristics or geographical proximity. Furthermore, our study underscores the pivotal role of founder-event speciation in driving the divergence of this taxon within the island complex. Finally, we show that each island harbors a unique and remarkably differentiated evolutionary lineage, without any hint of admixture. We conclude that these populations should be recognized as distinct species, endemic to each of the islands. Considering their notably limited ranges, this study amplifies the significance of each population in the context of forthcoming conservation efforts.

Keywords: biogeography, conservation, founder event, management unit, species tree

Publicatie synonymisatie in Phegea, op 1.6.2025

Recently, a new species belonging to the genus *Pseudochazara* found in central Albania was published in this Journal (Phegea 53-1), *Pseudochazara misjai* Parmentier, 2025 in Parmentier & Qirinxhi (2025). Newly obtained **COI sequences of the new taxon with the direct reference to the holotype were submitted to Genbank – an open source DNA database** (<https://www.ncbi.nlm.nih.gov/genbank/>) together with the taxon name of the new species (ID: 3381441) on **18.xi.2024**, and **published online by NCBI on 07.i.2025** (Fig. 1) (NCBI 2025). The description and presentation of the new species used an integrative approach, combining a phylogenetic analysis and morphometric analysis of wing patterns and biometric assessment of androconial scales. **This article was submitted on 7.vii.2024 and accepted for publication on 15.xi.2024** (pers. comm. by mail, J. De Prins, editor-in-chief of *Phegea*). The article's abstract containing the new species name was **published online on the Phegea website (16.i.2025**, Fig. 2), and the full article was published in the first issue of the year (January-February-March issue published and released open source at **01.iii.2025**) and in Zoobank (Zoobank 2025). However, during the establishment of the species' publication, and after its online publication, **a new online journal was created by S. Cuvelier and M. Taymans, called "Archives of the Western Palearctic Lepidoptera (AWPL, 2025)", with the release date 20.i.2025** (last modifications reported by the ISSN website on **11.ii.2025**; ISSN 2025). Just a few days later, a first issue was published that contained only two articles, of which **one taxonomic article** handling the same population and which was then named *P. tisiphone dibra* Cuvelier & Marafi, 2025, **published online on 26.i.2025**. Here, the first author is both EiC and first author. Based on, and in **violence against different elements in the International Code of Zoological Nomenclature**, hereafter named 'the Code' (ICZN 2012), we state that the taxon *P. tisiphone dibra* **should be regarded as a subjective synonym of *Pseudochazara misjai* Parmentier, 2025.**

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- 16.1.2025** Publicatie artikel en nieuwe naam *P. misjai* **sp. nov** online op Phegea website
- 20.1.2025** Oprichting nieuw online tijdschrift "AWPL" door S. Cuvelier & M. Taymans
- 26.i.2025** Publicatie nieuw taxon *P. tisiphone dibra* door Cuvelier & Marafi in "AWPL"
- 1.03.2025** Publicatie gedrukte versie artikel Phegea 53(1)
- 29.5.2025** Publicatie synonymisatie artikel Cuvelier & Marafi in "AWPL"
- 01.6.2025** Publicatie synonymisatie *P. tisiphone dibra* aan *P. misjai* **sp. nov** in Phegea 53(2)

Conclusie

Pseudochazara misjai Parmentier (2025)

=> Vergelijk specimen in box:



Thanks to...



Compagnons de route in Albanië en Balkan expedities

Delphine
Thomas

Wetenschappelijk ondersteuning, vergunningen

Anila Paparisto (UTirana, vergunningen)

Anonieme reviewers

Enilda, Xhulia en studenten Universiteit Tiranë - Korçë

Verder lezen? Online info artikel:

https://www.researchgate.net/publication/392082866_Unexpected_cryptic_diversity_revealed_through_integrative_analysis_within_isolated_populations_of_the_Graylings_Lepidoptera_Nymphalidae_Satyrinae_in_the_Western_Balkans

http://www.phegea.org/Phegea/Phegea53_2025.htm

http://www.phegea.org/Phegea/2025/Phegea53-2_93-96.pdf



Thanks you!!



Questions?