

Expansive und regressive Tagfalterarten in Rumänien

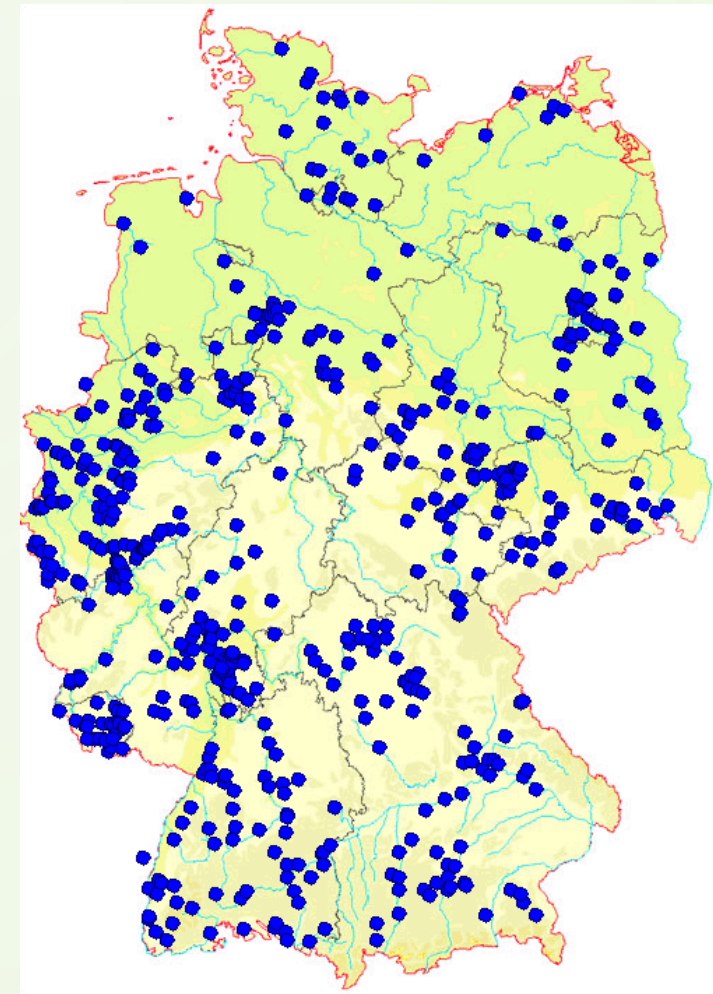
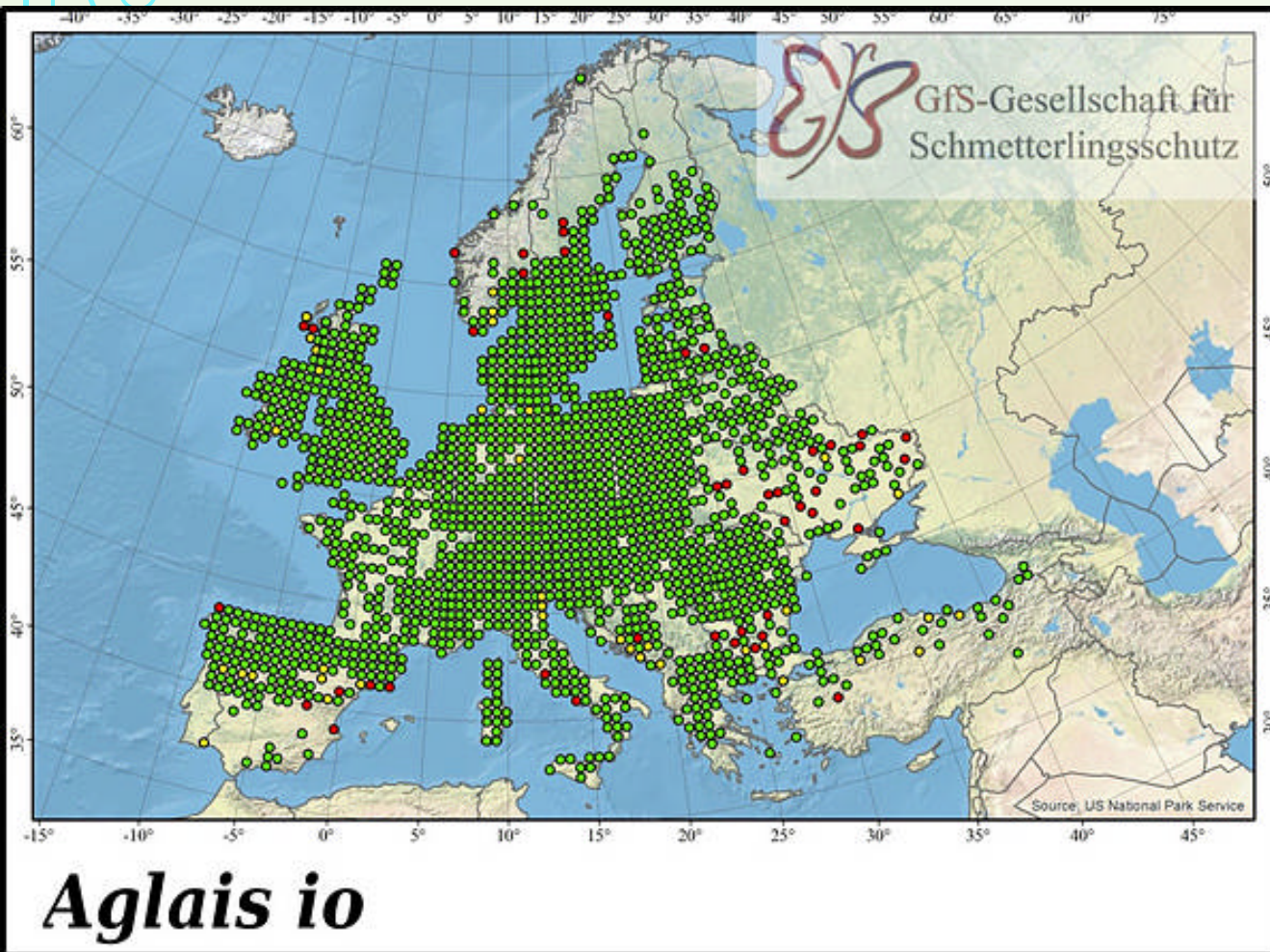
László Rákosy

Universität Babeș-Bolyai, Cluj, Rumänien
Romanian Lepidopterological Society

**Symposium für Schmetterlingsschutz und 26. UFZ–Workshop zur Populationsbiologie von
Tagfaltern & Widderchen**

UFZ (Leipziger KUBUS), 07. – 09. März 2024

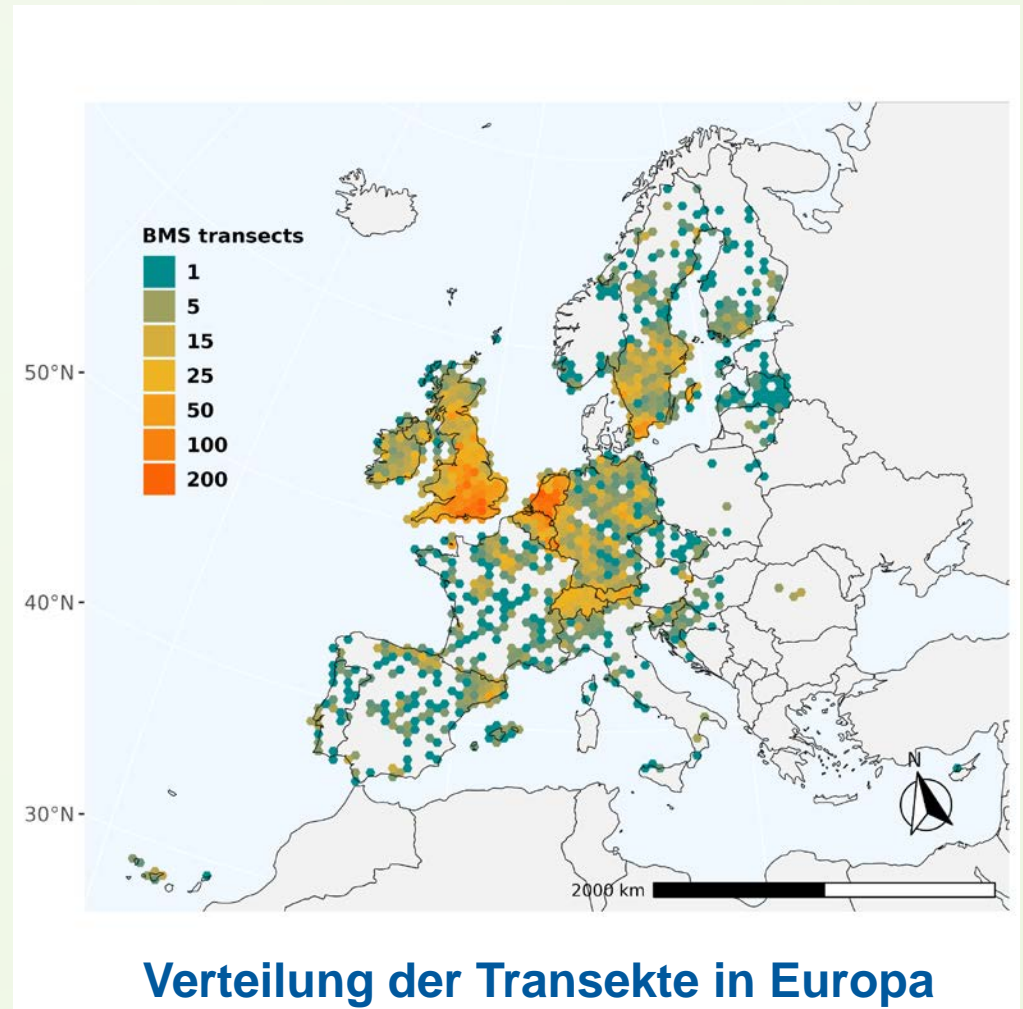
METHODIK: Anders als üblich



Verteilung der Transekte



>2000 Transecte in 2020



Verteilung der Transekte in Europa



United Kingdom
Butterfly Monitoring Scheme



METHODIK

- Sammlungen und Verzeichnisse von Sammlungen nach 1935
- Literatur
- Mündliche Informationen von Entomologen und Sammlern, die bis 1965-1975 aktiv waren
- Mündliche Auskünfte von Entomologen und Sammlern, die nach 1975 tätig waren/sind
- Feldaufzeichnungen von Schmetterlingssammlern
- Persönliche Notizbücher mit Feldaufzeichnungen
- Persönliche Felderfahrung und Wissen aus den letzten 50+ Jahren
- Keine Statistik
- Keine Modellierung

Lista ROȘIE a fluturilor din România Romanian RED List of Lepidoptera



Editor: László Rákósy

Presa Universitară Clujeană



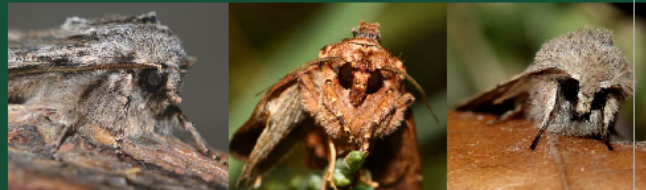
László Rákósy (1936) este profesor al Facultății de Biologie și Geologie, Universitatea Babeș-Bolyai din Cluj. Din copilărie a îndrăgii natura și mai ales fluturii cu care și studiază de peste 50 de ani. A publicat peste 250 de articole și numeroase cărți de specialitate. Pe lângă taxonomia, ecologia, biogeografia fluturilor a a implicat în protecția și conservarea naturii, contribuind la înființarea unor importante arii naturale protejate. Este președintele Societății Lepidopterologice Române de la constituirea (1990) până în prezent.

László Rákósy is professor of the Faculty of Biology and Geology at Babeș-Bolyai University in Cluj. Since his childhood he has been interested in nature and mainly in butterflies and moths, which he has been observing and studying for 50 years. He has published over 250 scientific papers and numerous books. Besides the taxonomy, ecology and biogeography of butterflies, he has been energetically involved in the field of nature conservation, contributing to the designation of several nature reserves. Rákósy has been the president of the Romanian Lepidopterological Society since its foundation (1990) until today.



Marin Goia (1939) inginer electronic, pasionat colecționer și bun amator al faunei de lepidoptere din România. Deține o importantă colecție de lepidoptere și o bună de date referitoare la fluturii din împrejurimile Clujului. Membru fondator al Societății Lepidopterologice Române, coautor a primei ediții a Catalogului Lepidopterelor din România (2002) și la alte numeroase publicații de specialitate. Atât ca profesor, a fost evidentă numeroaselor schimbări taxonomice și fizionomice de la prima ediție a catalogului lepidopterelor din România până în prezent.

Marin Goia (1939) is an electronic engineer, an entomological collector and a good expert on the butterflies of Romania. He has an important collection and a valuable database, mainly on the butterflies of the Cluj area. He is a founding member of the Romanian Lepidopterological Society, author of the first edition of the Romanian Lepidoptera Checklist (2002) and of numerous other publications. Indeed and besides, he has kept an accurate record of the numerous taxonomic and phenetic changes that occurred after the publication of the Romanian Lepidoptera Checklist (2002).



Nimic cunoscută-ți îl poți proteja!
Only if we know them can we protect them!



Lepidopterele din România: lista sistematică și distribuție / The Lepidoptera of Romania: a Distributional Checklist - L. Rákósy, M. Goia

Lepidopterele din România: lista sistematică și distribuție

The Lepidoptera of Romania: a Distributional Checklist

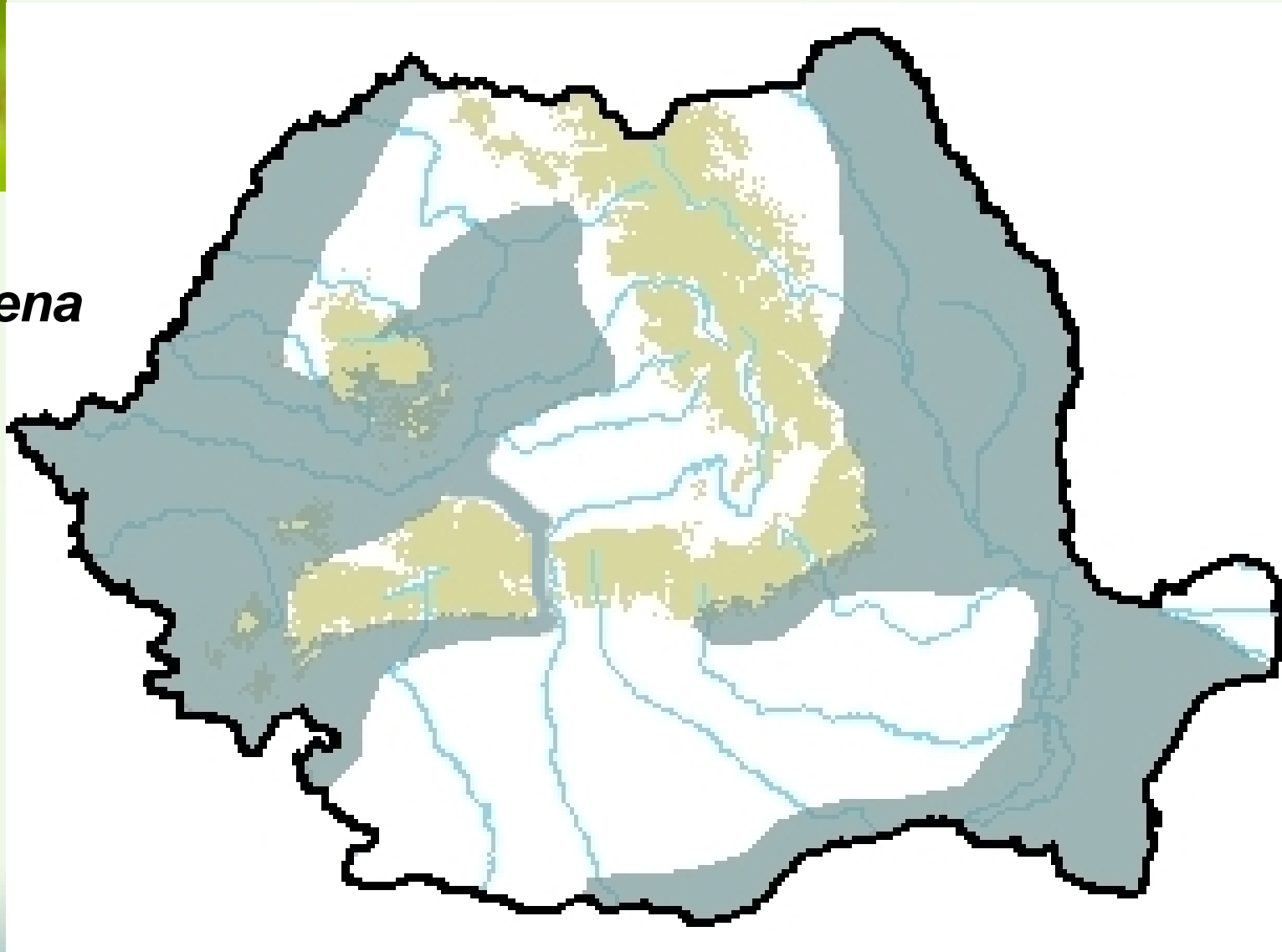


László Rákósy, Marin Goia

Presa Universitară Clujeană



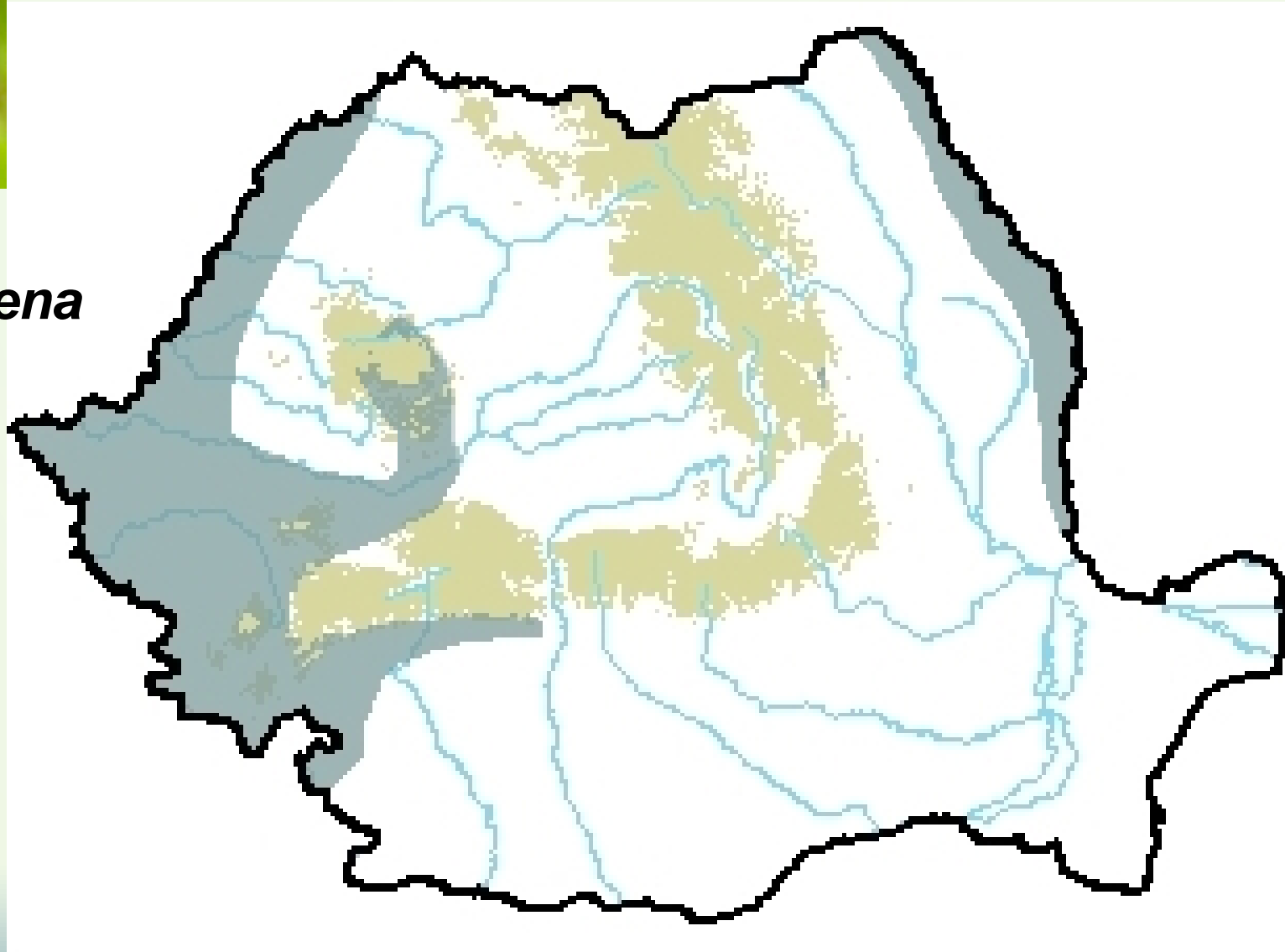
Zerynthia polyxena



< 1960



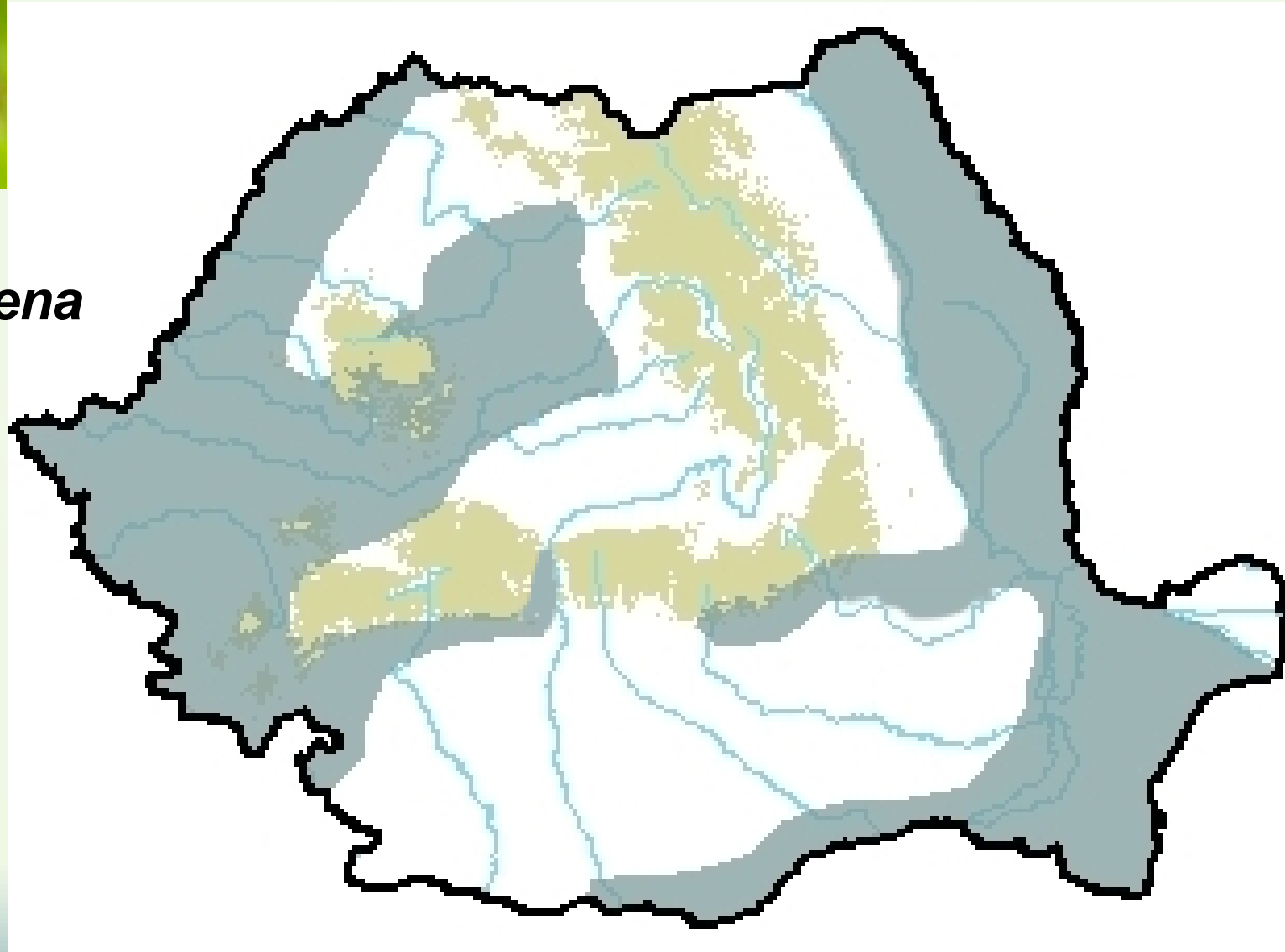
Zerynthia polyxena



1961-1990



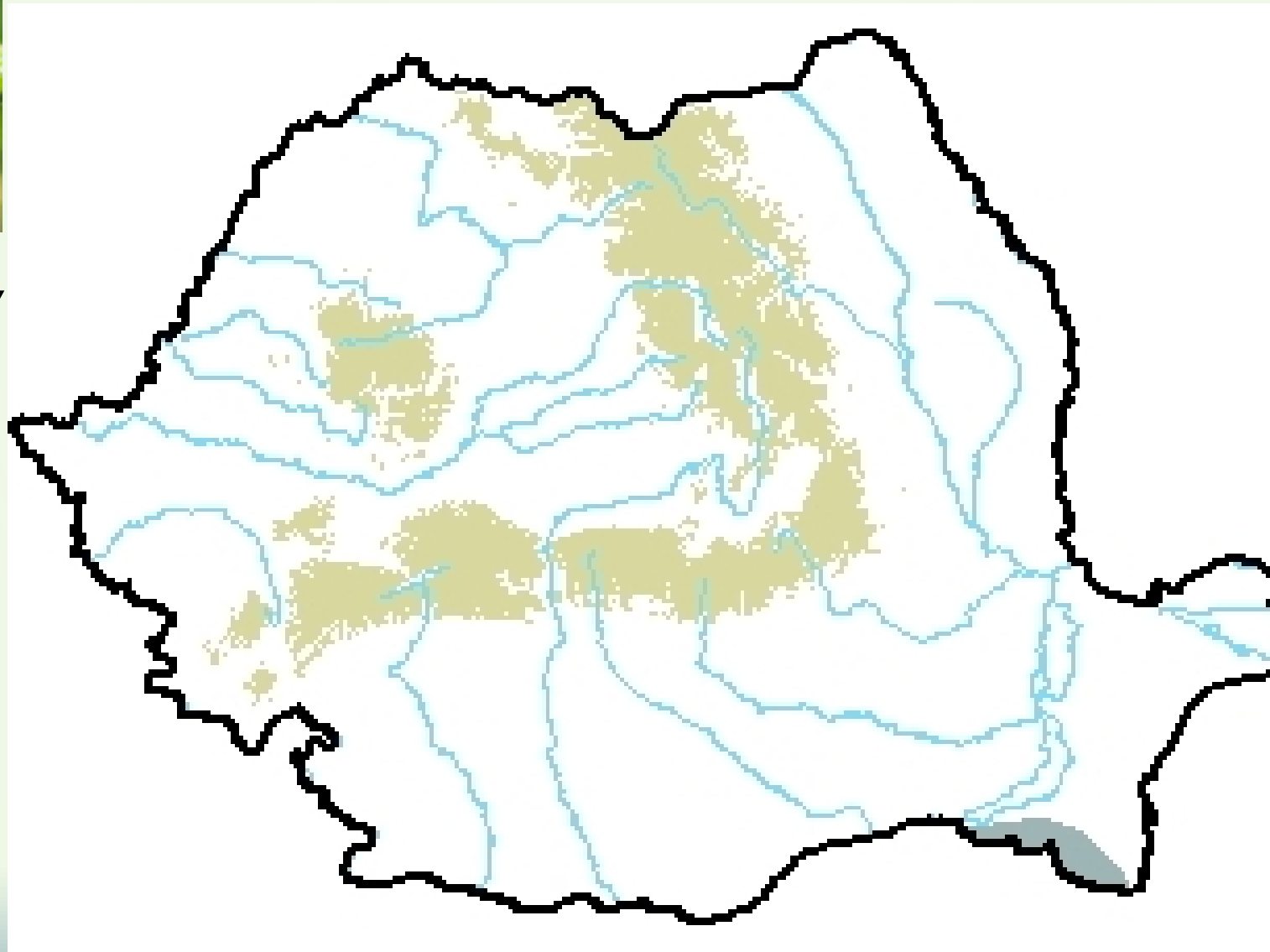
Zerynthia polyxena



1991-2023



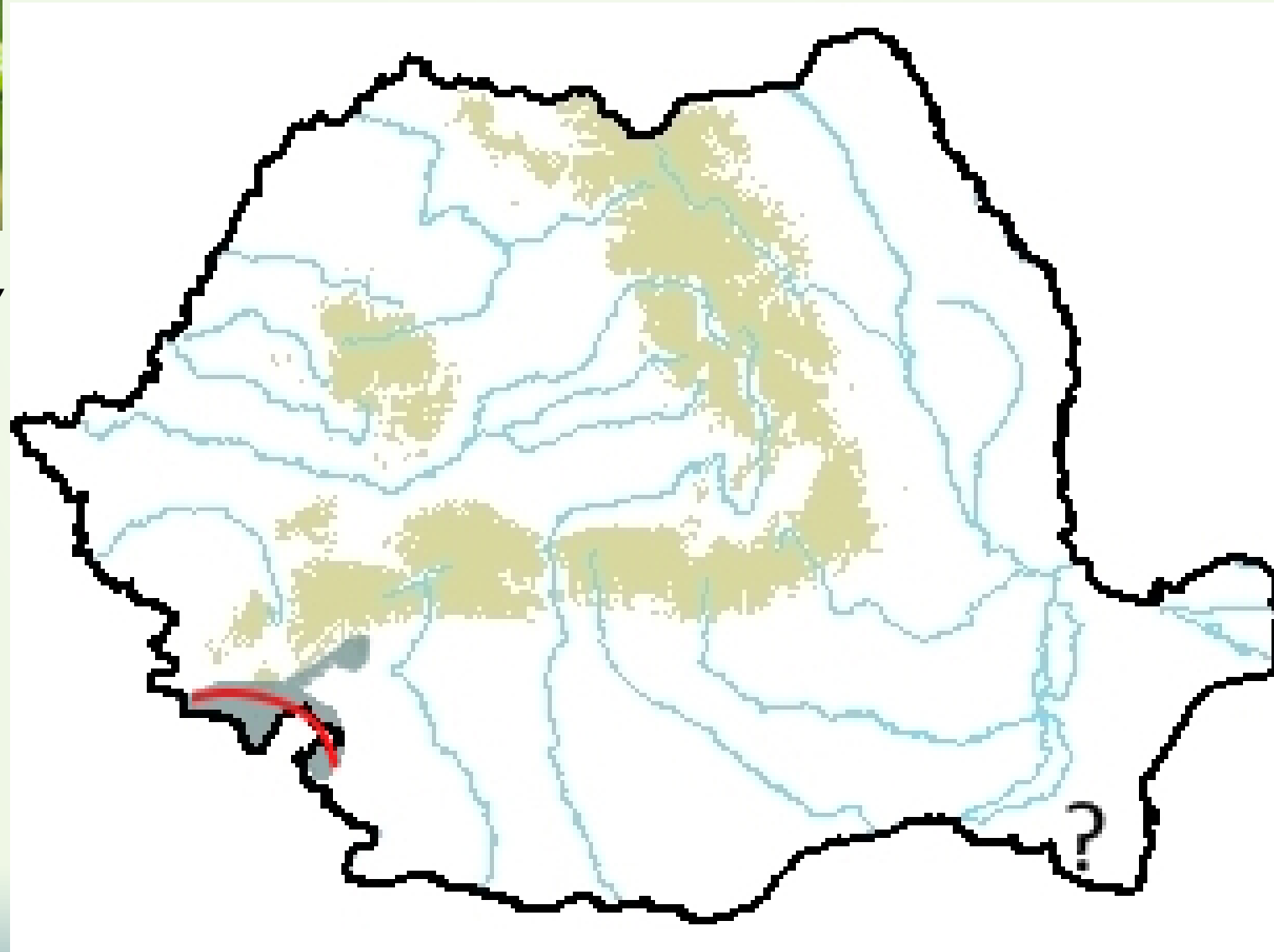
***Zerynthia cerisy
ferdinandi***



< 1980



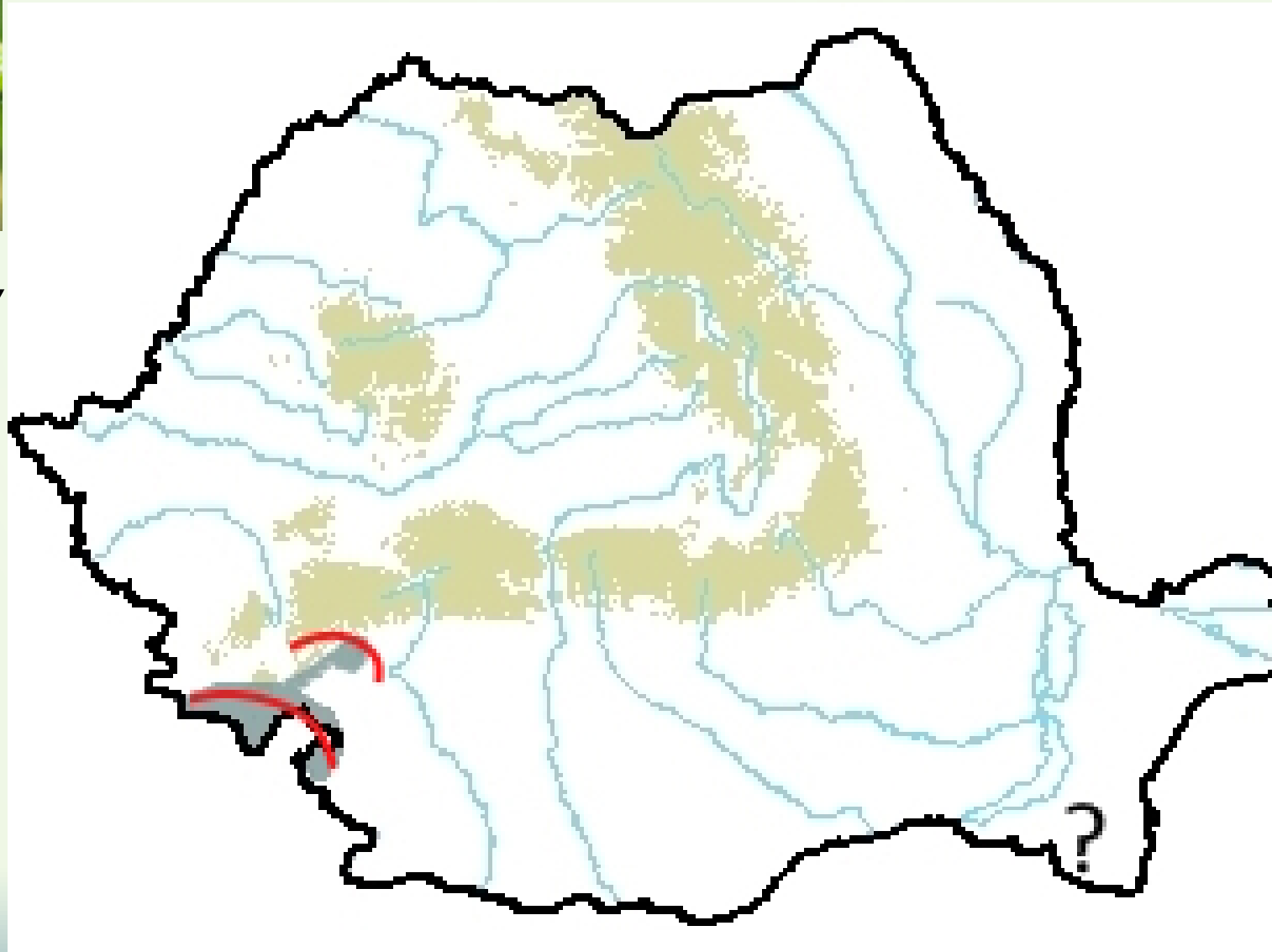
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2000-2010



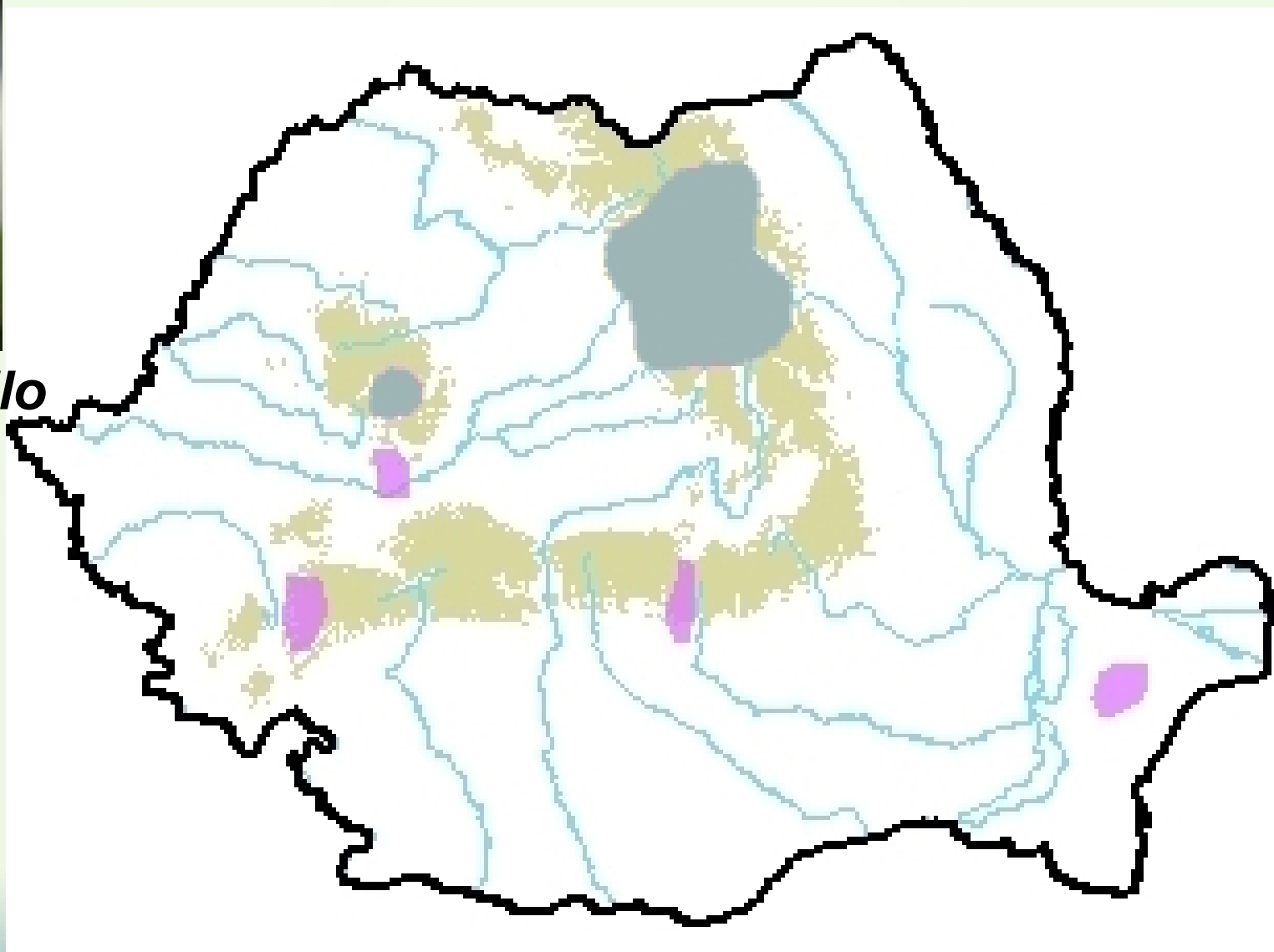
***Zerynthia cerisy
ferdinandi***



2011-2023



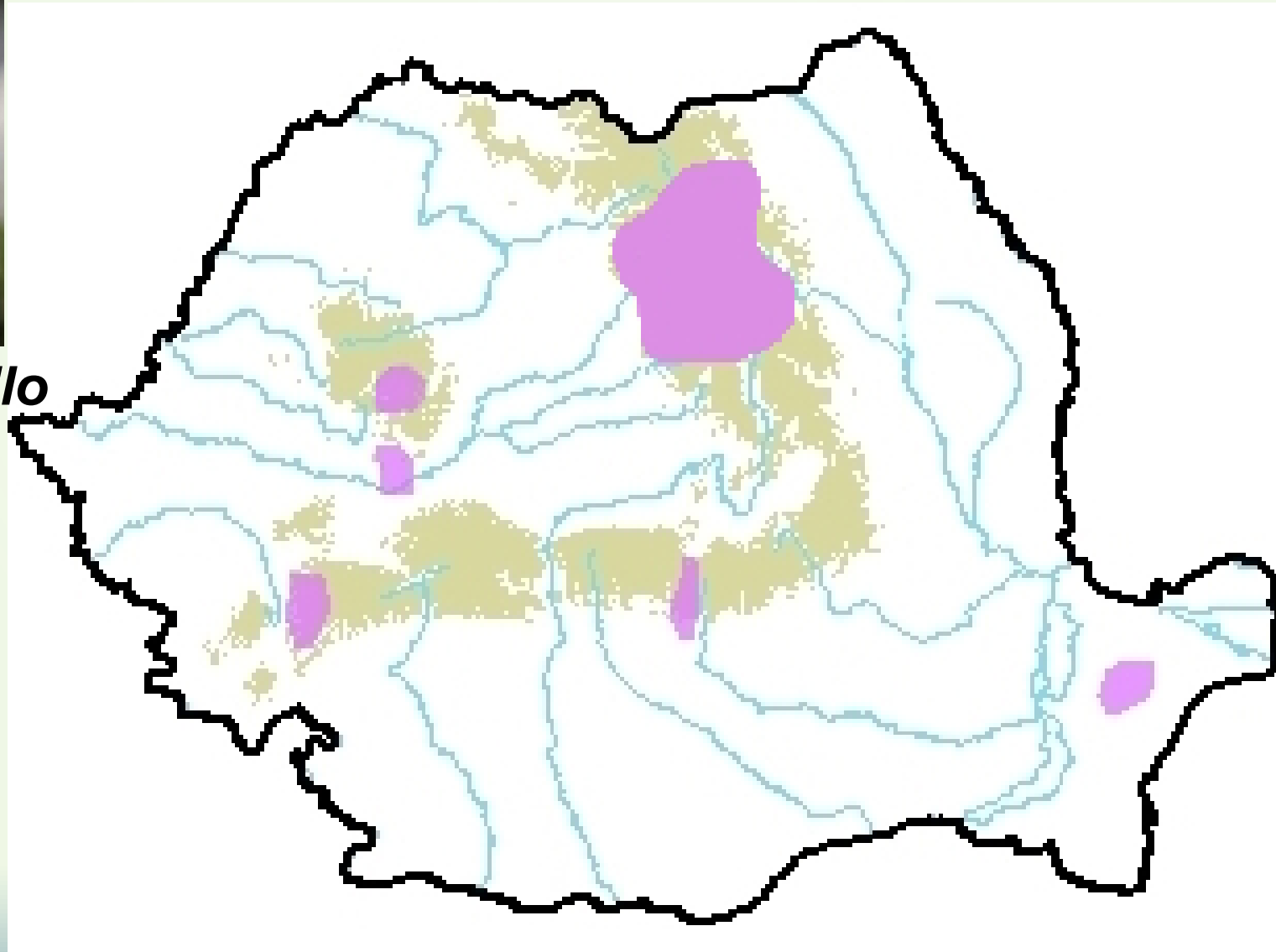
Parnassius apollo



< 1980



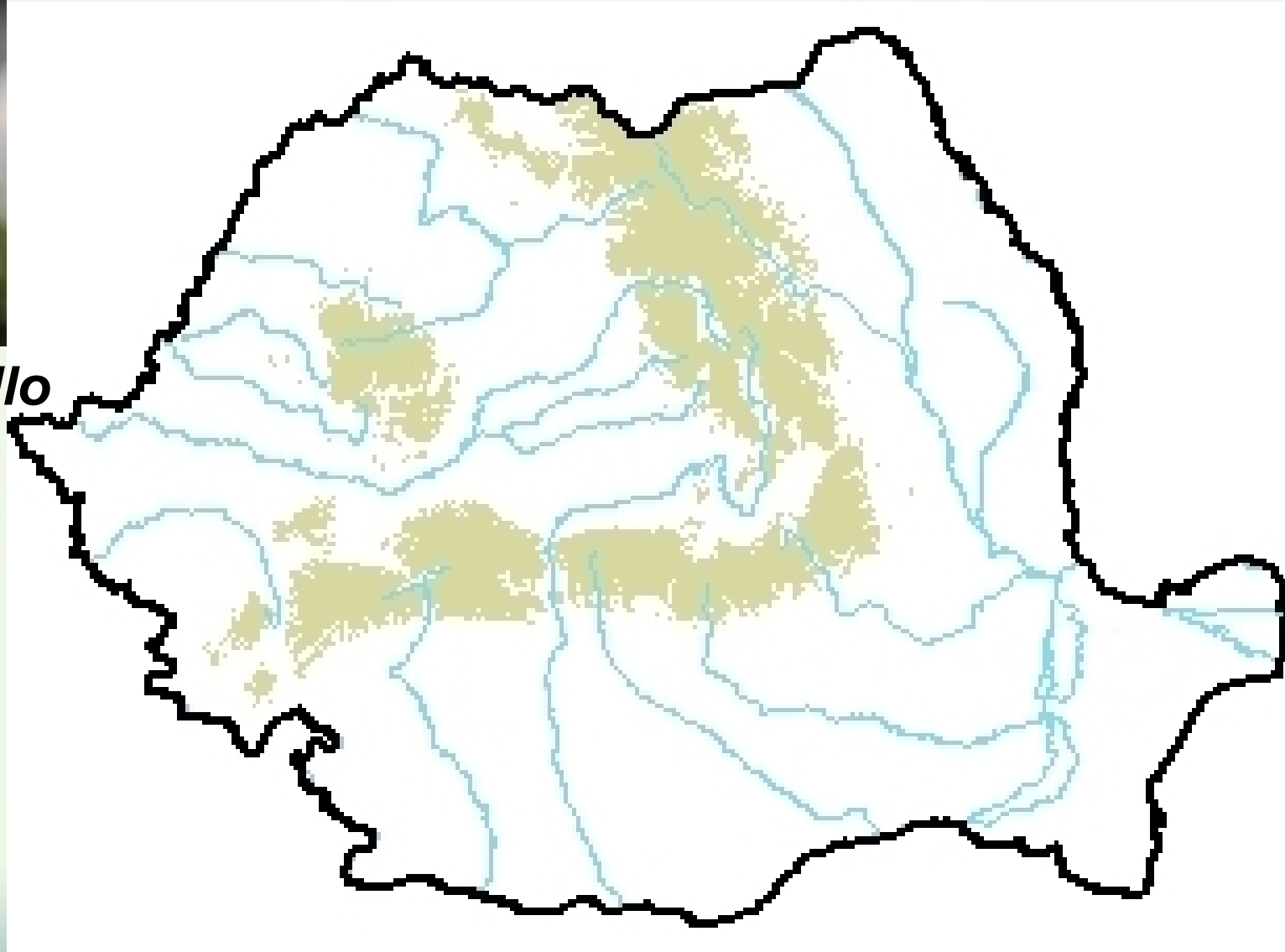
Parnassius apollo



1981-1991



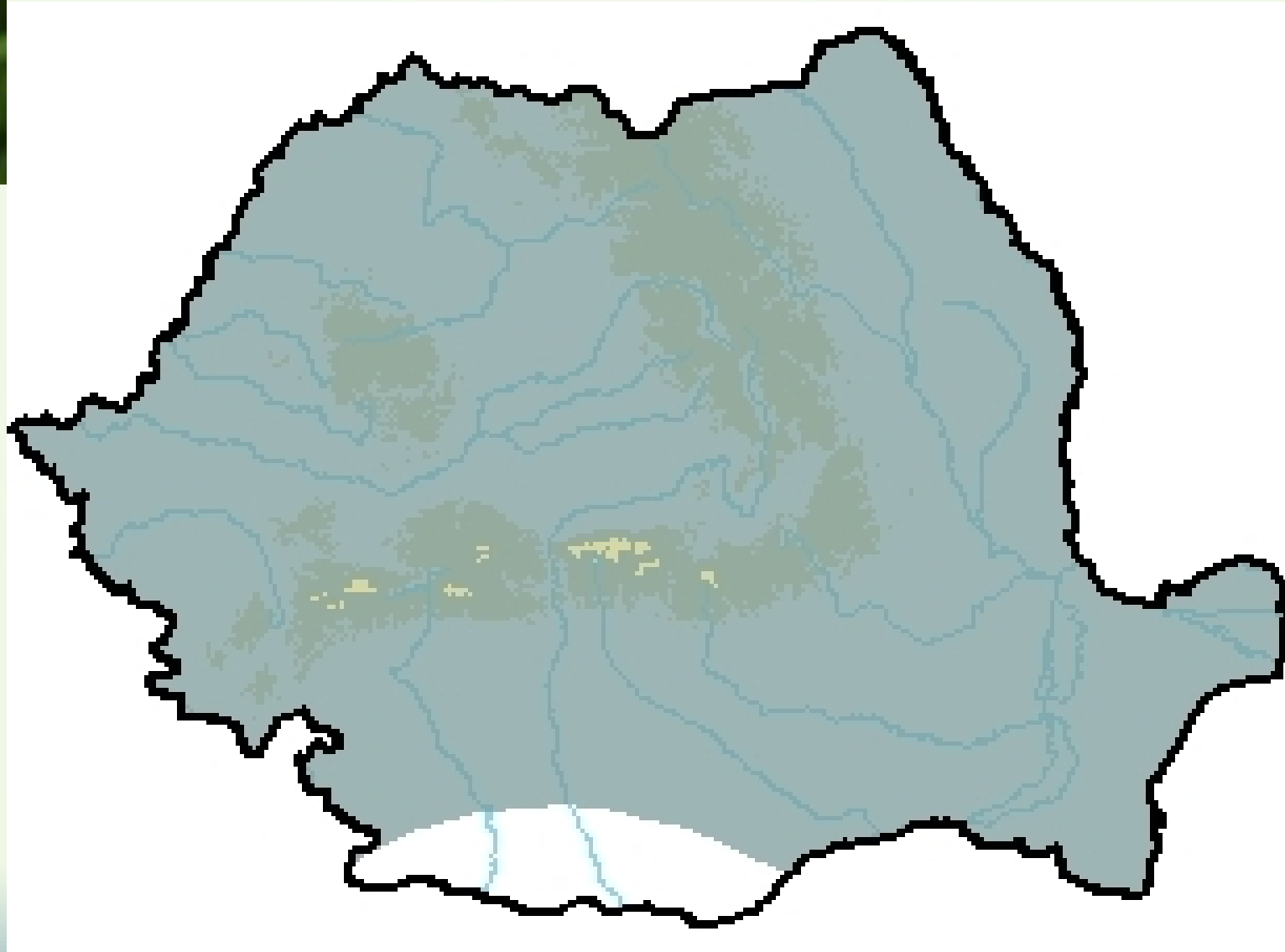
Parnassius apollo



>1991



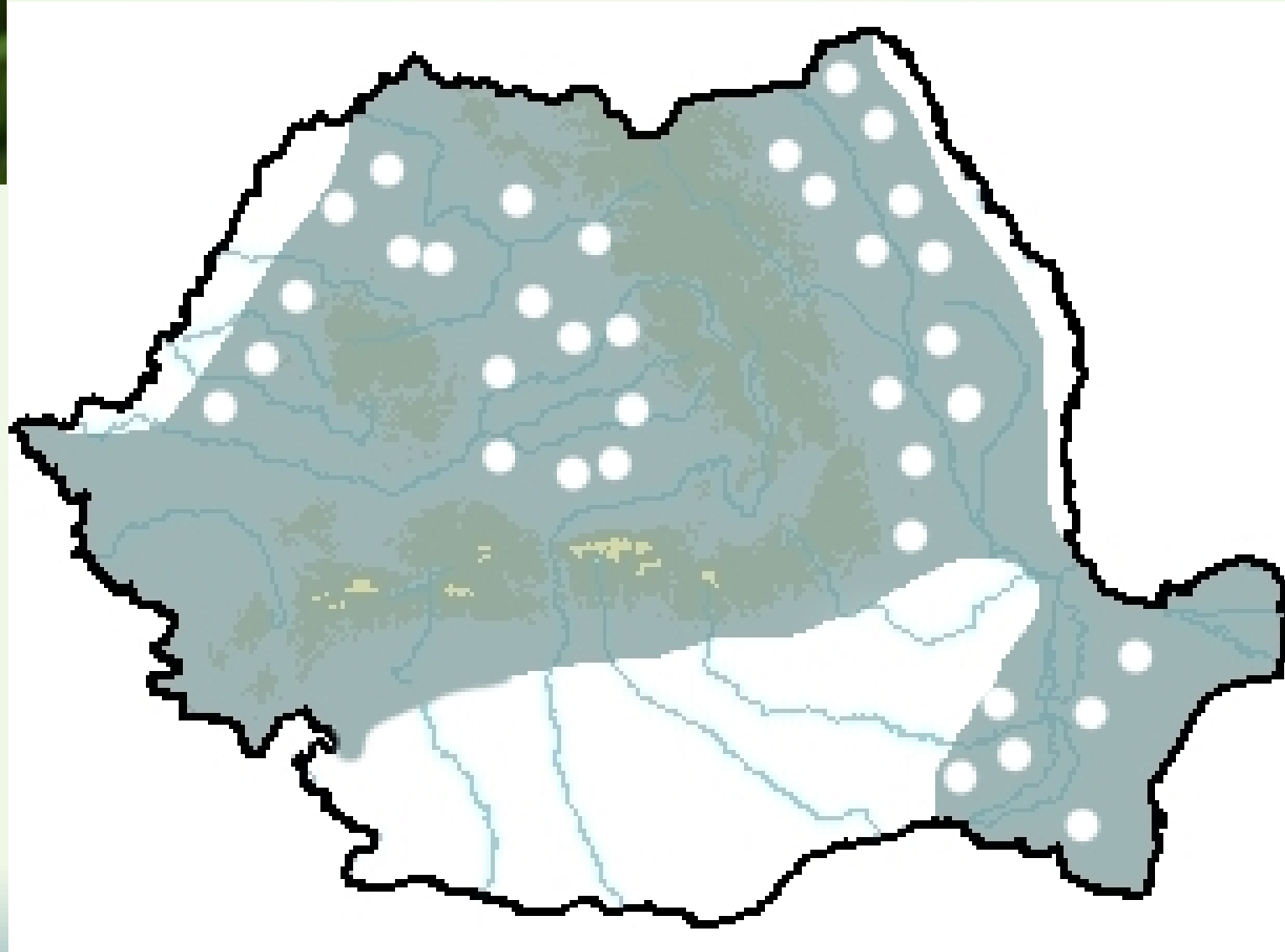
***Parnassius
mnemosyne***



< 1980



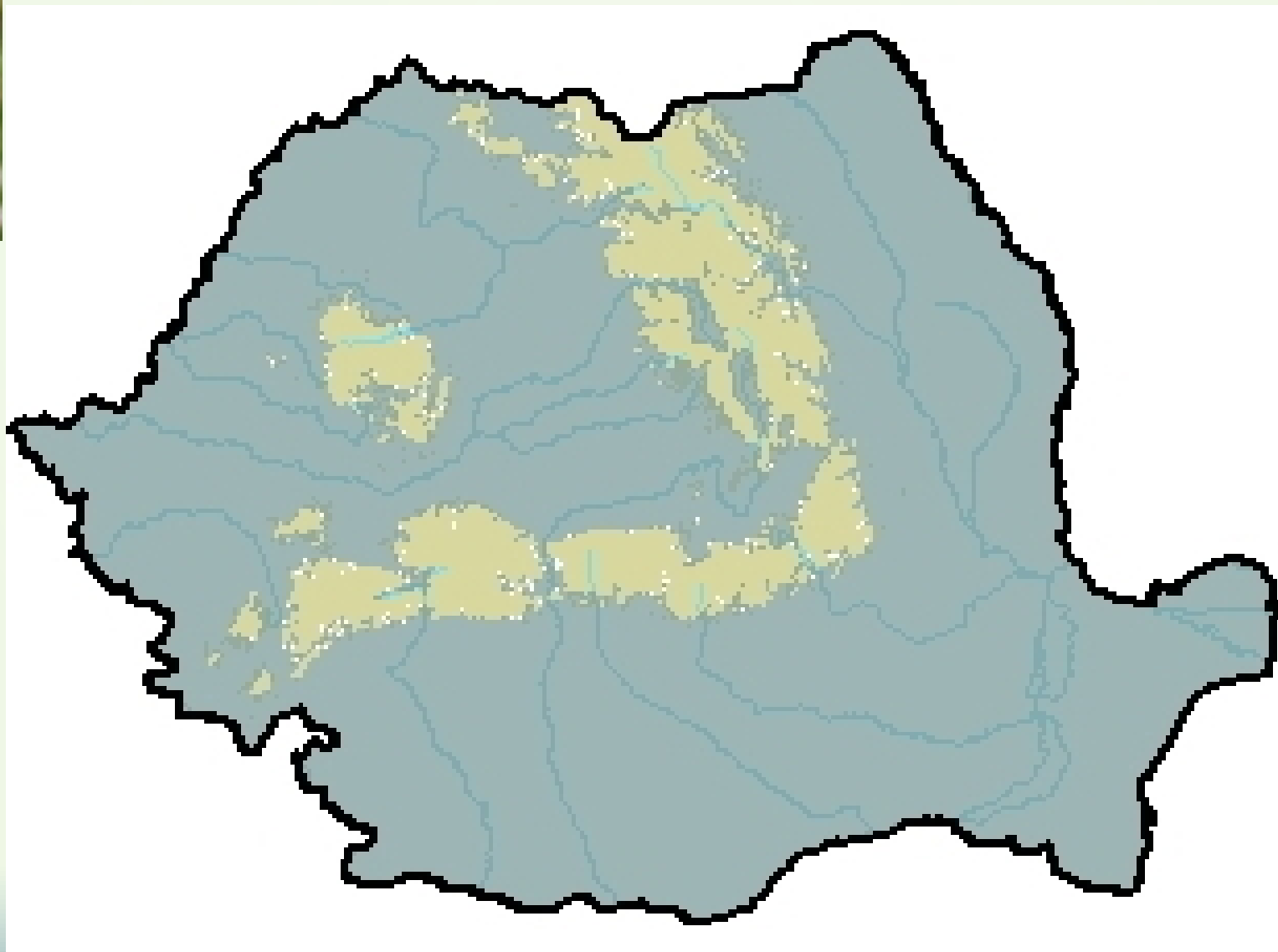
***Parnassius
mnemosyne***



1985-2023



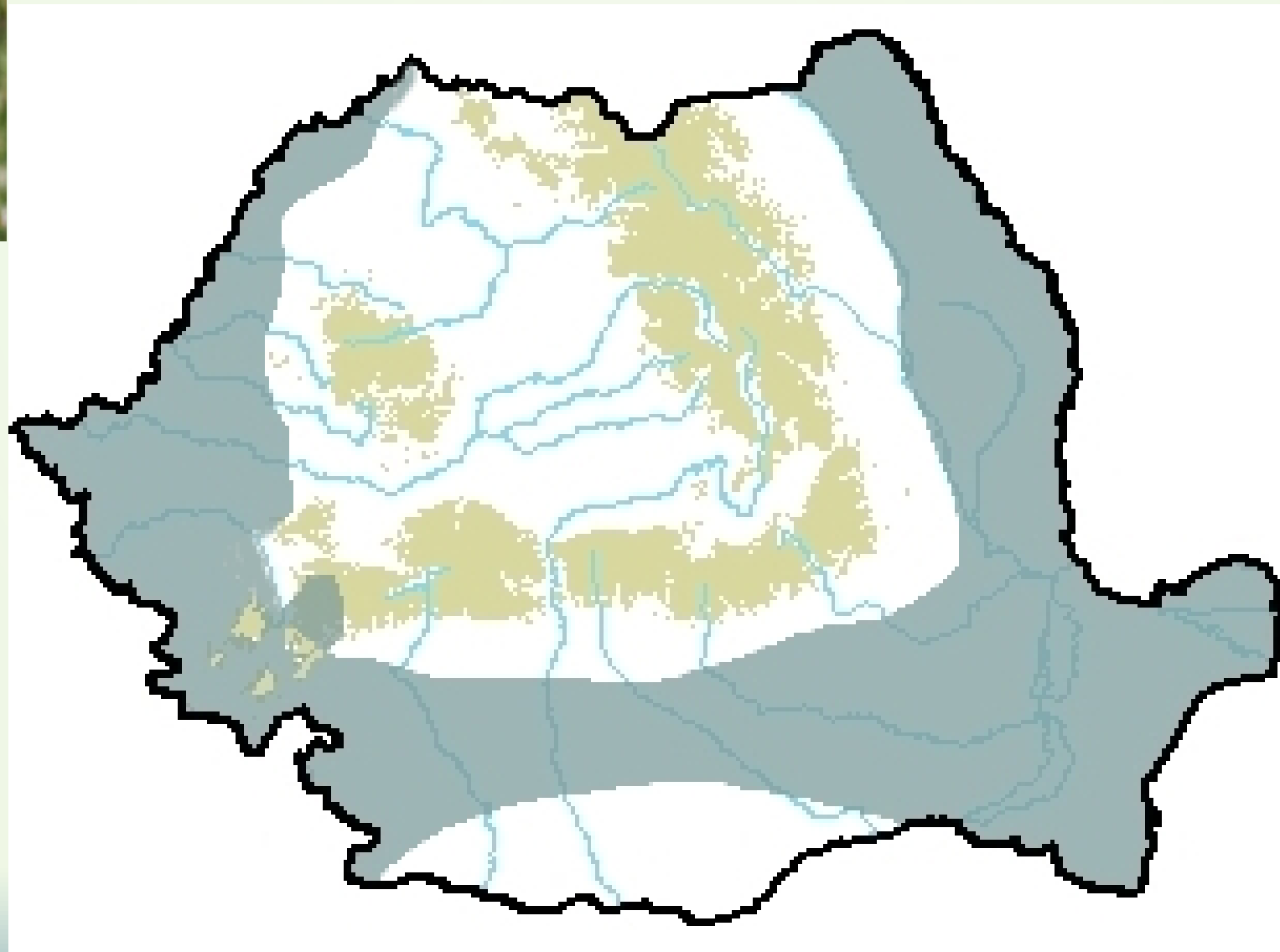
Aporia crataegi



< 1960



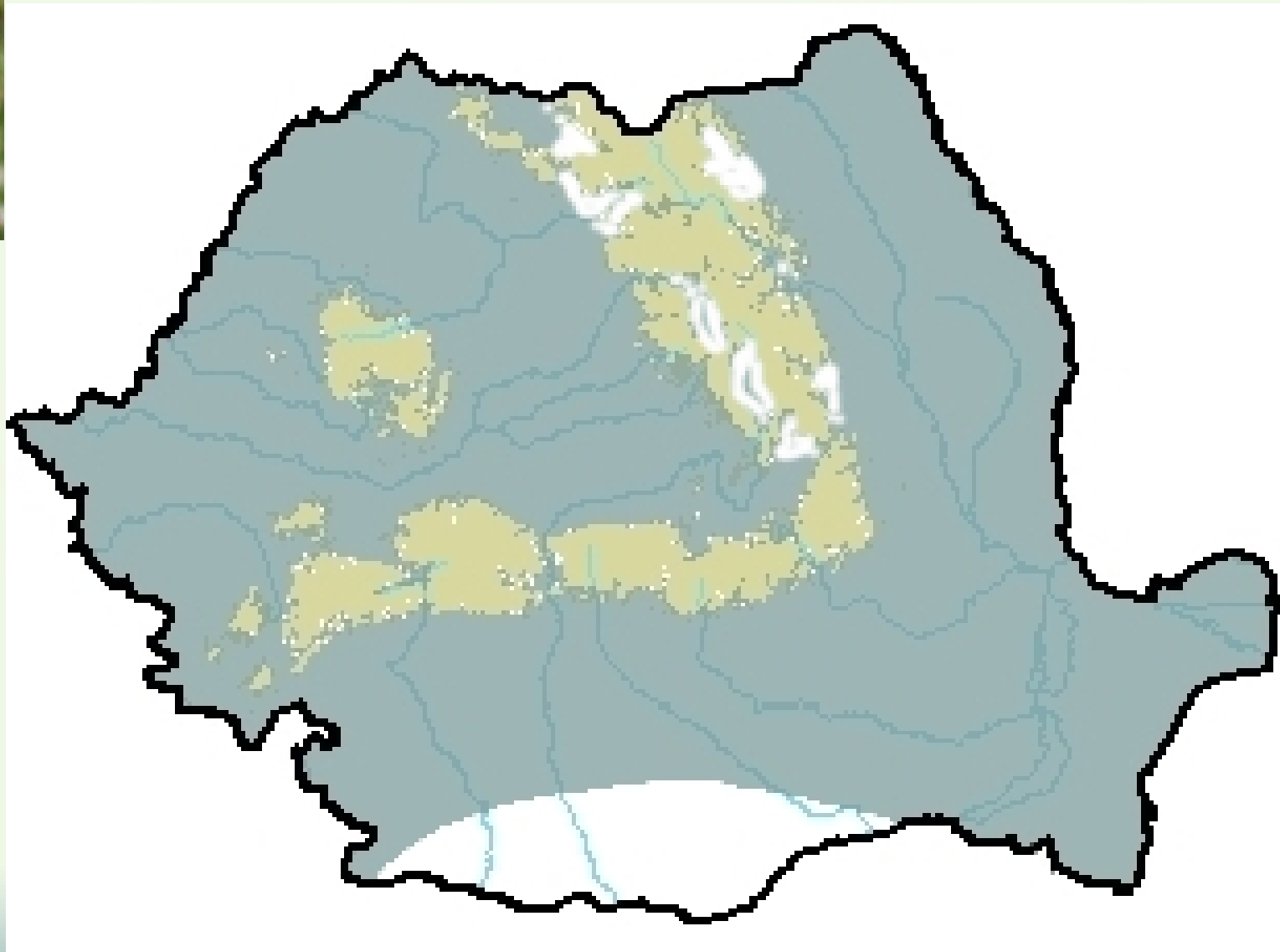
Aporia crataegi



1961-1985



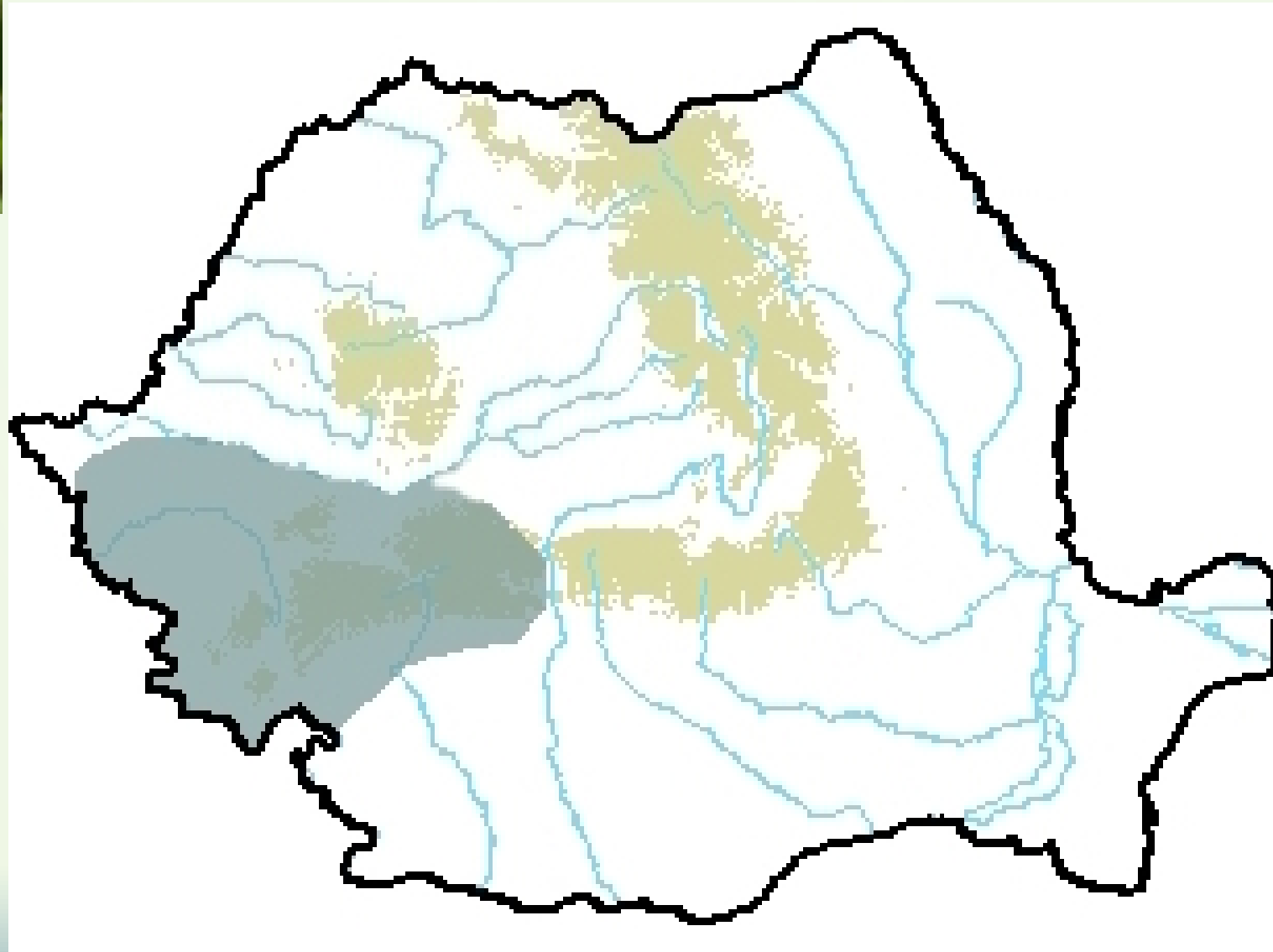
Aporia crataegi



1986-2023



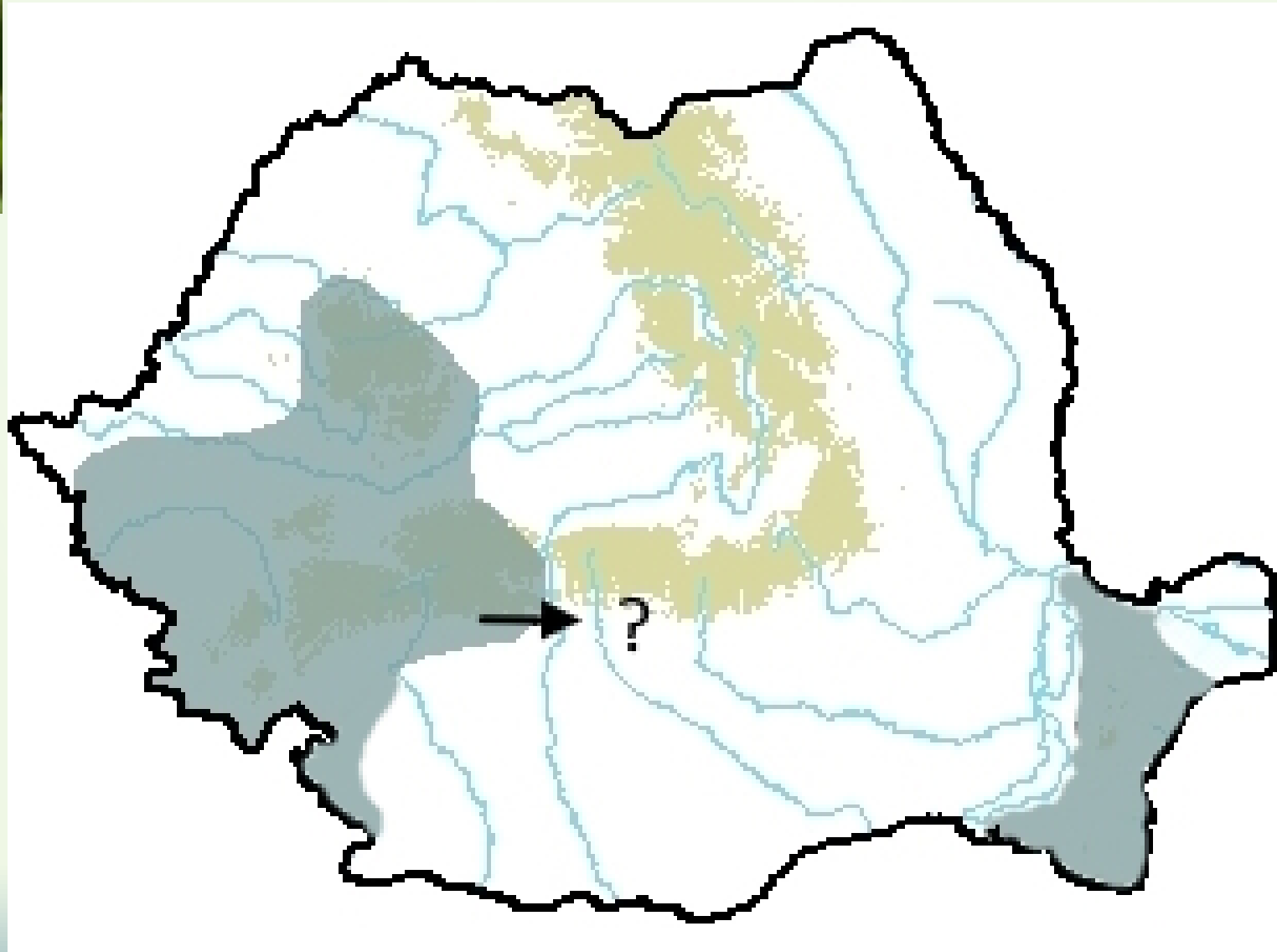
Pieris mannii



< 1970



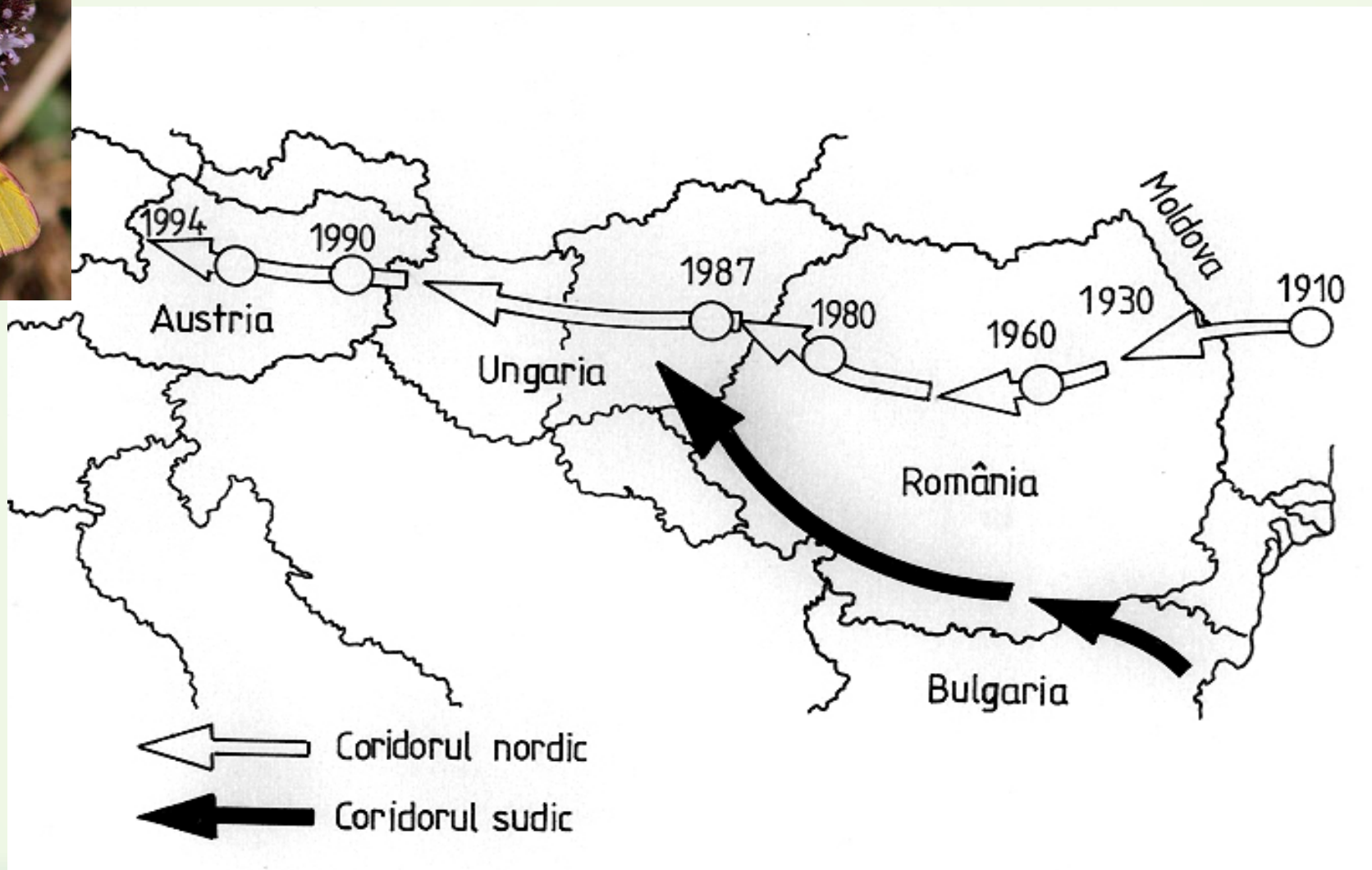
Pieris mannii



> 1975



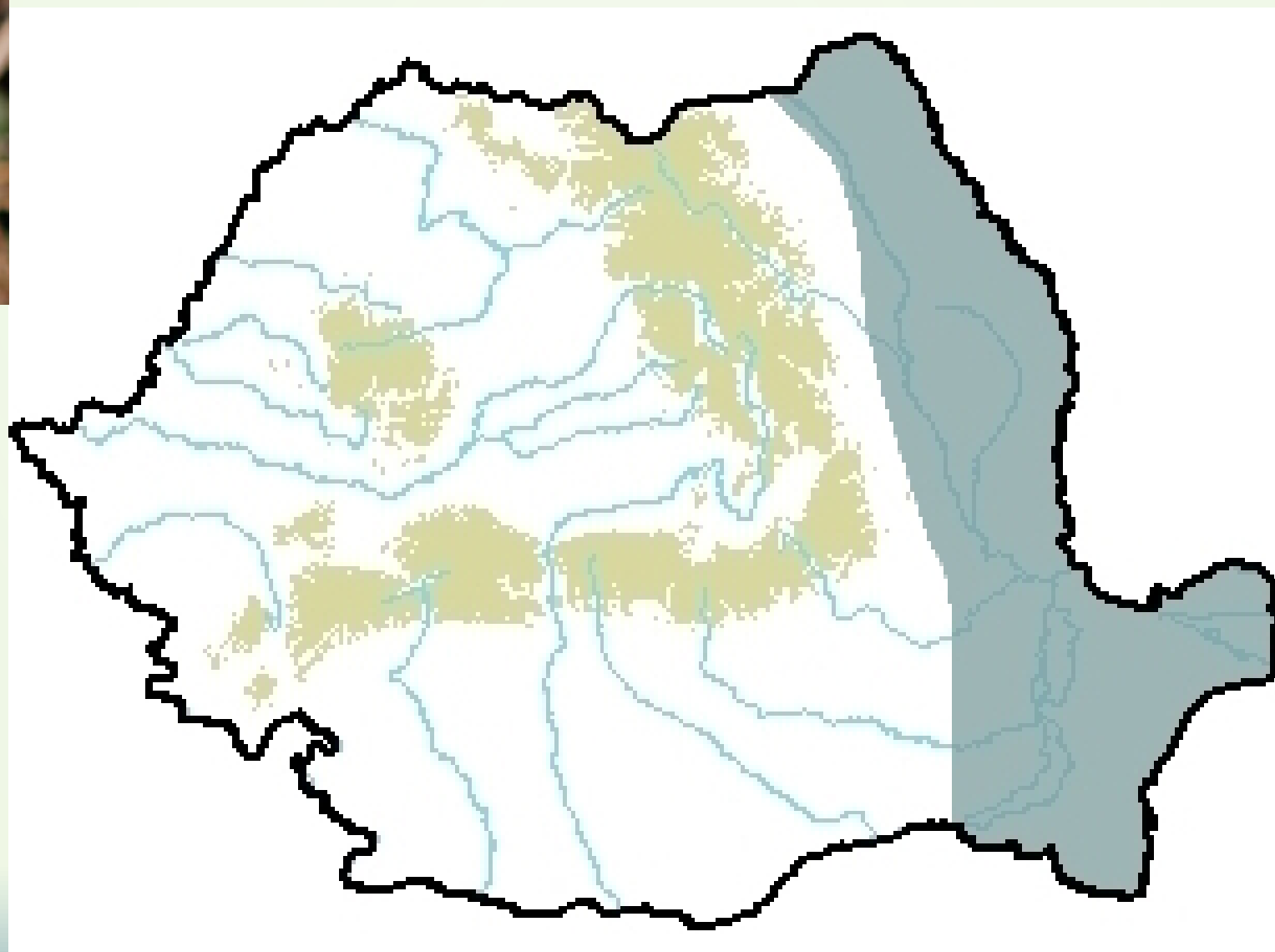
Colias erate



Ab 2000 Auch in Sachsen und Brandenburg



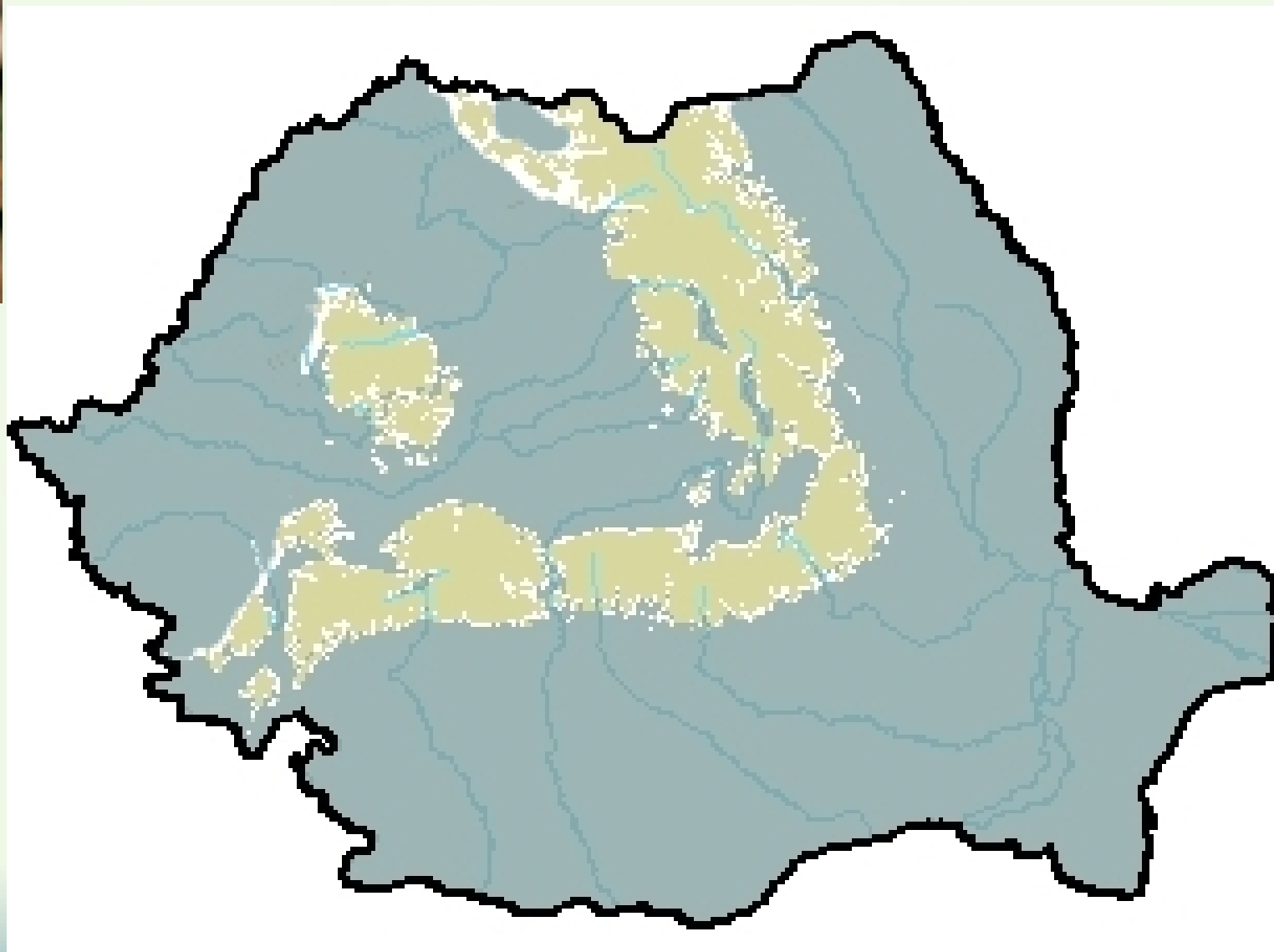
Colias erate



1930-1960



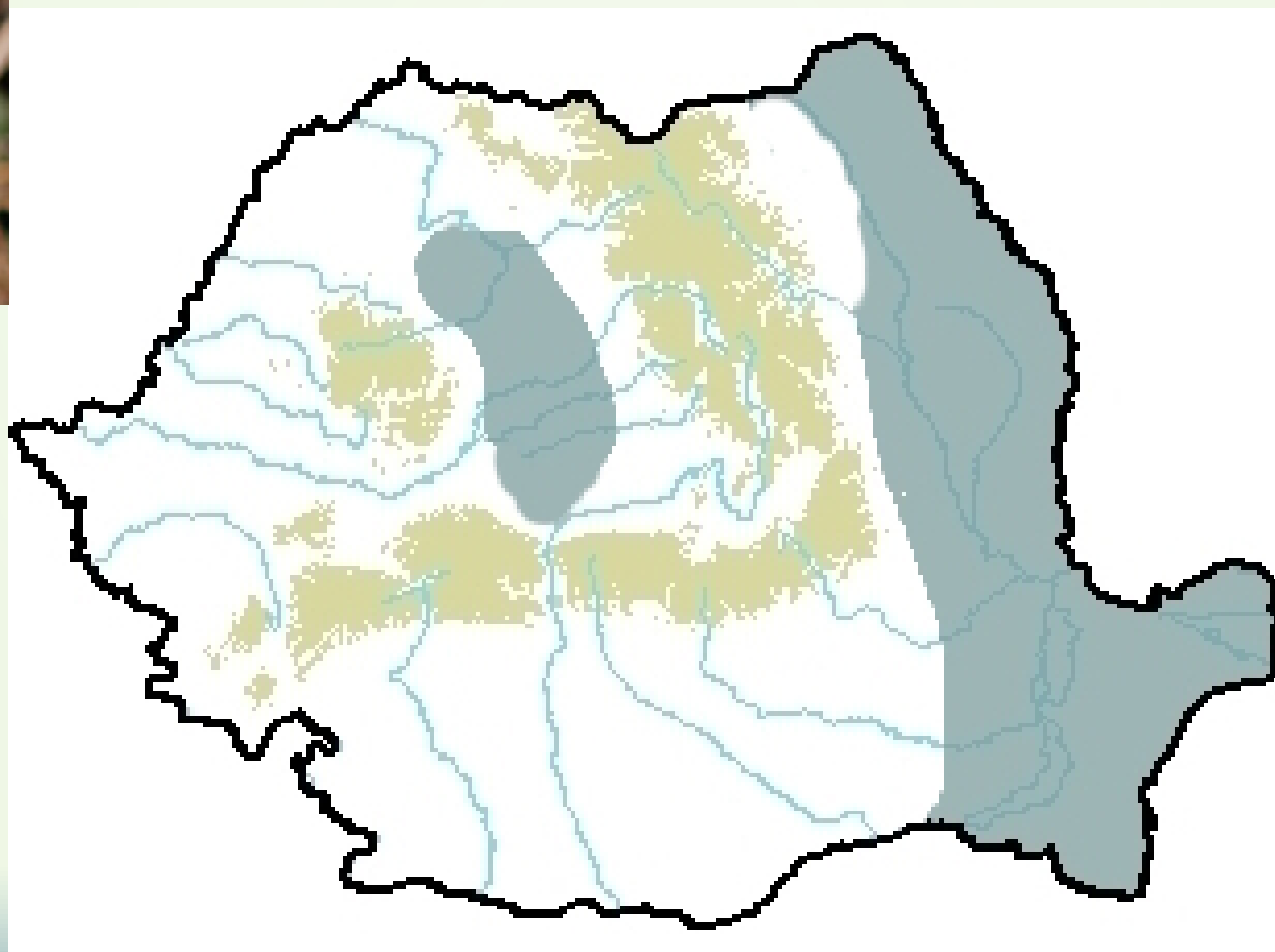
Colias erate



1970-1995



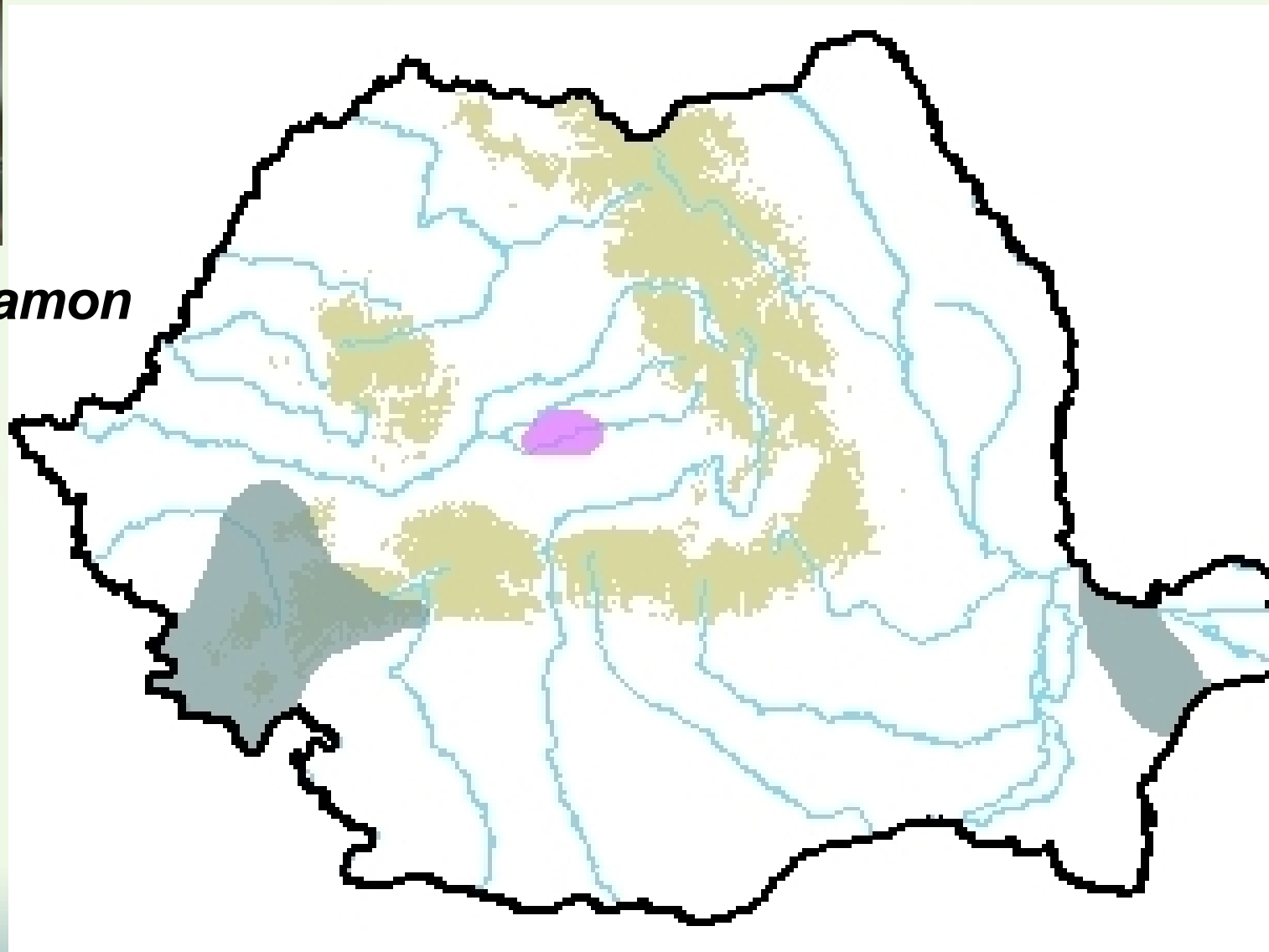
Colias erate



>1995



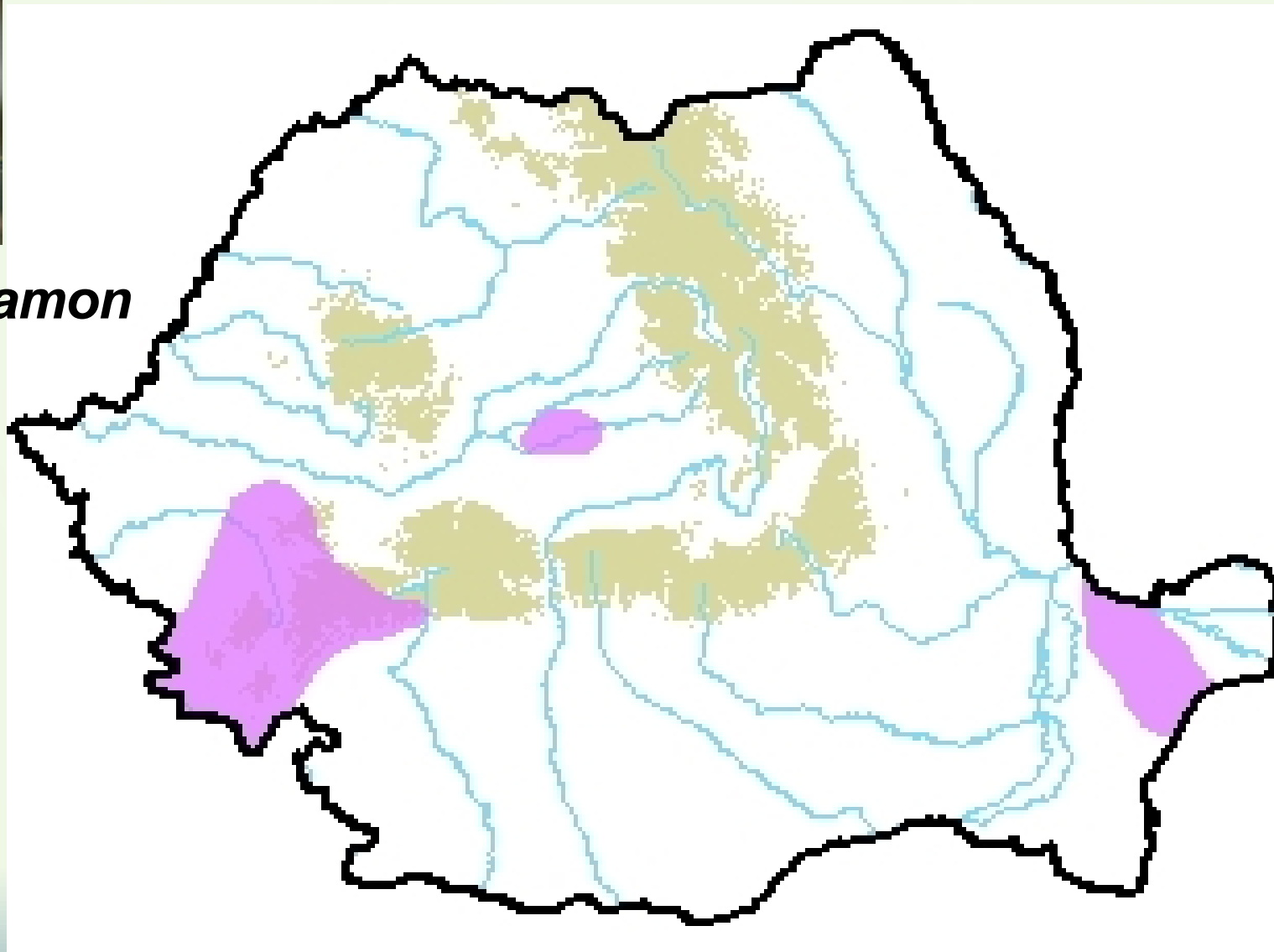
Polyommatus damon



< 1960



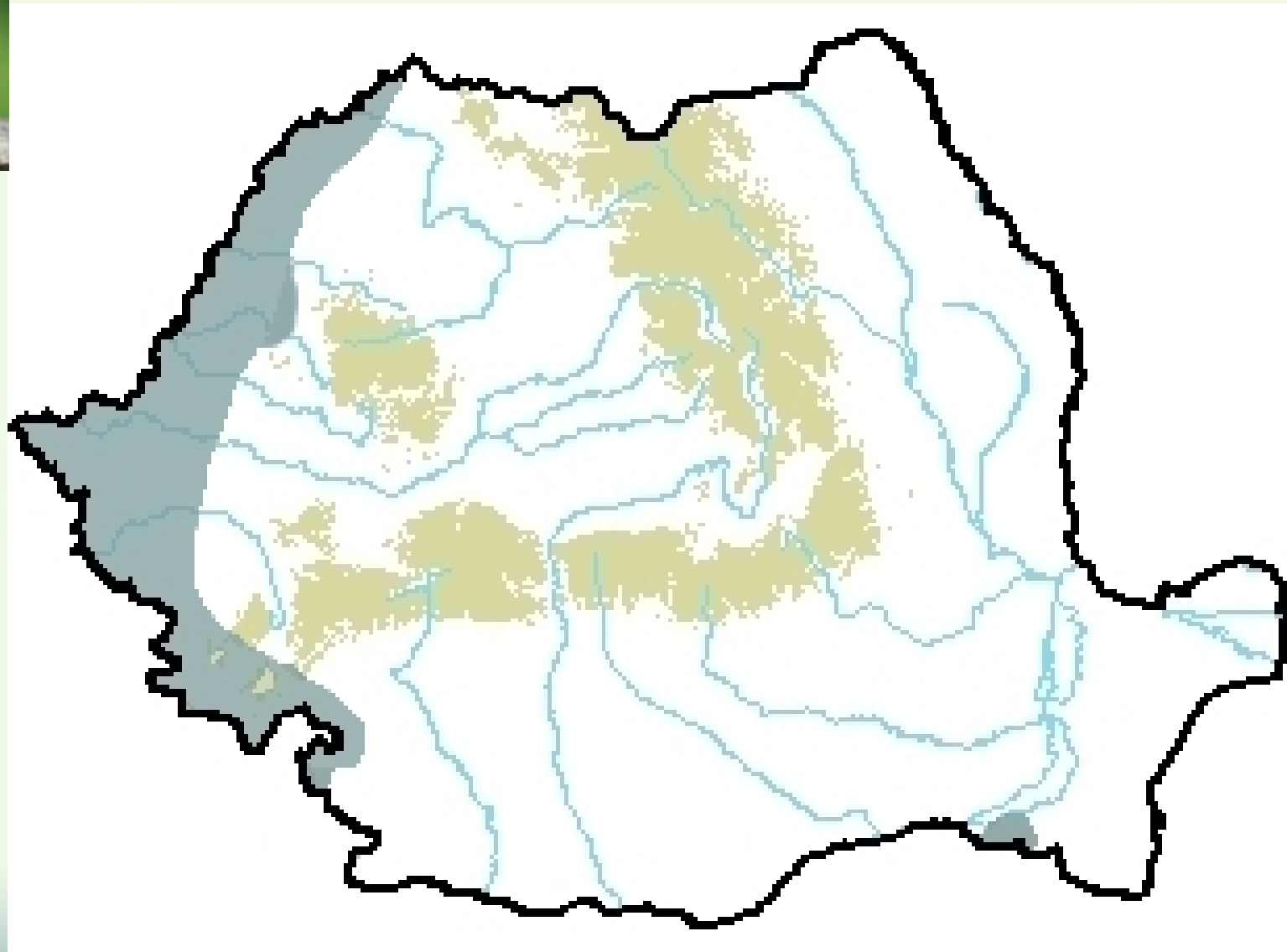
Polyommatus damon



> 1960



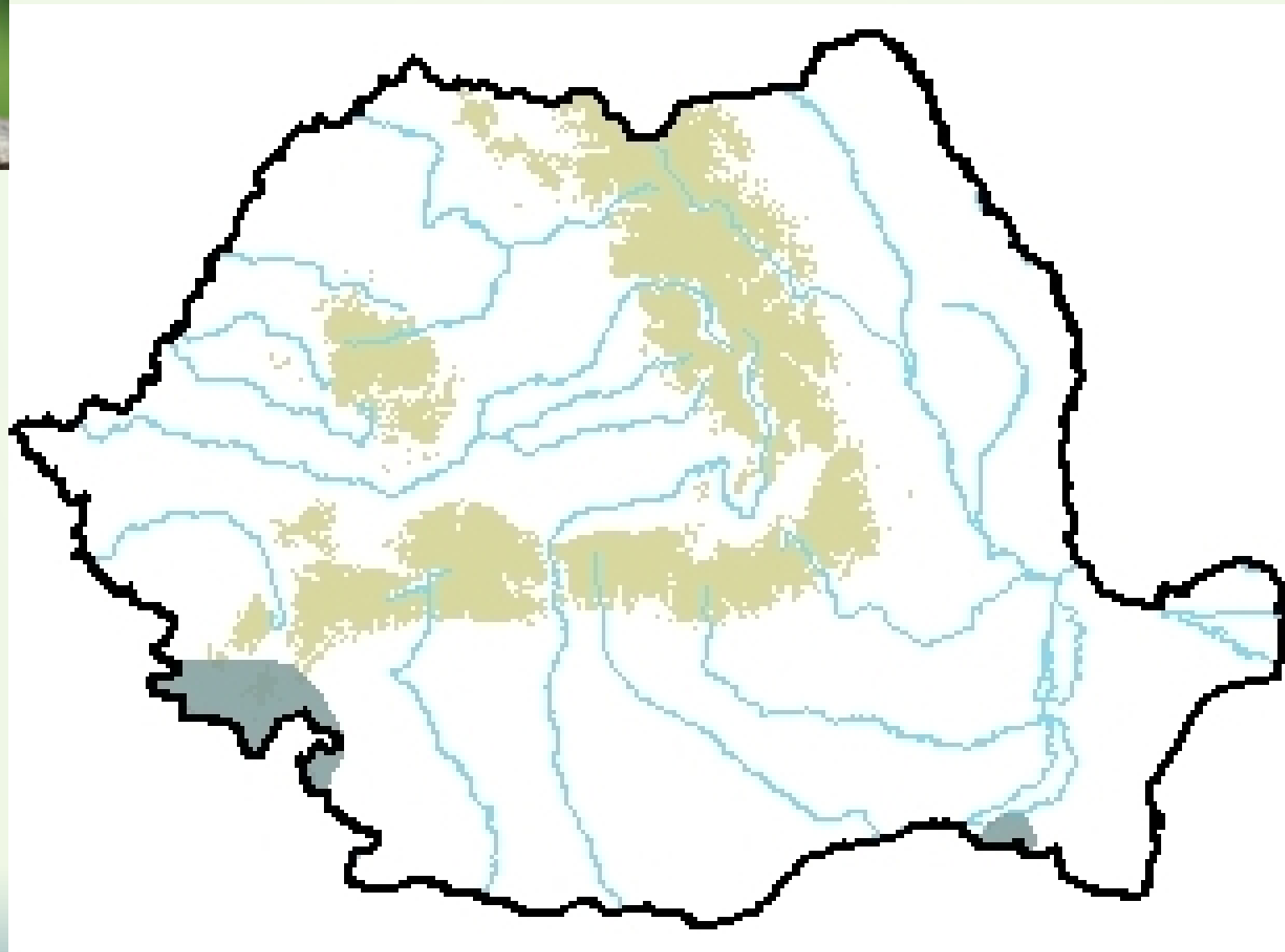
Libythea celtis



< 1930



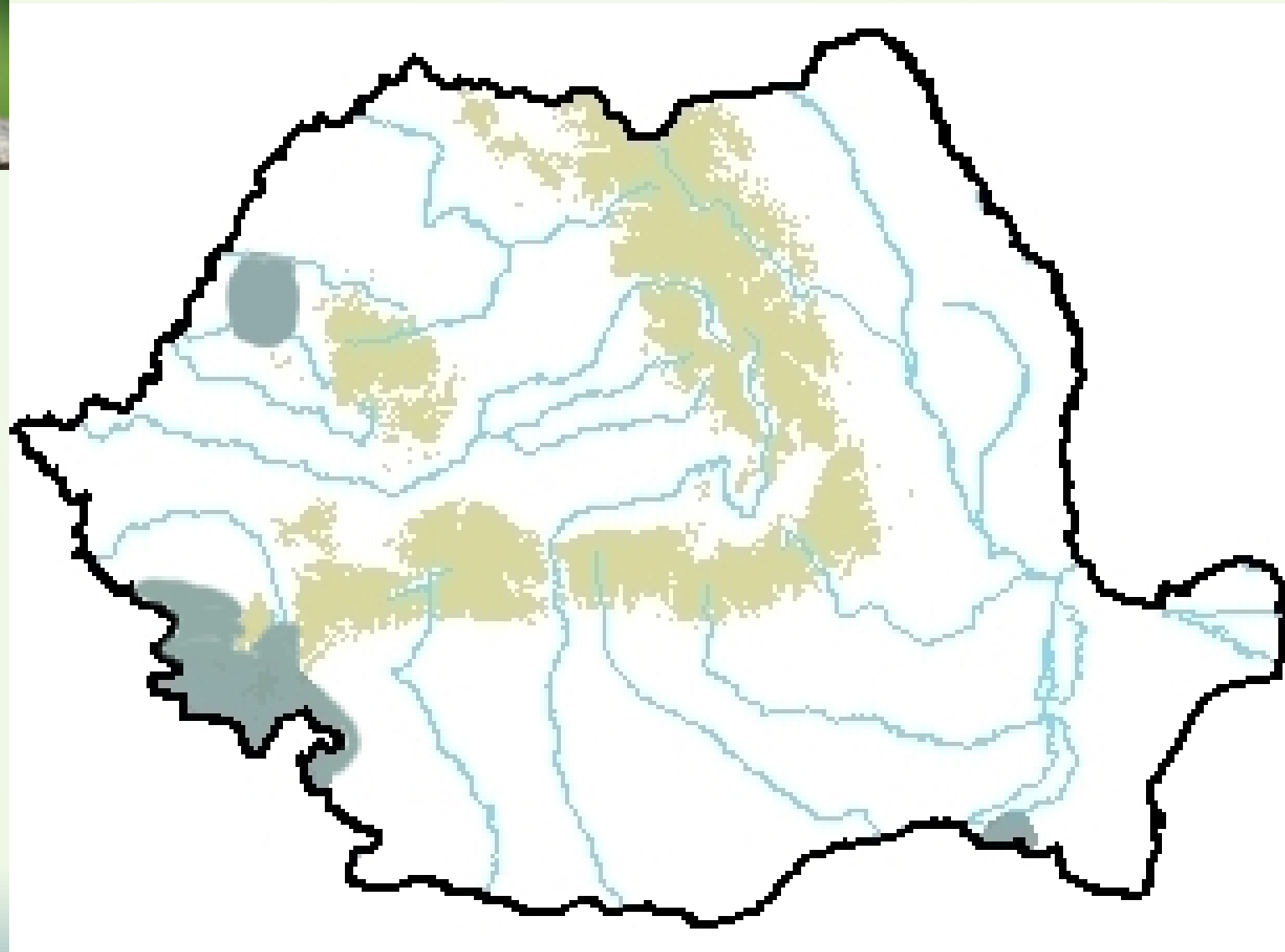
Libythea celtis



1931-1980



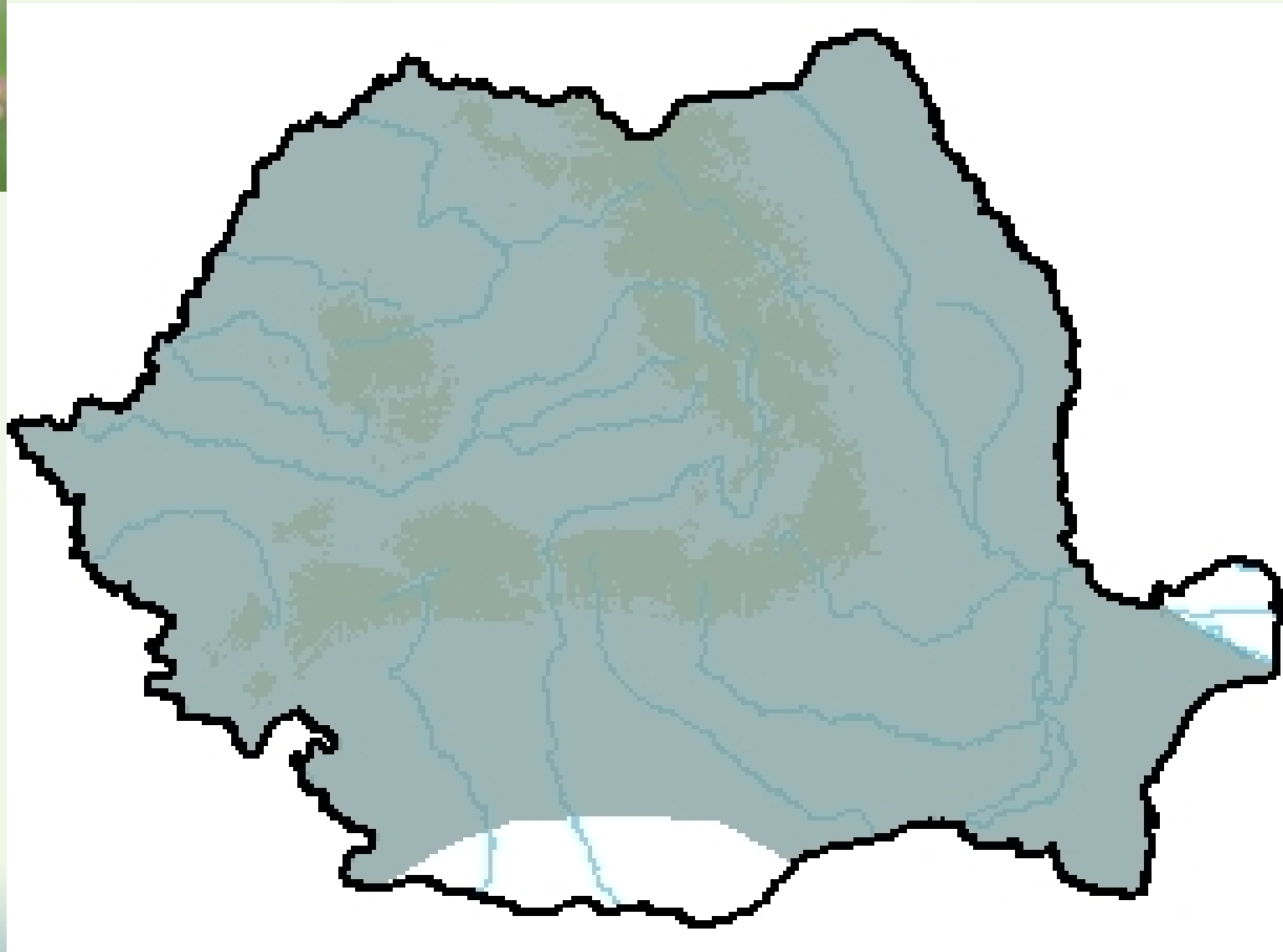
Libythea celtis



> 1980



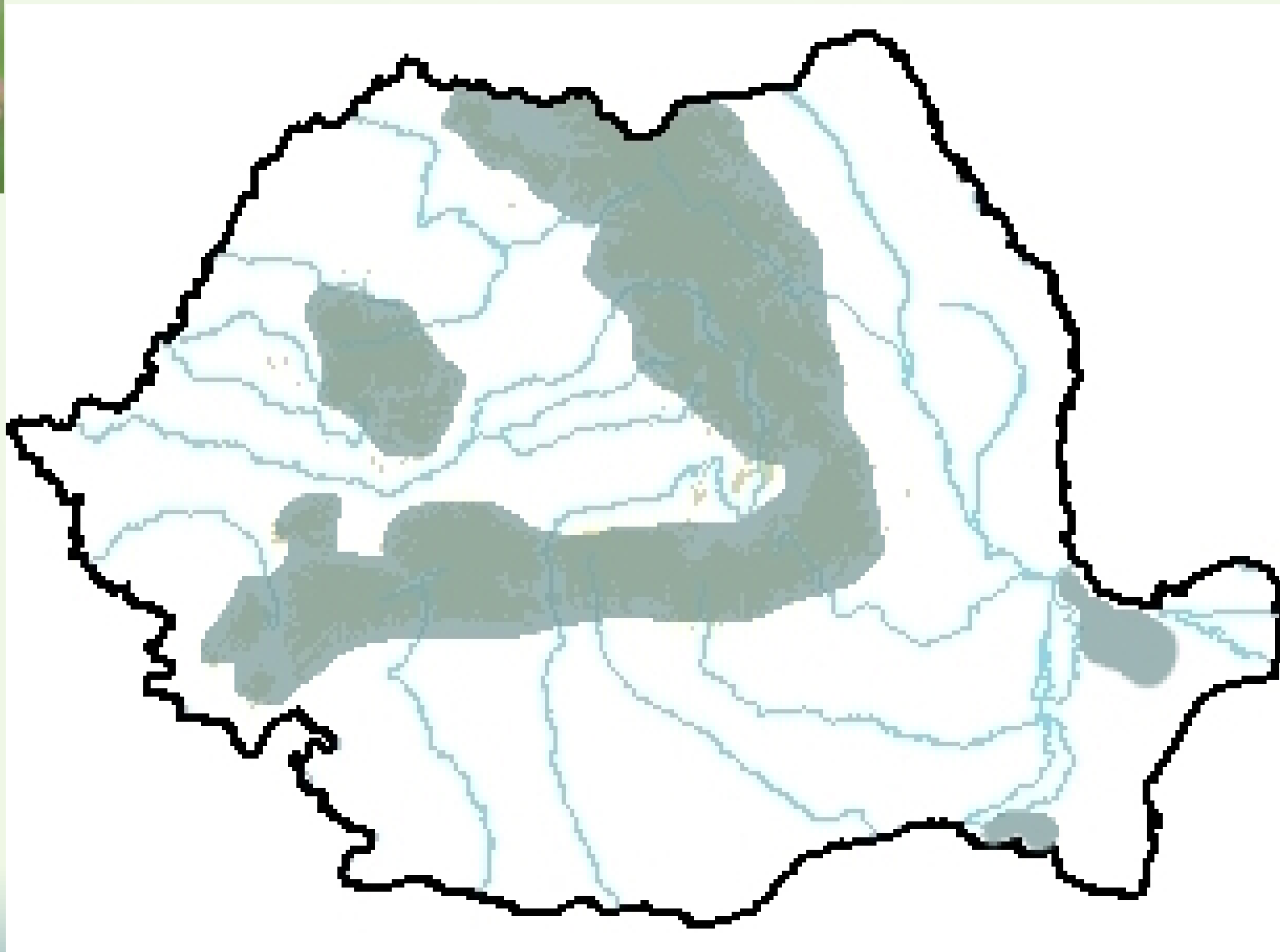
Aglais urticae



1930-1970



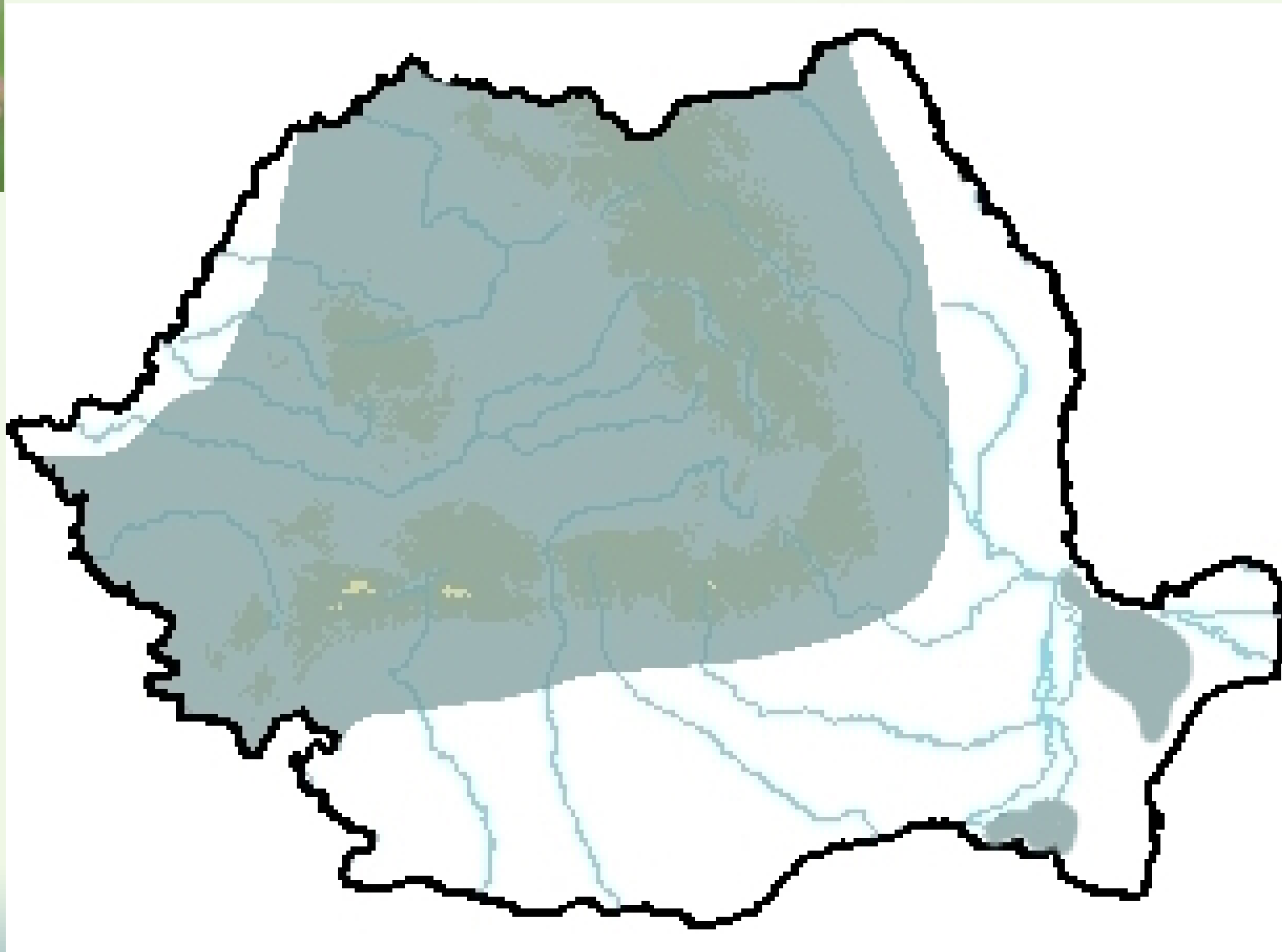
Aglais urticae



1971-2000



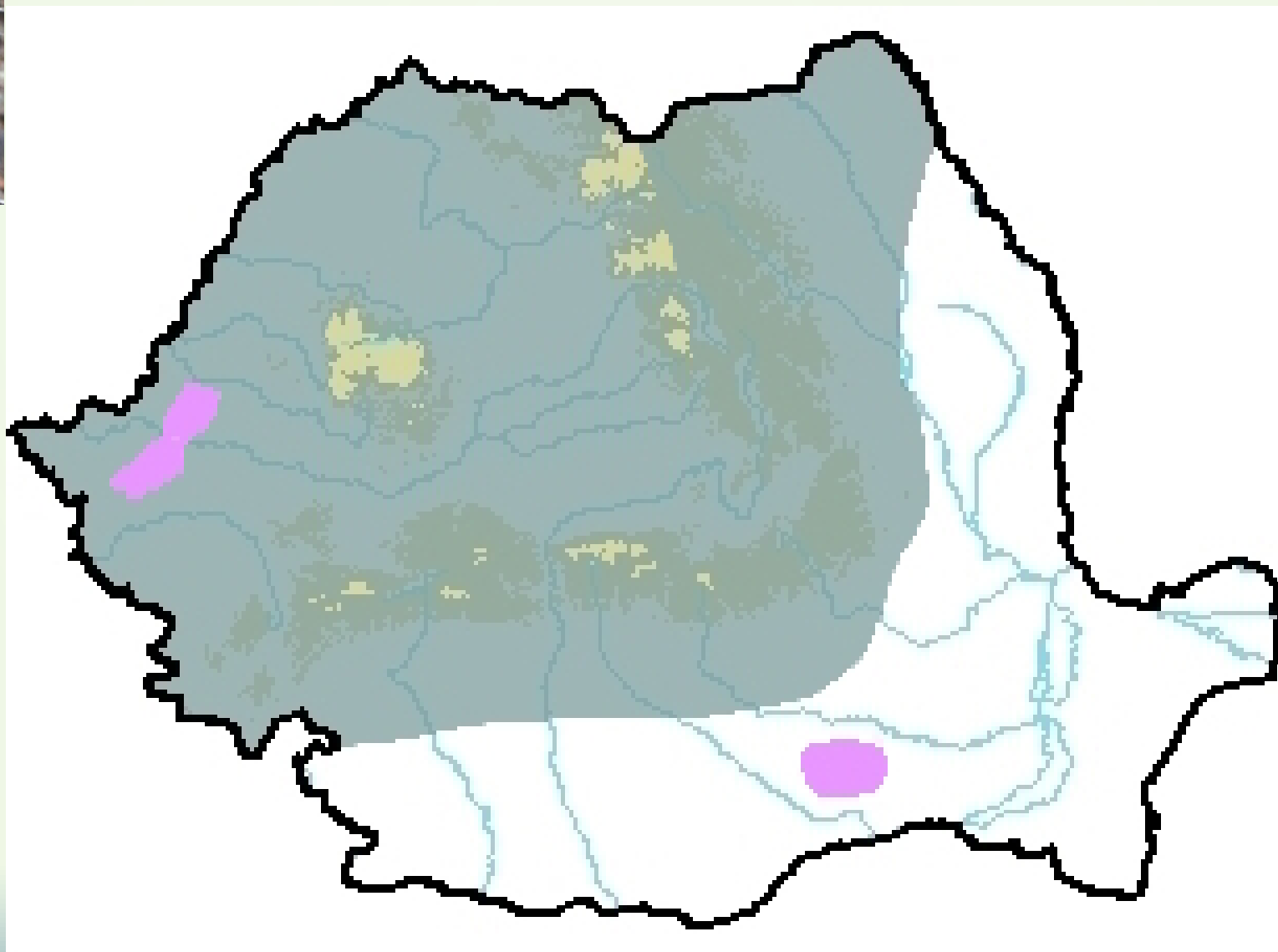
Aglais urticae



2001-2023



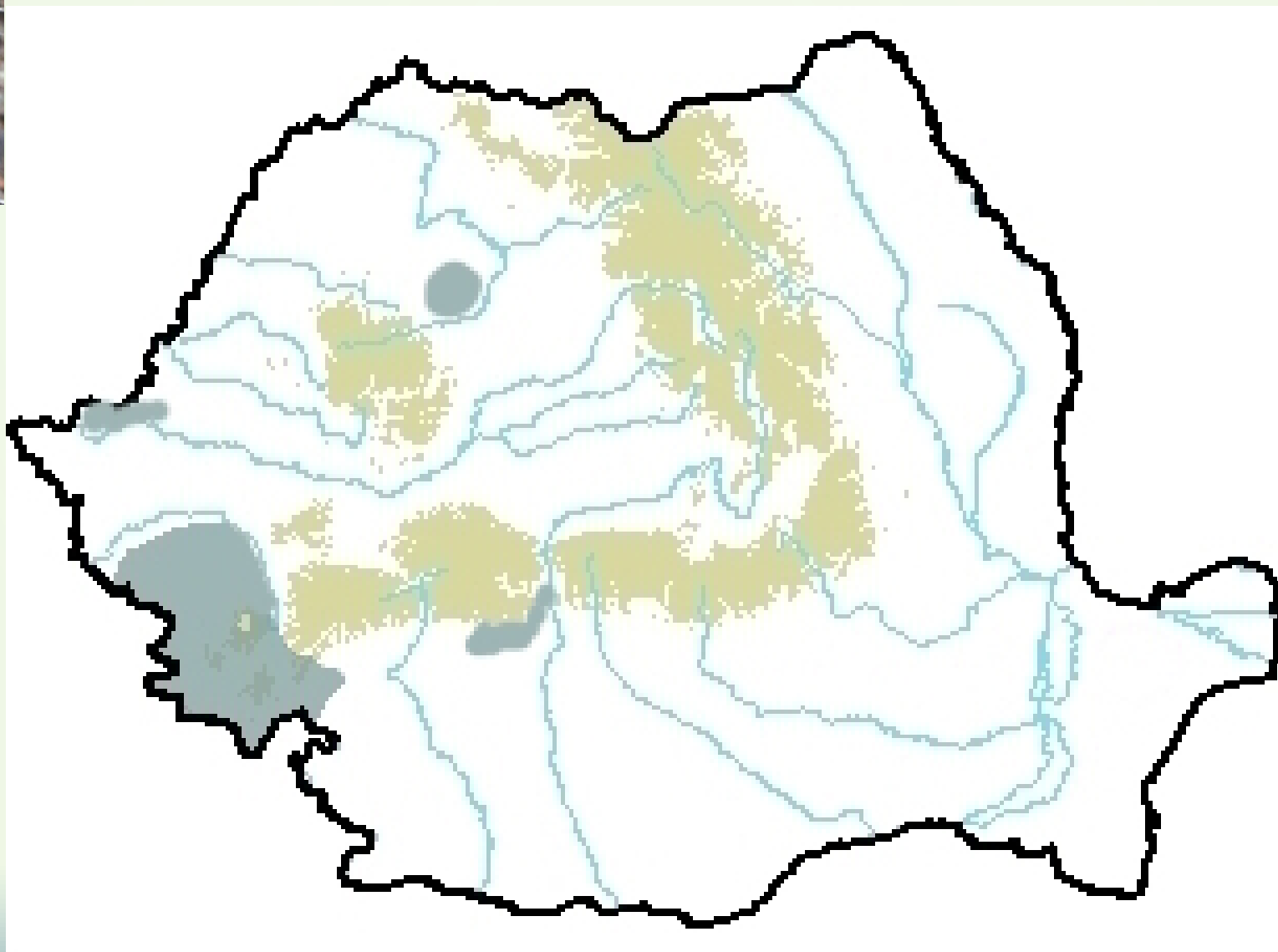
***Nymphalis
xanthomelas***



1960-1970



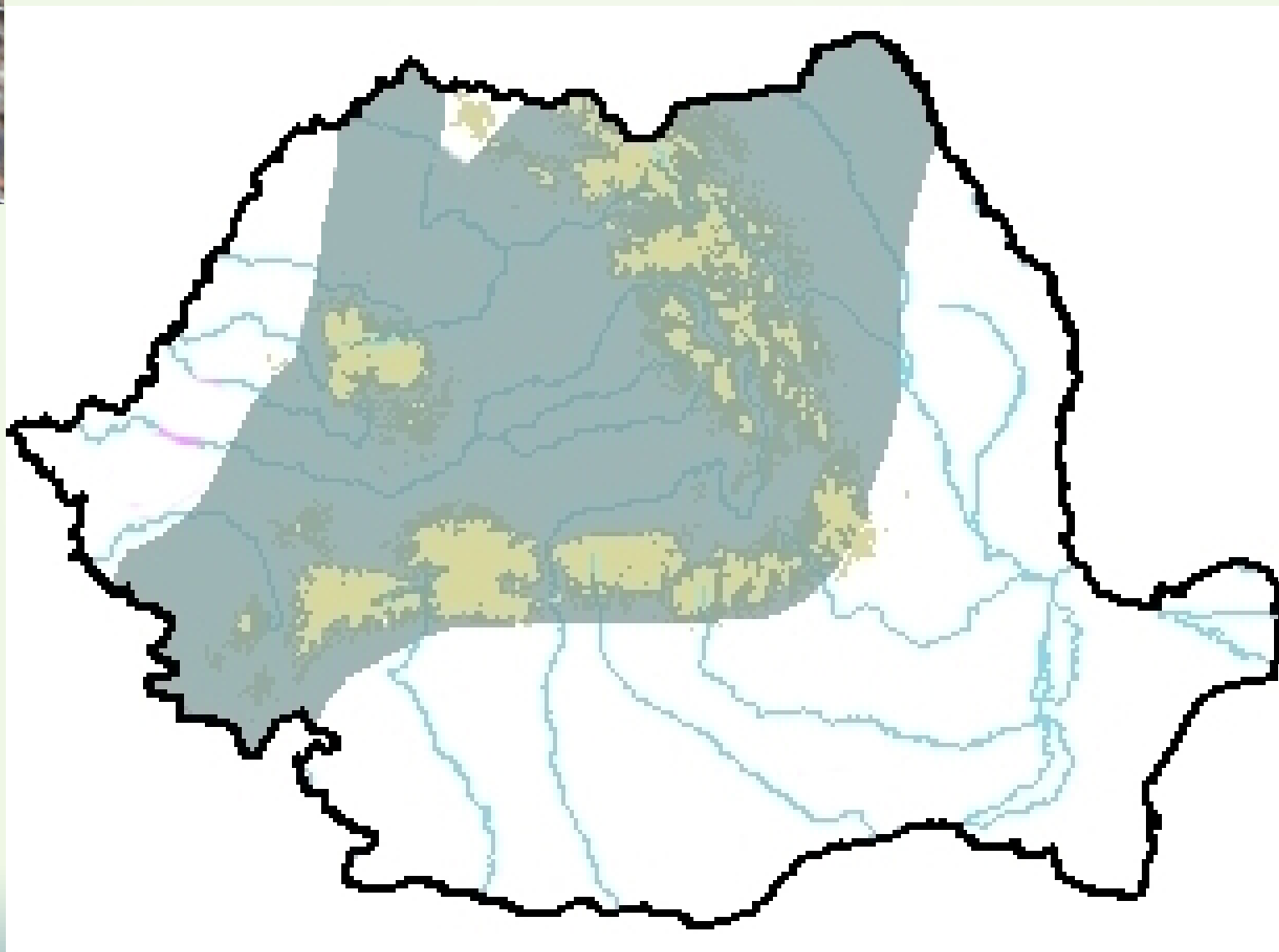
*Nymphalis
xanthomelas*



1971-1990



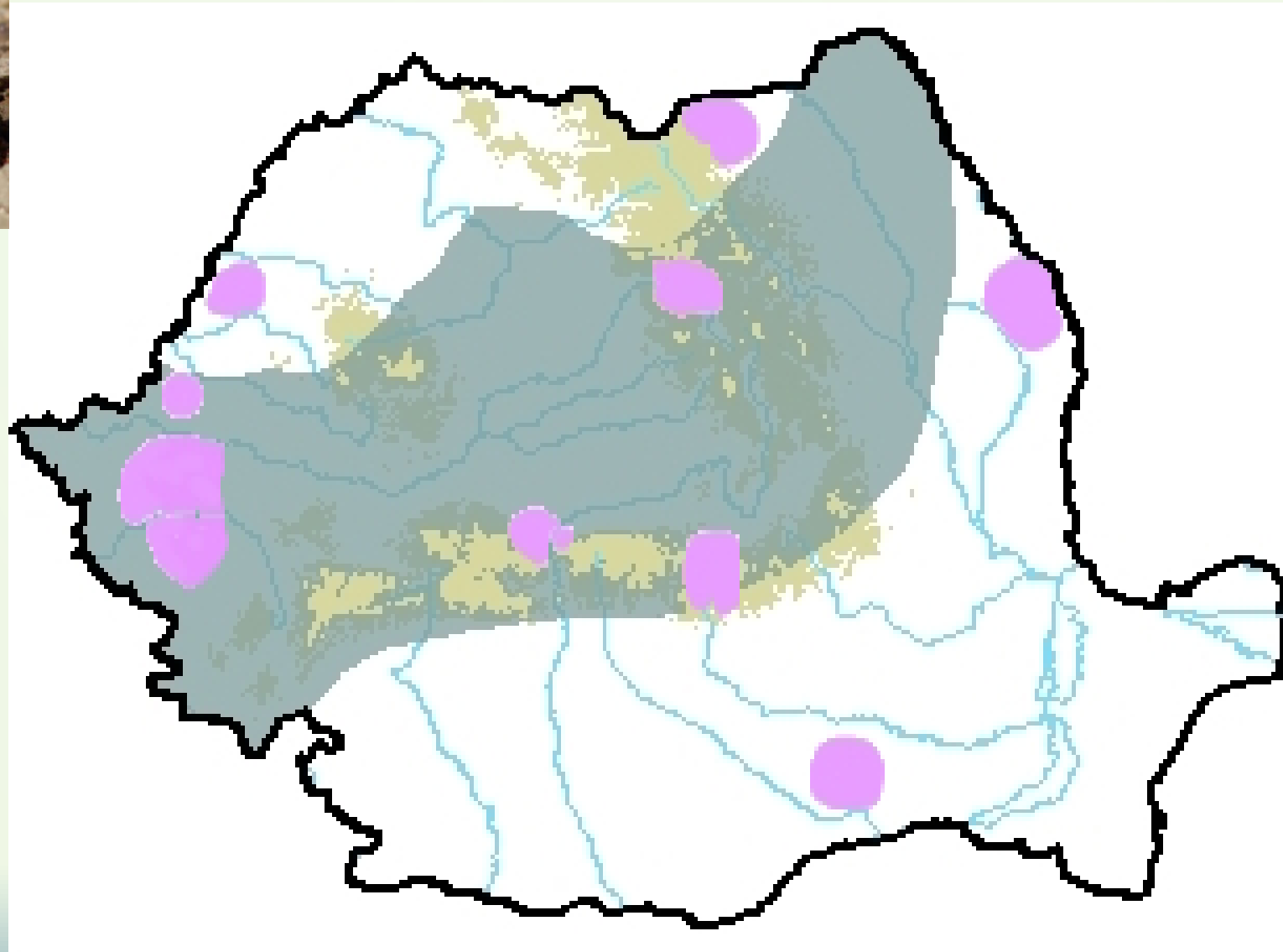
***Nymphalis
xanthomelas***



1991-2023



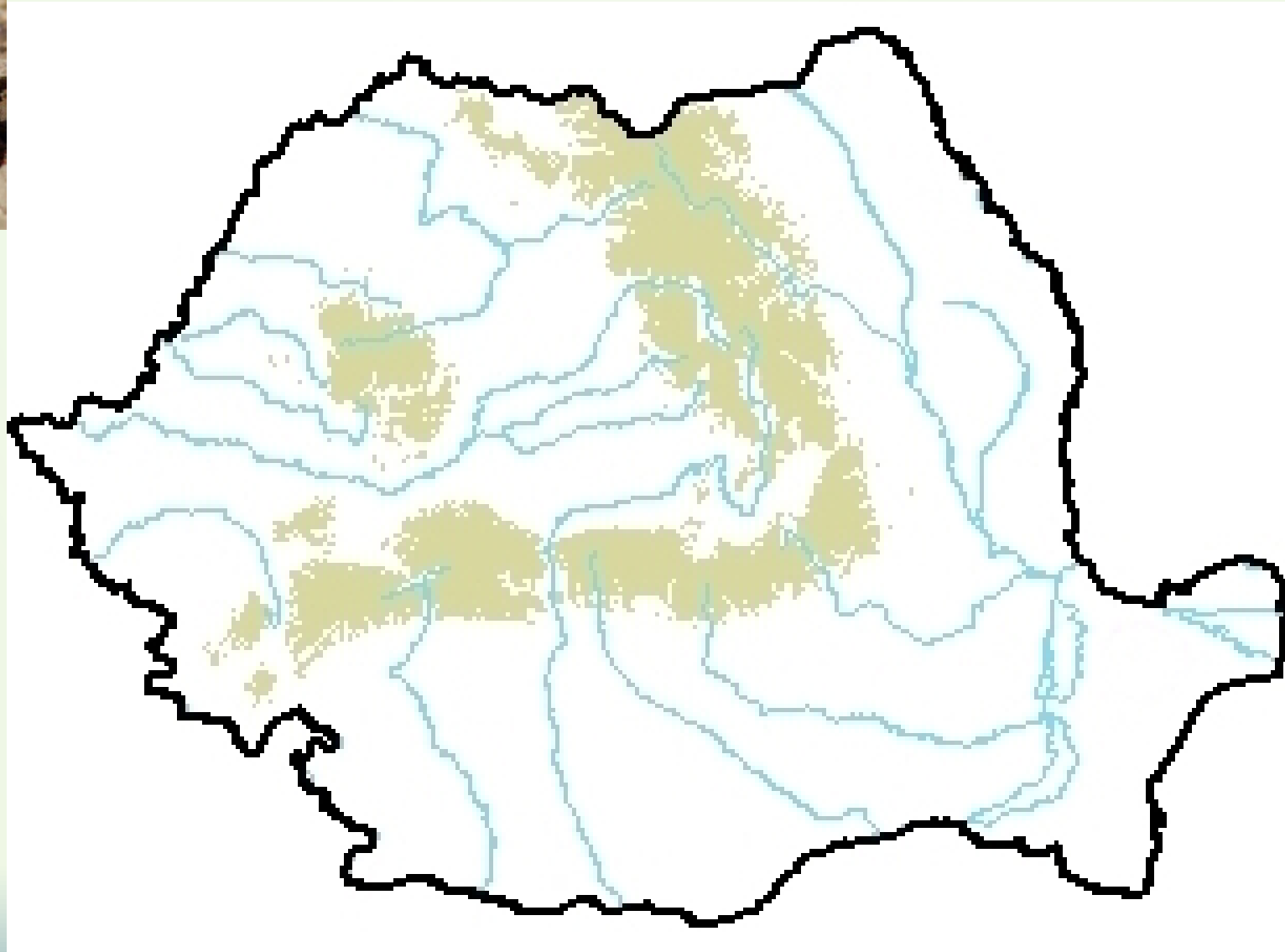
***Nymphalis*
*vau-album***



<1970



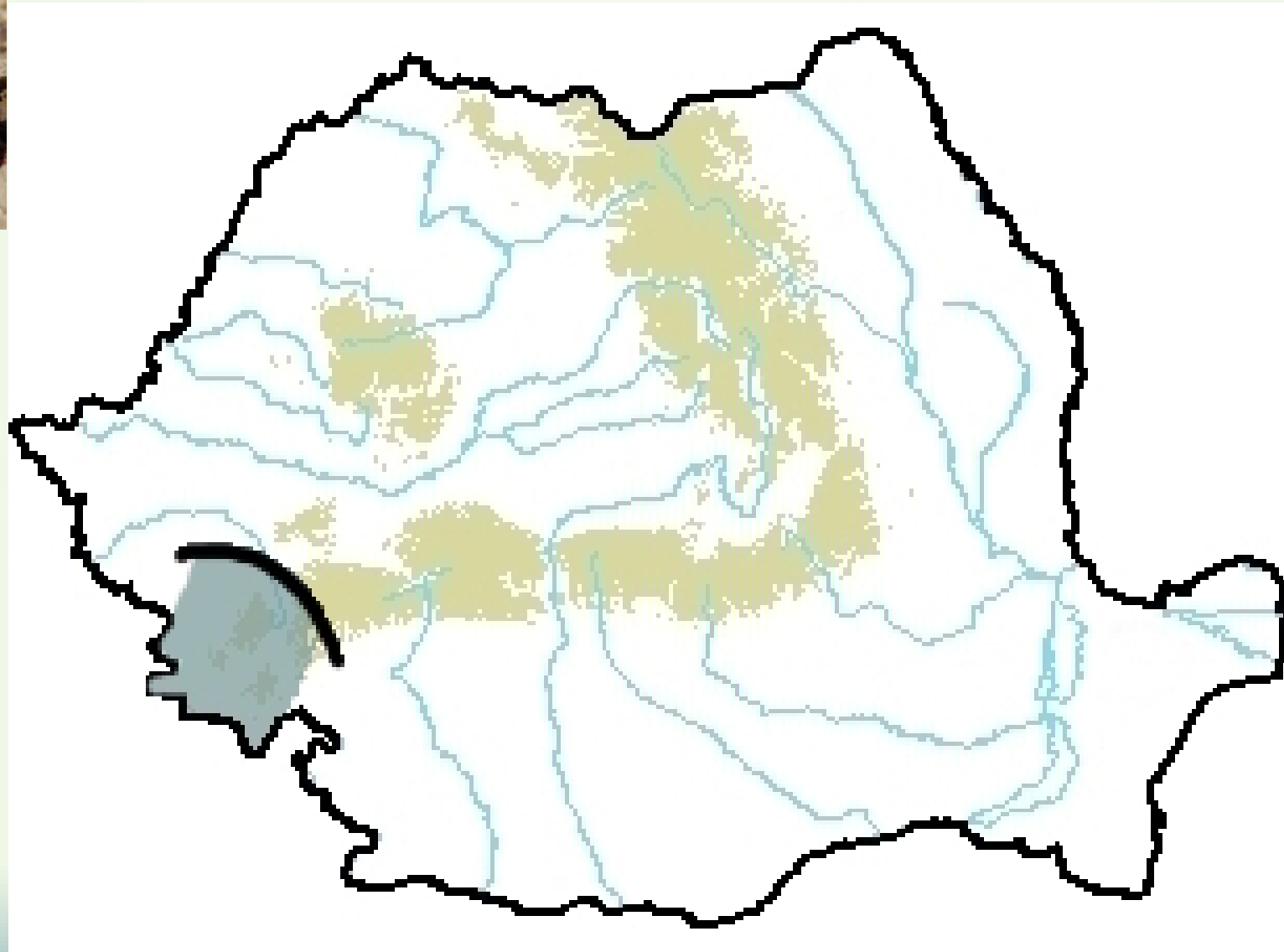
***Nymphalis
vau-album***



<1970



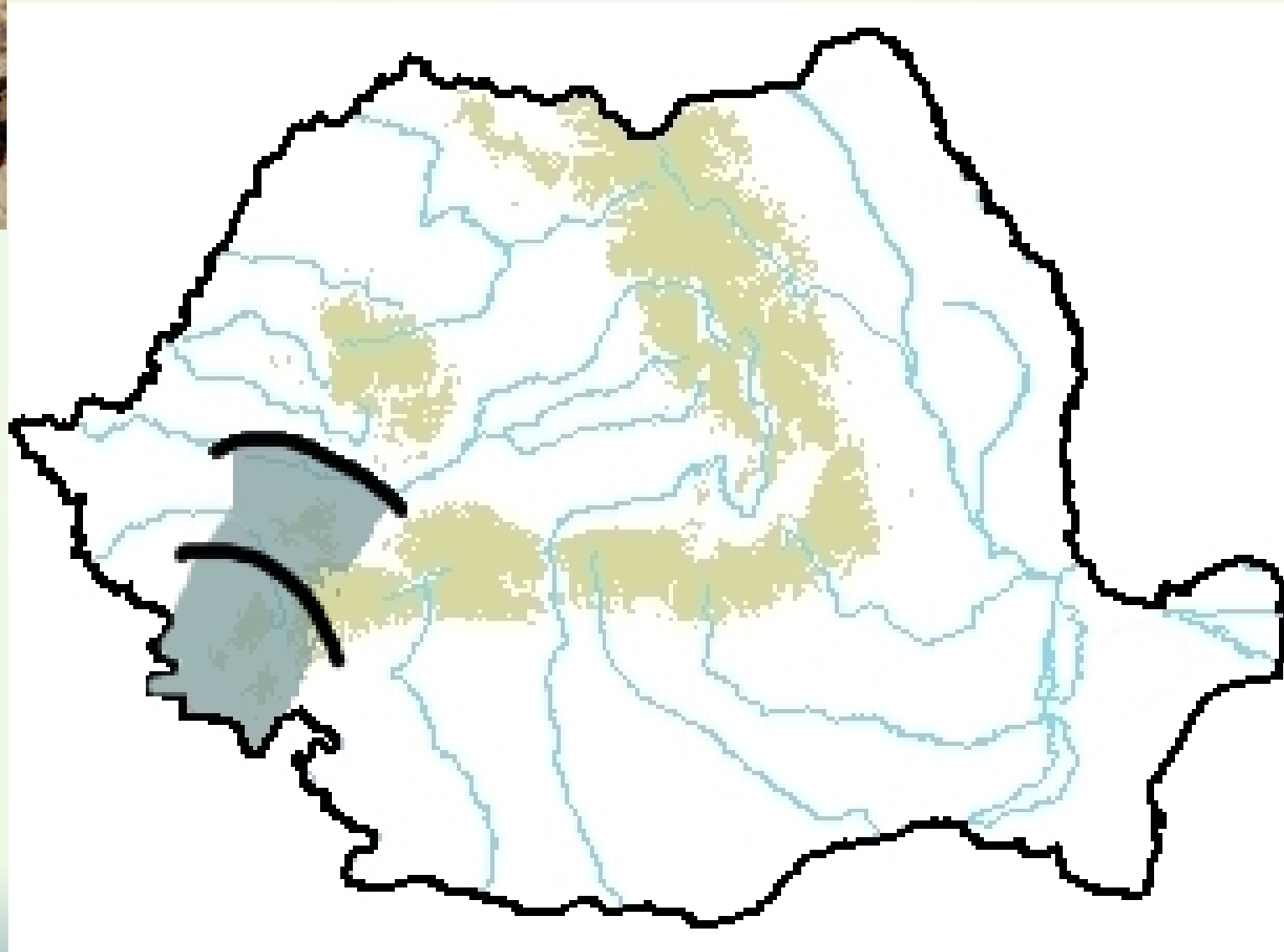
*Nymphalis
vau-album*



1995



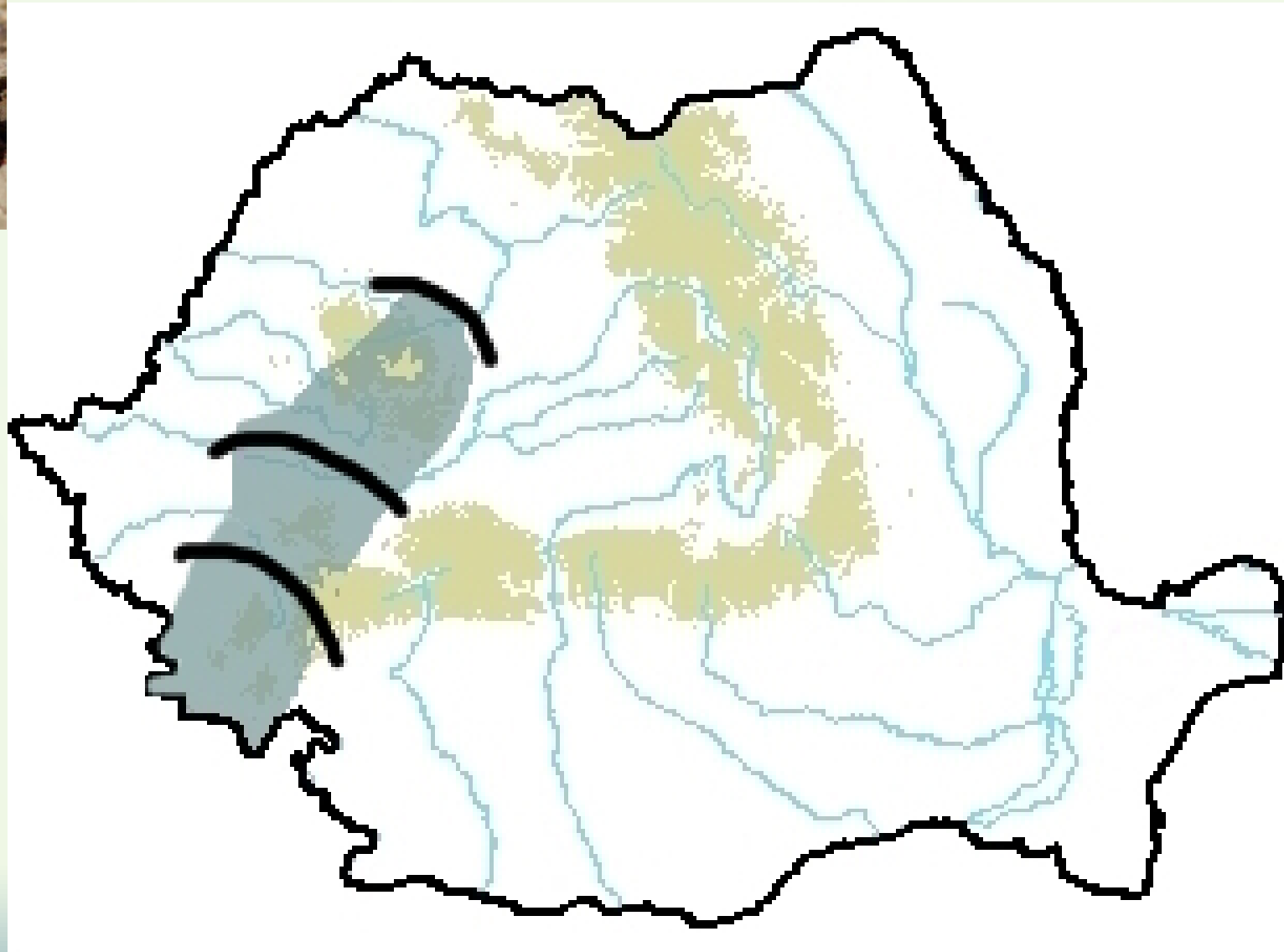
***Nymphalis
vau-album***



2010



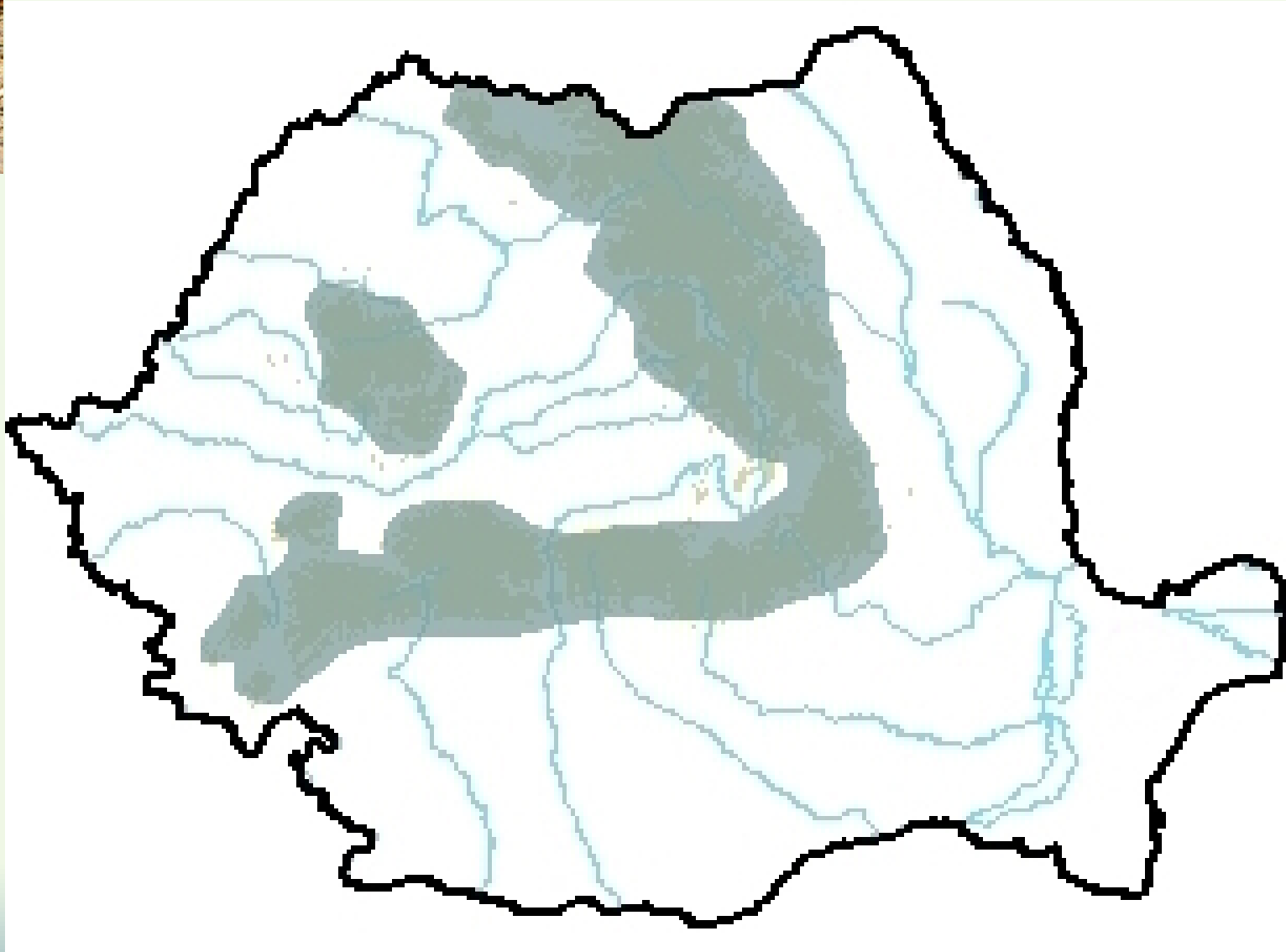
***Nymphalis
vau-album***



2023



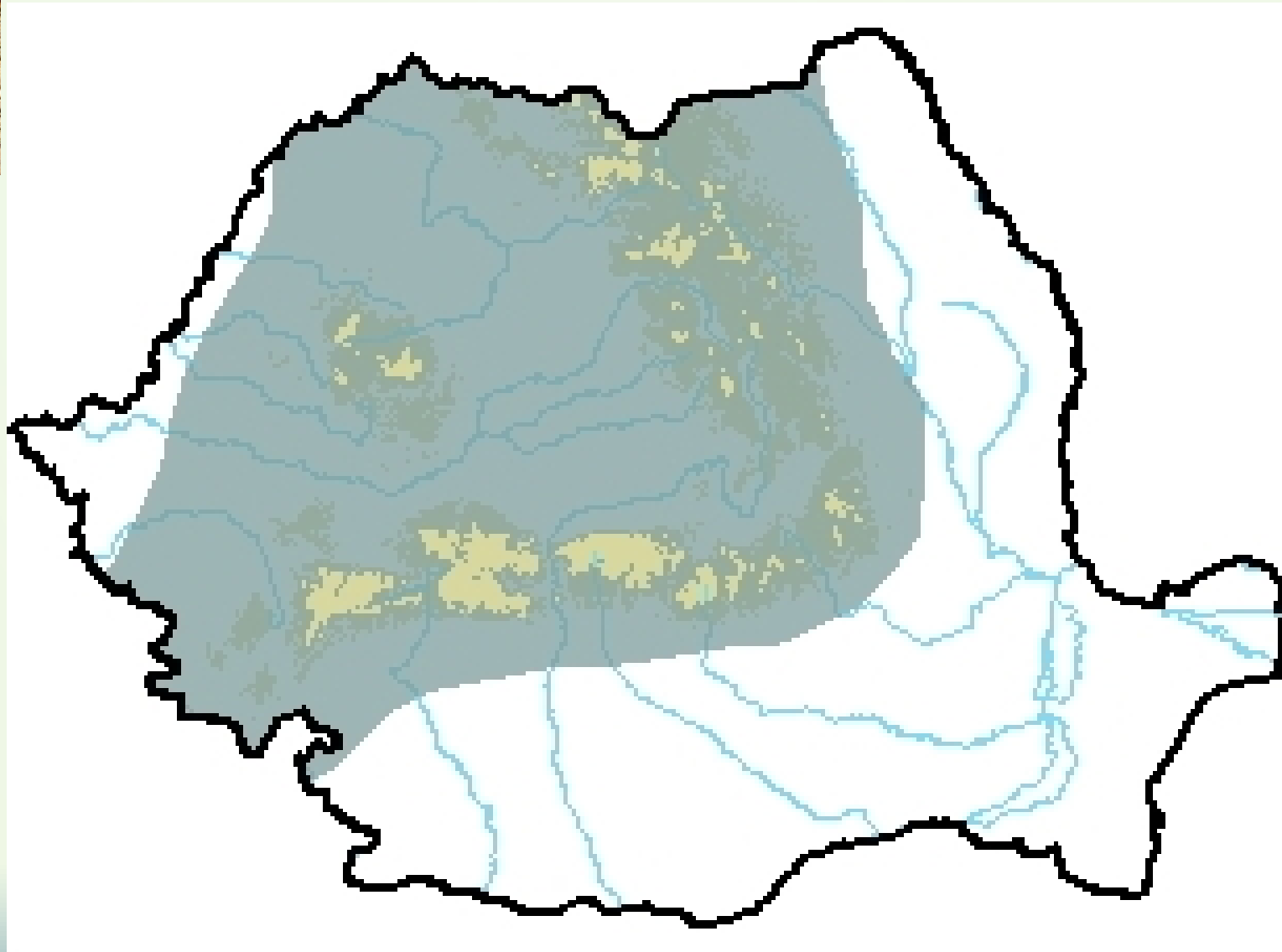
Neptis rivularis



>1960



Neptis rivularis

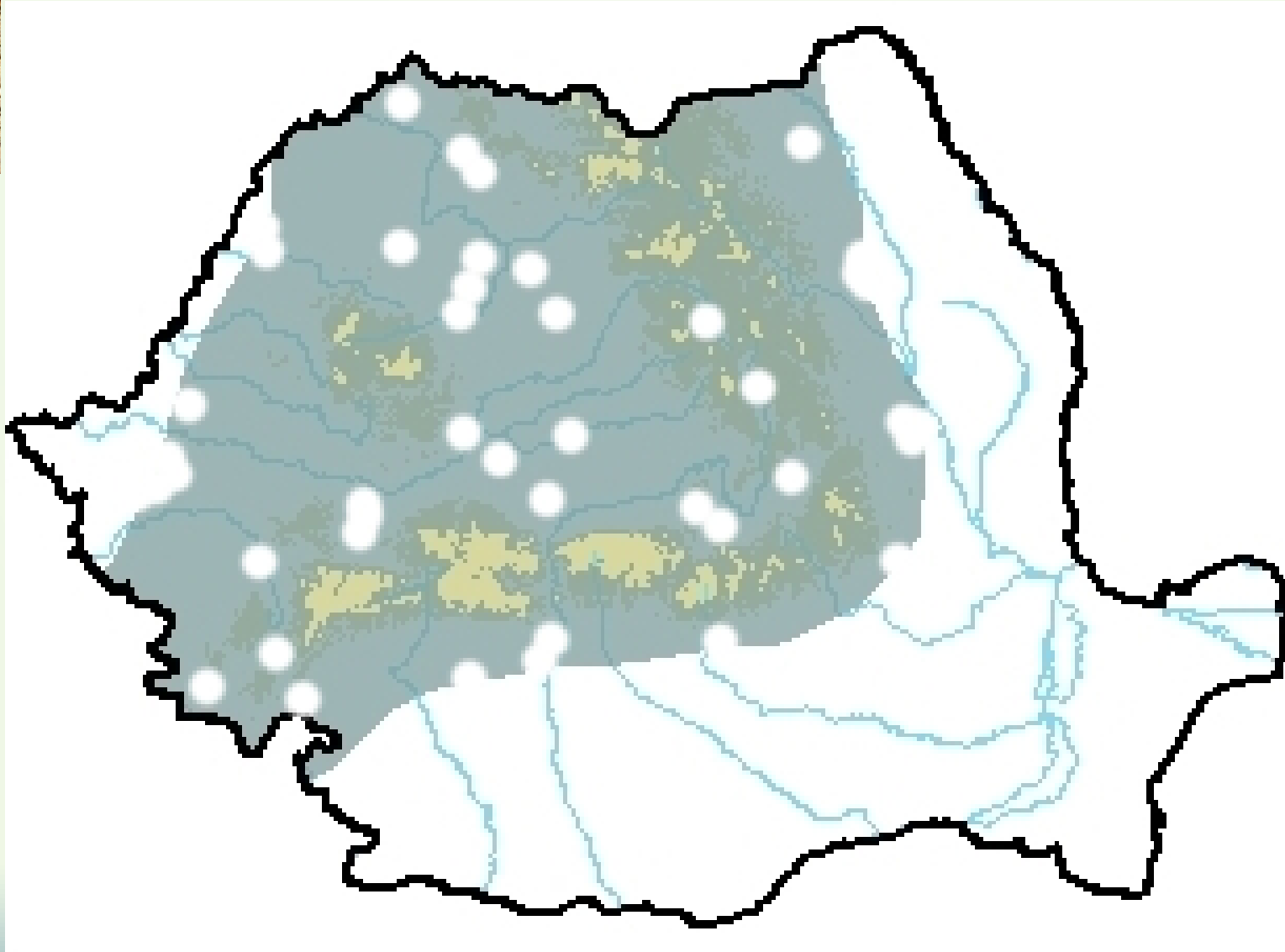


1970-1990

Urbanisierung



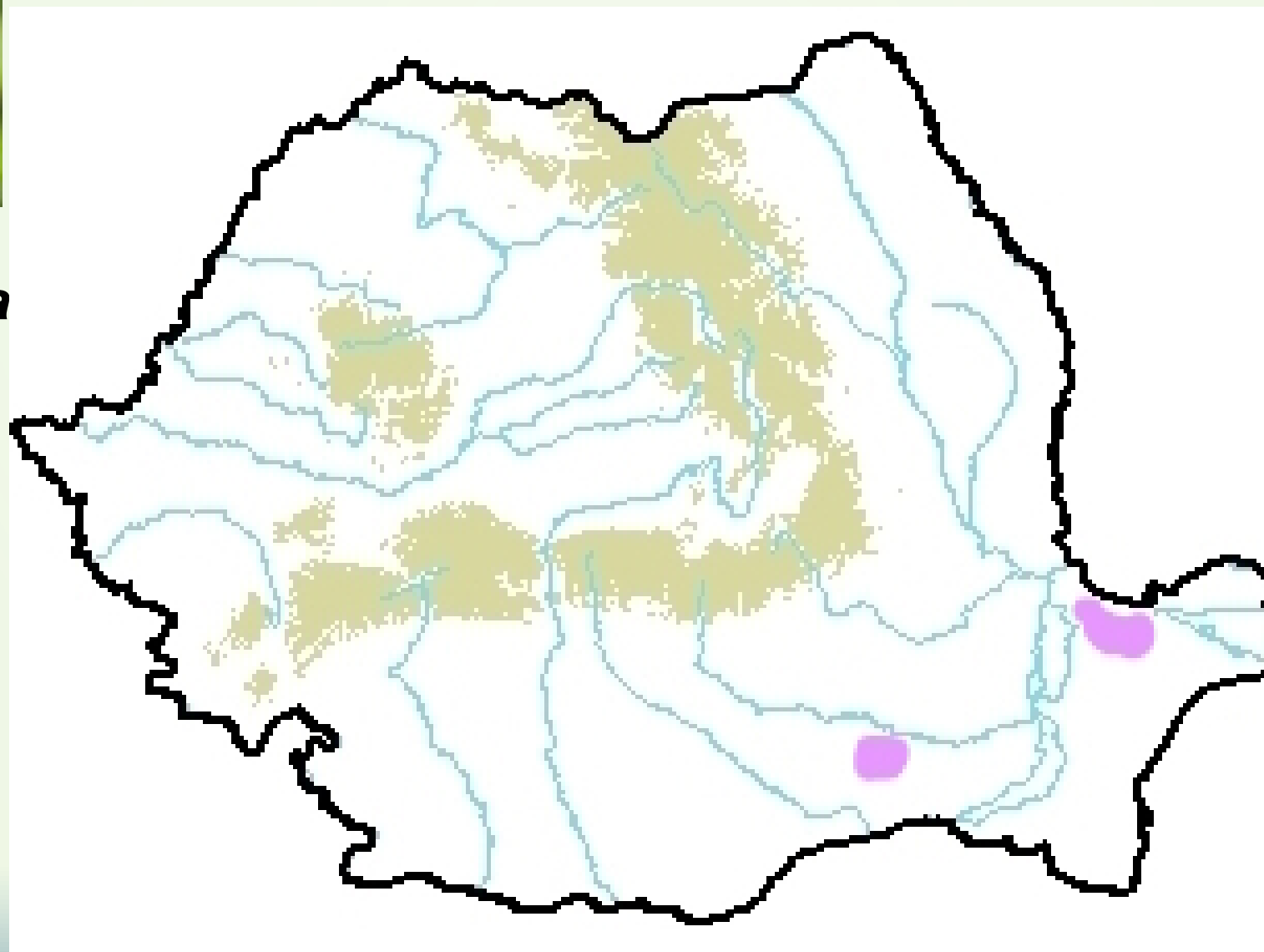
Neptis rivularis



1991-2023



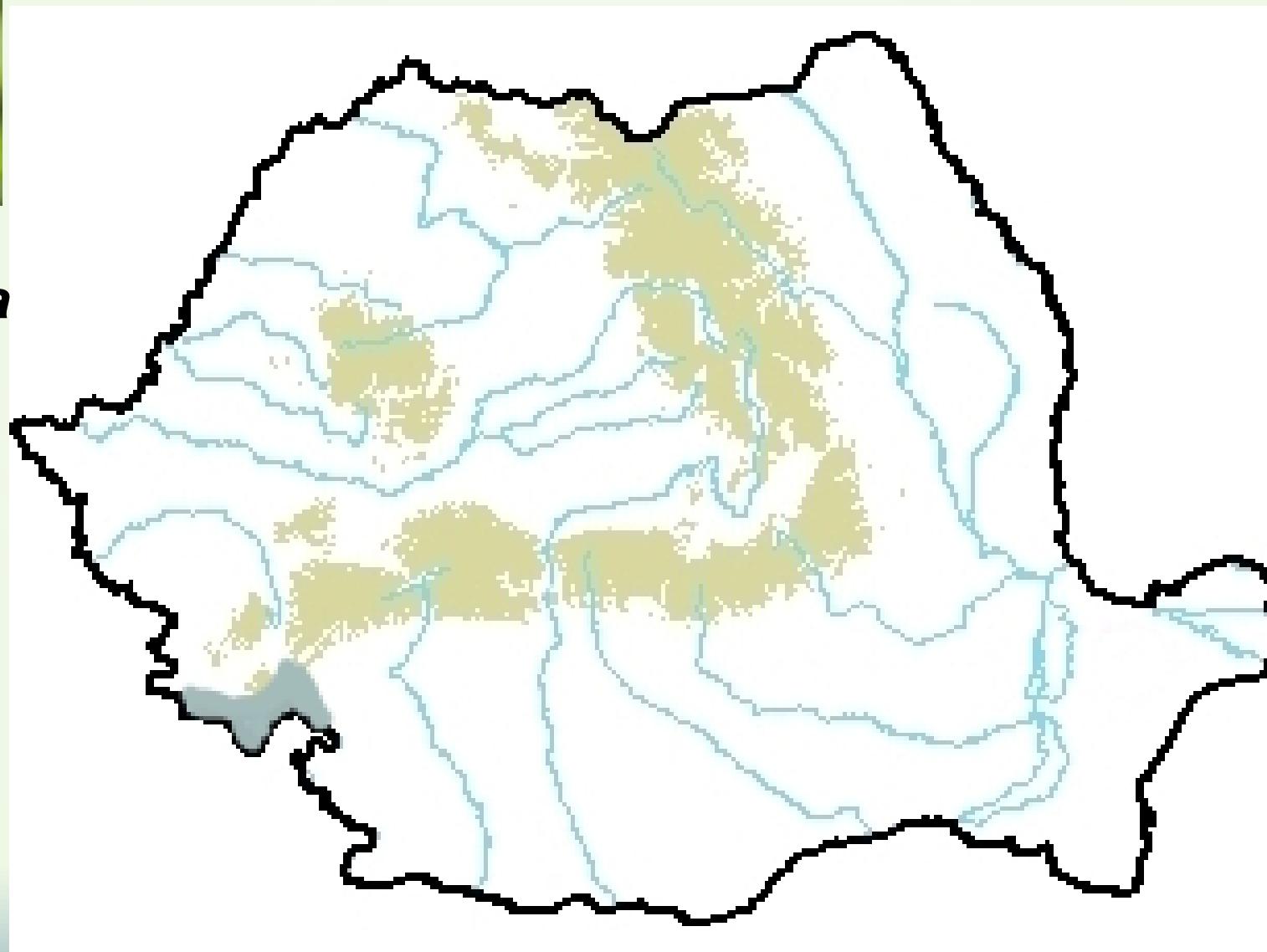
Melitaea arduina



<1960



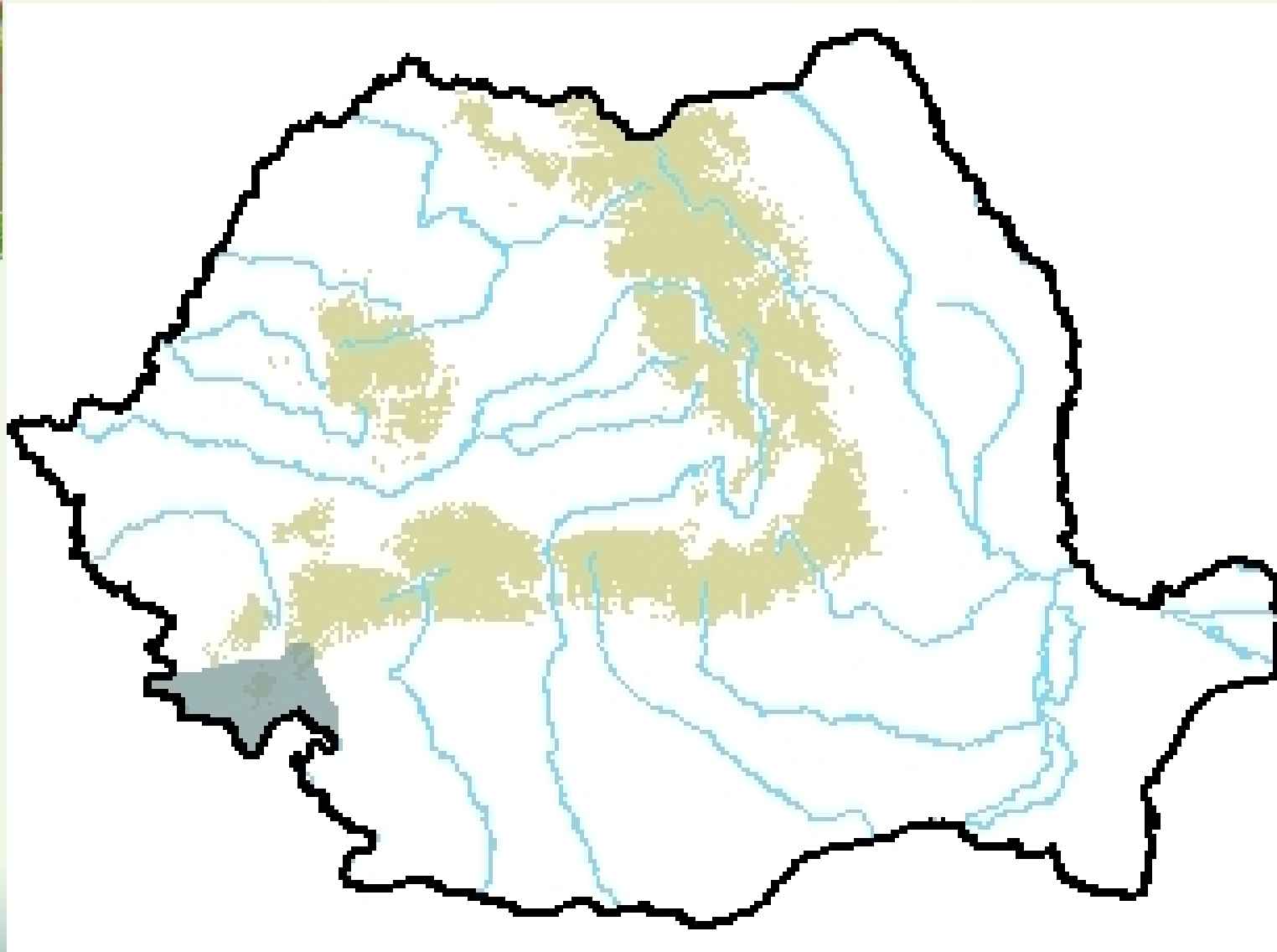
Melitaea arduina



>1990



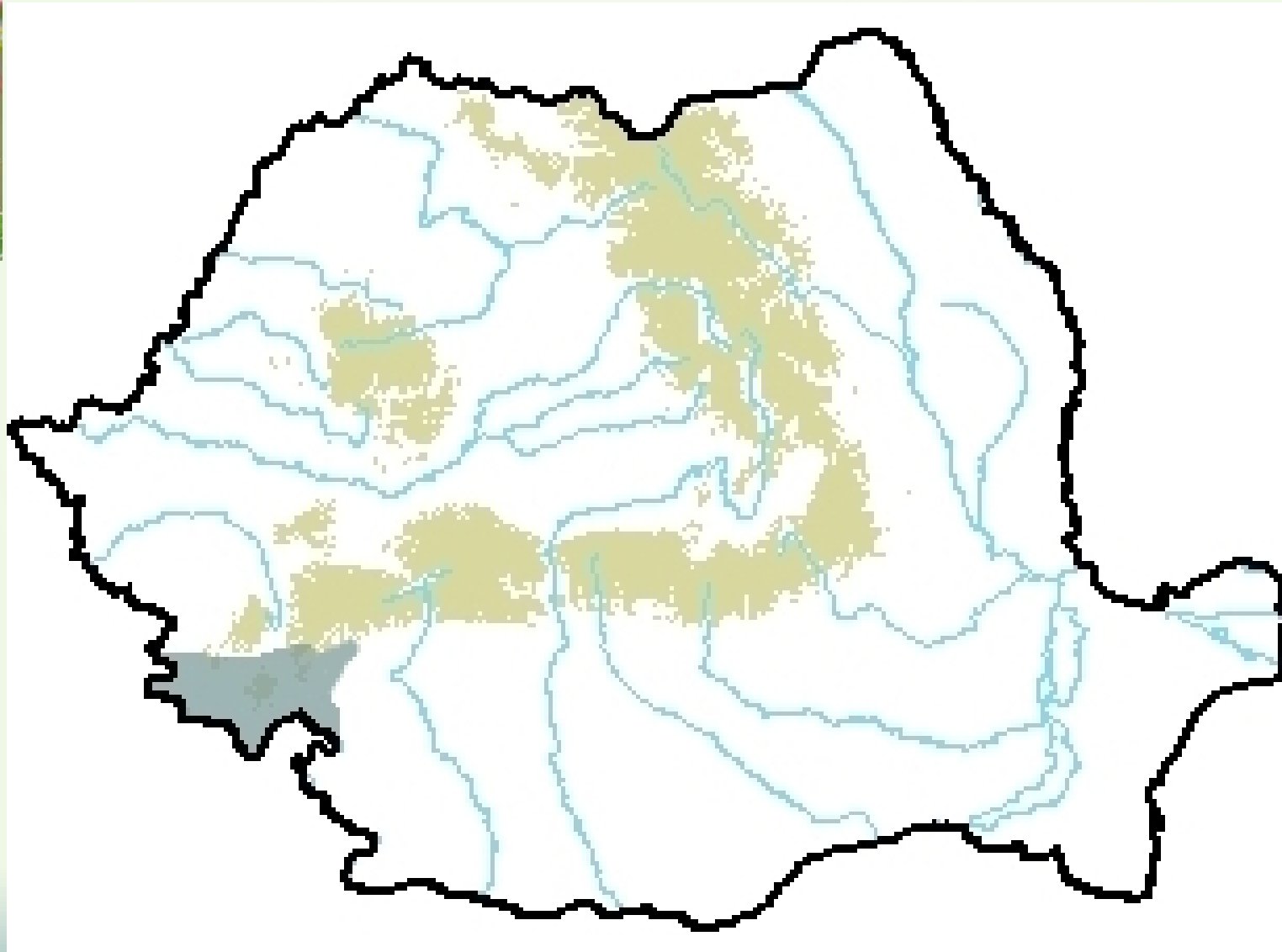
***Coenonympha
leander***



<1990



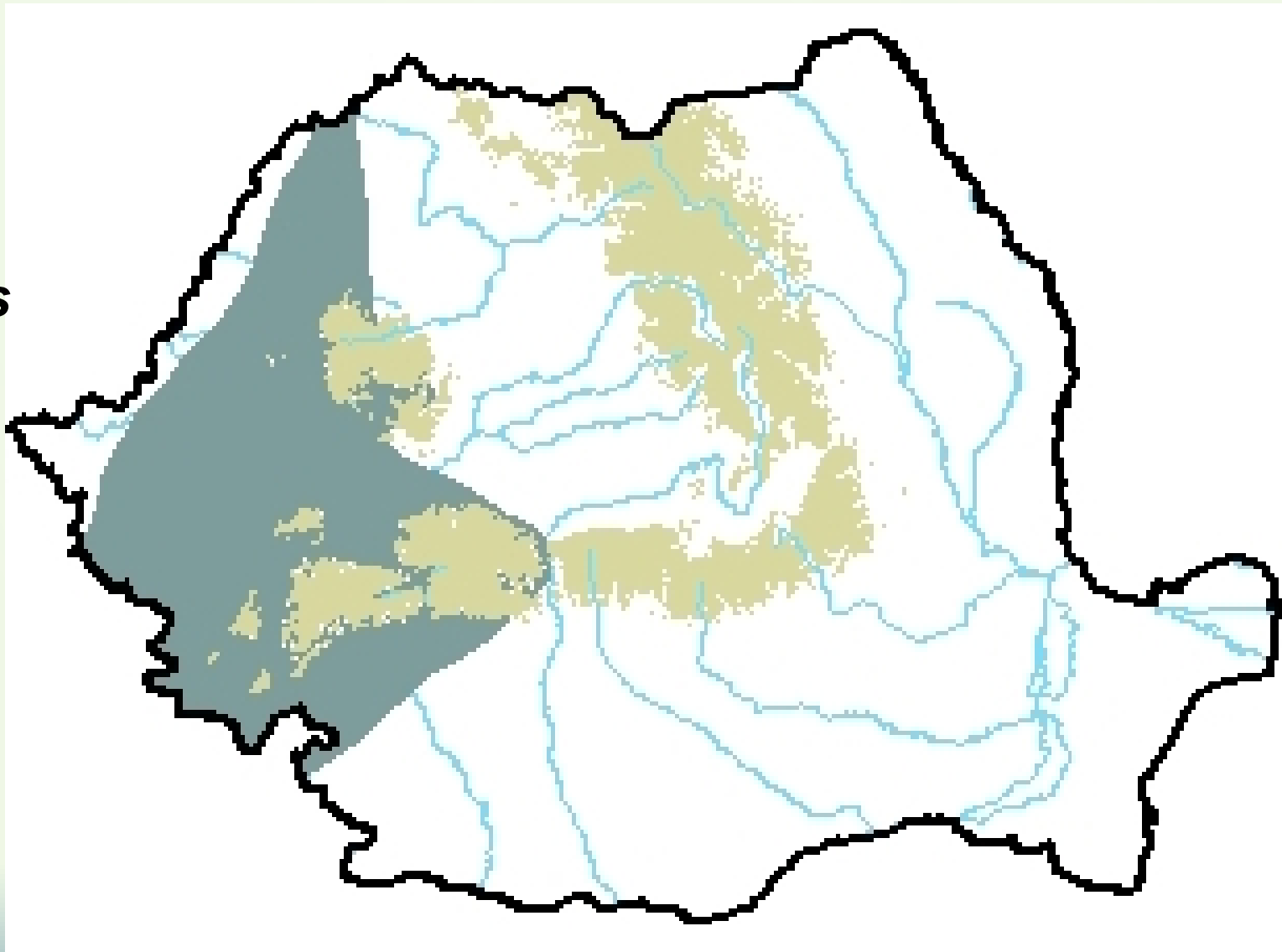
***Coenonympha
leander***



>1990



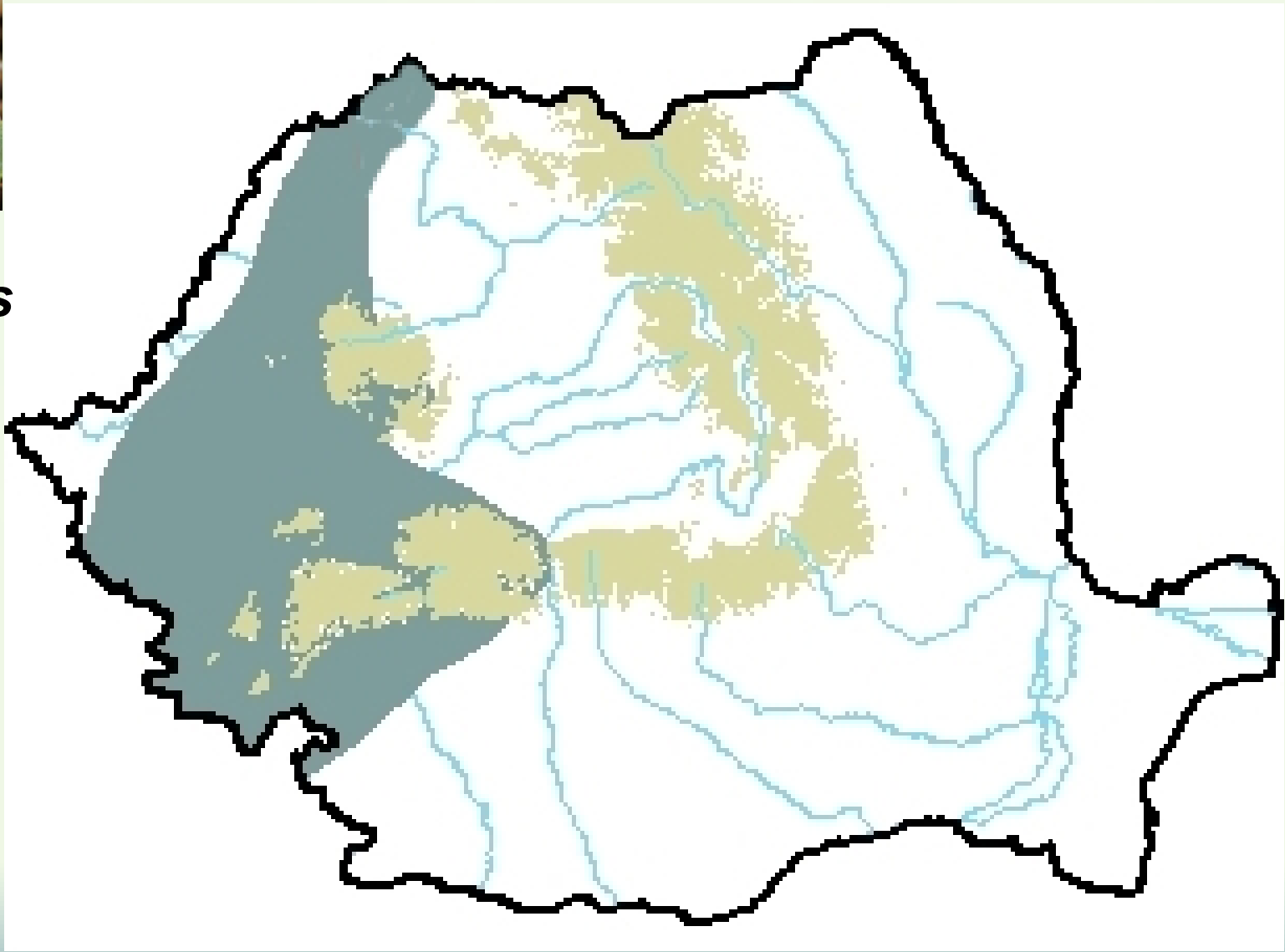
Pyronia tithonus



<1990



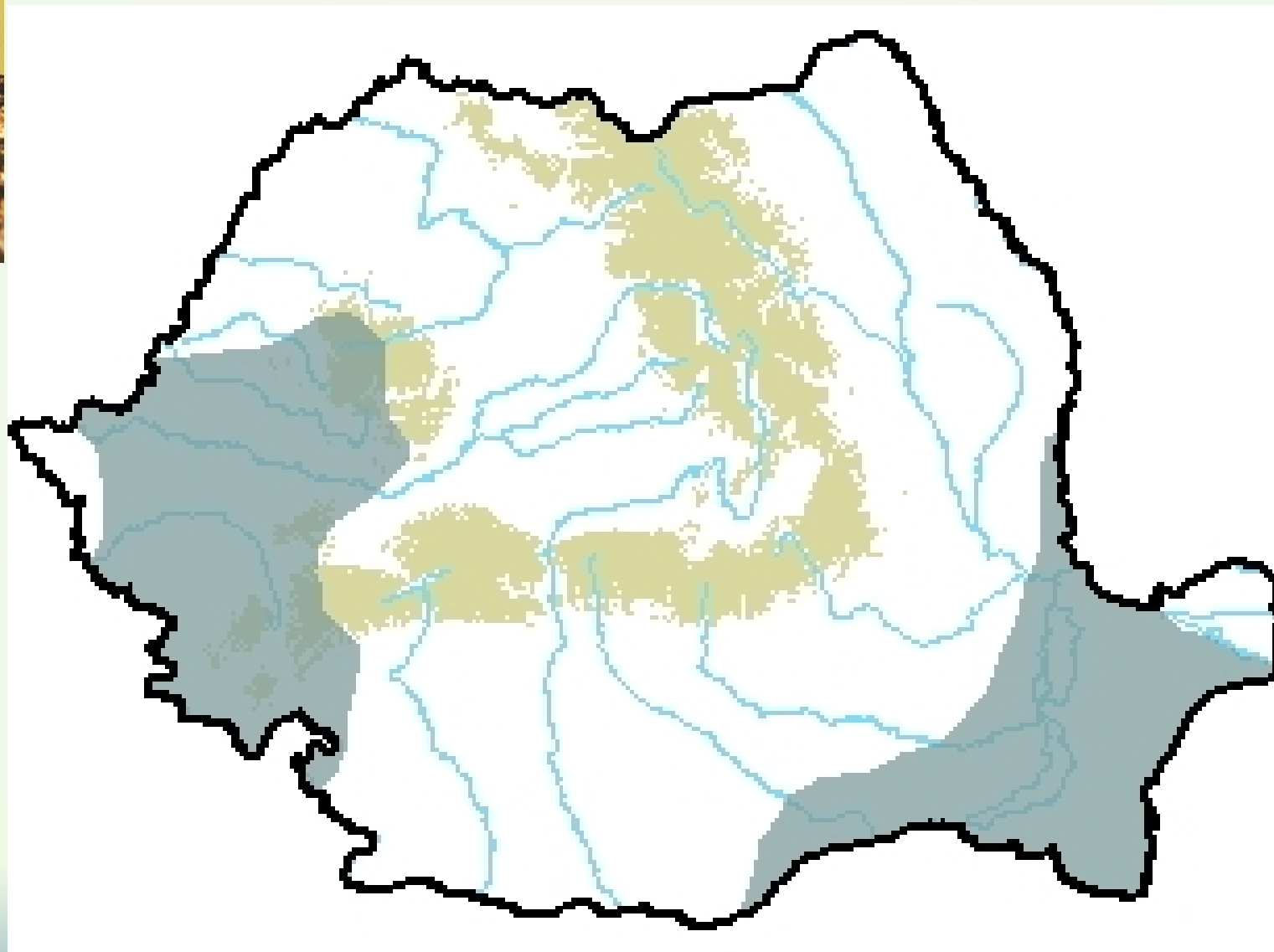
Pyronia tithonus



>1990



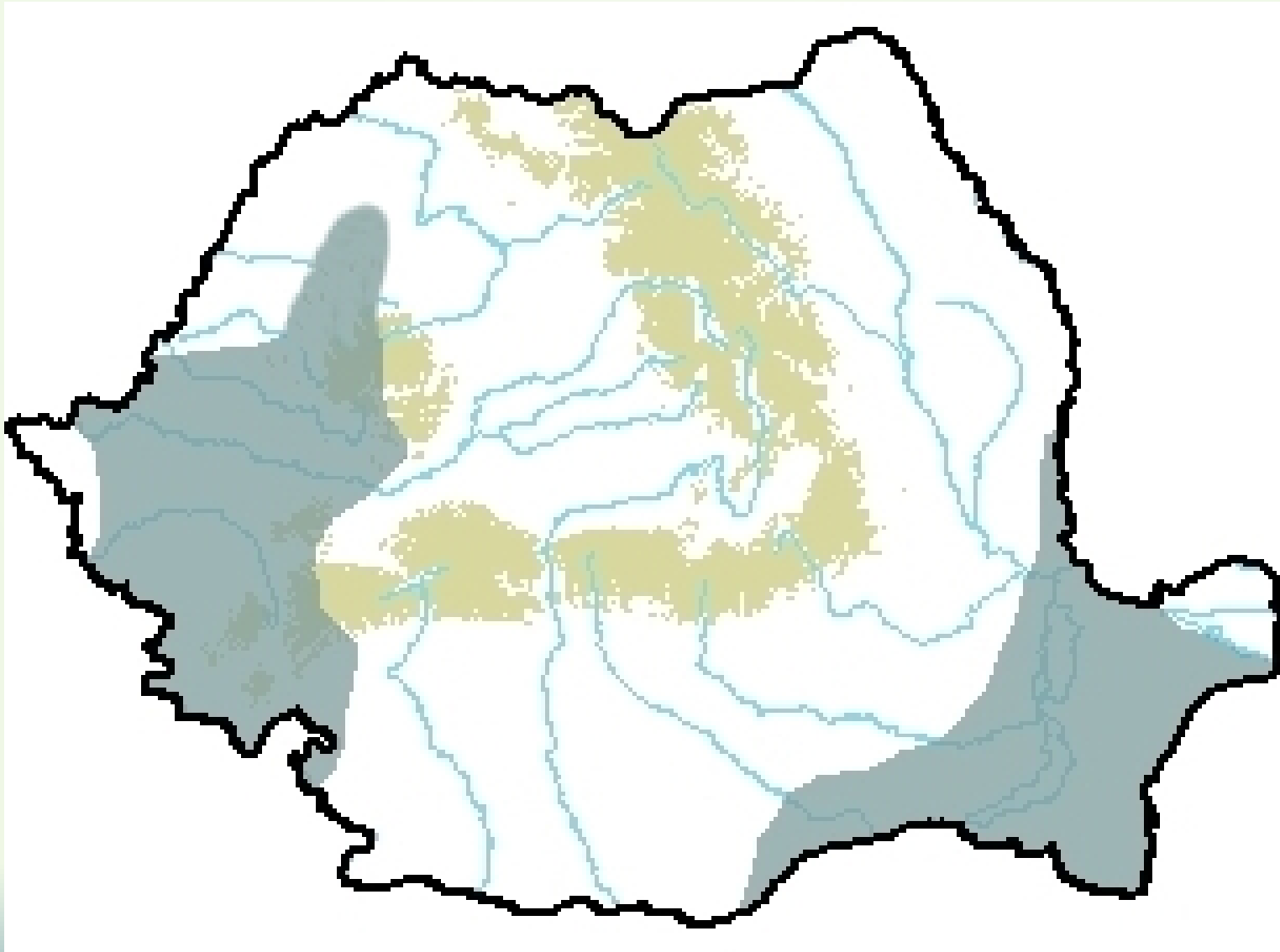
*Arethusana
arethusa*



<1990



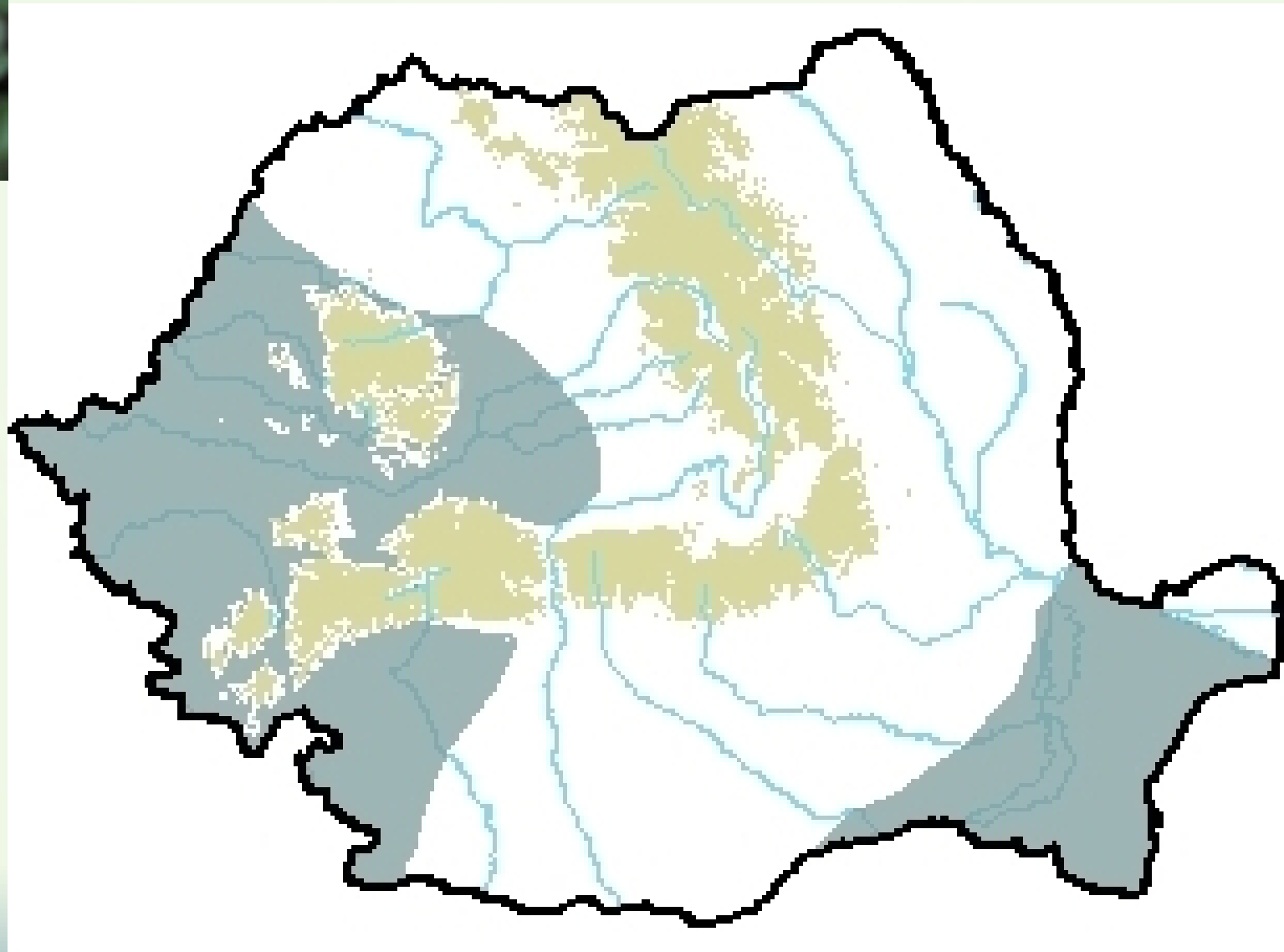
*Arethusana
arethusa*



>1990



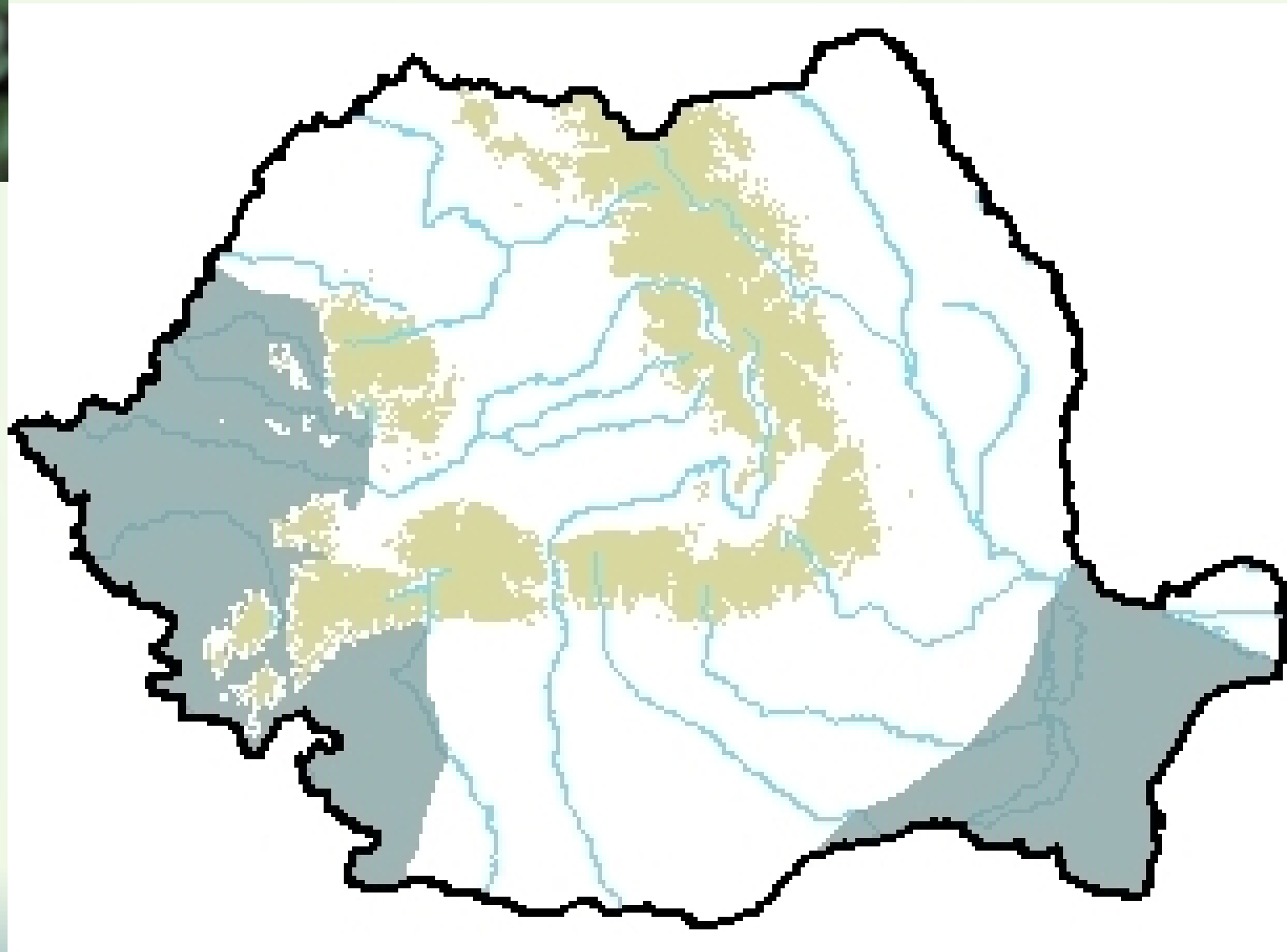
Brintesia circe



1950-1970



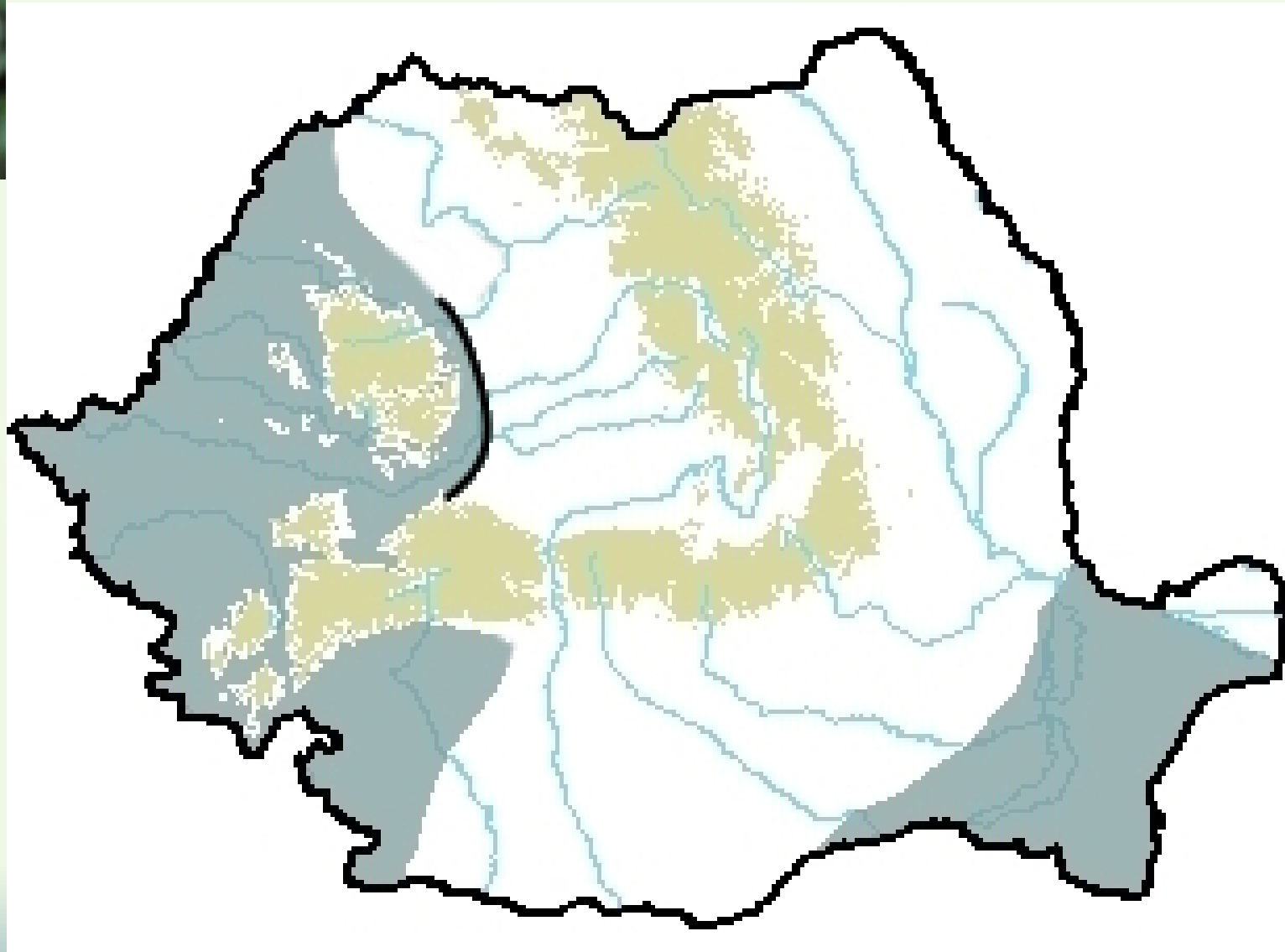
Brintesia circe



1971-1987



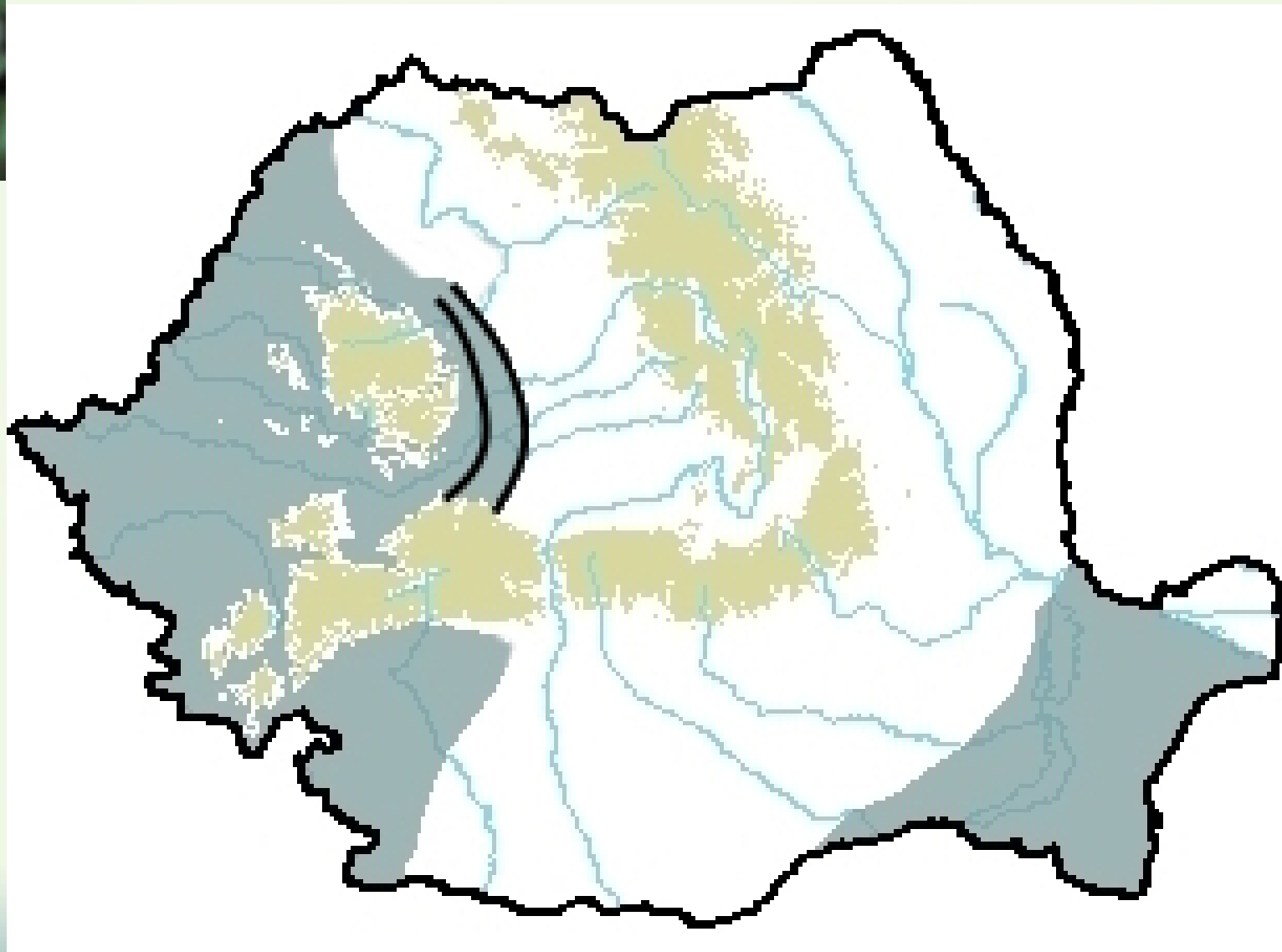
Brintesia circe



1988-1995



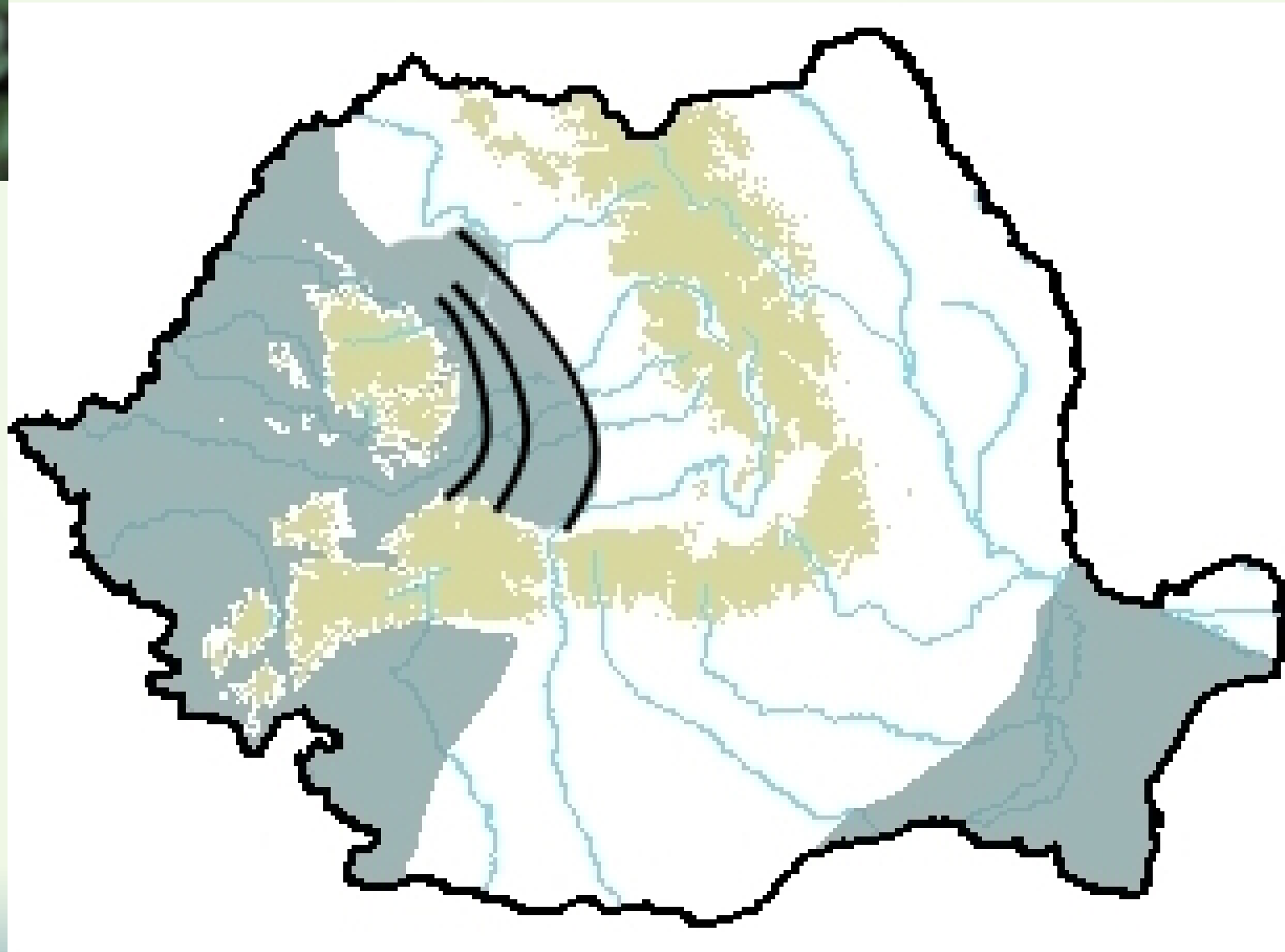
Brintesia circe



1996-2010



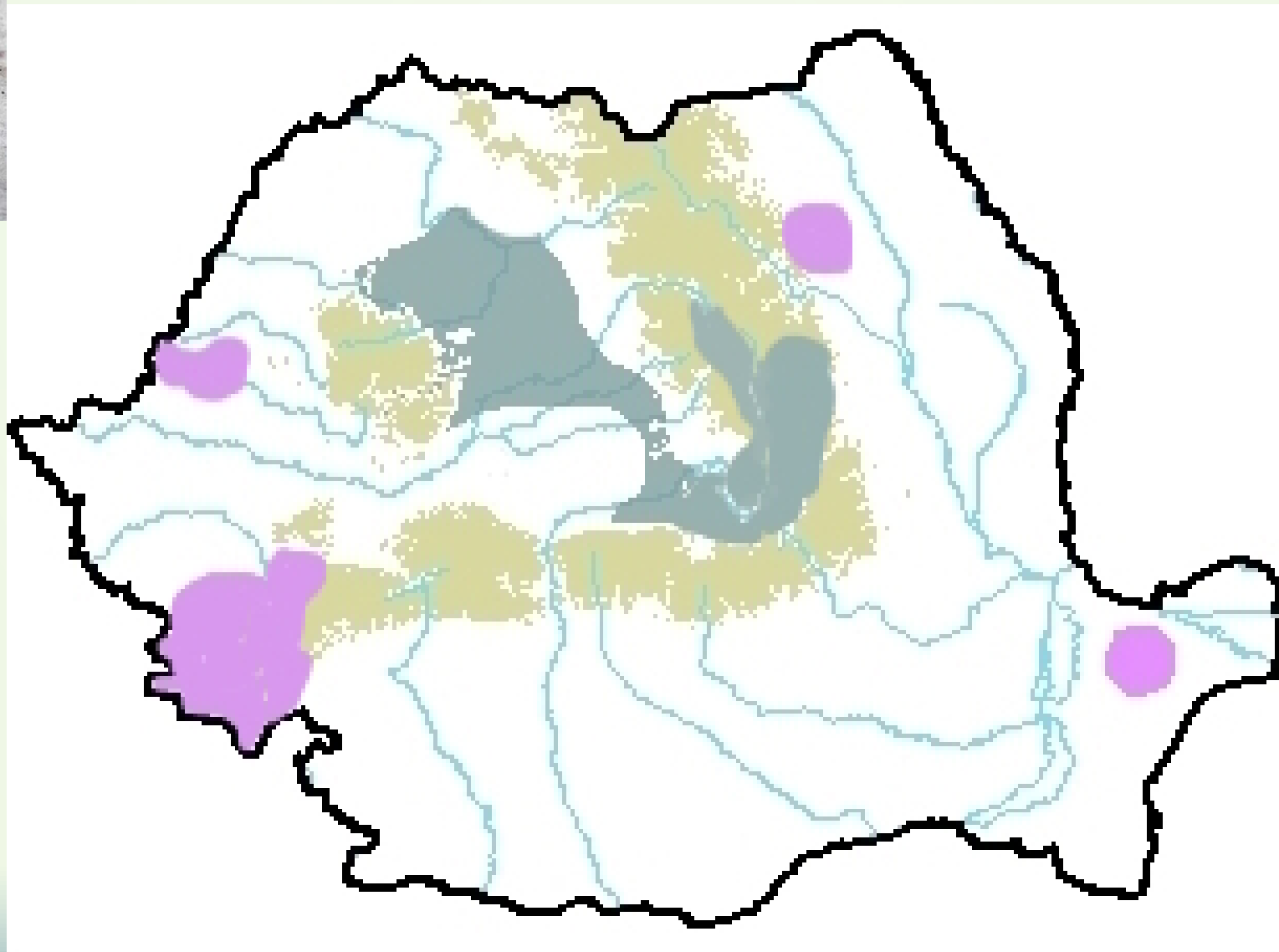
Brintesia circe



2011-2023



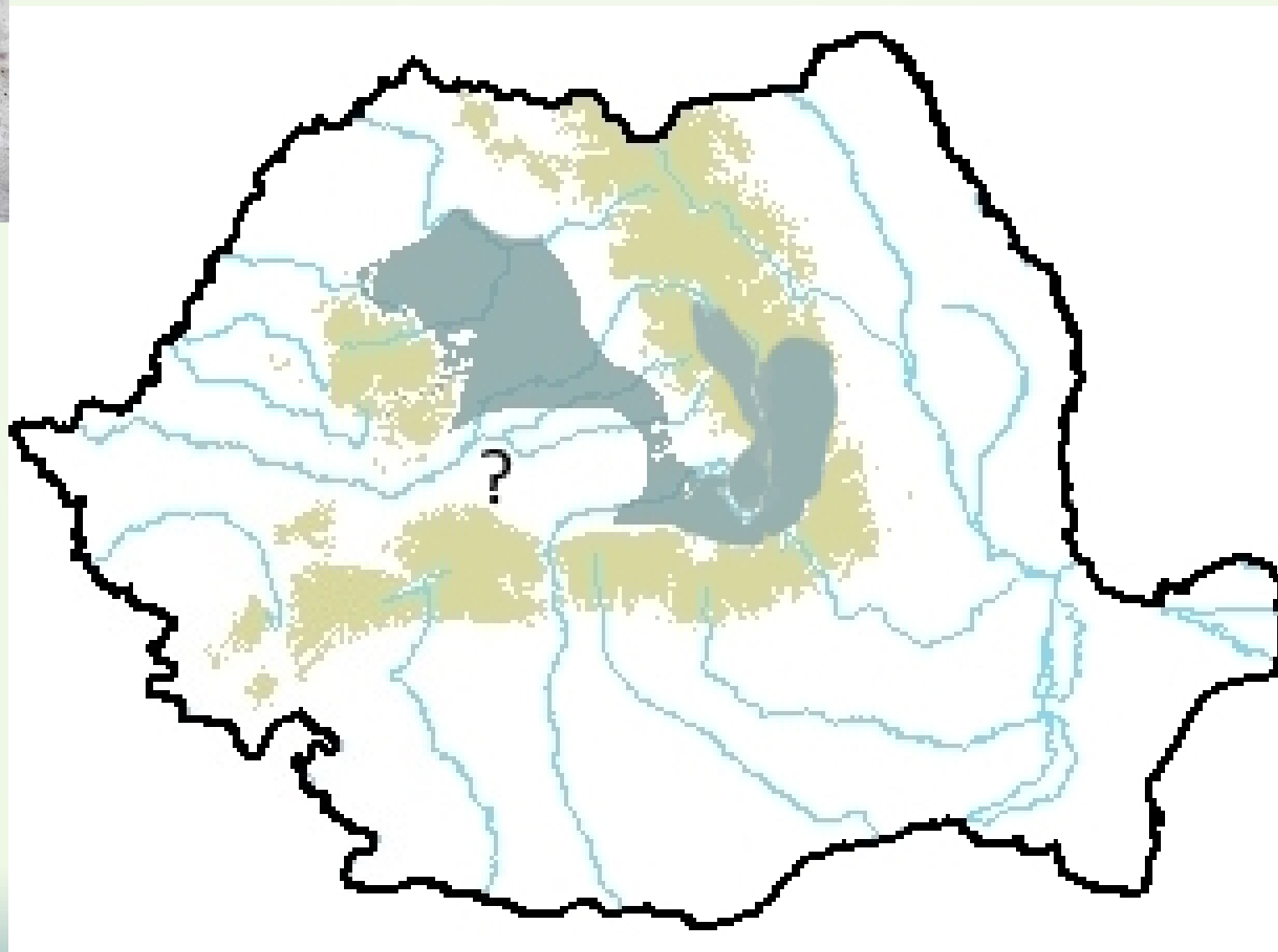
Chazara briseis



< 1950



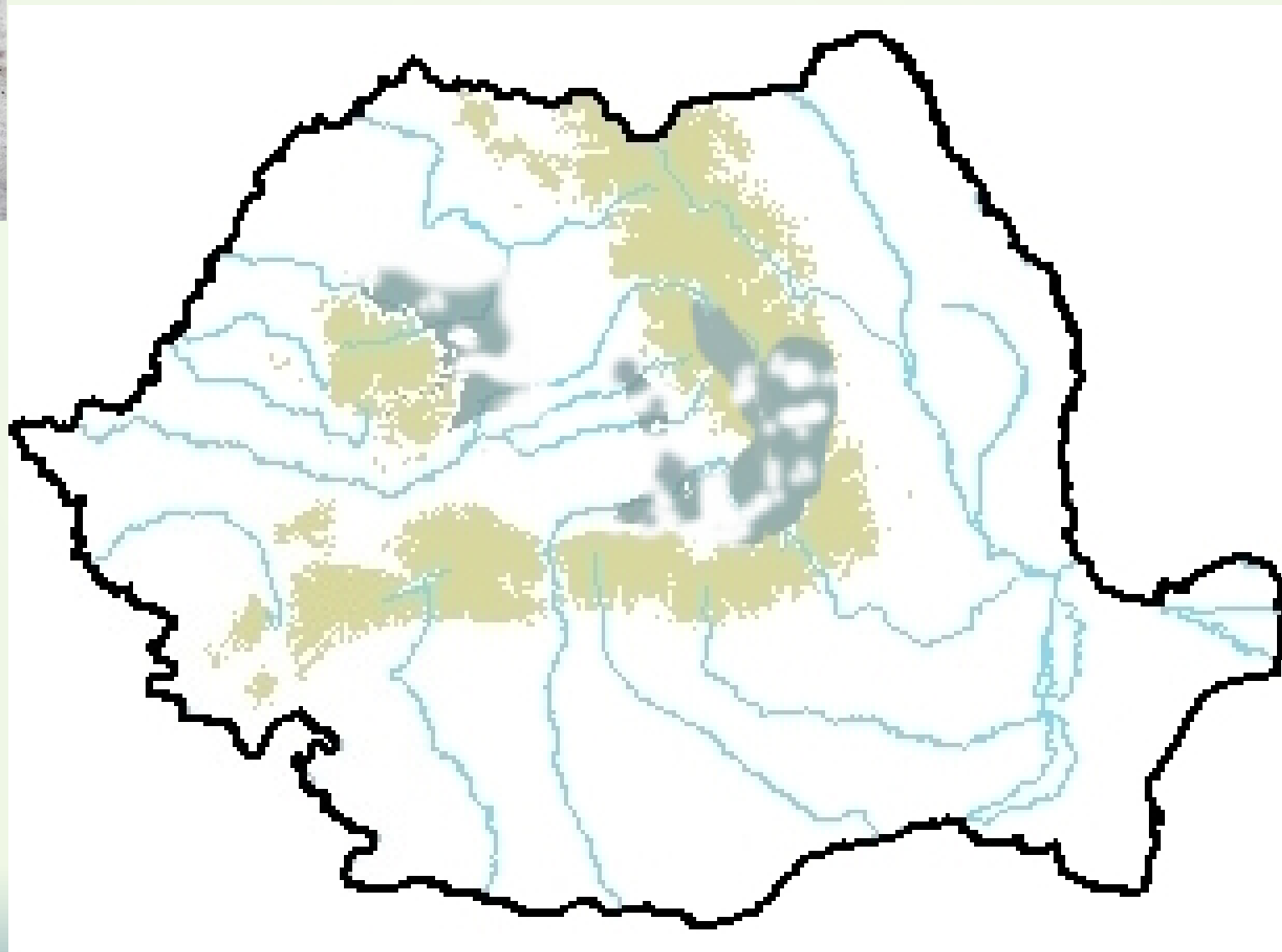
Chazara briseis



1950-1990



Chazara briseis



1991-2023

Ursachen der Regression

- Landwirtschaftliche Intensivierung: Insektizide, Herbizide und Düngemittel
- Aufgabe von ehemals extensiv bewirtschafteten Flächen
- Bodenversauerung und Eutrophierung aufgrund der atmosphärischen Ablagerung von SO_2 , NO_x und N_hy
- Zerstörung und Fragmentierung von Lebensräumen
- Klimawandel mit natürlichen und anthropogenen Ursachen
- Der derzeitige Rückgang könnte die Folge langfristiger Umweltzerstörungsprozesse im Zusammenhang mit dem Anthropozän sein.

Ursachen der Expansion

- Kombinierte Auswirkungen von Umweltfaktoren, biotischen Wechselwirkungen, menschlichen Einflüssen und der Lebensgeschichte der Arten.

Defizite in der Forschung

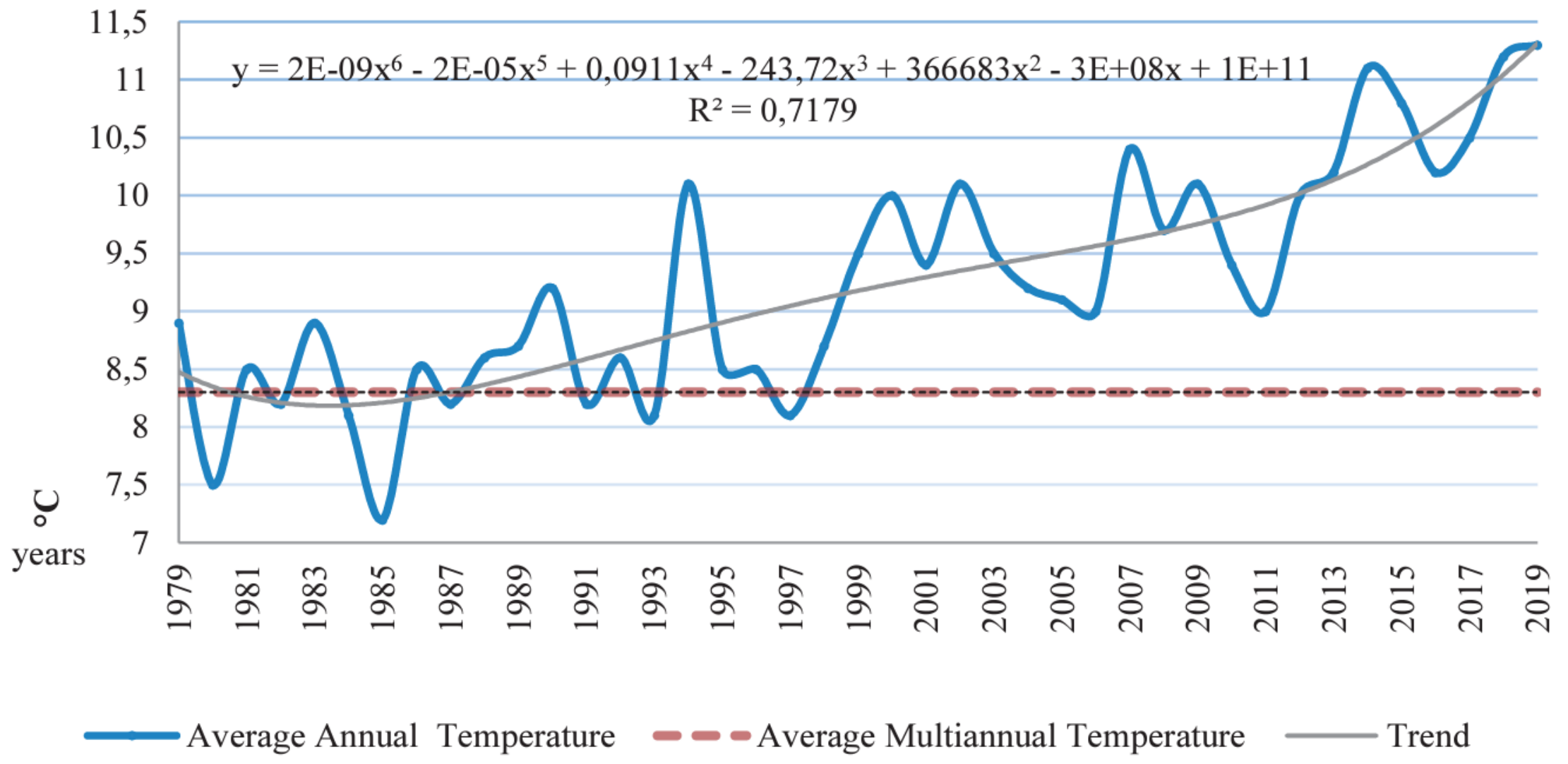
- Die Verbreitungsdynamik ist sehr komplex und schwer zu erklären, da es schwierig ist, alle Daten bei einer großen Zahl von Arten mit den außen- und innen-Faktoren zu verknüpfen.
- Wir untersuchen den Druck des Menschen, insbesondere die Landnutzung und den Klimawandel, doch weniger die inneren Merkmale der Arten als potenzielle Triebkräfte für die Veränderung der Verbreitung.
- Wir kennen nur lokale oder regionale Veränderungen, ohne eine globale Perspektive zu betrachten.

Dank an alle Lepidopterologen, von denen ich in den letzten 50+ Jahren nützliche Informationen für diese Studie erhalten haben.

Dank an Cristina Sevilleja von „Butterfly Conservation Europe“ für die Bereitstellung von synthetischen Karten zum Tagfalter-Monitoring in Europa.

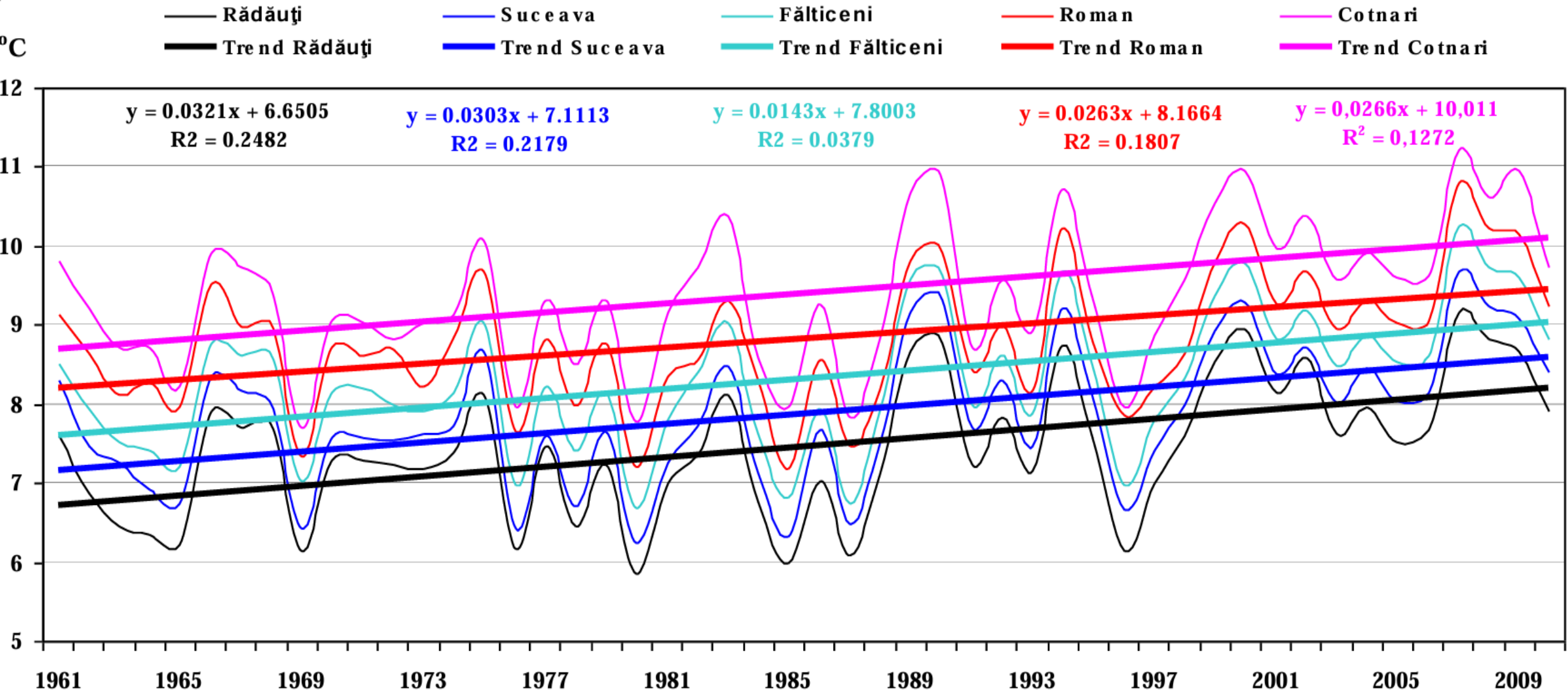
Besonderen Dank an Elisabeth Kuhn für die freundliche Einladung nach Leipzig zu kommen.





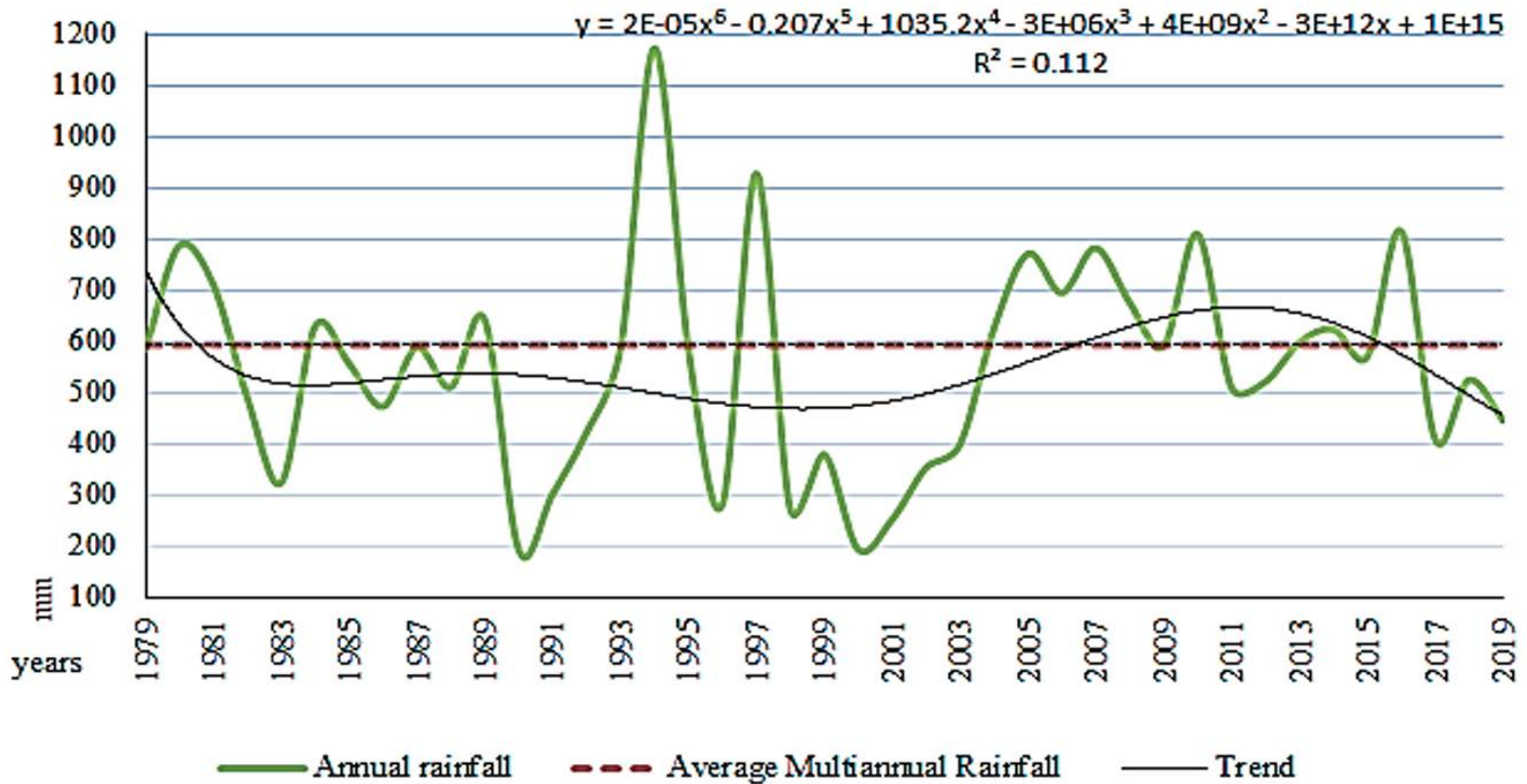
The average annual temperature variation compared to the multiannual average and their trend of evolution in Cluj-Napoca, between 1979 and 2019

Source: THE VARIATION OF TEMPERATURE AND RAINFALL IN THE MUNICIPALITY OF CLUJ-NAPOCA IN THE INTERVAL 1979-2019, <https://landreclamationjournal.usamv.ro/pdf/2020/Art21.pdf>



The average annual temperature variation in Podișul Sucevei (Moldova), between 1961 and 2009

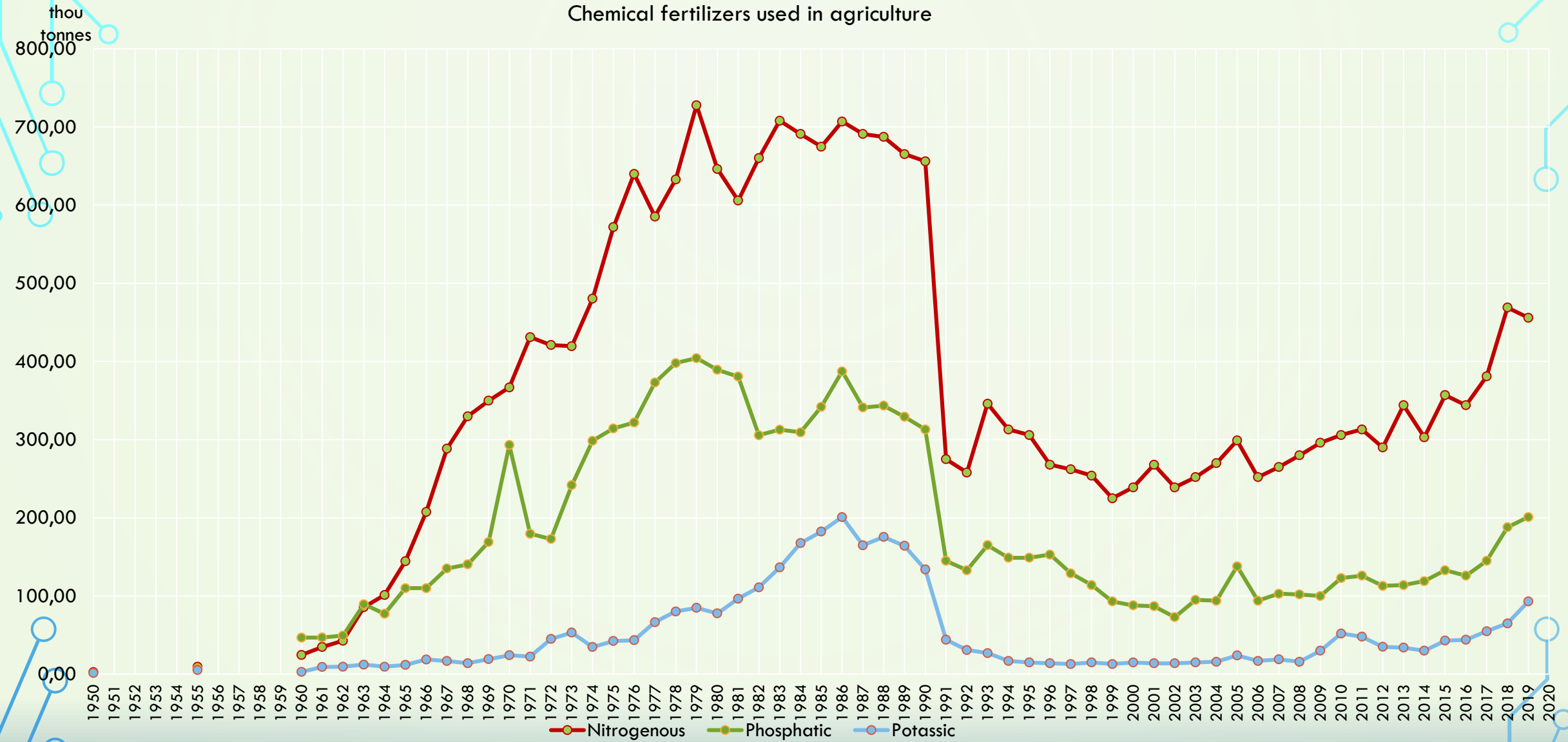
Source: Clima Podișului Sucevei – fenomene de risc, implicații în dezvoltarea durabilă, http://atlas.usv.ro/www/geografie/pagini/prima_pagina/Rez_teza_Tanasa.pdf



The variation of the average annual precipitation amounts compared to the multiannual average and the evolution trend in Cluj-Napoca, between 1979 and 2019

Source: THE VARIATION OF TEMPERATURE AND RAINFALL IN THE MUNICIPALITY OF CLUJ-NAPOCA IN THE INTERVAL 1979-2019, <https://landreclamationjournal.usamv.ro/pdf/2020/Art21.pdf>

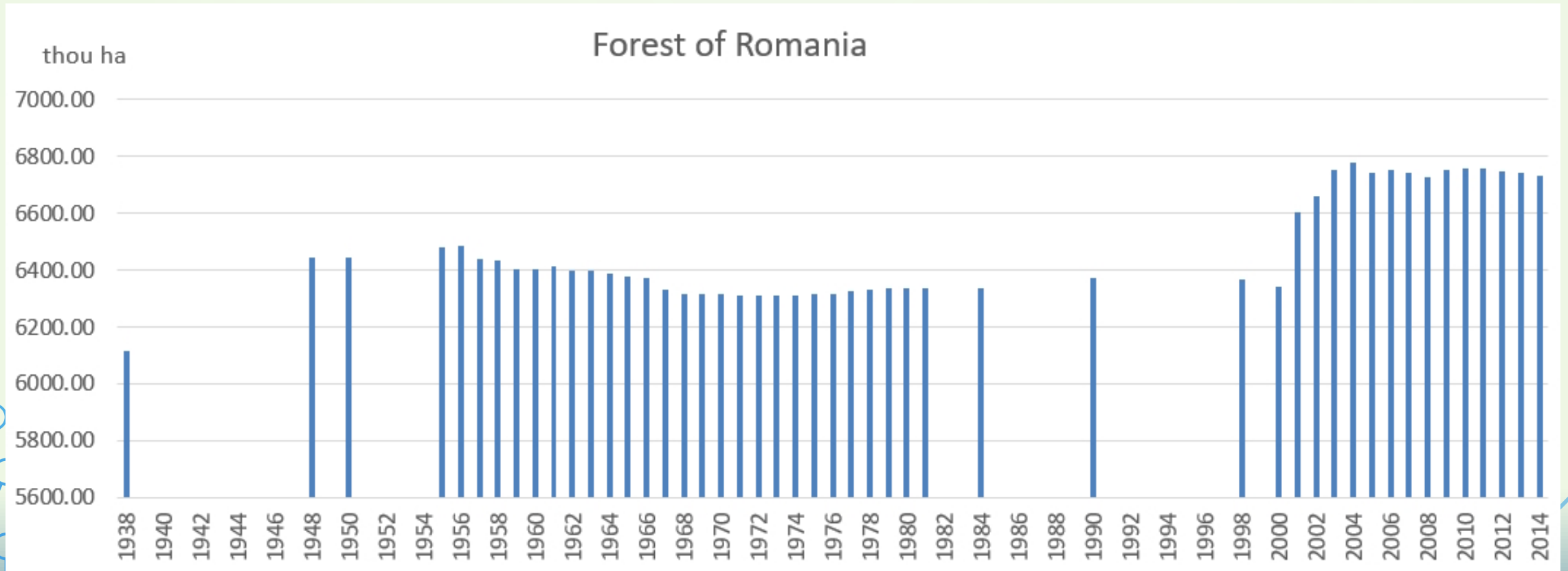
Chemical fertilizers used in agriculture



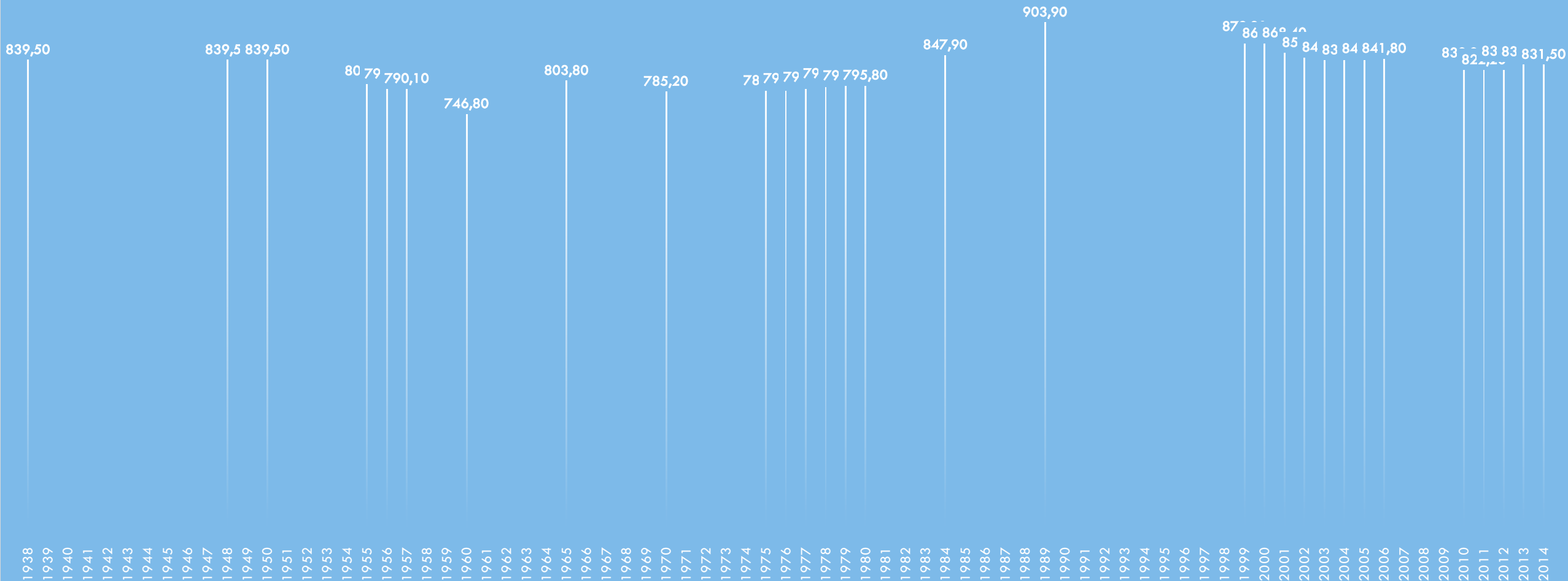
Chemical fertilizers used in agriculture

Source: Romanian Statistical Yearbooks

Waldfläche in Rumänien



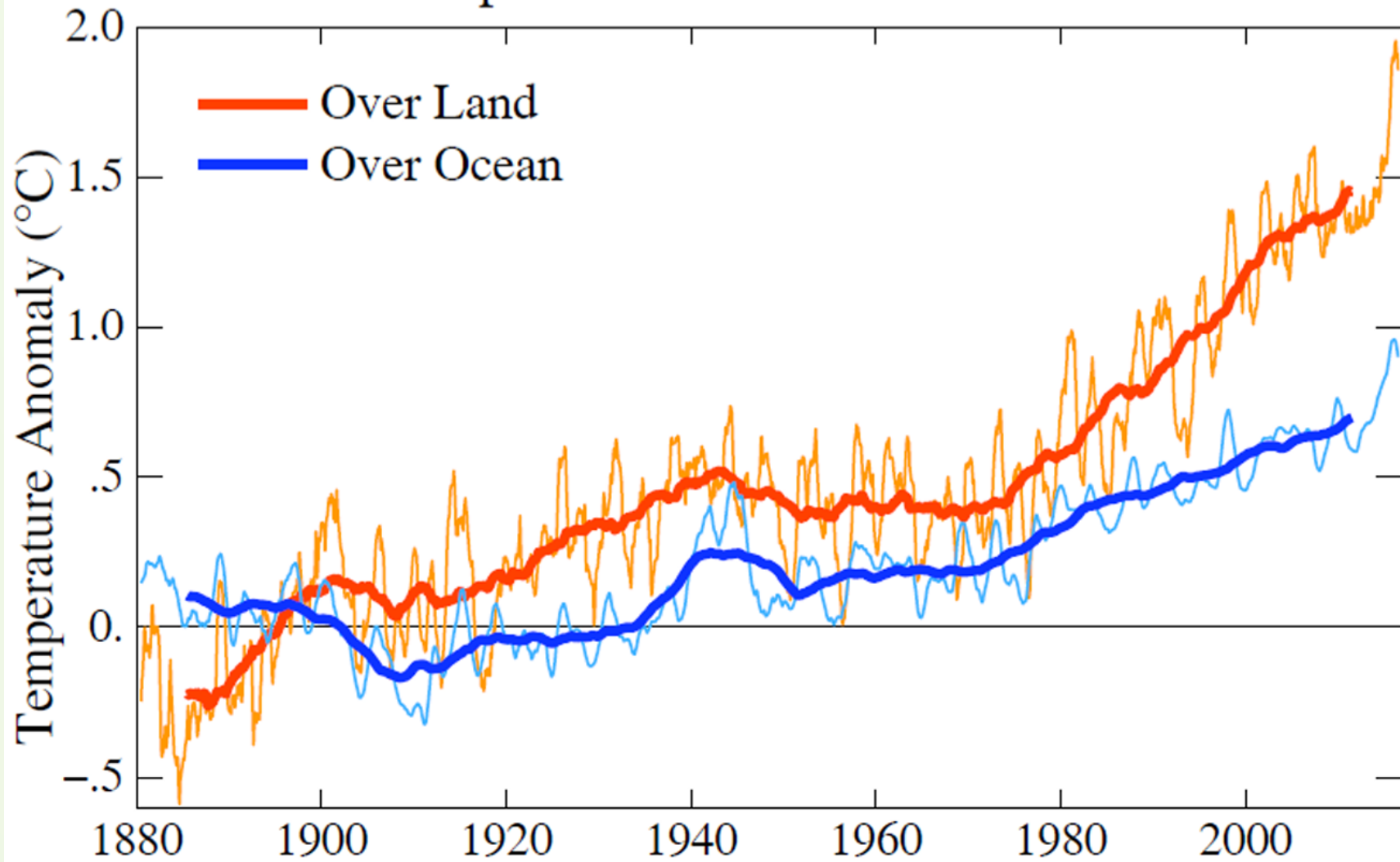
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Lakes and wetlands evolution in Romania (thousands ha).

Source: Romanian Statistical Yearbooks

Surface Temperature Relative to 1880–1920 Mean



Global land and global ocean surface temperature anomalies. Light lines are 12-month running means and heavy lines are 132-month (11-year) running means.

Source: https://www.columbia.edu/~jeh1/mailings/2017/20170118_Temperature2016.pdf

