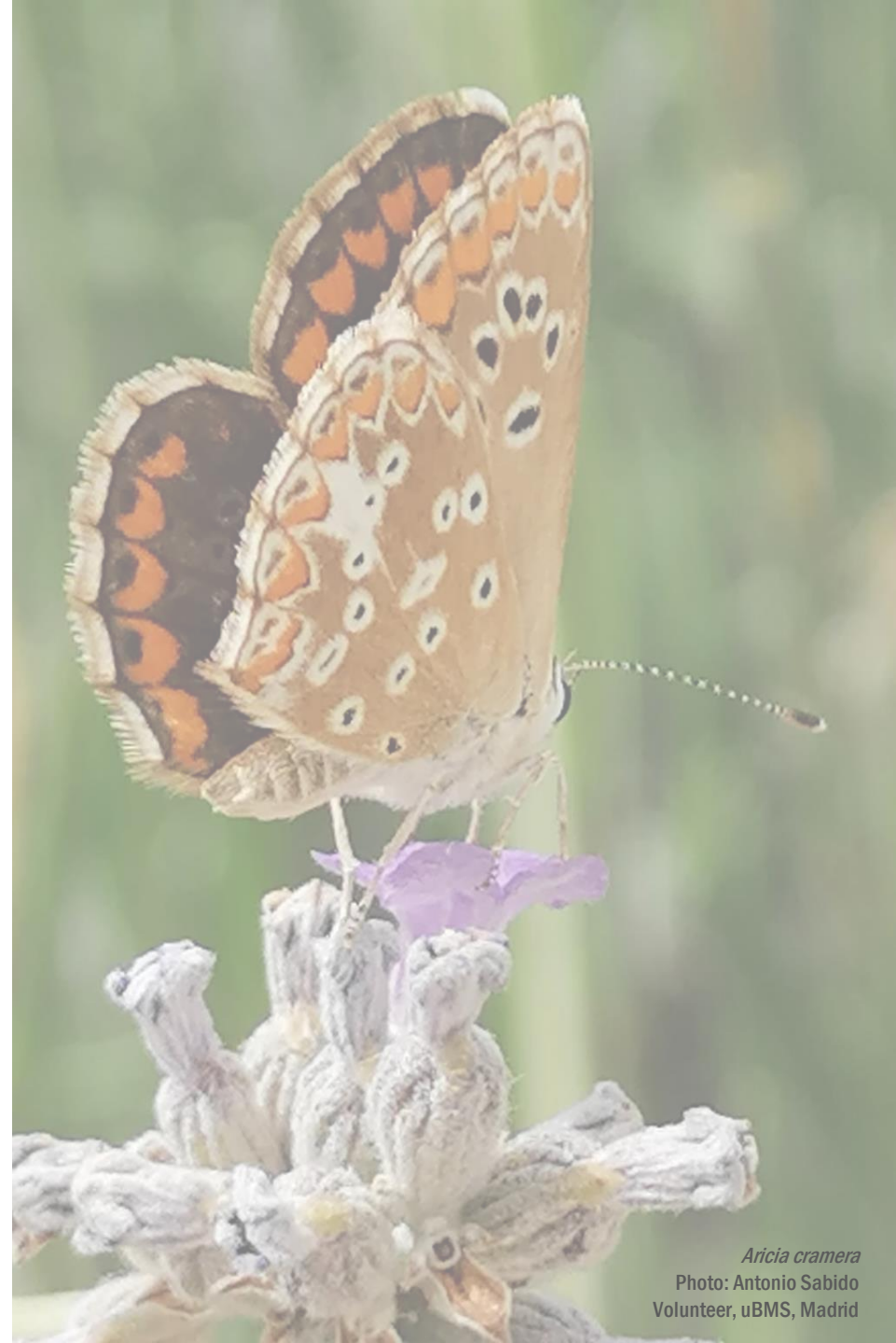


Urban Butterfly Monitoring Scheme

Yolanda Melero



Aricia cramera
Photo: Antonio Sabido
Volunteer, uBMS, Madrid

"uBMS: urban butterfly monitoring scheme"

2018 - ongoing



MADRID



Citizen science project in Barcelona and Madrid to collect **long term temporal data on butterfly** species abundances **in urban areas**.

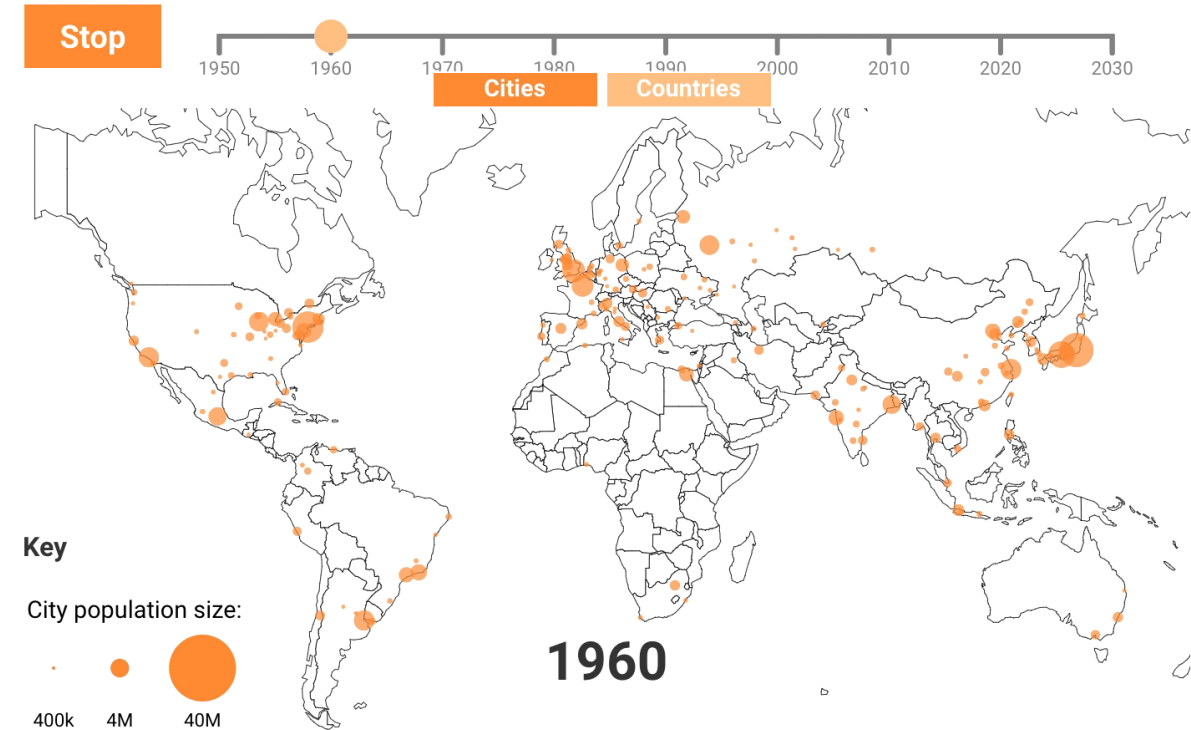
Describing **taxonomical and functional biodiversity in urban areas**, and understand their **patterns and processes**, focusing on **adaptations and dynamics**.



BUTTERFLY MONITORING TO BETTER UNDERSTAND URBAN BIODIVERSITY



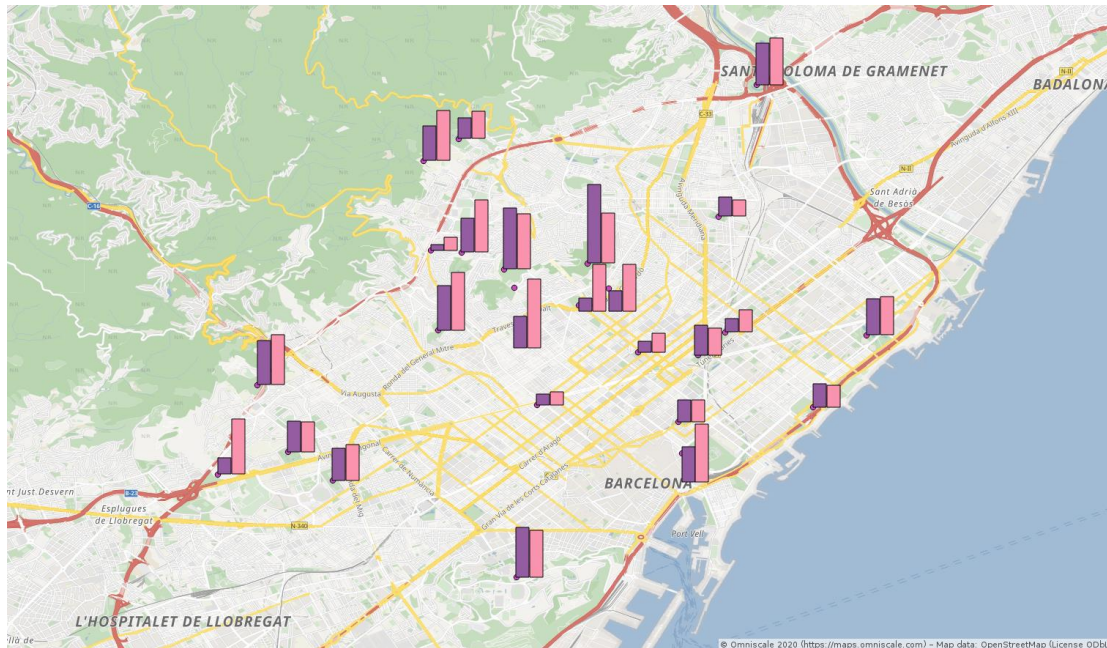
Changes in urbanization: 1950–2030



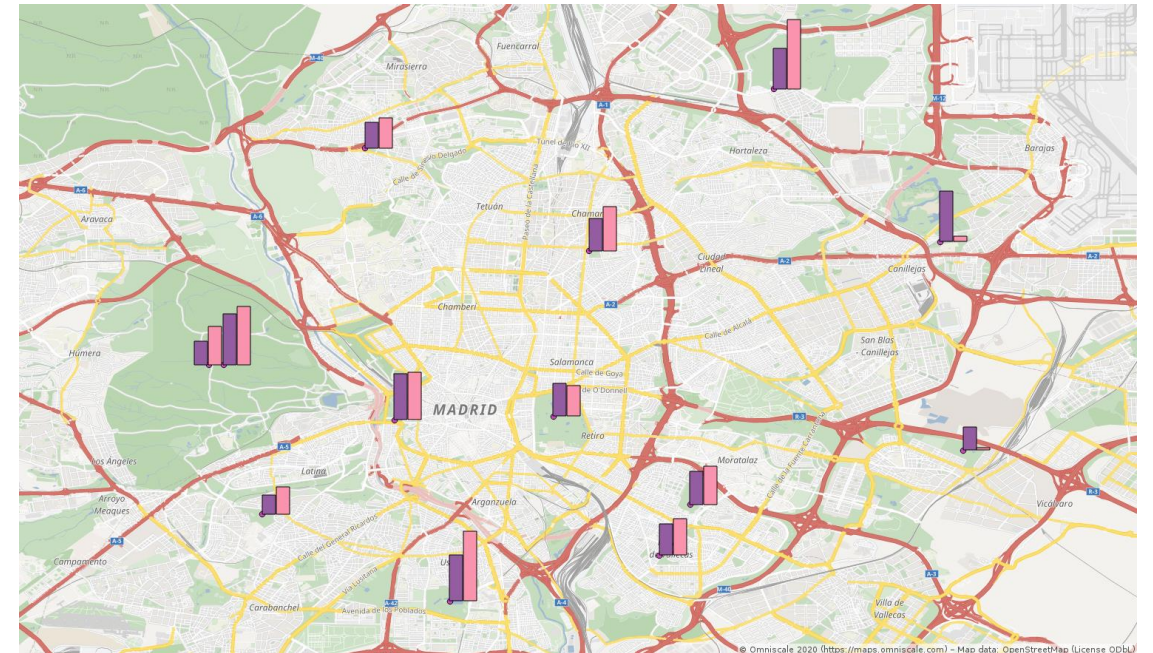
Malakoff *et al.* ZUIB Science, 532.

COVERING URBAN PARKS OF DIFFERENT CHARACTERISTICS: CONNECTIVITY, VEGETATION AND SIZE

■ Average number of species 2018-2021
■ Number of species 2022

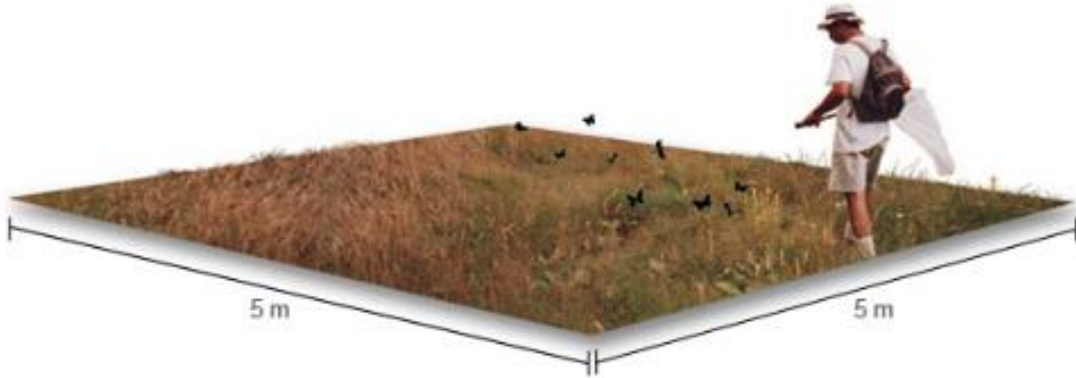


Map of Barcelona monitoring sites. A total of 29 sites are offered, of which 25 are being monitored.



Map of Madrid monitoring sites. A total of 25 sites are offered, of which 13 are being monitored.

METHODOLOGY: BMS + COCONUT PROJECT



Pollard Walk - As in any BMS



Con el apoyo de:



Parque de la Almodena (Parque del Crematorio de la Almodena)

Dirección: Calle Nicolás Salmerón, 4. 28017 Madrid (Pueblo Nuevo - Ciudad Lineal).

Horarios: siempre abierto.

Cómo llegar: Metro La Almodena (Línea 2); Buses 70 y 106.

Página web [aquí](#)



Transecto (en rojo) y área de paseo (verde) de la Almodena (Madrid).
Longitud del transecto: 300 m. Tiempo de paseo: 20 minutos.

+Walk around time – relative to the garden/park size

ONLINE DATABASE – COLLABORATIVE ACCESS WITH ADMINISTRATIONS

Detalle de muestreo

Censador:

ymelero

Ubicación:

Jardí del Palau Robert - (BARCELONA)

Fecha:

7 de Octubre de 2022

Hora inicio:

11:40

Hora fin:

12:00

Viento inicio:

0

Sol inicio:

Completament assolellat

Viento fin:

0

Sol fin:

Completament assolellat

Comentarios:

BORRAR

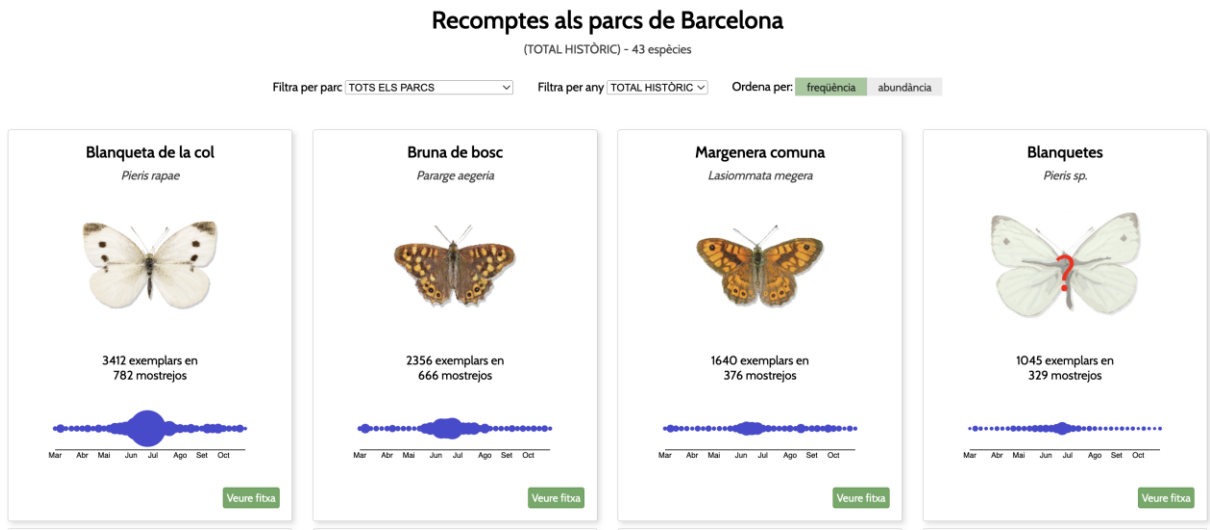
Recuentos

Nuevo recuento

Iphiclidus feisthamelii

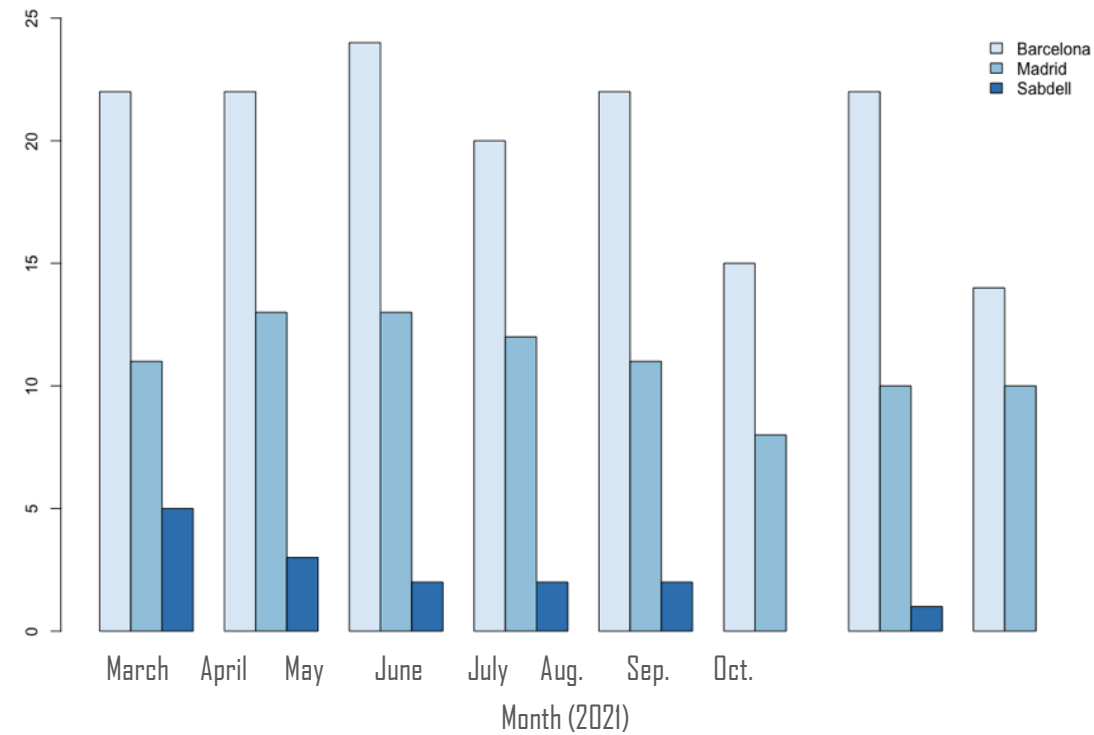
Sexo	Transecto	Paseo
Macho	0	0
Hembra	0	0
Indeterm.	2	0

Managers and some volunteers have access and use the data



VOLUNTEERS WITH DIVERSE BACKGROUNDS, FLEXIBILITY OF PARTICIPATION

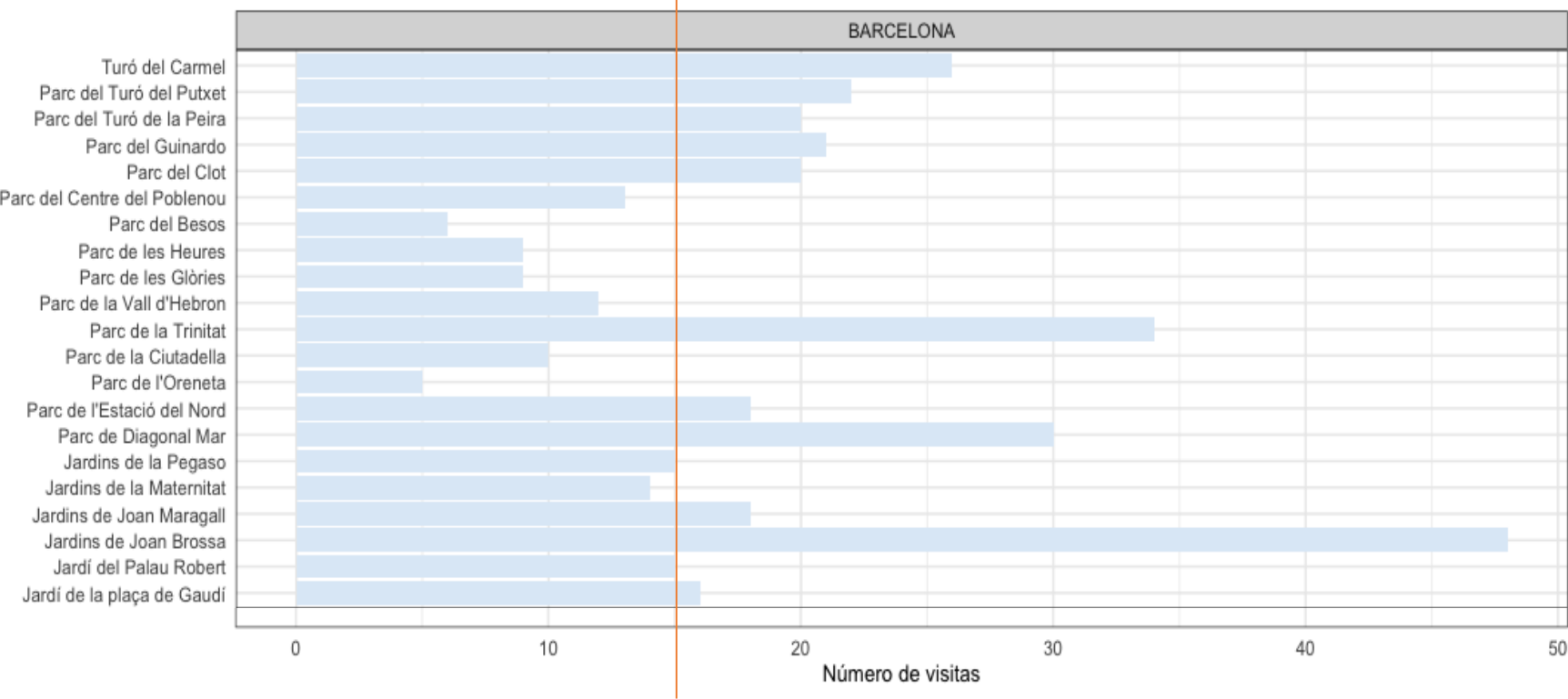




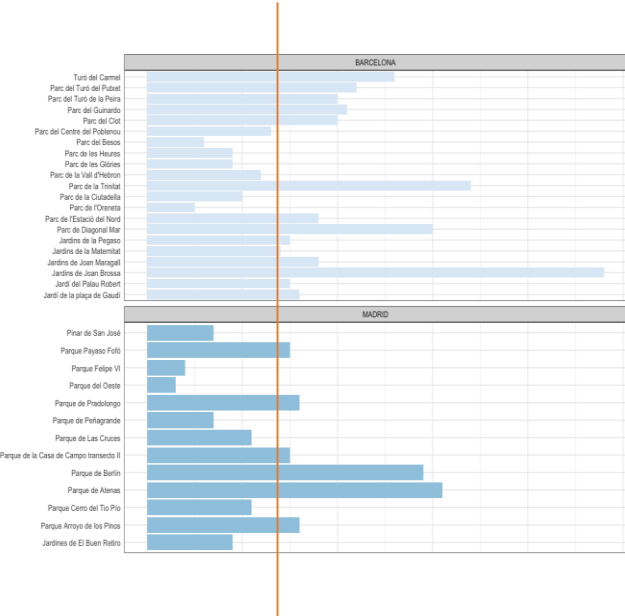
Andreu Ubach giving a course for the volunteers in BCN city
 Photo: Xavi Redon; volunteer: uBMS BCN

The number of visits per park is also varied because of the flexibility of volunteers.

Now since this 2022 we have a contracted technician covering them

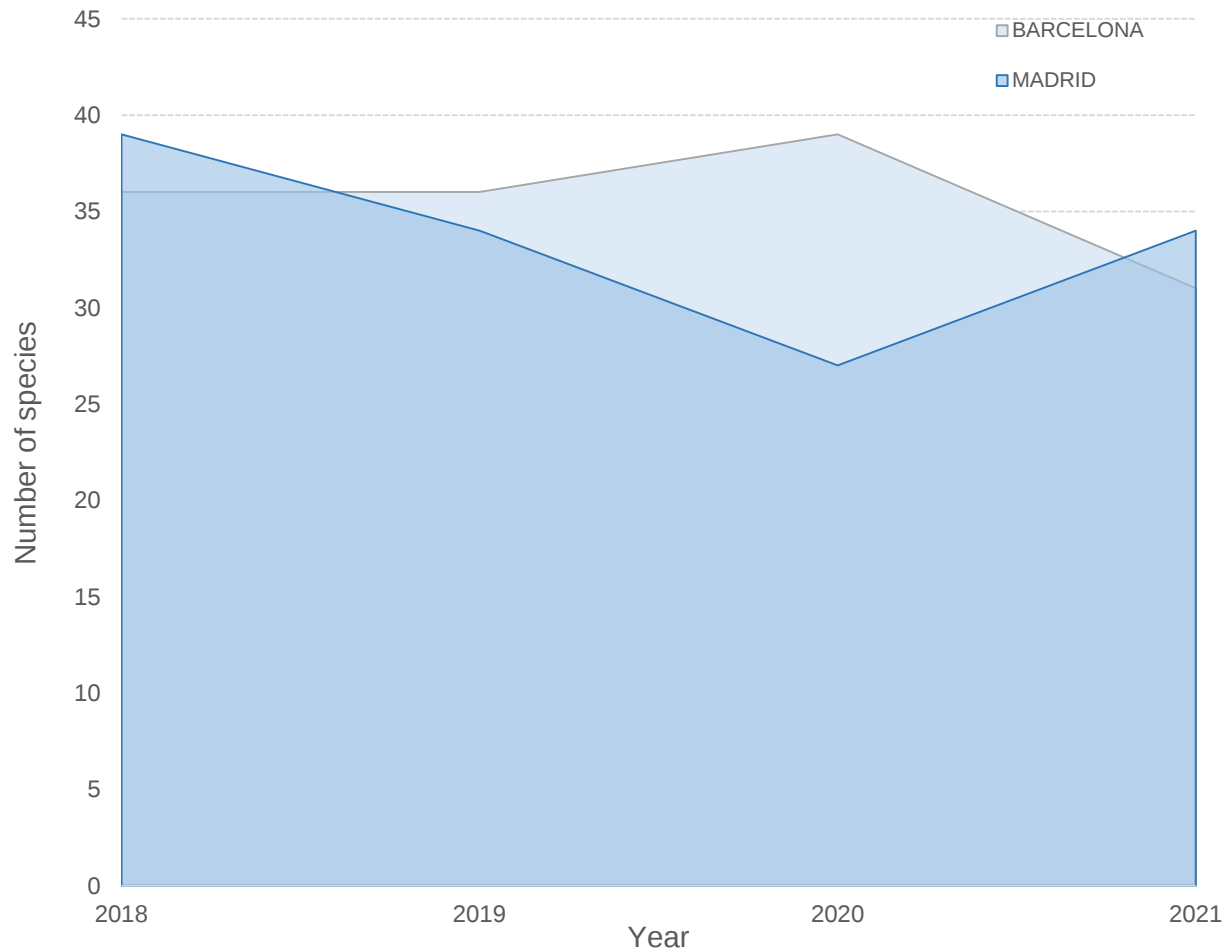


Example of visits done in 2021 in BCN



A YOUNG PROJECT BUT ALREADY MAPPING THE URBAN BUTTERFLY RICHNESS

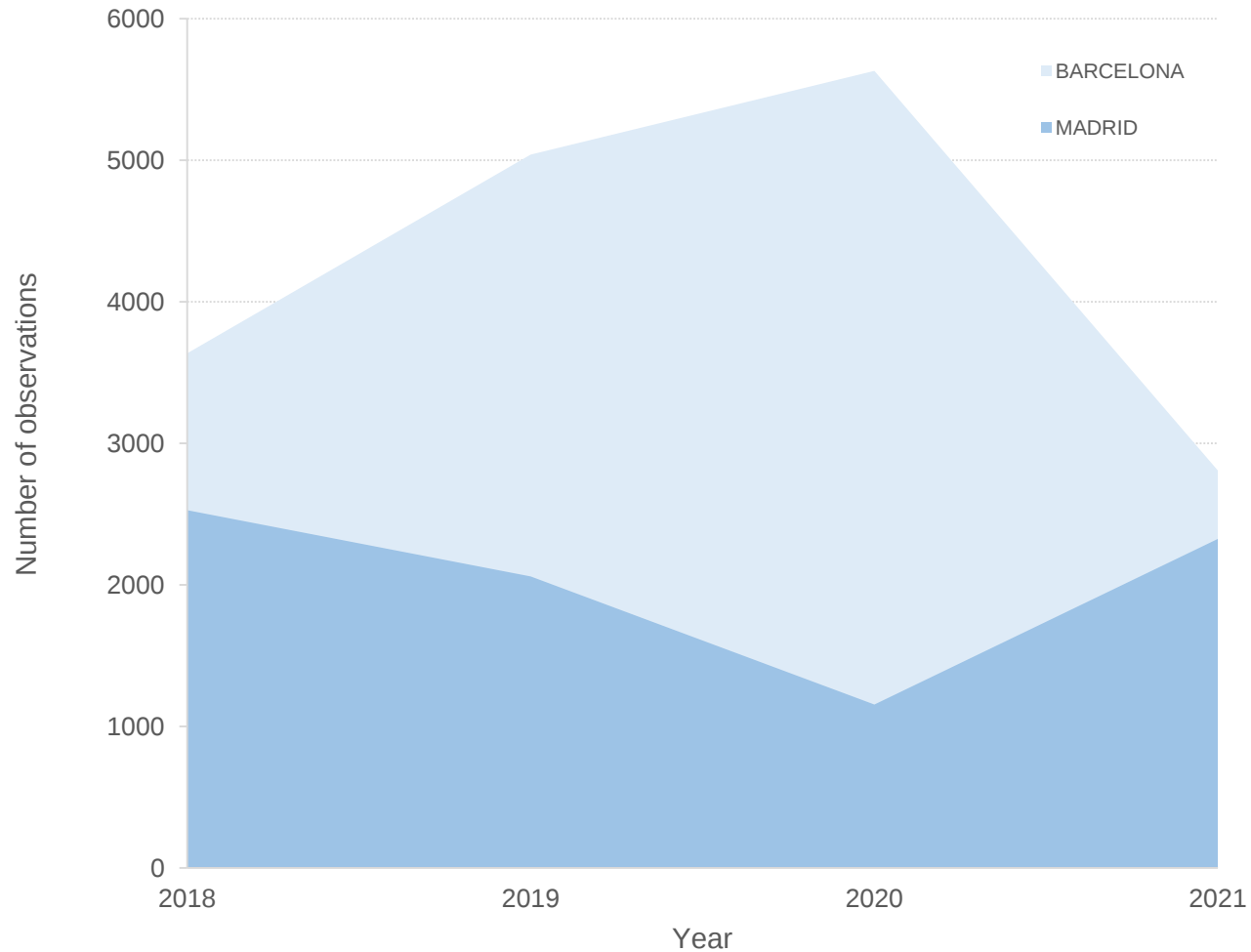
So far **43** and **39** different species different observed in BCN and MAD



Ipheclides feistameli
Photo: Cinta Calzada
Volunteer, uBMS BCN

AND ABUNDANCES

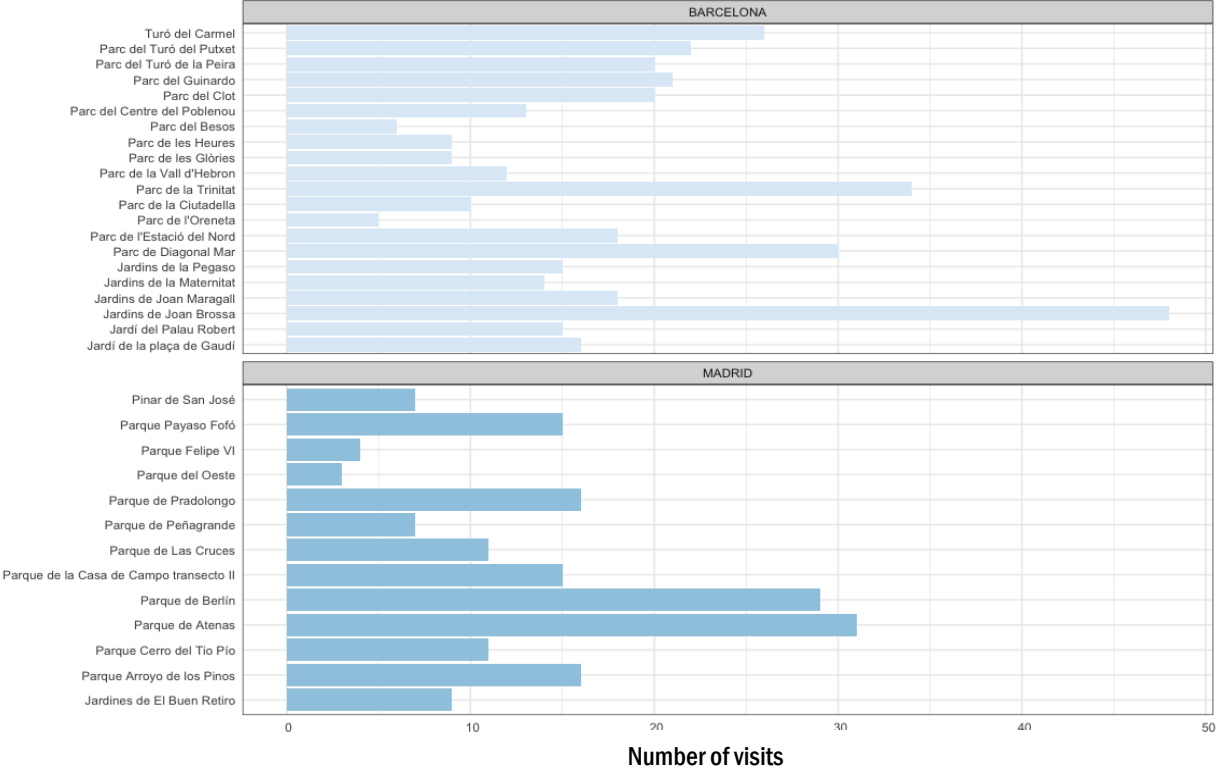
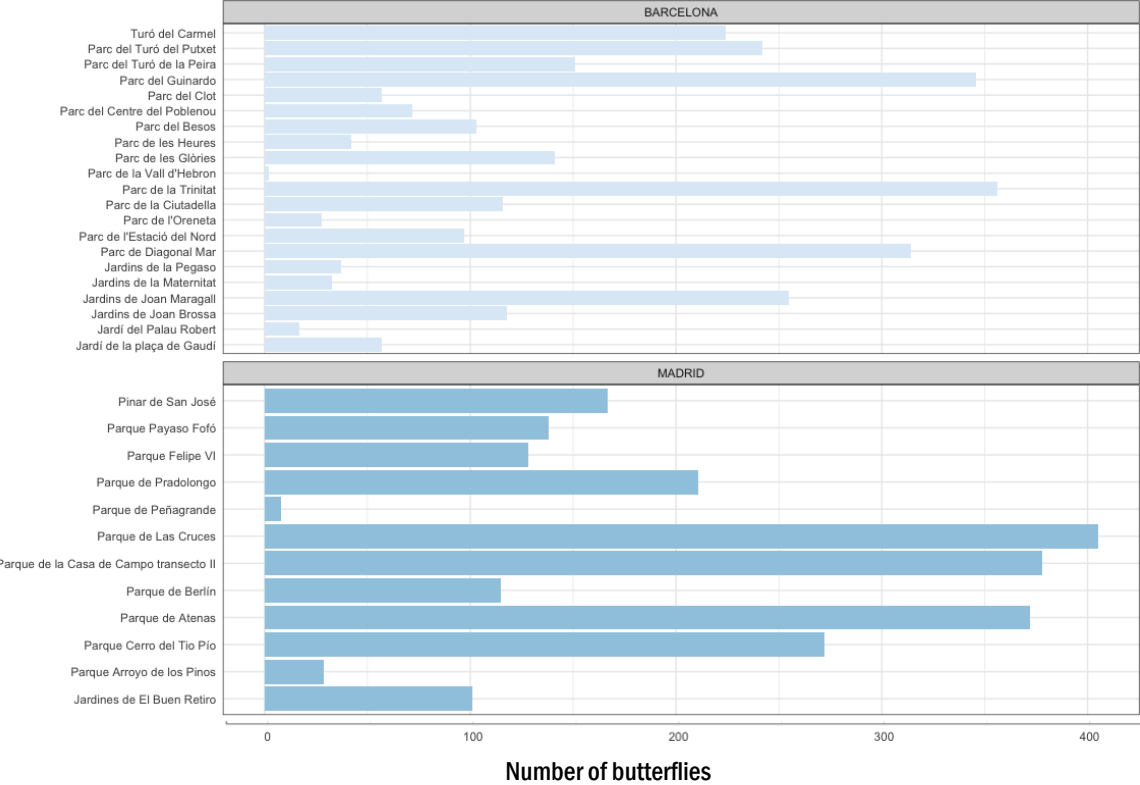
A total of ca. **30000 butterfly observations** also varying over time due to several effects



Vanessa atalanta
T. Del Putxet
Photo: Cinta Calzada
Volunteer, uBMS BCN



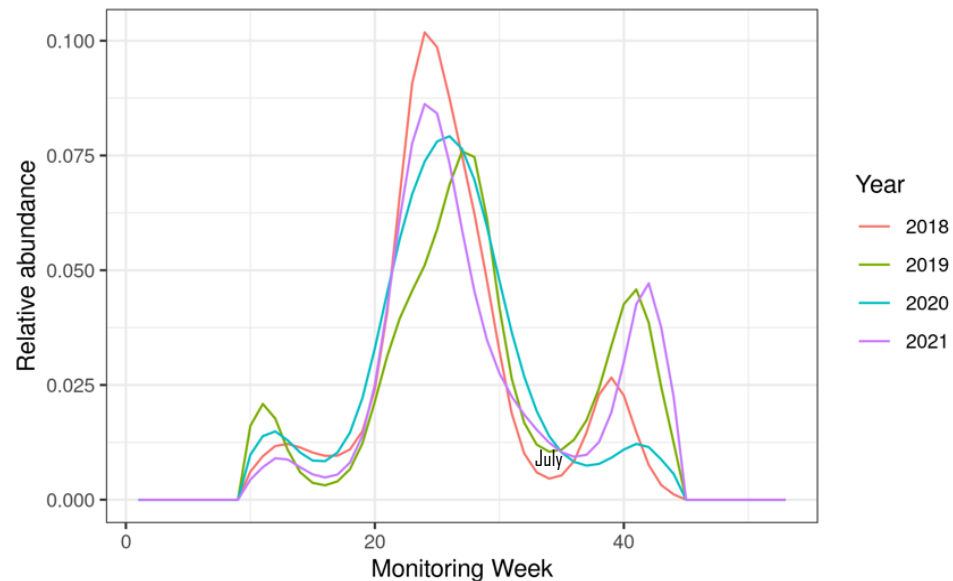
Variation across sites, but also partly due to the number of visits



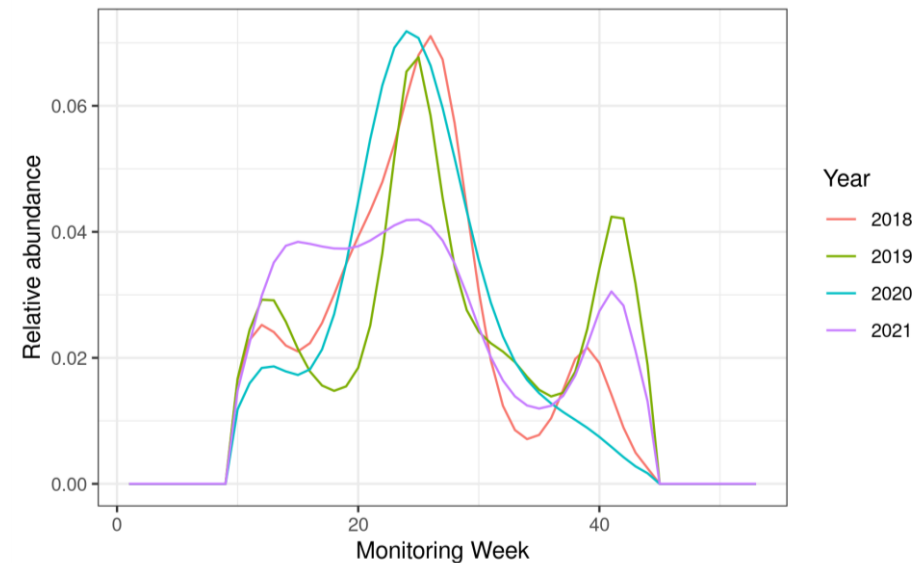
DATA REFLECT THE "URBAN EFFECT":

few species are super abundant, most lower abundance in the city

The small white is the overall winner in both cities, in abundance (7.5K observations) and distribution



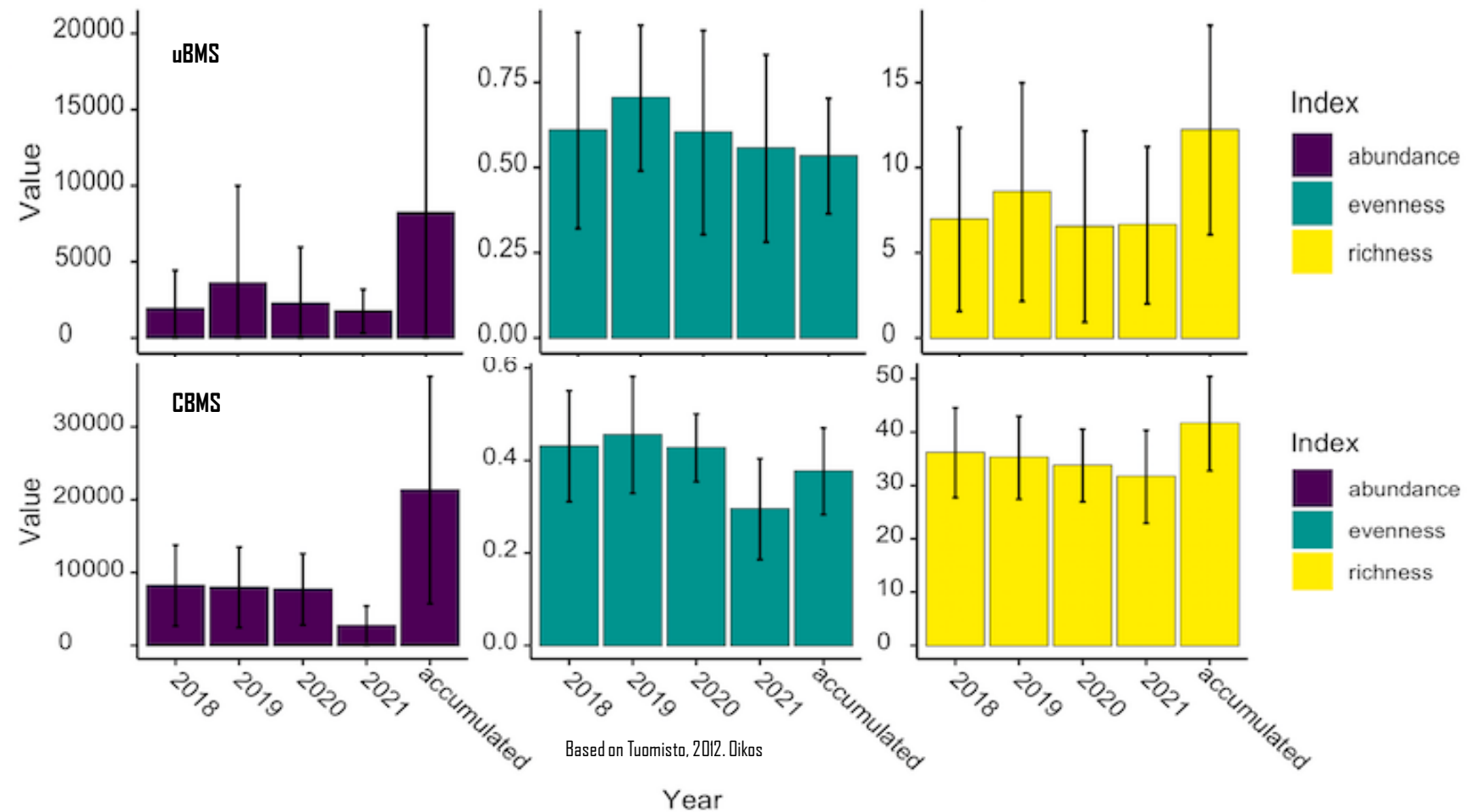
The speckled wood 2nd and 3rd (BCN, MAD) in abundance (3.3K observations)



REDUCED TAXONOMIC AND FUNCTIONAL DIVERSITY



MSc. L Buonafede
Applying for PHD grant

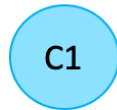


DIVERSITY REDUCTION IS NOT RANDOM

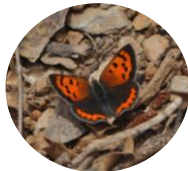


MSc. C Pla-Narbona,

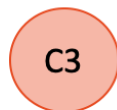
N in BCN city



Low mobile and high SSI
62 *sp*



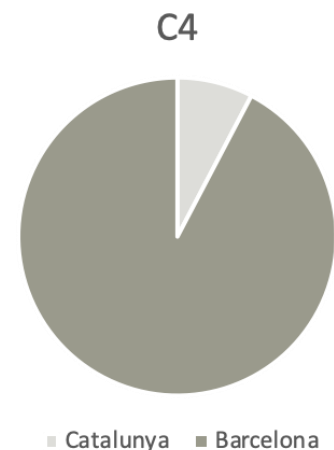
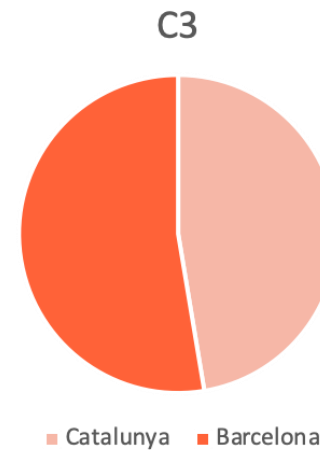
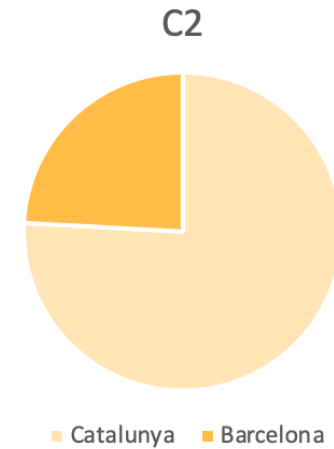
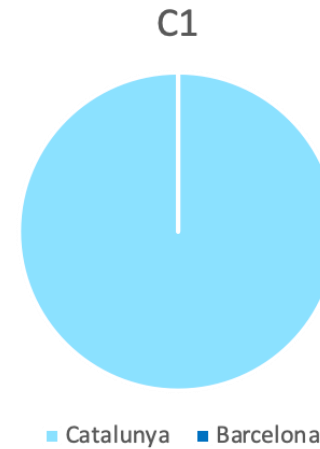
Low mobile and medium SSI
58 *sp*



Mobile and low TAO
19 *sp*



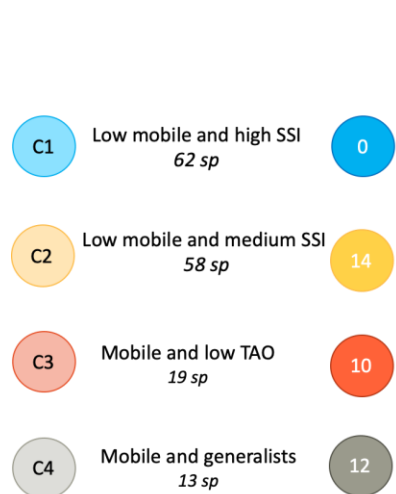
Mobile and generalists
13 *sp*



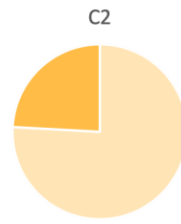
DIVERSITY REDUCTION IS NOT RANDOM



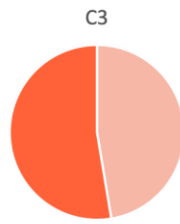
MSc. C Pla-Narbona,



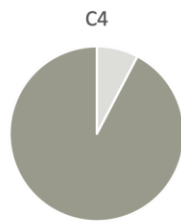
■ Catalunya ■ Barcelona



■ Catalunya ■ Barcelona

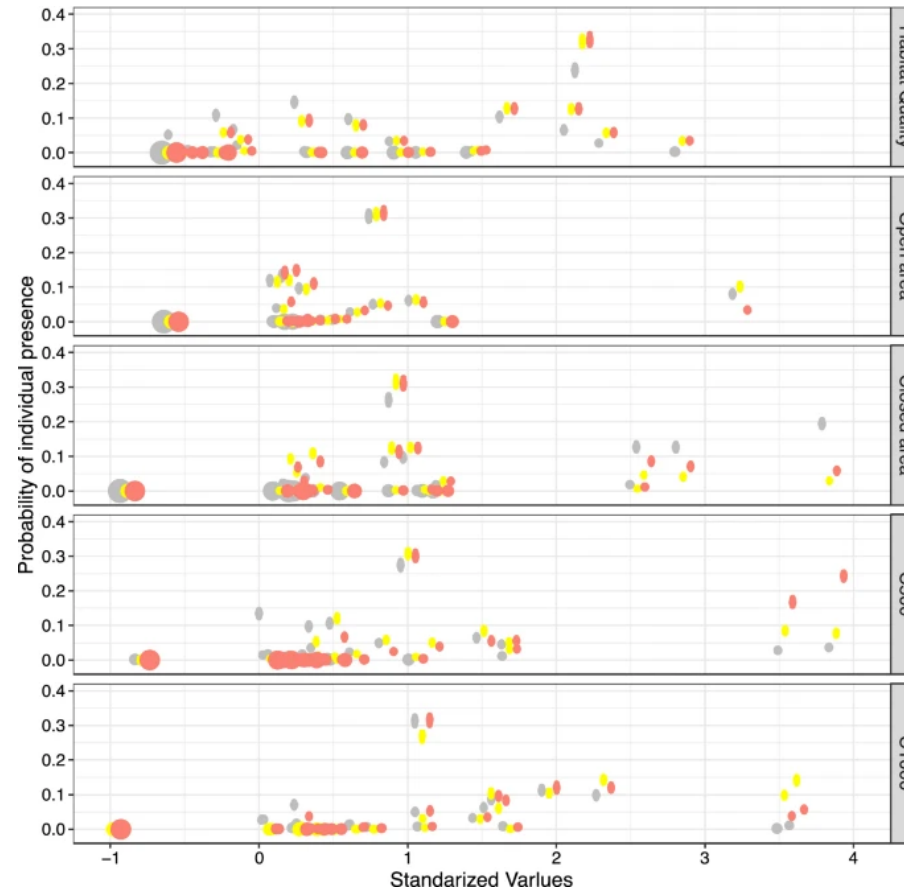


■ Catalunya ■ Barcelona



■ Catalunya ■ Barcelona

Trait-landscape relation defines urban taxonomical and functional biodiversity



Butterfly biodiversity in the city is driven by the interaction of the urban landscape and species traits: a call for contextualised management

[Clàudia Pla-Narbona](#), [Constantin Stefanescu](#), [Joan Pino](#), [Francisco J. Cabrero-Saizudo](#), [Enrique García-Barros](#), [Miguel L. Munquira](#) & [Yolanda Melejo](#)

[Landscape Ecology](#) 37, 81–92 (2022) | [Cite this article](#)

1513 Accesses | 3 Altmetric | [Metrics](#)

Methodology:
Hierarchical Bayesian Multinomial Model



Pararge aegeria



Pyronia cecilia



Pyronia bathseba



Maniola jurtina



Melanargia lachesis



Iphiclus feisthamelli



Pieris rapae

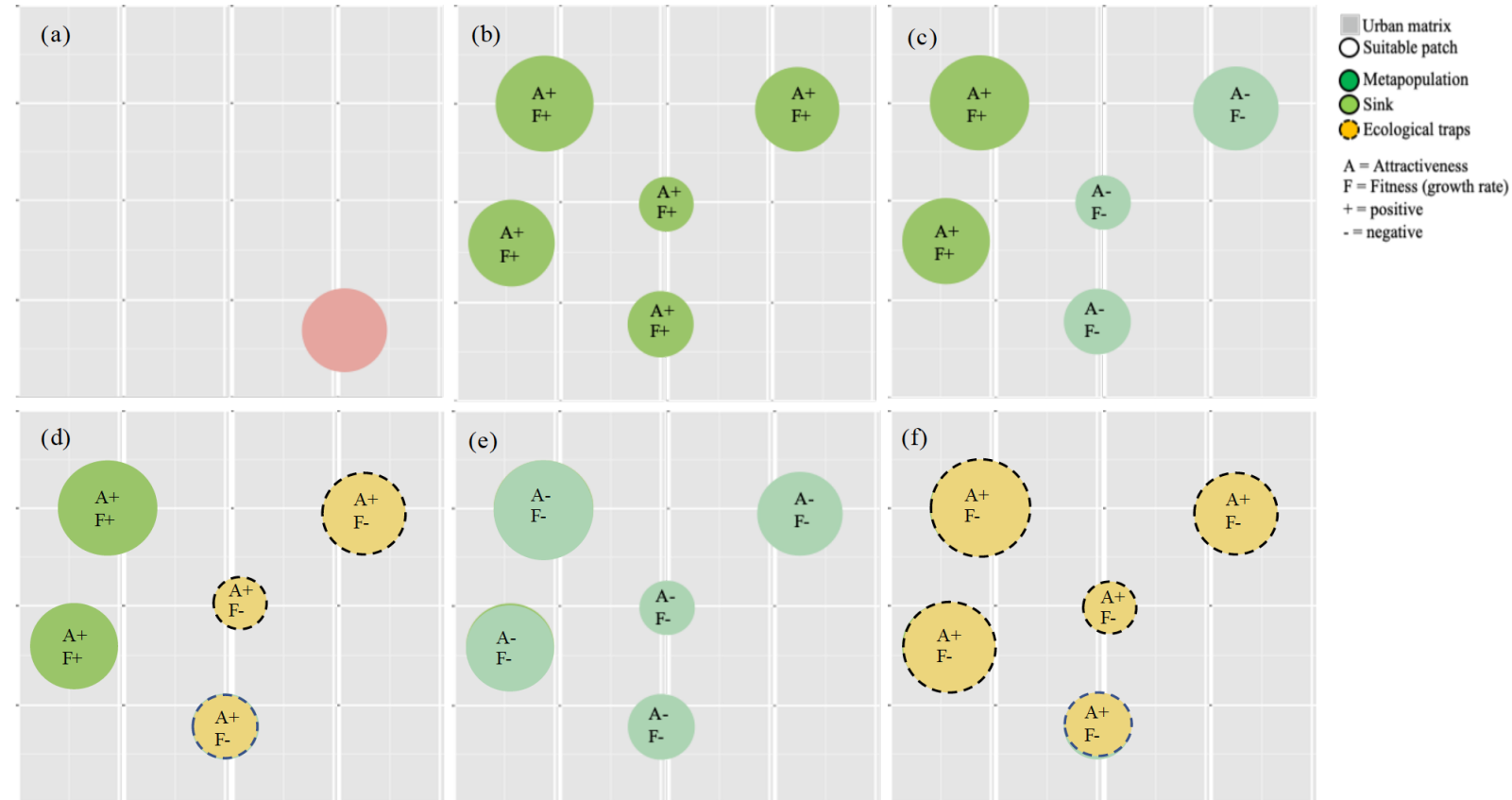


Figure 1. Examples of potential metapopulation dynamics occurring in the city due to species traits-environment dynamics:

ADMINISTRATIONS TAKE INTO ACCOUNT OUR RESULTS



The role of the urban landscape on species with contrasting dispersal ability: Insights from greening plans for Barcelona

Yolanda Melero ^{a, b, c}, Constantí Stefanescu ^{a, c}, Stephen C.F. Palmer ^d, Justin M.J. Travis ^d, Joan Pino ^{a, c}

Al igual que los años anteriores, las especies más comunes, las grandes ganadoras, representan el 60 % aproximadamente de las mariposas observadas en las ciudades. Mientras, el resto de especies de mariposas representan solamente el 3 % de las observaciones. La especie más abundante en las tres ciudades sigue siendo la blanquita de la col *Pieris rapae*, tanto en 2021 como en su totalidad (Fig. 4, Anexo I).



Voluntarios del uBMS con Andreu Ubach (CBMS) en el Parque Güell, Barcelona durante un curso realizado en 2019. Foto: Xavi Redón

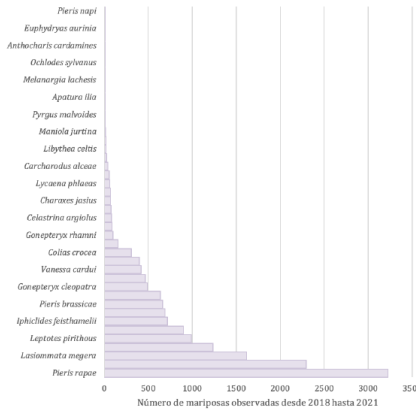


Fig. 4. Tendencia del número de especies totales observadas en Barcelona y Madrid desde el inicio del proyecto en 2018 hasta 2021.

Especie	Ciudad	Número de mariposas
<i>Pieris rapae</i>	MADRID	863
<i>Pieris rapae</i>	BARCELONA	547
<i>Leptotes pirithous</i>	BARCELONA	336
<i>Pararge aegeria</i>	BARCELONA	281

Extracto del Anexo I con las especies más frecuentes por ciudad y el número de observaciones.

El nue

Jordi Sánchez del uBMS de diseño apasionado recolectando desinteresadamente infografías más fácil



Para Barcelona: <https://jordis.github.io/mariposas-madrid/>



Ejemplo de ficha de especie del visor de resultados en Madrid. Autor: Jordi Sánchez.

En ellas podéis ver:

1. Fichas de las mariposas observadas. Con una breve descripción y el recuento de ocasiones y de individuos observados por parques.
2. Recuento por parques, en conjunto o individual, la suma de todos los años o anualmente, y por abundancia (número de observaciones) y frecuencia (número de ocasiones vistas). Con una infografía y unas fichas muy visuales en las que el tamaño de los círculos marcan la cantidad (sea abundancia o frecuencia).



Ejemplo de ficha de abundancia de las especies observadas por parque (Parc del Guinardó), del visor de resultados en Barcelona. Autor: Jordi Sánchez.



Left to right: Paco Cabrero (UCM), Constantí Stefanescu (Museu Granollers), Joan Pino (CREAF), Yolanda Melero (CREAF), Miguel Munguira (UAM) y Enrique García-Barros (UAM)



Web: ubms.creaf.cat



@uBMS_project



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Pau Guzmán

Co-coordinator
Communication uBMS



Gerard Gaya

Social Media uBMS



Swarup Bhounik

Technician uBMS



Clàudia Pla-Narbona

Technician CBMS

In Barcelona: Ángel Sánchez Carrillo, Aïda Martínez García, Adrià Sánchez, Alejanda Silvina Palena, Ana Rubio, Carme Roca Saumell, Carolina Rius Salvador, Daniel González, David Molins i Olmos, Enrique Doblas Miranda, Eric Toro Delgado, Federico Dureiko Alentorn, Federico Espejo Nogueira, Joan Ubach i Batallé, Joana Bastardas Llabot, Jordi Sánchez Monsó, Laura Rigol Carrasco, Lucy Esperanza Gómez Sánchez, María José Llorens Ocaña, Maria Cinta Calzada Bau, Maria Ester Gómez Serra, Miriam Ferreiro Alarcón, Mónica Muñoz Llop, Montserrat Maín Olmeda, Núria Villergas Puig, Neus Carrilero, Nil Redon Muñoz, Octavi Borrueu Trenchs, Ona Redon Muñoz, Ona Yanez i Vilanova, Roberto García Baz, Teresa Costa Prats y Toni Chaquet López, Xavier Redon.

In Madrid: Antonio Sabido Calurano, Cecilia Muñoz Sánchez, Chelo, Cristina, Eduardo Rojo Sanz, Emilio Martín Cruzado, Federico Ojeda Gimeno, Genevieve Bosshard, Javi, José Luis Alonso Gutiérrez, Juan Antonio Arce Altamirano, Miguel Ángel Perales Torres, Miguel Melero, Raúl Alonso Moreno, Rafael Hidalgo Pascua y Raquel Giraldez Lara. En Sabadell: Berto Gil Climent, Carolina, Gerard Codina Martínez, Pilar Vallet Vila y Wolfgang Steinherr..



Lampides boeticus
Turó del Putxet, Barcelona (2018). Photo: Jordi Sánchez.

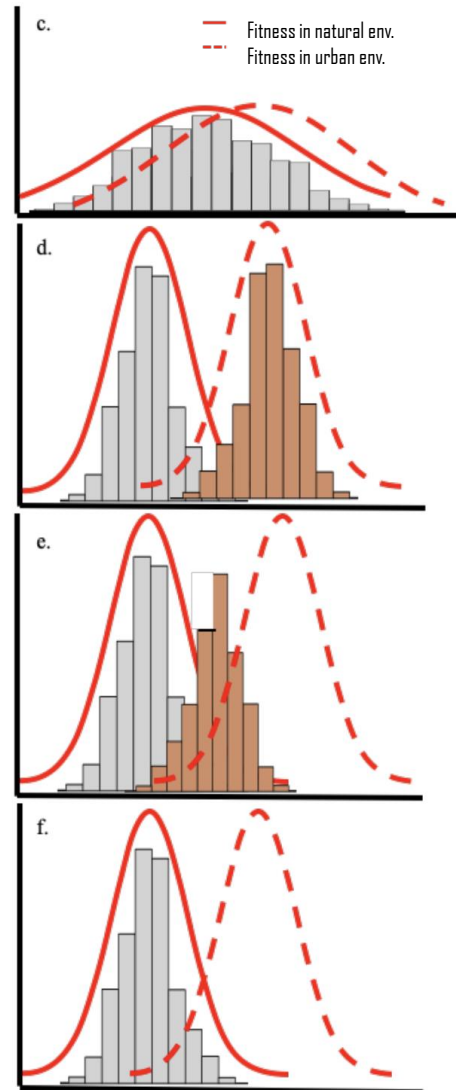


Photos from the volunteer – uBMS flickr account



Successful urban dwellers: Eco-evolutionary dynamics of species adapted to urban novel environments

B. URBAN ENVIRONMENT



C. URBAN POPULATION DYNAMIC

