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The Papilionoidea (Lepidoptera) of the Autonomous City of Ceuta (Spain, North Africa): a preliminary faunistic account

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Abstract: This study presents a comprehensive inventory of the butterfly fauna (superfamily Papilionoidea) of the Autonomous City of Ceuta (Spain, North Africa), a territory historically underexplored in lepidopterological research. Based on fieldwork conducted from 2019 to 2024, a total of 48 butterfly species have been recorded, encompassing all Papilionoidea families present in the Palaearctic region except Riodinidae. The surveys covered 30 1×1 km UTM squares, revealing the distinctive faunistic composition of Ceuta, which includes Maghrebian endemic species and populations of conservation concern. Notably, *Papilio saharae* Oberthür, 1879 is newly added to the Spanish butterfly list, following its recent recognition as a distinct species based on genomic studies. Furthermore, the findings highlight the importance of the Natura 2000 protected areas, which support a lepidopterological community characteristic of the Maghreb, thereby contributing to the biological uniqueness of this European conservation network.
Key words: Lepidoptera, Papilionoidea, Nymphalidae, Satyrinae, Hesperiidae, Pieridae, Lycaenidae, Papilionidae, *Papilio saharae*, Autonomous City of Ceuta, Tingitan Peninsula, Spain, North Africa, Natura 2000 network.

Resumen: Los Papilionoidea (Lepidoptera) de la ciudad autónoma de Ceuta (España, Norte de África): un estudio faunístico preliminar. Este estudio presenta un inventario detallado de la fauna de mariposas diurnas (superfamilia Papilionoidea) de la ciudad autónoma de Ceuta (España, Norte de África), un territorio históricamente poco prospectado en estudios lepidopterológicos. A partir de trabajos de campo desarrollados entre los años 2019 y 2024, se documentan 48 especies de mariposas, pertenecientes a todas las familias de Papilionoidea presentes en la región Paleártica, excepto Riodinidae. Los muestreos se realizaron cubriendo 30 cuadrículas UTM de 1×1 km. Los resultados destacan el carácter faunístico singular de Ceuta, con la presencia de especies endémicas magrebíes y poblaciones de interés para la conservación. En este sentido, se añade *Papilio saharae* Oberthür, 1879 al listado español, a partir de su reciente consolidación como especie sobre la base de estudios genómicos. Además, el estudio subraya la importancia del espacio protegido Red Natura 2000 en Ceuta, que alberga una comunidad lepidopterológica representativa del Magreb y contribuye a la singularidad biológica de esta red europea de conservación de la naturaleza.
Palabras clave: Lepidoptera, Papilionoidea, Nymphalidae, Satyrinae, Hesperiidae, Pieridae, Lycaenidae, Papilionidae, *Papilio saharae*, ciudad autónoma de Ceuta, península tingitana, España, norte de África, Red Natura 2000.

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Introduction

Butterfly research in Spain's North African territories has been limited compared to the extensive studies conducted on the Iberian Peninsula and the archipelagos. In particular, the Autonomous City of Ceuta, as well as in the islets and rocks under Spanish sovereignty, have received far less attention. An exception is the Autonomous City of Melilla (12.3 km²; located about 220 km by air southeast of Ceuta), where an exhaustive inventory has accurately recorded more than 30 species of Rhopalocera (Velázquez González, 1984; Yus *et al.*, 2013a, 2013b). In contrast, Ceuta has been the subject of only sporadic

references, usually within broader studies of Moroccan fauna (e.g., Rungs, 1981; Tennent, 1996; Tarrier & Delacre, 2008; Vives Moreno, 2014; Tarrier, 2019; 2025a, 2025b, 2025c, 2025d, 2025e; ZERYNTHIA Association, 2025). Moreover, given its transcontinental location, Ceuta has often been omitted from comprehensive studies of Spanish territory (e.g., García-Barros *et al.*, 2004, 2013). Although Vives Moreno (2014) does include Ceuta within its geographical scope, the number of recorded species is minimal (only three: *Zerynthia rumina* L., *Charaxes jasius* Linnaeus, 1767, and *Cacyreus marshalli* Butler, 1897), with no indication of whether these data originate from previous sources or represent new records.

By the late 20th century, only a few butterfly species had been reliably documented, including *Cacyreus marshalli* (Ruiz & Pérez-López, 2000) and *Danaus chrysippus* (Linnaeus, 1758) (Chamorro, 1984). Previously, Walker (1890) had mentioned the presence of *Charaxes jasius* (see also Monasterio León *et al.*, 2020), where some dubious records by this author in a Moroccan territory near Ceuta, Bahía de Benzú, are discussed]. Schuurmans (1976) suggested the occurrence of *Gegenes nostrodamus* (Fabricius, 1793) but provided no further details (see Monasterio *et al.*, 2020). Additionally, the record of *Danaus plexippus* Linnaeus, 1758, reported by Tarrier & Delacre (2008) as being from the Ceuta region, actually refers to a nearby Moroccan site (Oued Smir, 17 km south of Ceuta) (see Tarrier, 2025d). Notably, the Rungs' Catalog (1980) on Moroccan Lepidoptera, which geographically encompasses Ceuta, does not list any Moroccan Papilionoidea species from this locality. In fact, Rungs (1980, map "Etat actuel de la prospection du pays") identified the region between Tangier, Ceuta, and Tetouan (in the northern Tingitan Peninsula) as "unprospected" from a lepidopterological standpoint.

Subsequently, Bacallado Aránega *et al.* (2012) published an informative paper listing 17 Rhopalocera species observed in "Ceuta y su entorno," though without specifying collection or observation data. More recently, fieldwork conducted by the Spanish Association for the Protection of Butterflies and their Environment (ZERYNTHIA) has yielded partial results published by Monasterio León *et al.* (2019a, 2020), confirming the presence of five North African species in Ceuta: *Zerynthia africana* Stichel, 1907, *Anthocharis belia* (Linnaeus, 1767), *Coenonympha arcanioides* (Pierret, 1837), *Thymelicus hamza* (Oberthür, 1876), and *Spialia ali* (Oberthür, 1881).

To date, a total of 21 butterfly species have been reported from Ceuta, for most of these (15 species) references are vague, however, merely citing "Ceuta" or "Ceuta y su entorno" without precise capture or observation data. Only seven species have been documented with specific data.

Despite its small surface area (19.7 km²) and its limited altitudinal range (0–358 m a.s.l.), Ceuta possesses significant ecological value, featuring diverse plant formations and habitats, including coastal cliffs, riparian habitats, dolomitic (calcareous) topographic outcrops, cork oak groves, naturalised pine forests, and various thermomediterranean scrubland formations in a highly mosaic distribution (Chamorro, 1995; Ugarte *et al.*, 2003a). The presence of North African biotic elements within this territory lends its substantial biodiversity, making it unique within both Spain and the European Union (e.g., Ruiz & Ávila, 1994; Chamorro, 1995; Ruiz, 1995, 1999, 2017; Ugarte *et al.*, 2003a, 2003b, 2007; Mateo *et al.*, 2003; Pérez-Vera *et al.*, 2012; Navarrete Pérez, 2016; Blanco *et al.*, 2019). Furthermore, Ceuta's location within the Strait of Gibraltar, an internationally recognised biodiversity hotspot and a major migratory corridor for birds, insects, and cetaceans, further enhances its ecological significance (Pérez-Rubín & Ramírez, 2023).

Considering the range of habitats and vascular plant diversity that exists in the city (slightly over 550 species; Chamorro, 1995; R. Ugarte, 2020 pers. comm.) and in light of the preliminary sampling results (Monasterio León *et al.*, 2019a, 2020), the Rhopalocera community appears relatively diverse, including several Maghrebian endemics. These findings further underscore the distinct faunistic character of this enclave, which includes two non-marine protected natural areas within the Natura 2000 network, both designated SCI-SPAs, covering 32.1% of Ceuta's territory (www.rednatura2000ceuta.es). Nevertheless, Ceuta's butterfly fauna remains underexplored, primarily due to the absence of a comprehensive inventory with precise spatial and temporal coverage.

Given this background, the primary objective of this study is to provide a preliminary checklist of Papilionoidea recorded in Ceuta following several years of fieldwork. This represents an initial step towards more detailed ecological, biogeographical, and bionomic research. The study also includes data on the observed phenological range of adult butterflies and their local distribution, mapped using 1×1 km UTM grids. Additionally, observations on the nectar sources visited by the imagines, along with plant species commonly used as food plants or other ecological interactions, are provided.

Study area

The Autonomous City of Ceuta (Spain) is located at the northeastern tip of the Tingitan Peninsula, within the Strait of Gibraltar region (see Gharbaoui, 1981). It spans a total surface area of 19.7 km², rising from sea level to a maximum altitude of 358 m a.s.l., and shares an 8 km-long border with Morocco to the west. To the north, east, and south, Ceuta is surrounded by the Alboran Sea at its confluence with the Atlantic Ocean.

Ceuta can be divided into three distinct territorial and environmental units from east to west (Fig. 1):

1. Monte Hacho (approximate area: 210 ha, maximum altitude: 198 m a.s.l.), a small peninsula connected to the mainland by an isthmus. This area is only minimally urbanised (mainly along its western and southwestern margins) and retains patches of native or naturalised (pine) vegetation, as well as relatively undisturbed coastal cliffs.
2. The Isthmus-urban nucleus (approximately 680 ha, maximum altitude: 105 m a.s.l.), a heavily urbanised central zone, with most of its land lying between 0–50 m a.s.l.
3. The Campo Exterior (Outer Field) (approximately 1080 ha, maximum altitude: 358 m a.s.l.), extending westwards between the urban centre and the Moroccan border. This sector contains the majority of Ceuta's natural areas and native plant communities, including the Natura 2000 site Calamocarro-Benzú.

Ceuta's rugged topography is underlain by diverse geological formations: Monte Hacho consists mainly of gneisses and peridodites, while the Isthmus and Campo Exterior feature schists, smoke-coloured phyllites, quartzites, conglomerates, and folded limestones, predominantly acidic. A notable exception within the Campo Exterior is a small dolomitic (calcareous) outcrop in the northwest, known as the Mogote de Benzú (approximately 1.8 ha) (Chamorro & Nieto, 1989; IGME, 2013). This dolomitic ridge supports a unique calcicolous plant community dominated by *Chamaerops humilis* L., *Ulex parviflorus* Pourr., *Rhamnus lycioides* var. *oleoides* L. Maire in Jahand. & Maire, *Lavandula dentata* L., *Macrochloa tenacissima* (L.) Kunth, *Erica arborea* L., *Pallenis maritima* (L.) Greuter, *Quercus coccifera* L., *Stachys fontqueri* Pau, and *Iberis gibraltarica* L. It also harbours several Tingitan endemics and a population of *Rupicapnos africana*, a rock-dwelling species classified as "endangered" in Spain's catalog of threatened species (Ugarte *et al.*, 2003a).

Bioclimatically, Ceuta falls within the dry-subhumid ombroclimate, with average annual rainfall ranging from 575 mm (Monte Hacho, east) to 625 mm (Monte Benzú, west), and a mean annual temperature of 16.4°C. It belongs to the Tingitan phytoclimatic province at the upper thermo-Mediterranean level (see Rivas-Martínez, 1987; Chamorro, 1995; Ruiz, 1995). Urban areas, which occupy 36% of the territory, are concentrated mainly on the isthmus and parts of the eastern Campo Exterior. Despite Ceuta's high population density (4,240 inhabitants/km²) and its long history of land use (Chamorro, 2009), extensive Mediterranean vegetation remains, exhibiting varying degrees of alteration. These plant communities include coastal cliffs and thermo-Mediterranean scrubland, reinforcing Ceuta's biotic uniqueness within both Spain and the European Union (Chamorro, 1995; Ruiz, 1995; Ugarte *et al.*, 2003a; Navarrete Pérez, 2016).

On the northern slopes of the Campo Exterior, the original vegetation would have been cork oak (*Quercus suber* L.) forests with abundant undergrowth, classified phytosociologically within the *Myrto*

communis-Quercetum suberis association (sub-humid thermo-Mediterranean cork oak groves). However, these forests now exist only in scattered patches, largely replaced by subserial scrub stages. This scrub, which is highly developed in some areas, predominantly corresponds to *Asparago aphylli-Calicotometum villosae* and *Genisto tridentis-Stauracanthetum boivinii* associations (Chamorro, 1995; Benabid & Fennane, 1994; Charco, 1999; Taleb & Fennane, 2019). Additionally, small stands of Algerian oak (*Quercus canariensis* Willd.) persist in shady ravines (Chamorro, 1995; Ruiz, 1999). The most prominent species in these cork oak and scrub communities include *Calicotome villosa* (Poir.) Link., *Genista linifolia* L., *Pistacia lentiscus* L., *Myrtus communis* L., *Ampelodesmos mauritanicus* (Poir.) T. Durand & Schinz, *Olea europaea* var. *sylvestris* L., *Crataegus monogyna* Jacq., *Pteridium aquilinum* (L.) Kuhn., *C. humilis*, *Daphne gnidium* L., *Asparagus aphyllus* L., *Cistus monspeliensis* L., *Cistus crispus* L., *Cistus salviifolius* L., *Genista monspessulana* (L.) L.A.S. Johnson, *Teucrium fruticans* L. and *Erica arborea*. Some of the original cork oak groves have also been replaced by pine stands (*Pinus halepensis* Mill. and *Pinus pinea* L.) or eucalyptus (*Eucalyptus camaldulensis* Dehnh.) reforestations, although these areas frequently retain a dense and diverse native understorey, particularly beneath eucalyptus patches (Navarro Capel, 1994; Chamorro, 1995).

On the southern slope of the Campo Exterior, vegetation is dominated by xerothermophilous shrubs with varied cover, primarily assigned to the Stauracantho boivinii-Drosophyletum lusitanicae association, alongside diverse scrub communities within the Cisto-Lavanduletea class, though they are often difficult to assign phytosociologically (Chamorro, 1995). The most characteristic species on this slope include *C. humilis*, *C. crispus*, *C. monspeliensis*, *Lavandula stoechas* L., *Stauracanthus boivinii* (Webb) Samp., *Genista tridentata* L., *P. aquilinum*, *E. arborea*, *Erica australis* L., *Dittrichia viscosa* (L.) Greuter, *C. villosa*, *A. mauritanicus*, and *Cynara humilis* L. (Chamorro, 1995). Meanwhile, riparian vegetation in temporary streams on both slopes consists of mixed stands of *Rubus ulmifolius* Schott, *Salix pedicellata* Desf., and *Nerium oleander* L., with occasional *Populus alba* L. and *Tamarix* sp., belonging phytosociologically to the *Equiseto telmateiae-Salicetum pedicellatae* and *Rubo ulmifolii-Nerietum oleandrii* associations (thermomediterranean riparian galleries) (Chamorro, 1995; Benabid & Fennane, 1994; Taleb & Fennane, 2019).

The Monte Hacho unit, on its more humid northern slopes, preserves remnants of cork oak woodland (linked to *Myrto-Quercetum suberis*), though these are now fragmented or mixed with exotic pine and eucalyptus reforestations. The understorey remains dense and floristically similar to that of the northern Campo Exterior (see above), including a notable patch of *Cistus ladanifer* L., which is clearly pyrophytic in origin. The drier southern slopes of Monte Hacho, where soils are depleted, are primarily covered with highly degraded scrubland, including former orchard lands dominated by *C. villosa*, *G. linifolia*, *D. viscosa*, *Hyparrhenia hirta* (L.) Stapf, *R. ulmifolius*, and *P. lentiscus*, alongside patches of the invasive prickly pear, *Opuntia ficus-indica* (L.) Mill. (Chamorro, 1995). Of particular interest is the cliff vegetation surrounding Monte Hacho, linked to the *Limonietum emarginatii* association and characterised by *Limonium emarginatum* (Willd.) Kuntze (endemic to the Strait of Gibraltar), *P. maritima*, *Plantago macrorhiza* Poir., *Crithmum maritimum* L., and *Ephedra fragilis* Desf. (Figueroa *et al.*, 2015).

Notably, Ceuta hosts two Natura 2000 protected areas, both designated SCI-SPAs, covering 32.1% of the city's territory (Martínez-Medina, 2002; www.rednatura2000ceuta.es): the larger Calamocarro-Benzú (601.8 ha; NUT code: ES6310001) in the northern Campo Exterior, and Acantilados del Monte Hacho (31 ha; NUT code: ES0000197), along Monte Hacho's coastal cliffs.

Material and methods

This study employed a combination of capture-and-release sampling using entomological nets and direct observation. Initial fieldwork consisted of two visits to the Autonomous City of Ceuta by the authors in

early spring (March) and autumn (September) of 2019. Subsequent data collection was conducted monthly by a resident team member (JLR) from January 2020 to April 2024.

Observations were often made opportunistically; however, many sampling sites were selected based on the specific habitat or ecological characteristics, such as the presence of host plants, dominant vegetation, or geological features. Sampling efforts were concentrated in the two Natura 2000 protected sites. The coordinates of each site were recorded using GPS devices and processed with GIS software (primarily QGIS). Data collection was conducted across two 10×10 km UTM squares (30STE87, 30STE97) and in 30 1×1 km UTM grids (Fig. 1), covering all natural areas within the Autonomous City of Ceuta. Only grids corresponding to heavily urban zones, devoid of natural vegetation, were excluded from the study. In total, 157 localities were sampled (defined as points within a 50 m radius), as listed in Annex I.

Species identification was primarily conducted visually and in situ. For cases involving closely related species, genetic analysis was employed to confirm identification (currently in prep.). This aspect of the research was supported by the Institute of Evolutionary Biology (CSIC-UPF, Barcelona, Spain). Subspecies are not referenced in the species list due to ongoing taxonomic debate and varying interpretation among authors. However, when a species' presence in Ceuta is likely attributable to a subspecies other than the nominal, this is noted in the Comments section. Taxonomic classification follows the most up-to-date sources compiled from multiple publications and authors, as continuously revised and documented on the ZERYNTHIA Association website (2025).

As this paper aims to provide a preliminary checklist of *Papilionoidea* in Ceuta, species comments are limited to their local distribution, adult flight periods, and key nectar resources. A broader discussion of species distribution in Morocco is beyond the scope of this study. For such information, we refer readers to works such as Rungs (1981), Tennent (1996), Tarrier & Delacre (2008), Tshikolovets (2011), Leraut (2016), and Tarrier (2017, 2019, 2024, 2025a, 2025b, 2025c, 2025d, 2025e). However, we offer remarks on Moroccan or North African distribution when Ceuta records provide new insight into known distributions in Morocco.

Botanical nomenclature follows *Flora Ibérica* (Castroviejo, 1986–2021) and the *Plants of the World Online* programme (POWO, 2024).

Results

A total of 290 surveys were conducted between March 2019 and April 2024, yielding a database of 2,532 presence records for 48 species, representing all Palaearctic Papilionoidea families except Riodinidae (Graph 1). These species are distributed as follows: 3 Papilionidae, 5 Hesperiidae, 11 Pieridae, 16 Nymphalidae, and 13 Lycaenidae. Of these, 27 species are reported for the first time from Ceuta, and for another 14 species, precise data are provided here for the first time.

All species presence data are presented below. Localities are denoted by numeric codes corresponding to the locality table in Annex I. Species documented for the first time in Ceuta are marked with a double asterisk (**), while species previously mentioned in general terms but now confirmed with specific records are marked with a single asterisk (*). Species lacking either symbol have prior faunistic records with precise data.

Abbreviations: José L. Ruiz (JLR); other authors (EZ: ZERYNTHIA team); locality (L); specimen(s)/imago(s) (ex.); *vidit* (v.); collected (coll.); nectaring (nect.); perched (perch.).

Commented preliminary Checklist of the Papilionoidea from the Autonomous City of Ceuta

Iphiclides feisthamelii (Duponchel, 1832) (Papilionidae) **

L5; 15/VII/2019, 2 ex. v., JLR.; L5; 19/III/2019, 1 ex. v., EZ.; L5; 21/VI/2019, nect. on *Pulicaria odora* (L.) Rchb., 1 ex. v., JLR.; L5; 31/VIII/2019, 1 ex. v., EZ.; L5; 23/V/2020, 1 ex. v., JLR.; L5;

06/V/2021, 1 ex. v., JLR.; **L6**; 01/IX/2019, 1 ex. v., EZ.; L6; 06/V/2021, 2 ex. v., JLR.; **L11**; 02/VIII/2019, 1 ex. v., JLR.; **L12**; 21/VI/2020, 1 ex. v., JLR.; L12; 14/VI/2021, 2 ex. v., JLR.; **L13**; 08/V/2021, 2 ex. v., JLR.; L13; 17/IV/2021, 2 ex. v., JLR.; L13; 14/V/2022, nect. on *Scabiosa atropurpurea* L., 1 ex. v., JLR.; L13; 29/VI/2023, nect. on *Daucus carota* L., 1 ex. v., JLR.; **L14**; 16/V/2021, 2 ex. v., JLR.; **L21**; 15/VII/2019, nect. on *Centaurea calcitrapa* L., 3 ex. v., JLR.; L21; 29/VI/2023, nect. on *S. atropurpurea*, 2 ex. v., JLR.; **L22**; 01/IV/2021, 2 ex. v., JLR.; **L23**; 14/VI/2021, nect. on *P. odora*, 1 ex. v., JLR.; L23; 15/V/2021, 1 ex. v., JLR.; **L35**; 03/VIII/2019, 2 ex. v., JLR.; L35; 22/V/2019, nect. on *Pallenis spinosa* (L.) Cass., 1 ex. v., JLR.; L35; 22/V/2020, nect. on *P. spinosa* and *P. odora*, 3 ex. v., JLR.; L35; 23/VII/2023, very fresh, 2 ex. v., JLR.; **L36**; 20/III/2019, 1 ex. v., EZ.; L36; 28/II/2020, in hilltopping, 3 ex. v., JLR.; L36; 25/III/2021, 1 ex. v., JLR.; L36; 05/V/2023, nect. on *C. calcitrapa* and *S. atropurpurea*, 5 ex. v., JLR.; L36; 23/VII/2023, very fresh, 2 ex. v., JLR.; **L41**; 05/VII/2019, nect. on *Asclepias curassavica* L., 1 ex. v., JLR.; L41; 10/VII/2020, 1 ex. v., JLR.; L41; 14/V/2021, 1 ex. v., JLR.; **L88**; 15/V/2021, 1 ex. v., JLR.; **L131**; 14/III/2021, 1 ex. v., JLR.; **L141**; 06/V/2020, 1 ex. v., JLR.; **L142**; 17/V/2020, 1 ex. v., JLR.

Comment: Observations have been recorded from a total of 16 localities across 9 1×1 km UTM squares, constituting the first records of the species for Ceuta. The species is active from March to November, displaying an extended flight period. Imagines have been observed feeding on a diverse range of flowers, including *P. odora*, *S. atropurpurea*, *C. calcitrapa*, *D. carota*, *A. curassavica*, and *P. spinosa*. Hilltopping behaviour has also been observed (Monte de la Tortuga), as is characteristic of this species.

Papilio saharae Oberthür, 1879 (Papilionidae) **

L4; 25/IX/2019, nect. on *D. viscosa*, 1 ex. v., JLR.; L4; 06/VII/2020, nect. on *Foeniculum vulgare* Mill., 5 ex. v., JLR.; L4; 19/VI/2020, 1 ex. v., JLR.; L4; 29/V/2020, 1 ex. v., JLR.; **L5**; 15/VII/2019, 1 ex. v., JLR.; L5; 19/III/2019, 1 ex. v., EZ.; L5; 19/IX/2019, 2 ex. v., JLR.; L5; 20/III/2019, 1 ex. v., nect. on *Echium creticum* L., EZ.; L5; 31/VIII/2019, 1 ex. v., EZ.; L5; 11/III/2020, 1 ex. v., JLR.; L5; 19/V/2020, 2 ex. v., JLR.; L5; 23/V/2020, 9 ex. v., JLR.; L5; 25/III/2021, 8 ex. v., JLR.; L5; 12/III/2023, nect. on *Crepis* sp. L., 2 ex. v., JLR.; L5; 19/III/2023, 1 ex. v., JLR.; **L6**; 01/IX/2019, 1 ex. and 1 larva v., EZ.; L6; 12/III/2021, nect. on *L. dentata*, 3 ex. v., JLR.; L6; 11/VI/2022, 1 ex. v., JLR.; **L12**; 14/VI/2021, 1 ex. v., JLR.; **L13**; 13/VI/2020, 3 ex. v., JLR.; L13; 25/VII/2020, 2 ex. v., JLR.; L13; 08/V/2021, 4 ex. v., JLR.; L13; 25/III/2021, 6 ex. v., JLR.; L13; 27/VI/2021, nect. on *F. vulgare* and *S. atropurpurea*, 4 ex. v., JLR.; L13; 29/VI/2023, nect. on *D. carota* and *S. atropurpurea*, 4 ex. v., JLR.; **L15**; 12/III/2020, 1 ex. v., JLR.; L15; 12/III/2021, 1 ex. v., JLR.; **L16**; 16/V/2021, 2 ex. v., JLR.; **L18**; 20/III/2019, 1 ex. v., EZ.; **L21**; 15/VII/2019, nect. on *C. calcitrapa*, 1 ex. v., JLR.; **L23**; 14/VI/2021, 2 ex. v., JLR.; **L24**; 15/VII/2019, 1 ex. v., JLR.; **L25**; 07/III/2020, 1 ex. v., JLR.; **L26**; 27/VII/2020, 3 ex. v., JLR.; **L27**; 27/VII/2020, nect. on *Trachelium caeruleum* L., 3 ex. v., JLR.; L27; 29/VI/2021, nect. on *F. vulgare*, 1 ex. v., JLR.; **L34**; 04/V/2023, 2 ex. v., JLR.; **L35**; 22/V/2020, 2 ex. v., JLR.; L35; 29/VI/2020, 1 ex. v., JLR.; **L36**; 02/IX/2019, 1 ex. v., EZ.; L36; 03/VIII/2019, nect. on *D. gnidium*, 5 ex. v., JLR.; L36; 15/VI/2019, in hilltopping, 2 ex. v., JLR.; L36; 20/III/2019, 2 ex. v., EZ.; L36; 27/IX/2019, nect. on *F. vulgare* and *Ruta angustifolia* Pers., 3 ex. v., JLR.; L36; 14/II/2020, 3 ex. v., JLR.; L36; 17/I/2020, 1 ex. v., JLR.; L36; 21/VI/2020, 3 ex. v., JLR.; L36; 28/II/2020, in hilltopping, 7 ex. v., JLR.; L36; 29/VI/2020, nect. on *F. vulgare* and *R. angustifolia*, 2 ex. v., JLR.; L36; 17/X/2021, nect. on *D. viscosa*, 3 ex. v., JLR.; L36; 19/II/2021, 3 ex. v., JLR.; L36; 25/III/2021, in hilltopping, 8 ex. v., JLR.; L36; 05/V/2023, perch. on *F. vulgare*, 8 ex. v., JLR.; L36; 20/XI/2023, perch. on *R. angustifolia* in hilltopping, 9 ex. v., JLR.; L36; 23/VII/2023, in hilltopping, 7 ex. v., JLR.; **L37**; 09/VI/2021, 1 ex. v., JLR.; **L41**; 10/VII/2020, nect. on *F. vulgare*, where numerous last-instar larvae were observed, 12 ex. v., JLR.; **L56**; 19/III/2023, 1 ex. v., JLR.; **L60**; 15/IX/2019, 1 ex. v., JLR.; L60; 17/IX/2020, 1 ex. v., JLR.; L60; 25/IX/2021, 1 ex. v., JLR.; **L61**; 04/IX/2019, nect. on *A. curassavica*, 1 ex. v., EZ.; **L62**; 04/IX/2019, 1 ex. v., EZ.; **L66**;

21/VI/2020, nect. on *T. caeruleum*, 3 ex. v., JLR.; **L67**; 29/IX/2023, nect. on *D. viscosa*, 4 ex. v., JLR.; **L73**; 18/V/2019, nect. on *F. vulgare*, 1 ex. v., JLR.; **L88**; 05/IX/2020, nect. on *Mentha suaveolens* Ehrh., 2 ex. v., JLR.; L88; 25/VII/2020, nect. on *M. suaveolens*, 1 ex. v., JLR.; L88; 17/IV/2021, 2 ex. v., JLR.; L88; 26/IX/2021, nect. on *M. suaveolens*, 1 ex. v., JLR.; **L92**; 23/III/2019, 1 ex. v., EZ.; **L119**; 01/XI/2023, 2 ex. v., JLR.; L119; 28/X/2023, 1 ex. v., JLR.; **L129**; 06/X/2019, 1 ex. v., JLR.; **L130**; 16/VI/2020, nect. on *F. vulgare*, perch. and flying over *Crithmum maritimum* L., 11 ex. v., JLR.; L130; 07/V/2023, 6 ex. v., JLR.; **L132**; 15/VII/2020, nect. on *T. caeruleum*, 2 ex. v., JLR.; L132; 10/III/2021, 1 ex. v., JLR.; L132; 19/IV/2021, 3 ex. v., JLR.; **L133**; 11/IV/2021, 4 ex. v., JLR.; L133; 19/IV/2021, 3 ex. v., JLR.; L133; 23/III/2021, 4 ex. v., JLR.; **L134**; 01/XI/2023, 1 ex. v., JLR.; **L142**; 02/V/2020, 1 ex. v., JLR.; L142; 03/V/2020, 5 ex. v., JLR.; L142; 17/V/2020, 2 ex. v., JLR.; **L144**; 01/V/2021, 1 ex. v., JLR.; L144; 14/III/2021, 4 ex. v., JLR.; **L145**; 01/XI/2023, nect. on *D. viscosa*, 3 ex. v., JLR.; **L146**; 01/X/2023, nect. on *D. viscosa* and *Mesembryanthemum* sp. L., 5 ex. v., JLR.; **L152**; 02/V/2020, 2 ex. v., JLR.; **L157**; 10/III/2021, 2 ex. v., JLR.; L157; 23/III/2021, 3 ex. v., JLR.

Comment: Bacallado Aránega *et al.* (2012) previously cited *Papilio machaon* Linnaeus, 1758 in Ceuta without providing specific records. However, recent genomic studies (Cassar *et al.*, 2025) confirm that *P. machaon* is not present in North Africa. Instead, populations historically attributed to *P. machaon* in Morocco and, by extension, in Ceuta and Melilla, actually correspond to *Papilio saharae*. Consequently, the previous record of *P. machaon* in Ceuta must be reinterpreted as *Papilio saharae*, marking the first confirmed record of this species both for Ceuta and for Spain as a whole. This taxonomic reassignment has significant conservation implications. Like other Maghreb endemics present in Ceuta, *P. saharae* occurs in the Calamocarro-Benzú and Acantilados del Monte Hacho protected natural areas which, together with the island of Lampedusa (Italy), are the only sites in the European Natura 2000 network where the species is present. During this study, observations were made at 40 localities across both 10×10 km UTM grids (30STE87 and 30STE97), covering the whole study area. Within these grids, the species was recorded in 17 1×1 km UTM squares, confirming its widespread distribution (Fig. 8). Adults exhibit a prolonged flight period, being multivoltine, with records from January to early November. They have been observed nectaring on *D. viscosa*, *F. vulgare*, *E. creticum*, *R. angustifolia*, *S. atropurpurea*, and *D. carota*. Larvae were recorded feeding on *F. vulgare*, while adults displayed hilltopping behaviour. The larval (L2-L5) (Figs. 5, 6), chrysalis (Fig. 7), and adult stages (Figs. 2-4) have been documented photographically. The Ceuta population belongs to the subspecies *P. s. mauretanica* Verity, 1905 (Cassar *et al.*, 2025). As *Papilio saharae* is newly added to the Spanish butterfly fauna and was not included in previous lists of Spanish common butterfly names (Monasterio León *et al.*, 2019b; ZERYNTHIA Association, 2019), we propose the Spanish name "macaón magrebí" for the species. This nomenclature aligns with the naming convention used for other Maghreb endemics, such as *Zerynthia africana* (arlequín magrebí), *Anthocharis belia* (aurora magrebí), *Coenonympha arcanioides* (ocelada magrebí), *Spialia ali* (sertorio magrebí), and *Thymelicus hamza* (dorada magrebí) (Monasterio León *et al.*, 2020).

Zerynthia africana Stichel, 1907 (Papilionidae)

L4; 10/III/2020, 1 ex. v., JLR.; **L5**; 19/III/2019, 1 ex. v., EZ.; L5; 22/III/2019, 2 ex. v., EZ.; L5; 11/III/2020, 2 ex. v., JLR.; **L6**; 19/III/2023, perch. on *Aristolochia baetica* L., 2 ex. v., JLR.; **L12**; 14/III/2020, 1 ex. v., JLR.; **L13**; 07/III/2020, 1 ex. v., JLR.; L13; 25/III/2021, perch. on *A. baetica*, 1 ex. v., JLR.; L13; 08/V/2021, 1 ex. v., JLR.; L13; 06/III/2022, 4 ex. v., JLR.; L13; 14/V/2022, very worn, 14 ex. v., JLR.; **L14**; 07/III/2020, 2 ex. v., JLR.; **L16**; 06/III/2022, 2 ex. v., JLR.; **L17**; 03/V/2019, 1 ex. v., JLR.; L17; 29/I/2020, nect. on *Asphodelus ramosus* L., 1 ex. v., JLR.; L17; 09/II/2020, 1 ex. v., JLR.; **L22**; 01/IV/2021, nect. on *L. stoechas*, 5 ex. v., JLR.; **L35**; 23/III/2019, 1 ex. v., EZ.; **L36**; 31/I/2020, nect. on *A. ramosus*, 1 ex. v., JLR.; L36; 19/II/2021, recently pupated, 1 ex. v., JLR.; L36; 25/III/2021, 2 ex. v., JLR.; **L38**; 28/II/2020, nect. on *A.*

ramosus, 1 ex. v., JLR.; **L39**; 25/II/2022, found dead, 1 ex. v., JLR.; **L42**; 19/III/2023, 1 ex. v., JLR.; **L47**; 20/III/2019, 1 ex. v., EZ.; **L66**; 31/I/2020, nect. on *A. ramosus*, 2 ex. v., JLR.; **L72**; 23/III/2019, 1 ex. v., EZ.; **L73**; 02/IV/2021, nect. on *Oxalis pes-caprae* L., 1 ex. v., JLR.; **L74**; 02/IV/2021, nect. on *L. stoechas*, 2 ex. v., JLR.; **L79**; 02/IV/2021, perch. on *A. baetica*, 2 ex. v., JLR.; **L81**; 23/II/2023, 1 ex. v., JLR.; **L93**; 23/III/2019, 1 ex. v., EZ.; **L131**; 14/III/2021, nect. on *O. pes-caprae*, 2 ex. v., JLR.; **L132**; 09/III/2020, perch. on *A. baetica*, 1 ex. v., JLR.; L132; 19/IV/2021, 2 ex. v., JLR.; L132; 21/III/2023, 1 ex. v., JLR.; **L142**; 02/V/2020, 2 ex. v., JLR.; **L144**; 14/III/2021, 2 ex. v., JLR.; **L150**; 10/III/2021, 1 ex. v., JLR.; **L157**; 12/III/2024, 1 ex. v., JLR.

Comment: Vives Moreno (2014) previously cited *Zerynthia rumina* in Ceuta without providing specific records. Reported as *Zerynthia africana* by Monasterio *et al.* (2019a), this species has been recorded from 27 localities across 13 1×1 km UTM squares. It is well distributed throughout the study area but relatively scarce. Adults have been observed sporadically in January, February, and May, with peak flight activity occurring in March and April. They have been documented nectaring on *A. ramosus*, *L. stoechas*, and *O. pes-caprae*.

The larval host plant in Ceuta is *A. baetica*, as is typical for this species (Tarrier & Delacre, 2008; Leraut, 2016; Monasterio *et al.*, 2019a). Although *Aristolochia paucinervis* Pomel is also present in Ceuta, it is much rarer (R. Ugarte, 2023 pers. comm.) and may serve as an additional host plant.

Carcharodus tripolina (Verity, 1925) (Hesperiidae) **

L6; 11/VI/2022, 2 ex. v., JLR.; **L12**; 21/VI/2020, nect. on *S. atropurpurea*, 1 ex. coll., JLR.; **L36**; 17/X/2021, 1 ex. v., JLR.; **L41**; 26/IX/2021, 3 ex. coll., JLR.; **L60**; 03/IX/2019, 1 ex. v., EZ.; L60; 25/IX/2021, 1 ex. coll., JLR.; **L62**; 04/IX/2019, 1 ex. v., EZ.; **L73**; 18/V/2019, among *E. camaldulensis*, perch. on *C. crispus*, 1 ex. v., JLR.; **L75**; 13/VI/2022, 1 ex. v., JLR.; **L82**; 26/IX/2021, nect. on *M. suaveolens*, 6 ex. v., JLR.; **L88**; 06/VI/2020, 1 ex. v., 1 ex. coll., JLR.; L88; 21/V/2022, 1 ex. v., JLR.; **L145**; 01/XI/2023, nect. on *D. viscosa*, 3 ex. v., JLR.; **L156**; 16/IV/2024, nect. on *P. maritima*, 3 ex. v., JLR.

Comment: This species has been recorded from 12 localities within 10 1×1 km UTM squares, marking its first confirmed presence in Ceuta. It appears to be a localised species with small population sizes. The flight period extends from April to November, suggesting prolonged activity from mid-spring to autumn, consistent with observations from southern mainland Spain, where it is multivoltine with three or more overlapping generations (García-Barros *et al.*, 2013; Blázquez Caselles *et al.*, 2019). Imagines have been observed feeding on *S. atropurpurea*, *P. maritima*, and *M. suaveolens*.

Gegenes nostrodamus (Fabricius, 1793) (Hesperiidae) *

L17; 03/IX/2019, 1 ex. v., EZ.; **L41**; 27/IX/2019, patrolling behaviour, 1 ex. coll., JLR.; L41; 10/VII/2020, 3 ex. v. and coll., JLR.; **L62**; 03/IX/2019, 2 ex. v. and coll., EZ.; **L139**; 17/X/2021, perch. on *Hibiscus* × *rosa-sinensis* L. (ornamental), 1 ex. coll., JLR.; **L151**; 24/IX/2023, nect. on *Salvia rosmarinus* Spenn., 1 ex. coll., JLR

Comment: Previously mentioned generically for Ceuta by Schuurmans (1976), this species is now confirmed from 5 localities located in 5 1×1 km UTM squares, suggesting that it is scarce and localised within the study area. Specimens were recorded from July to October, with adults observed nectaring on *S. rosmarinus*.

Spialia ali (Oberthür, 1881) (Hesperiidae)

L27; 27/VII/2020, nect. on *R. ulmifolius*, 1 ex. v. and coll., JLR.; **L41**; 10/VII/2020, perch. on *R. ulmifolius*, 2 ex. v., JLR.; **L60**; 15/IX/2019, perch. on *R. ulmifolius*, 2 ex. v., 1 ex. coll., JLR.; L60; 25/IX/2021, flying over *R. ulmifolius*, 3 ex. v., JLR.; **L62**; 03/IX/2019, 1 ex. v., EZ.; L62; 04/IX/2019, 1 ex. v., EZ.; L62; 15/IX/2019, 1 ex. coll., 1 ex. v., JLR.

Comment: The presence of this species in Ceuta was first documented by Monasterio *et al.* (2020), who also discussed its distribution in Morocco and its larval host plant. Traditionally, considered a North African subspecies of *Spialia sertorius* (Hoffmansegg, 1804) (e.g., Rungs, 1981; Tennent, 1996; Leraut, 2016), its status as a distinct species was recently confirmed by Hernández-Roldán *et al.* (2016) and Zhang *et al.* (2020). Observations have been recorded at 4 locations within 3 1×1 km UTM squares. Adults have been observed from July to September, exclusively nectaring on *R. ulmifolius*. This species is highly localised and rare in Ceuta, with only seven records documented throughout the study period.

Thymelicus acteon (Rottemburg, 1775) (Hesperiidae) **

L5; 07/VI/2019, on grasses, 1 ex. coll., JLR.; **L6**; 12/VI/2022, nect. on *S. atropurpurea*, 3 ex. v., JLR.; **L13**; 13/VI/2020, nect. on *S. atropurpurea* and perch. on *Dactylis glomerata* L., 7 ex. v., JLR.; L13; 27/VI/2021, nect. on *S. atropurpurea*, 4 ex. v., JLR.; L13; 29/VI/2023, 2 ex. v., JLR.; **L66**; 06/VI/2020, perch. on *D. glomerata*, 1 ex. v., JLR.; L66; 21/VI/2020, perch. on *D. glomerata*, 1 ex. v., JLR.; **L75**; 13/VI/2022, nect. on *S. atropurpurea* and *R. ulmifolius*, 5 ex. v., JLR.; **L80**; 08/VI/2019, 1 ex. coll., JLR.

Comment: Observations have been recorded from 6 localities located within 5 1×1 km UTM squares. These represent the first confirmed records for Ceuta, where the species appears to be relatively scarce and localised. All adult observations have been confined to June, with individuals seen feeding on the flowers of *S. atropurpurea* and *R. ulmifolius*. North African populations have been assigned to the subspecies *Th. acteon orana* Evans, 1949 (Rungs, 1981; Tennent, 1996; Leraut, 2016; Blázquez Caselles *et al.*, 2019).

Thymelicus hamza (Oberthür, 1876) (Hesperiidae)

L4; 15/V/2019, nect. on *S. atropurpurea*, 1 ex. v., JLR.; L4; 15/V/2019, 1 ex. coll., JLR.; L4; 22/V/2020, nect. on *S. atropurpurea* and perch. on *H. hirta*, 5 ex. v., JLR.; L4; 29/V/2020, 1 ex. v., JLR.; **L5**; 08/VI/2019, 3 ex. v. and coll., JLR.; L5; 21/VI/2019, 1 ex. coll., JLR.; L5; 08/VI/2019, 1 ex. coll., 1 ex. v., JLR.; L5; 21/VI/2019, 1 ex. coll., JLR.; L5; 19/V/2020, nect. on *S. atropurpurea* and perch. on *D. glomerata*, 10 ex. v., JLR.; L5; 23/V/2020, nect. on *Diplotaxis* sp. DC. and *Sonchus* sp. L., 7 ex. v., JLR.; **L6**; 19/V/2020, nect. on *S. atropurpurea* and perch. on *D. glomerata*, 4 ex. v., JLR.; L6; 30/IV/2024, nect. on *Hexaphylla hirsuta* (Desf.) P. Caputo & Del Guacchio and *P. maritima*, 3 ex., JLR.; **L12**; 21/VI/2020, nect. on *Carlina corymbosa* L., *P. odora*, and *S. atropurpurea*, 6 ex. v., JLR.; L12; 14/VI/2021, nect. on *S. atropurpurea*, *D. carota*, *P. spinosa*, *Crepis vesicaria* subsp. *taraxacifolia* (Thuill.) Thell., and *Andryala integrifolia* L., 27 ex. v., JLR.; **L13**; 13/VI/2020, nect. on *S. atropurpurea*, 12 ex. v., JLR.; L13; 08/V/2021, nect. on *Galactites tomentosus* Moench and perch. on *H. hirta* and *Hordeum murinum* subsp. *leporinum* (Link) Arcang, 4 ex. v., JLR.; L13; 27/VI/2021, nect. on *S. atropurpurea*, *P. spinosa*, and *A. integrifolia*, and perch. on various grasses, 25 ex. v., JLR.; L13; 14/V/2022, nect. on *S. atropurpurea* and *P. spinosa*, and perch. on *H. hirta* and *A. mauritanicus*, 18 ex. v., JLR.; **L14**; 13/VI/2020, 2 ex. v., JLR.; **L15**; 13/VI/2019, 2 ex. coll., 4 ex. v., JLR.; **L16**; 16/V/2021, nect. on *S. atropurpurea* and *Jasione foliosa* Cav., 3 ex. v., JLR.; **L18**; 13/VI/2019, 6 ex. v., JLR.; **L19**; 27/VI/2021, nect. on *S. atropurpurea*, 2 ex. v., JLR.; **L22**; 14/VI/2021, nect. on *S. atropurpurea* and *P. spinosa*, and perch. on *Hypparhenia hirta*, 12 ex. v., JLR.; **L25**; 22/VI/2019, 2 ex. v., JLR.; L25; 22/VI/2019, 1 ex. coll., 1 ex. v., JLR.; L25; 12/VI/2021, 2 ex. v., JLR.; **L34**; 04/V/2023, 1 ex. v., JLR.; **L35**; 26/V/2019, nect. on *L. stoechas*, 1 ex. v., JLR.; L35; 07/VI/2019, 3 ex. v., JLR.; L35; 26/V/2019, 1 ex. v., JLR.; L35; 07/VI/2019, 1 ex. coll., 2 ex. v., JLR.; L35; 22/V/2020, 3 ex. v., JLR.; **L36**; 15/VI/2019, 17 ex. v., JLR.; L36; 15/VI/2019, 3 ex. coll., 13 ex. v., JLR.; L36; 21/VI/2020, 2 ex. v., JLR.; L36; 05/V/2023, nect. on *Diplotaxis* sp. DC, nect. on *C. salviifolius*, *C. crispus*, and *S. atropurpurea*, 12 ex. v., JLR.; **L37**; 09/VI/2021, nect. on *S. atropurpurea*, 2 ex. v., JLR.; **L42**; 16/VI/2019, nect. on *Mentha pulegium* L. and *Clinopodium nepeta* (L.) Kuntze, 5 ex. v., JLR.; L42;

06/VI/2020, nect. on *C. crispus* and *C. salviifolius*, 2 ex. v., JLR.; **L43**; 07/VI/2019, 1 ex. v., 1 ex. coll., JLR.; **L50**; 16/VI/2019, 2 ex. v., JLR.; **L51**; 16/VI/2019, 2 ex. coll., 3 ex. v., JLR.; **L52**; 16/VI/2019, 2 ex. v., JLR.; **L63**; 12/VI/2021, nect. on *S. atropurpurea*, 2 ex. v., JLR.; **L66**; 26/V/2019, nect. on *S. atropurpurea* and *P. spinosa*, 10 ex. v., JLR.; L66; 13/VI/2019, nect. on *P. spinosa*, *P. odora*, and *S. atropurpurea*, 9 ex. v., JLR.; L66; 26/V/2019, 4 ex. coll., 6 ex. v., JLR.; L66; 13/VI/2019, 3 ex. coll., 5 ex. v., JLR.; L66; 06/VI/2020, perch. on grasses, *D. glomerata* and *H. hirta*, 3 ex. v., JLR.; L66; 21/VI/2020, nect. on *D. carota*, *P. spinosa*, *P. odora*, and *S. atropurpurea*, 15 ex. v., JLR.; **L73**; 18/V/2019, nect. on *C. monspeliensis*, 1 ex. v., JLR.; L73; 06/VI/2020, nect. on *S. atropurpurea* and *Dorycnopsis gerardi* (L.) Boiss., 8 ex. v., JLR.; L73; 06/VI/2020, 8 ex. v., JLR.; **L74**; 18/V/2019, 1 ex. coll., 1 ex. v., JLR.; L74; 13/VI/2022, 1 ex. v., JLR.; **L80**; 08/VI/2019, nect. on *C. salviifolius*, *D. carota*, *P. spinosa*, and *S. atropurpurea*, 12 ex. v., 4 ex. coll., JLR.; **L88**; 06/VI/2020, nect. on *S. atropurpurea*, 1 ex. v., JLR.; **L94**; 06/VI/2020, 4 ex. v., JLR.; **L150**; 04/IV/2019, 1 ex. v., EZ.

Comment: First recorded in Ceuta by Monasterio *et al.* (2020). Observations have been documented from 29 localities spanning 11 1×1 km UTM squares. This species is abundant and widely distributed in Ceuta, with adults active from April to July, peaking between May and June. Adults have been observed nectaring on a diverse array of plants including *S. atropurpurea*, *Diplotaxis* sp., *Sonchus* sp., *C. corymbosa*, *P. odora*, *D. carota*, *P. spinosa*, *P. maritima*, *C. vesicaria* subsp. *taraxacifolia*, *A. integrifolia*, *Galactites tomentosus*, *J. foliosa*, *L. stoechas*, *D. gerardi*, *C. nepeta*, *M. pulegium*, *H. hirsuta*, *C. salviifolius*, *C. monspeliensis*, and *C. crispus*. The larval host plant used by this species remains unknown.

Anthocharis belia (Linnaeus, 1767) (Pieridae)

L4; 10/III/2020, 1 ex. v., JLR.; L4; 22/IV/2021, 1 ex. v., JLR.; L4; 28/IV/2021, nect. on *Biscutella boetica* Boiss. & Reut., 1 ex. v., JLR.; L4; 03/II/2022, 1 ex. v., JLR.; L4; 15/III/2023, perch. on *B. boetica*, 2 ex. v., JLR.; L4; 08/V/2020, 1 ex. v., JLR.; **L6**; 01/IV/2021, 1 ex. v., JLR.; L6; 12/III/2021, 1 ex. v., JLR.; L6; 19/III/2023, nect. on *Rhodanthemum hosmariense* (Ball) B.H. Wilcox, K. Bremer & Humphries, 1 ex. v., JLR.; **L7**; 18/II/2022, 1 ex. v., JLR.; L7; 27/IV/2022, perch. on *B. boetica*, 3 ex. v., JLR.; **L12**; 20/III/2019, 1 ex. v., EZ.; **L13**; 17/IV/2021, nect. on *Eruca vesicaria* (L.) Cav. and *Diplotaxis* sp., 3 ex. v., JLR.; **L14**; 07/III/2020, nect. on *B. boetica*, 1 ex. v., JLR.; L14; 17/IV/2021, 1 ex. v., JLR.; **L15**; 12/III/2020, 1 ex. v., JLR.; **L17**; 29/I/2020, 1 ex. v., JLR.; **L22**; 01/IV/2021, nect. on *B. boetica*, 2 ex. v., JLR.; **L25**; 22/V/2019, 1 female ex. v., JLR.; **L28**; 12/III/2020, perch. on *B. boetica*, 1 ex. v., JLR.; **L31**; 20/III/2019, 1 ex. v., EZ.; **L32**; 20/III/2019, 1 ex. v., EZ.; **L36**; 17/I/2020, perch. on *B. boetica*, 1 ex. v., JLR.; L36; 25/III/2021, 1 ex. v., JLR.; **L38**; 28/II/2020, 1 ex. v., JLR.; **L40**; 18/II/2022, 2 ex. v., JLR.; **L41**; 15/V/2019, 3 ex. v., JLR.; **L44**; 06/VI/2019, 2 ex. v., JLR.; L44; 19/IV/2021, 1 ex. v., JLR.; L44; 07/V/2022, perch. on *B. boetica*, 2 ex. v., JLR.; **L47**; 20/III/2019, 1 ex. v., EZ.; **L54**; 07/V/2021, 1 ex. v., JLR.; L54; 10/IV/2023, 2 ex. v., JLR.; **L55**; 27/IV/2023, 2 ex. v., JLR.; **L56**; 19/III/2023, perch. on *B. boetica*, 2 ex. v., JLR.; **L68**; 28/II/2020, 1 ex. v., JLR.; **L72**; 20/III/2019, 1 ex. v., EZ.; **L73**; 11/V/2019, 2 ex. v., JLR.; **L75**; 11/V/2019, nect. on *B. boetica*, 1 ex. v., JLR.; **L92**; 23/III/2019, 1 ex. v., EZ.

Comment: The first precise records of this species in Ceuta were provided by Monasterio *et al.* (2019a), though its presence had previously been mentioned in a general context by Bacallado Aránega *et al.* (2012). Observations have been recorded from 27 localities located in 9 1×1 km UTM squares. The species is active from February to June, with peak occurrence in March and April, indicating a spring flight period. The most likely larval host plant in Ceuta is *B. boetica*, as imagines have frequently been observed perching on it. Adults have been recorded nectaring on *R. hosmariense*, *E. vesicaria*, *B. boetica*, and *Diplotaxis* sp.

Colias croceus (Geoffroy, 1785) (Pieridae) *****

L4; 05/VI/2019, 2 ex. v., JLR.; L4; 07/V/2019, nect. on *G. tomentosus* and *S. atropurpurea*, 2 ex. v.,

JLR.; L4; 16/V/2019, 3 ex. v., JLR.; L4; 17/VI/2019, 1 ex. v., JLR.; L4; 24/V/2019, 4 ex. v., JLR.; L4; 17/VI/2020, nect. on *S. atropurpurea*, 3 ex. v., JLR.; L4; 19/VI/2020, 11 ex. v., 1 ex. helice form, JLR.; L4; 22/V/2020, 6 ex. v., JLR.; L4; 29/V/2020, 2 ex. v., JLR.; L4; 28/IV/2021, 2 ex. v., JLR.; **L5**; 07/VI/2019, 7 ex. typical form v., 3 ex. helice form v., JLR.; L5; 19/III/2019, 1 ex. v., EZ.; L5; 21/VI/2019, 1 ex. typical form v., 1 ex. helice form v., JLR.; L5; 11/III/2020, 1 ex. v., JLR.; L5; 14/II/2020, 2 ex. v., JLR.; L5; 19/V/2020, nect. on *S. atropurpurea* and *P. maritima*, 9 ex. v., JLR.; L5; 23/V/2020, 11 ex. v., 2 ex. helice form, JLR.; L5; 29/IV/2020, 8 ex. v., JLR.; L5; 06/V/2021, 3 ex. v., JLR.; L5; 17/II/2022, nect. on *O. pes-caprae*, 6 ex. v., 1 ex. helice form v., JLR.; **L6**; 19/V/2020, 3 ex. v., JLR.; L6; 11/VI/2022, 2 ex. v., JLR.; L6; 12/VI/2022, nect. on *S. atropurpurea*, 1 ex. v., JLR.; L6; 30/IV/2024, nect. on *P. maritima* and *L. dentata*, 6 ex. v., 2 ex. helice form v., JLR.; **L8**; 17/II/2022, 1 ex. v., JLR.; **L9**; 23/VII/2023, 2 ex. v., JLR.; **L12**; 21/VI/2020, 4 ex. v., JLR.; L12; 14/VI/2021, 10 ex. v., JLR.; **L13**; 13/VI/2020, 11 ex. v., 2 ex. helice form, JLR.; L13; 08/V/2021, nect. on *Diplotaxis* sp., *S. atropurpurea*, and *Anacyclus radiatus* Loisel., 6 ex. v., JLR.; L13; 08/V/2021, nect. on *C. crispus* and *P. odora*, 11 ex. v., JLR.; L13; 17/IV/2021, 2 ex. v., JLR.; L13; 27/VI/2021, nect. on *S. atropurpurea*, *P. odora*, and *P. spinosa*, 4 ex. v., JLR.; L13; 14/V/2022, nect. on *P. spinosa*, 3 ex. v., JLR.; L13; 29/VI/2023, nect. on *D. carota*, 2 ex. v., JLR.; **L14**; 22/VI/2019, 1 ex. v., JLR.; L14; 17/X/2021, nect. on *M. suaveolens* and *D. viscosa*, 2 ex. v., JLR.; **L16**; 16/V/2021, 14 ex. v., JLR.; **L17**; 02/II/2020, 2 ex. v., JLR.; L17; 09/II/2020, 1 ex. v., JLR.; L17; 29/I/2020, 1 ex. v., JLR.; **L19**; 27/VI/2021, 2 ex. v., JLR.; **L21**; 29/VI/2023, nect. on *S. atropurpurea* and *C. calcitrapa*, 2 ex. v., JLR.; **L22**; 12/VII/2020, 3 ex. v., JLR.; L22; 01/IV/2021, nect. on *L. stoechas*, 3 ex. v., JLR.; L22; 14/VI/2021, 5 ex. v., 1 ex. helice form v., JLR.; L22; 17/X/2021, nect. on *C. nepeta* and *D. viscosa*, 7 ex. v., 1 ex. helice form v., JLR.; **L23**; 15/V/2021, nect. on *Urospermum dalechampii* (L.) Scop. ex F.W. Schmidt, *Anacyclus clavatus* (Desf.) Pers, *A. radiatus*, *Anthemis arvensis* Pall. ex M. Bieb., *S. atropurpurea*, and *P. odora*, 18 ex. v., 2 ex. helice form v., JLR.; L23; 18/IV/2021, nect. on *U. dalechampii*, 12 ex. v., 2 ex. helice form v., JLR.; L23; 15/V/2022, nect. on *A. radiatus*, *A. clavatus*, *Tolpis barbata* (L.) Gaertn., *P. spinosa*, and *P. odora*, 20 ex. v., 2 ex. helice form v., JLR.; **L24**; 17/IV/2021, 7 ex. v., JLR.; **L25**; 13/VI/2019, 3 ex. v., JLR.; L25; 22/V/2019, 2 ex. v., JLR.; L25; 12/VI/2021, 12 ex. v., JLR.; L25; 12/VI/2021, nect. on *S. atropurpurea*, *P. spinosa*, *A. integrifolia*, *Linum tenue* Desf., and *Cynara cardunculus* L., 10 ex. v., JLR.; **L27**; 15/VII/2019, nect. on *T. caeruleum*, 2 ex. v., JLR.; L27; 27/VII/2020, nect. on *T. caeruleum*, 3 ex. v., JLR.; **L28**; 12/VII/2020, 2 ex. v., JLR.; **L29**; 22/VI/2019, 1 ex. v. typical form, 1 ex. v. helice form, JLR.; **L32**; 20/III/2019, 1 ex. v., EZ.; **L34**; 04/V/2023, 3 ex. v., 1 ex. helice form v., JLR.; **L35**; 07/VI/2019, 5 ex. v., JLR.; L35; 22/V/2019, 3 ex. v., 2 ex. helice form v., JLR.; L35; 22/V/2020, 3 ex. v., JLR.; L35; 29/VI/2020, 3 ex. v., JLR.; L35; 23/VII/2023, 1 ex. v., JLR.; L35; 23/VII/2023, 2 ex. v., JLR.; **L36**; 15/VI/2019, 7 ex. v., JLR.; L36; 09/II/2020, 1 ex. v., JLR.; L36; 14/II/2020, 6 ex. v., JLR.; L36; 29/VI/2020, 5 ex. v., JLR.; L36; 17/X/2021, nect. on *D. viscosa*, 5 ex. v., JLR.; L36; 25/III/2021, 2 ex. v., JLR.; L36; 05/V/2023, 5 ex. v., JLR.; L36; 23/VII/2023, 2 ex. v., JLR.; **L37**; 09/VI/2021, 21 ex. v., 2 ex. helice form v., JLR.; **L41**; 10/VII/2020, 3 ex. v., JLR.; **L42**; 16/VI/2019, 2 ex. v., JLR.; L42; 06/VI/2020, 9 ex. v., JLR.; **L43**; 07/VI/2019, 5 ex. v., JLR.; **L47**; 20/III/2019, 1 ex. v., EZ.; **L59**; 19/III/2019, 1 ex. v., EZ.; **L60**; 25/IX/2021, 2 ex. v., JLR.; **L62**; 04/IX/2019, 1 ex. v., EZ.; **L63**; 12/VI/2021, nect. on *S. atropurpurea*, *D. carota*, *A. radiatus*, *L. tenue*, and *C. cardunculus*, 22 ex. v., 1 ex. helice form v., JLR.; **L66**; 26/V/2019, 4 ex. v., JLR.; L66; 06/VI/2020, 4 ex. v., 1 ex. helice form v., JLR.; L66; 15/V/2020, 2 ex. v., JLR.; L66; 21/VI/2020, nect. on *S. atropurpurea* and *P. spinosa*, 6 ex. v., JLR.; **L67**; 29/IX/2023, nect. on *D. viscosa*, 2 ex. v., JLR.; **L69**; 23/III/2019, 2 ex. v., EZ.; **L73**; 11/V/2019, nect. on *C. crispus*, 5 ex. v., JLR.; L73; 18/V/2019, 4 ex. v., JLR.; L73; 06/VI/2020, 7 ex. v., 2 ex. helice form v., JLR.; L73; 06/VI/2020, 10 ex. v., 1 ex. helice form v., JLR.; L73; 20/XI/2023, 2 ex. v., JLR.; **L74**; 11/V/2019, 2 ex. v., JLR.; L74; 02/IV/2021, 3 ex. v., JLR.; L74; 13/VI/2022, 2 ex. v., JLR.; **L75**; 13/VI/2022, 5 ex. v., JLR.; **L76**; 16/VI/2019, 1 ex. v., JLR.; **L80**; 08/VI/2019, 3 ex. typical form v., 1 ex. helice form v., JLR.; **L83**; 12/VI/2022, nect. on *T. caeruleum*, 2 ex. v., JLR.; **L88**; 06/VI/2020, 8 ex. v., 1 ex. helice form v., JLR.; L88; 08/V/2021, nect. on *P. spinosa* and *E. creticum*,

2 ex. v., JLR.; L88; 12/VI/2021, nect. on *A. integrifolia* and *M. pulegium*, 3 ex. v., JLR.; L88; 15/V/2021, nect. on *P. spinosa*, 2 ex. v., JLR.; **L94**; 06/VI/2020, 8 ex. v., 2 ex. helice form v., JLR.; **L124**; 10/VI/2020, 3 ex. v., JLR.; **L130**; 16/VI/2020, 12 ex. v., 2 ex. helice form v., JLR.; L130; 07/V/2023, 6 ex. v., JLR.; **L132**; 10/II/2020, 1 ex. v., JLR.; L132; 20/VI/2020, 14 ex. v., 2 ex. helice form, JLR.; L132; 19/IV/2021, 6 ex. v., JLR.; **L133**; 11/IV/2021, 1 ex. v., JLR.; L133; 19/IV/2021, 5 ex. v., JLR.; L133; 23/III/2021, 3 ex. v., JLR.; **L139**; 12/V/2019, 1 ex. v., JLR.; **L141**; 06/V/2020, 5 ex. v., 1 ex. helice form v., JLR.; L141; 16/V/2020, 1 ex. helice form, JLR.; **L142**; 02/V/2020, 5 ex. v., 1 ex. helice form v., JLR.; L142; 03/V/2020, 4 ex. v., JLR.; L142; 17/V/2020, 3 ex. v., JLR.; **L144**; 01/V/2021, 5 ex. v., JLR.; L144; 19/XI/2023, nect. on *D. viscosa*, 1 ex. v., JLR.; **L145**; 01/XI/2023, nect. on *D. viscosa*, 2 ex. v., JLR.; L145; 01/XI/2023, nect. on *D. viscosa*, 1 ex. v., JLR.; **L147**; 27/I/2020, 2 ex. v., JLR.; **L150**; 03/V/2020, 3 ex. v., JLR.; **L151**; 06/V/2020, 2 ex. v., JLR.; **L152**; 02/V/2020, 2 ex. v., JLR.; **L154**; 01/II/2020, 2 ex. v., JLR.; L154; 16/I/2020, 2 ex. v., JLR.; L154; 11/IV/2021, 2 ex. v., JLR.; **L157**; 08/XI/2020, 1 ex. v., JLR.; L157; 09/VI/2020, 5 ex. v., JLR.

Comment: Observations have been recorded from 58 localities in 19 1×1 km UTM squares, with activity documented throughout the year. Peak abundances occur in May, June, and September. These represent the first confirmed records for Ceuta, though the species had been previously mentioned without specific data by Bacallado Aránega *et al.* (2012). Imagines have been observed visiting *S. atropurpurea*, *D. carota*, *E. creticum*, *L. tenue*, *C. crispus*, *C. cardunculus*, *C. calcitrapa*, *G. tomentosus*, *L. stoechas*, *Clinopodium nepeta*, *T. caeruleum*, *A. integrifolia*, *A. arvensis*, *T. barbata*, *D. viscosa*, *A. radiatus*, *P. odora*, *P. spinosa*, *D. viscosa*, *O. pes-caprae*, *M. pulegium*, and *M. suaveolens*. Both the typical form and the helice form have been observed.

Colotis evagore (Klug, 1829) (Pieridae) **

L4; 07/X/2021, 3 ex. v., JLR.; L4; 13/X/2021, 1 ex. v., JLR.; L4; 27/IX/2021, nect. on *D. viscosa*, 4 ex. v., JLR.; **L14**; 17/X/2021, 3 ex. v., JLR.; **L41**; 26/IX/2021, perch. on embankments, 5 ex. v., JLR.; **L57**; 04/X/2021, 2 ex. v., JLR.; **L69**; 04/X/2021, nect. on *D. viscosa*, 2 ex. v., JLR.; **L82**; 26/IX/2021, nect. on *M. suaveolens*, 4 ex. v., JLR.; **L84**; 28/IX/2021, 2 ex. v., JLR.; **L95**; 05/X/2021, 1 ex. v., JLR.; **L151**; 02/X/2021, nect. on *S. rosmarinus*, flying from the sea, towards the south, 4 ex. v., JLR.; **L157**; 02/X/2021, nect. on *D. viscosa*, 2 ex. v., JLR.

Comment: Observations have been documented from 10 localities located in 9 1×1 km UTM squares, concentrated between September and October, likely due to the species' dispersive movements. This is the first record for Ceuta. In October, individuals were observed along the coast flying southwards. Given the absence of its larval host plant, *Capparis spinosa* L., reproduction in Ceuta is considered impossible, and all recorded specimens are assumed to be migrants. Adults have been observed nectaring on *D. viscosa*, *M. suaveolens*, and *S. rosmarinus*.

Euchloe belemia (Esper, 1800) (Pieridae) *

L4; 22/V/2020, perch. on *Diplotaxis* sp., 2 ex. v., JLR.; **L5**; 19/III/2019, 1 ex. v., EZ.; L5; 11/III/2020, 2 ex. v., JLR.; L5; 19/V/2020, 4 ex. v., JLR.; L5; 23/V/2020, nect. on *Diplotaxis* sp. and *Biscutella* sp., 4 ex. v., JLR.; L5; 06/V/2021, nect. on *Diplotaxis* sp., 3 ex. v., JLR.; L5; 25/III/2021, 3 ex. v., JLR.; L5; 19/III/2023, nect. on *L. dentata*, 1 ex. v., JLR.; **L6**; 06/V/2021, 5 ex. v., JLR.; L6; 19/III/2023, nect. on *L. dentata*, *B. boetica*, and *Aphyllanthes monspeliensis* L., 4 ex. v., JLR.; **L13**; 07/III/2020, 4 ex. coll., JLR.; L13; 08/V/2021, perch. on *Diplotaxis* sp. and *E. vesicaria*, 11 ex. v., JLR.; L13; 17/IV/2021, nect. on *E. vesicaria* and *Diplotaxis* sp., 12 ex. v., JLR.; L13; 25/III/2021, 4 ex. v., JLR.; L13; 06/III/2022, 1 ex. v., JLR.; L13; 14/V/2022, nect. on *Diplotaxis* sp. and *E. vesicaria*, 5 ex. v., JLR.; **L14**; 07/III/2020, 1 ex. v., JLR.; **L16**; 16/V/2021, 5 ex. v., JLR.; **L23**; 15/V/2021, perch. on *Diplotaxis* sp. and *E. vesicaria*, 6 ex. v., JLR.; L23; 18/IV/2021, 1 ex. v., JLR.; L23; 15/V/2022, 2 ex. v., JLR.; **L36**; 17/I/2020, nect. on *O. pes-caprae*, 2 ex. v., JLR.; L36; 21/VI/2020, very worn, 2 ex. v., JLR.; L36; 28/II/2020, perch. on *Diplotaxis* sp., 5 ex. v., JLR.; L36; 17/X/2021, 5

ex. v., JLR.; L36; 19/II/2021, 2 ex. v., JLR.; L36; 25/III/2021, 5 ex. v., JLR.; L36; 05/V/2023, nect. on *Diplotaxis* sp., 8 ex. v., JLR.; L36; 20/XI/2023, 4 ex. v., JLR.; **L66**; 15/V/2020, 1 ex. v., JLR.; **L74**; 02/IV/2021, 1 ex. v., JLR.; **L88**; 08/V/2021, nect. on *Diplotaxis* sp., 6 ex. v., JLR.; L88; 15/V/2021, 3 ex. v., JLR.; **L94**; 06/VI/2020, nect. on *Sisymbrium* sp. L., very worn, 2 ex. v., JLR.; **L124**; 11/V/2020, 1 ex. v., JLR.; **L130**; 07/V/2023, nect. on *Diplotaxis* sp., 3 ex. v., JLR.; **L132**; 09/III/2020, 6 ex. v., JLR.; L132; 10/II/2020, very active, some perching on *Diplotaxis* sp., 7 ex. v., JLR.; L132; 20/VI/2020, 2 ex. v., JLR.; L132; 19/IV/2021, 1 ex. v., JLR.; L132; 21/I/2023, perch. on *O. pes-caprae*, 4 ex. v., JLR.; **L133**; 19/IV/2021, 1 ex. v., JLR.; L133; 23/III/2021, 2 ex. v., JLR.; **L144**; 01/V/2021, 1 ex. v., JLR.; L144; 14/III/2021, 2 ex. v., JLR.; **L154**; 11/IV/2021, 3 ex. v., JLR.; **L155**; 21/I/2023, 5 ex. v., JLR.; **L156**; 16/IV/2024, nect. on *Succowia balearica* (L.) Medik., 4 ex. v., JLR.; **L157**; 18/V/2020, 8 ex. v., JLR.; L157; 10/III/2021, 2 ex. v., JLR.; L157; 23/III/2021, 11 ex. v., JLR.; L157; 21/I/2023, 1 ex. v., JLR.; L157; 3/XII/2023, nect. on *D. gnidium*, 2 ex. v., JLR.; L157; 21/IV/2024, nect. on *S. balearica* and *E. vesicaria*, 4 ex. v., JLR.

Comment: Recorded from 21 localities located within 13 1×1 km UTM squares. These represent the first records for Ceuta, though the species had been mentioned in a general context by Bacallado Aránega *et al.* (2012). It is widely distributed and relatively abundant in the study area. Imagines have been observed flying from November through June and nectaring on *Diplotaxis* sp., *E. vesicaria*, *S. balearica*, *L. dentata*, *D. gnidium*, *B. boetica*, *O. pes-caprae*, *A. monspeliensis,* and *Sisymbrium* sp.

Euchloe crameri Butler, 1869 (Pieridae) ******

L5; 30/IV/2024, perch. on *B. boetica* and *Diplotaxis* sp., 2 ex. v., JLR; L5; 30/IV/2024, nect. on *B. boetica* and *E. vesicaria*, 2 ex. v., JLR; **L36**; 05/V/2023, nect. on *Diplotaxis* sp., 11 ex. v., JLR.

Comment: Observations were limited to 3 locations in 2 1×1 km UTM squares, marking the first records for Ceuta. This species is scarce and localised, with sightings restricted to late April and early May. Adults were observed nectaring and perching on *B. boetica*, *E. vesicaria*, and *Diplotaxis* sp.

Euchloe tagis (Hübner, [1804]) (Pieridae) ******

L6; 19/III/2023, flying over a dolomitic cliff with *I. gibraltarica*, 1 ex. v., JLR; L6; 30/IV/2024, 1 third-instar larva collected below the floral bud of *I. gibraltarica*, JLR.

Comment: Observed at a single locality (one 1×1 km UTM square), the Mogote de Benzú, a dolomitic (calcareous) outcrop with steep topography geologically part of the Yebel Musa Unit (Chamorro & Nieto, 1989; IGME, 2013). This is the only calcareous–dolomitic area in Ceuta (1.8 ha), and hosts the city's sole population of *I. gibraltarica* (Ugarte *et al.*, 2003a), the larval host plant of this species. Since the larvae exclusively develop on *Iberis* L. species, the presence of this plant at Mogote de Benzú is key to the population's persistence in Ceuta. This is the first record for Ceuta and represents the northernmost occurrence in the Tingitan Peninsula. *E. tagis* in known from only 8 10×10 km UTM squares in Morocco (Rungs, 1981; Tennent, 1996; Tarrier & Delacre, 2008; Tarrier, 2025a), the nearest being in the Djebel Kelti calcareous massif (Chefchaouen region), about 62 km south of Ceuta. According to Tarrier & Delacre (2008) and Tarrier (2025a). It is currently undergoing a marked decline in Morocco. The northern Moroccan populations (Rif), including Ceuta's, are assigned to the subspecies *E. tagis reisseri* Back & Reissinger, 1989 (Tennent, 1996; Tarrier & Delacre, 2008; Leraut, 2016).

Gonepteryx cleopatra (Linnaeus, 1767) (Pieridae) ******

L4; 16/VII/2019, 1 ex. v., JLR.; L4; 25/VII/2019, 2 ex. v., JLR.; L4; 06/VII/2020, nect. on *T. caeruleum*, 1 ex. v., JLR.; L4; 08/V/2020, 1 ex. v., JLR.; L4; 22/V/2020, 2 ex. v., JLR.; L4; 29/V/2020, 1 ex. v., JLR.; L4; 11/II/2021, 1 ex. v., JLR.; L4; 18/V/2022, perch. on *Rhamnus alaternus* L., 1 ex. v., JLR.; L4; 15/III/2023, 1 ex. v., JLR.; **L5**; 11/III/2020, 1 ex. v., JLR.; L5; 23/V/2020, 1 ex. v., JLR.; L5; 06/V/2021, 1 ex. v., JLR.; **L6**; 01/IV/2021, 1 ex. v., JLR.; L6; 06/V/2021, 1 ex. v.,

JLR.; L6; 12/III/2021, 1 ex. v., JLR.; L6; 12/III/2023, females perch. on *R. lycioides* var. *oleoides*, 5 ex. v., JLR.; L6; 19/III/2023, 1 ex. v., JLR.; **L7**; 18/II/2022, 1 ex. v., JLR.; **L12**; 14/VI/2021, nect. on *S. atropurpurea*, 2 ex. v., JLR.; **L13**; 08/V/2021, 1 ex. v., JLR.; L13; 27/VI/2021, nect. on *S. atropurpurea*, 2 ex. v., JLR.; **L14**; 16/V/2021, 1 ex. v., JLR.; **L16**; 16/V/2021, 2 ex. v., JLR.; **L23**; 14/VI/2021, 2 ex. v., JLR.; L23; 15/V/2021, 1 ex. v., JLR.; **L25**; 15/VI/2019, 1 ex. v., JLR.; L25; 12/VI/2021, 1 ex. v., JLR.; **L27**; 27/VII/2020, nect. on *T. caeruleum*, 2 ex. v., JLR.; L27; 14/VI/2021, nect. on *T. caeruleum*, 1 ex. v., JLR.; L27; 29/VI/2021, nect. on *T. caeruleum*, 1 ex. v., JLR.; **L36**; 05/V/2023, 2 ex. v., JLR.; **L37**; 09/VI/2021, 4 ex. v., JLR.; **L41**; 28/VI/2019, 1 ex. v., JLR.; L41; 10/VII/2020, 2 ex. v., JLR.; **L44**; 07/V/2022, 1 ex. v., JLR.; **L45**; 05/VII/2019, 1 ex. v., JLR.; **L58**; 22/II/2023, 1 male ex. v., JLR.; **L61**; 25/IX/2021, 1 ex. v., JLR.; **L73**; 18/II/2022, 1 ex. v., JLR.; **L85**; 05/VII/2019, 1 ex. v., JLR.; L85; 03/IV/2021, 1 ex. v., JLR.; **L88**; 06/VI/2020, 1 ex. v., JLR.; L88; 25/VII/2020, 1 ex. v., JLR.; **L92**; 23/III/2019, 1 ex. v., EZ.; **L95**; 21/VI/2021, 1 ex. v., JLR.; **L96**; 25/VII/2020, 1 ex. v., JLR.; **L97**; 18/V/2022, 1 ex. v., JLR.

Comment: Observations were recorded at 25 localities within 11 1×1 km UTM squares between March and July. These constitute the first records for Ceuta. Imagines have been observed nectaring on *T. caeruleum* and *S. atropurpurea*. The larval host plants in Ceuta are likely to be *R. alaternus* and *R. lycioides*, on which females have been seen ovipositing, in accordance with the species' known behaviour (Tarrier & Delacre, 2008; García-Barros *et al.*, 2013; Tarrier, 2025a).

Gonepteryx rhamni (Linnaeus, 1758) (Pieridae) **

L4; 02/III/2021, 1 ex. v., JLR.; **L35**; 23/VII/2023, perch. on *Convolvulus althaeoides* L., 1 ex. v., JLR.; **L68**; 11/II/2022, 2 ex. coll., JLR.

Comment: This species was observed at only 3 localities within 3 1 × 1 km UTM squares, indicating that it is scarce in Ceuta. Imagines were observed between March and July. These are the first records for Ceuta.

Pieris brassicae (Linnaeus, 1758) (Pieridae) *

L4; 06/V/2019, 2 ex. v., JLR.; L4; 07/V/2019, 1 ex. v., JLR.; L4; 15/V/2019, 3 ex. v., JLR.; L4; 16/V/2019, 7 ex. v., JLR.; L4; 24/V/2019, 1 ex. v., JLR.; L4; 05/VI/2019, 1 ex. v., JLR.; L4; 29/V/2020, 2 ex. v., JLR.; L4; 19/VI/2020, 3 ex. v., JLR.; L4; 06/VII/2020, 5 ex. v., JLR.; L4; 07/X/2021, 1 ex. v., JLR.; L4; 04/II/2022, 1 ex. v., JLR.; L4; 24/I/2023, 1 ex. v., JLR.; **L5**; 29/IV/2020, 1 ex. v., JLR.; L5; 19/V/2020, 5 ex. v., JLR.; L5; 06/V/2021, 1 ex. v., JLR.; L5; 17/II/2022, nect. on *Sonchus tenerrimus* L., 1 ex. v., JLR.; **L6**; 19/III/2023, nect. on *L. dentata* and *A. monspeliensis*, 5 ex. v., JLR.; L6; 20/III/2019, 1 ex. v., EZ.; **L8**; 15/I/2022, 1 ex. v., JLR.; **L13**; 08/V/2021, 3 ex. v., JLR.; **L16**; 16/V/2021, 5 ex. v., JLR.; **L23**; 18/IV/2021, nect. on *U. dalechampii*, 7 ex. v., JLR.; L23; 15/V/2021, 15 ex. v., JLR.; L23; 14/VI/2021, 1 ex. v., JLR.; **L25**; 22/V/2019, 1 ex. v., JLR.; L25; 12/VI/2021, 2 ex. v., JLR.; **L28**; 20/III/2019, 1 ex. v., EZ.; **L32**; 20/III/2019, 1 ex. v., EZ.; **L36**; 05/V/2023, 3 ex. v., JLR.; L36; 23/VII/2023, 1 ex. v., JLR.; L36; 20/III/2019, 1 ex. v., EZ.; **L37**; 12/III/2023, 1 ex. v., JLR.; L37; 20/III/2019, 1 ex. v., EZ.; **L40**; 18/II/2022, 1 ex. v., JLR.; **L41**; 14/V/2021, 2 ex. v., JLR.; L41; 20/III/2019, 1 ex. v., EZ.; **L44**; 07/V/2022, 1 ex. v., JLR.; **L48**; 01/IX/2019, 1 ex. v., EZ.; **L59**; 19/III/2019, 1 ex. v., EZ.; **L60**; 15/IX/2019, nect. on *M. suaveolens*, 2 ex. v., JLR.; **L62**; 03/IX/2019, 1 ex. v., EZ.; **L68**; 11/II/2022, 1 ex. v., JLR.; **L69**; 23/III/2019, 1 ex. v., EZ.; **L73**; 20/XI/2023, 1 ex. v., JLR.; L73; 11/V/2019, 6 ex. v., JLR.; **L75**; 11/V/2019, 1 ex. v., JLR.; **L77**; 20/III/2019, 1 ex. v., EZ.; **L79**; 02/IV/2021, 2 ex. v., JLR.; **L80**; 18/II/2022, nect. on *Crepis* sp., 1 ex. v., JLR.; L80; 12/III/2023, 1 ex. v., JLR.; **L82**; 26/IX/2021, 1 ex. v., JLR.; **L84**; 01/IX/2019, 1 ex. v., EZ.; **L85**; 05/VII/2019, 2 ex. v., JLR.; **L88**; 06/VI/2020, 1 ex. v., JLR.; L88; 08/V/2021, 4 ex. v., JLR.; **L89**; 11/V/2019, 2 ex. v., JLR.; **L93**; 23/III/2019, 1 ex. v., EZ.; **L94**; 12/VI/2019, nect. on *M. suaveolens*, 1 ex. v., JLR.; L94; 06/VI/2020, 1 ex. v., JLR.; L94;

29/III/2024, nect. on *Tropaeolum majus* L., 2 ex. v., JLR.; **L95**; 19/III/2019, 1 ex. v., EZ.; **L98**; 06/V/2019, 1 ex. v., JLR.; **L100**; 06/V/2019, 2 ex. v., JLR.; **L106**; 12/III/2020, 2 ex. v., JLR.; **L110**; 28/X/2023, 2 ex. v., JLR.; **L112**; 09/V/2019, 2 ex. v., JLR.; **L113**; 01/XI/2023, 2 ex. v., JLR.; **L119**; 28/X/2023, 2 ex. v., JLR.; L119; 01/XI/2023, 1 ex. v., JLR.; **L120**; 10/IX/2023, 2 ex. v., JLR.; **L130**; 07/V/2023, nect. on *E. creticum*, 10 ex. v., JLR.; L130; 16/VI/2020, 2 ex. v., JLR.; **L131**; 14/III/2021, 1 ex. v., JLR.; **L132**; 10/III/2021, 1 ex. v., JLR.; L132; 19/IV/2021, nect. on *Diplotaxis* sp., 5 ex. v., JLR.; L132; 21/I/2023, 4 ex. v., JLR.; L132; 21/III/2023, 1 ex. v., JLR.; **L133**; 19/IV/2021, 1 ex. v., JLR.; **L135**; 05/V/2019, 1 ex. v., JLR.; L135; 05/XI/2023, nect. on *D. viscosa*, 1 ex. v., JLR.; **L136**; 01/XI/2023, 3 ex. v., JLR.; **L141**; 06/V/2020, 1 ex. v., JLR.; L141; 21/III/2019, 1 ex. v., EZ.; **L142**; 03/V/2020, 2 ex. v., JLR.; **L144**; 01/V/2021, 4 ex. v., JLR.; L144; 14/III/2021, 2 ex. v., JLR.; **L145**; 14/II/2021, 4 ex. v., JLR.; L145; 01/XI/2023, 2 ex. v., JLR.; **L146**; 01/X/2023, nect. on *D. viscosa*, 1 ex. v., JLR.; **L148**; 14/II/2021, 2 ex. v., JLR.; **L149**; 05/V/2019, 2 ex. v., JLR.; L149; 26/V/2019, 2 ex. v., JLR.; L149; 01/XI/2023, 2 ex. v., JLR.; **L150**; 05/XI/2023, nect. on *D. viscosa*, 2 ex. v., JLR.; L150; 10/III/2021, 1 ex. v., JLR.; L150; 01/XI/2023, 1 ex. v., JLR.; **L151**; 09/IX/2023, nect. on *S. rosmarinus*, 6 ex. v., JLR.; L151; 24/IX/2023, nect. on *S. rosmarinus*, 1 ex. v., JLR.; **L152**; 02/V/2020, 1 ex. v., JLR.; **L154**; 11/IV/2021, 1 ex. v., JLR.; **L155**; 21/I/2023, nect. on *O. pes-caprae*, 2 ex. v., JLR.; **L156**; 30/XI/2020, 3 ex. v., JLR.

Comment: Previously recorded for Ceuta and its surroundings without a precise location by Bacallado Aránega *et al*. (2012). Observations of adults were recorded at 60 localities within 22 1×1 km UTM squares. Tarrier & Delacre (2008) did not mention any records from the Tingitan Peninsula. This species is frequent and relatively abundant in Ceuta, with records mainly from March to November, peaking in May, June, and September. Adults have been observed nectaring on *S. tenerrimus*, *L. dentata*, *A. monspeliensis*, *D. viscosa*, *U. dalechampii*, *T. majus*, *M. suaveolens*, *S. rosmarinus,* and *O. pes-caprae*.

Pieris rapae (Linnaeus, 1758) (Pieridae) *

L1; 01/XII/2020, 2 ex. v., JLR.; **L4**; 25/X/2019, 2 ex. v., JLR.; L4; 29/X/2019, 1 ex. v., JLR.; L4; 06/V/2019, 4 ex. v., JLR.; L4; 07/V/2019, 5 ex. v., JLR.; L4; 10/V/2019, 3 ex. v., JLR.; L4; 13/V/2019, 1 ex. v., JLR.; L4; 15/V/2019, 6 ex. v., JLR.; L4; 24/V/2019, 6 ex. v., JLR.; L4; 05/VI/2019, 3 ex. v., JLR.; L4; 16/VII/2019, 3 ex. v., JLR.; L4; 25/VII/2019, 4 ex. v., JLR.; L4; 25/IX/2019, 2 ex. v., JLR.; L4; 10/III/2020, 1 ex. v., JLR.; L4; 08/V/2020, 12 ex. v., JLR.; L4; 22/V/2020, 1 ex. v., JLR.; L4; 29/V/2020, 15 ex. v., JLR.; L4; 06/VII/2020, 19 ex. v., JLR.; L4; 17/VI/2020, 10 ex. v., JLR.; L4; 19/VI/2020, 20 ex. v., JLR.; L4; 07/X/2021, 5 ex. v., JLR.; L4; 13/X/2021, 4 ex. v., JLR.; L4; 23/I/2022, 2 ex. v., JLR.; L4; 04/II/2022, 1 ex. v., JLR.; L4; 17/XI/2022, nect. on *D. viscosa*, 2 ex. v., JLR.; L4; 24/I/2023, 2 ex. v., JLR.; **L5**; 30/X/2019, nect. on *D. viscosa*, 2 ex. v., JLR.; L5; 10/XII/2019, nect. on *L. dentata*, 2 ex. v., JLR.; L5; 14/II/2020, 2 ex. v., JLR.; L5; 28/II/2020, 2 ex. v., JLR.; L5; 11/III/2020, 2 ex. v., JLR.; L5; 29/IV/2020, 6 ex. v., JLR.; L5; 19/V/2020, 12 ex. v., JLR.; L5; 23/V/2020, 11 ex. v., JLR.; L5; 25/III/2021, 5 ex. v., JLR.; L5; 06/V/2021, 7 ex. v., JLR.; L5; 10/XI/2021, 2 ex. v., JLR.; L5; 19/III/2023, nect. on *L. dentata*, 2 ex. v., JLR.; L5; 19/III/2019, 1 ex. v., EZ.; **L6**; 12/III/2021, 2 ex. v., JLR.; L6; 06/V/2021, nect. on *L. dentata* and *Lobularia maritima* (L.) Desv., 8 ex. v., JLR.; L6; 10/XI/2021, nect. on *L. dentata*, 3 ex. v., JLR.; L6; 11/VI/2022, 16 ex. v., JLR.; L6; 12/VI/2022, 10 ex. v., JLR.; L6; 01/IX/2019, 1 ex. v., EZ.; **L8**; 15/I/2022, 2 ex. v., JLR.; L8; 17/II/2022, 1 ex. v., JLR.; **L9**; 23/VII/2023, 2 ex. v., JLR.; **L12**; 21/VI/2020, 15 ex. v., JLR.; L12; 14/VI/2021, nect. on *Diplotaxis* sp., 36 ex. v., JLR.; **L13**; 07/III/2020, 3 ex. v., JLR.; L13; 13/VI/2020, 10 ex. v., JLR.; L13; 25/VII/2020, 3 ex. v., JLR.; L13; 25/III/2021, 5 ex. v., JLR.; L13; 17/IV/2021, nect. on *E. vesicaria* and *Diplotaxis* sp., 10 ex. v., JLR.; L13; 27/VI/2021, 5 ex. v., JLR.; L13; 08/V/2021, 20 ex. v., JLR.; L13; 06/III/2022, 2 ex. v., JLR.; L13; 14/V/2022, 9 ex. v., JLR.; **L14**; 22/VI/2019, 1 ex. v., JLR.; L14; 25/VII/2020, nect. on *R. ulmifolius*, 3 ex. v., JLR.; L14; 17/X/2021, nect. on *D. viscosa*, 3 ex. v., JLR.; **L15**; 12/III/2020, 3 ex.

v., JLR.; **L16**; 16/V/2021, 25 ex. v., JLR.; **L22**; 01/IV/2021, 6 ex. v., JLR.; L22; 14/VI/2021, 12 ex. v., JLR.; **L23**; 18/IV/2021, nect. on *U. dalechampii*, *E. vesicaria*, and *S. tenerrimus*, 8 ex. v., JLR.; L23; 15/V/2021, 23 ex. v., JLR.; L23; 14/VI/2021, nect. on *Diplotaxis* sp., 29 ex. v., JLR.; **L25**; 22/V/2019, 3 ex. v., JLR.; L25; 12/VI/2021, nect. on *S. atropurpurea*, *T. caeruleum*, *R. ulmifolius*, and *Diplotaxis* sp., 44 ex. v., JLR.; **L26**; 27/VII/2020, 4 ex. v., JLR.; **L27**; 27/VII/2020, nect. on *T. caeruleum*, 5 ex. v., JLR.; L27; 14/VI/2021, nect. on *T. caeruleum*, 10 ex. v., JLR.; L27; 29/VI/2021, nect. on *Diplotaxis* sp. and *T. caeruleum*, 12 ex. v., JLR.; **L28**; 05/III/2023, 1 ex. v., JLR.; **L34**; 04/V/2023, 13 ex. v., JLR.; **L35**; 22/V/2019, 7 ex. v., JLR.; L35; 18/XII/2019, 1 ex. v., JLR.; L35; 22/V/2020, 12 ex. v., JLR.; **L36**; 15/VI/2019, 2 ex. v., JLR.; L36; 14/II/2020, 2 ex. v., JLR.; L36; 21/VI/2020, 10 ex. v., JLR.; L36; 29/VI/2020, 11 ex. v., JLR.; L36; 17/X/2021, 3 ex. v., JLR.; L36; 23/I/2023, 2 ex. v., JLR.; L36; 05/V/2023, 21 ex. v., JLR.; L36; 20/XI/2023, 2 ex. v., JLR.; **L37**; 09/VI/2021, 27 ex. v., JLR.; L37; 12/III/2023, 2 ex. v., JLR.; **L40**; 12/V/2019, 2 ex. v., JLR.; L40; 18/II/2022, 2 ex. v., JLR.; **L41**; 15/V/2019, 4 ex. v., JLR.; L41; 28/VI/2019, perch. on *M. suaveolens*, 13 ex. v., JLR.; L41; 05/VII/2019, nect. on *M. suaveolens*, *R. ulmifolius*, and *A. curassavica*, 12 ex. v., JLR.; L41; 27/IX/2019, nect. on *R. ulmifolius* and *M. suaveolens*, 5 ex. v., JLR.; L41; 25/X/2019, 2 ex. v., JLR.; L41; 25/XI/2019, 3 ex. v., JLR.; L41; 31/V/2020, 5 ex. v., JLR.; L41; 10/VII/2020, 12 ex. v., JLR.; L41; 05/IX/2020, nect. on *M. suaveolens*, 2 ex. v., JLR.; L41; 14/V/2021, 5 ex. v., JLR.; **L42**; 19/III/2023, 4 ex. v., JLR.; **L43**; 07/VI/2019, 1 ex. v., JLR.; L43; 15/VII/2019, nect. on *R. ulmifolius*, 3 ex. v., JLR.; **L44**; 07/V/2022, 3 ex. v., JLR.; **L46**; 23/XI/2023, nect. on *D. viscosa*, 2 ex. v., JLR.; **L52**; 16/VI/2019, 1 ex. v., JLR.; **L54**; 10/IV/2023, 2 ex. v., JLR.; **L56**; 19/III/2023, 3 ex. v., JLR.; **L60**; 17/IX/2020, nect. on *D. viscosa* and *M. suaveolens*, 6 ex. v., JLR.; L60; 25/IX/2021, 17 ex. v., JLR.; L60; 15/IX/2019, nect. on *M. suaveolens*, 7 ex. v., JLR.; **L61**; 25/IX/2021, nect. on *M. suaveolens*, 9 ex. v., JLR.; L61; 04/IX/2019, 1 ex. v., EZ.; **L63**; 12/VI/2021, 20 ex. v., JLR.; **L64**; 31/I/2020, 2 ex. v., JLR.; **L66**; 26/V/2019, 5 ex. v., JLR.; L66; 15/V/2020, 3 ex. v., JLR.; L66; 06/VI/2020, 4 ex. v., JLR.; L66; 21/VI/2020, 17 ex. v., JLR.; **L68**; 28/II/2020, 3 ex. v., JLR.; **L69**; 03/IX/2019, 1 ex. v., EZ.; **L70**; 27/X/2021, 2 ex. v., JLR.; **L72**; 20/III/2019, 1 ex. v., EZ.; **L73**; 06/VI/2020, nect. on *S. atropurpurea* and *D. gerardi*, 12 ex. v., JLR.; L73; 11/V/2019, 29 ex. v., JLR.; L73; 06/VI/2020, 13 ex. v., JLR.; L73; 02/IV/2021, 2 ex. v., JLR.; **L74**; 13/VI/2022, 4 ex. v., JLR.; **L75**; 11/V/2019, 3 ex. v., JLR.; L75; 13/VI/2022, nect. on *S. atropurpurea* and *R. ulmifolius*, 15 ex. v., JLR.; **L80**; 08/VI/2019, 1 ex. v., JLR.; **L82**; 26/IX/2021, 5 ex. v., JLR.; **L83**; 12/VI/2022, nect. on *T. caeruleum*, 14 ex. v., JLR.; **L84**; 01/IX/2019, 1 ex. v., EZ.; **L85**; 05/VII/2019, 2 ex. v., JLR.; **L88**; 22/VI/2019, 2 ex. v., JLR.; L88; 06/VI/2020, 23 ex. v., JLR.; L88; 12/VII/2020, nect. on *M. suaveolens* and *M. pulegium*, 16 ex. v., JLR.; L88; 25/VII/2020, nect. on *M. suaveolens*, 16 ex. v., JLR.; L88; 05/IX/2020, nect. on *M. suaveolens*, 3 ex. v., JLR.; L88; 08/V/2021, 24 ex. v., JLR.; L88; 26/IX/2021, nect. on *M. suaveolens*, 5 ex. v., JLR.; L88; 15/V/2022, 8 ex. v., JLR.; L88; 21/V/2022, nect. on *A. radiatus*, *A. arvensis*, and *Diplotaxis* sp., 12 ex. v., JLR.; **L89**; 11/V/2019, 2 ex. v., JLR.; **L90**; 13/IX/2019, 1 ex. v., JLR.; **L91**; 27/VI/2023, 2 ex. v., JLR.; **L92**; 23/III/2019, 1 ex. v., EZ.; **L94**; 11/V/2019, 5 ex. v., JLR.; L94; 12/VI/2019, nect. on *M. suaveolens*, 4 ex. v., JLR.; L94; 06/VI/2020, 20 ex. v., JLR.; **L96**; 25/VII/2020, 2 ex. v., JLR.; **L99**; 20/III/2019, 1 ex. v., EZ.; **L101**; 25/VI/2019, nect. on *M. suaveolens*, 2 ex. v., JLR.; **L102**; 19/IX/2021, 3 ex. v., JLR.; **L103**; 11/IV/2023, 1 ex. v., JLR.; **L104**; 11/IV/2023, 2 ex. v., JLR.; **L105**; 09/VII/2019, nect. on *Lonicera* sp. L., 5 ex. v., JLR.; **L107**; 11/IV/2023, 1 ex. v., JLR.; **L110**; 01/XI/2023, 2 ex. v., JLR.; **L111**; 01/IX/2019, 1 ex. v., JLR.; **L113**; 01/XI/2023, 2 ex. v., JLR.; **L115**; 30/X/2023, 2 ex. v., JLR.; L119; 01/XI/2023, 1 ex. v., JLR.; **L121**; 07/III/2020, nect. on *Anacyclus* sp. L., 1 ex. v., JLR.; **L122**; 07/V/2023, 2 ex. v., JLR.; **L124**; 10/VI/2020, 6 ex. v., JLR.; **L130**; 07/V/2023, nect. on *E. creticum*, *A. radiatus*, *C. althaeoides*, and *Diplotaxis* sp., 17 ex. v., JLR.; L130; 19/I/2020, 1 ex. v., JLR.; L130; 16/VI/2020, high concentration, perch. on damp seaweeds washed ashore, 88 ex. v., JLR.; **L131**; 14/III/2021, 2 ex. v., JLR.; **L132**; 10/II/2020, 3 ex. v., JLR.; L132; 09/III/2020, 3 ex. v., JLR.; L132; 20/VI/2020, 49 ex. v., JLR.; L132; 14/VII/2020, 18 ex. v., JLR.; L132; 10/III/2021, 6 ex. v., JLR.; L132; 19/IV/2021, 15 ex. v., JLR.; L132; 13/VI/2022, nect. on *V. karroo* (Hayne) Banfi &

Galasso, 5 ex. v., JLR.; L132; 21/I/2023, nect. on *O. pes-caprae*, 4 ex. v., JLR.; L132; 21/III/2023, 2 ex. v., JLR.; **L133**; 11/IV/2021, 5 ex. v., JLR.; L133; 19/IV/2021, 11 ex. v., JLR.; **L134**; 01/XI/2023, 2 ex. v., JLR.; **L135**; 05/V/2019, 2 ex. v., JLR.; **L136**; 06/VI/2019, 2 ex. v., JLR.; **L139**; 17/X/2021, 3 ex. v., JLR.; L139; 15/V/2019, 2 ex. v., JLR.; L139; 27/VI/2019, nect. on *Lantana camara* L., 2 ex. v., JLR.; L139; 29/VI/2019, nect. on *R. ulmifolius*, 2 ex. v., JLR.; **L140**; 29/XI/2022, 2 ex. v., JLR.; **L141**; 06/V/2020, 5 ex. v., JLR.; L141; 16/V/2020, 2 ex. v., JLR.; **L142**; 02/V/2020, 10 ex. v., JLR.; L142; 03/V/2020, 6 ex. v., JLR.; L142; 17/V/2020, 4 ex. v., JLR.; **L143**; 06/XII/2020, 1 ex. v., JLR.; L143; 01/XII/2021, 1 ex. v., JLR.; **L144**; 01/V/2021, nect. on *P. maritima*, *Centaurea pullata* L., *G. tomentosus*, and *E. vesicaria*, 15 ex. v., JLR.; L144; 14/III/2021, 6 ex. v., JLR.; L144; 19/XI/2023, 2 ex. v., JLR.; **L145**; 13/XII/2020, 7 ex. v., JLR.; L145; 14/II/2021, 1 ex. v., JLR.; L145; 01/XI/2023, nect. on *D. viscosa*, 4 ex. v., JLR.; **L146**; 01/X/2023, 2 ex. v., JLR.; **L147**; 27/I/2020, 1 ex. v., JLR.; **L149**; 05/V/2019, 1 ex. v., JLR.; L149; 26/V/2019, 3 ex. v., JLR.; L149; 26/II/2020, 2 ex. v., JLR.; L149; 01/XI/2023, 4 ex. v., JLR.; **L150**; 03/V/2020, 3 ex. v., JLR.; L150; 06/V/2020, 4 ex. v., JLR.; L150; 02/X/2021, nect. on *S. rosmarinus*, 5 ex. v., JLR.; L150; 20/X/2021, nect. on *S. rosmarinus*, 5 ex. v., JLR.; L150; 09/IX/2023, nect. on *S. rosmarinus*, 5 ex. v., JLR.; **L152**; 02/V/2020, 3 ex. v., JLR.; **L154**; 19/V/2019, 2 ex. v., JLR.; **L155**; 21/I/2023, nect. on *O. pes-caprae*, 5 ex. v., JLR.; **L156**; 16/IV/2024, nect. on *L. maritima*, *S. balearica*, *Limonium sinuatum* (L.) Mill., *C. althaeoides*, *E. creticum*, *A. arvensis*, and *P. maritima*, 27 ex. v., JLR.; **L157**; 18/V/2020, 12 ex. v., JLR.; L157; 05/V/2019, 3 ex. v., JLR.; L157; 09/VI/2020, 15 ex. v., JLR.; L157; 08/XI/2020, 14 ex. v., JLR.; L157; 10/III/2021, 2 ex. v., JLR.; L157; 23/III/2021, 2 ex. v., JLR.; L157; 02/X/2021, 2 ex. v., JLR.; L157; 12/III/2024, 5 ex. v., JLR.

Comment: Previously cited generically for Ceuta and its surroundings without specific records by Bacallado Aránega *et al.* (2012). Observations were made at 93 localities within 25 1×1 km UTM squares. This species is very common and abundant in Ceuta, even in urban environments. Imagines are present throughout the year, with most observations occurring between March and November, though occasional sightings have been made in December, January, and February. Adults observed visiting the flowers of *D. viscosa*, *L. dentata*, *S. atropurpurea*, *T. caeruleum*, *R. ulmifolius*, *Diplotaxis* sp., *M. suaveolens*, *M. pulegium*, *A. curassavica*, *U. dalechampii*, *E. vesicaria*, *S. tenerrimus*, *Lonicera* sp., *O. pes-caprae*, *A. radiatus*, *A. arvensis*, *P. maritima*, *C. pullata*, *G. tomentosus*, *E. creticum*, *A. radiatus*, *C. althaeoides*, *L. camara*, *Vachellia karroo*, *L. maritima*, *S. balearica*, and *L. sinuatum*.

Pontia daplidice (Linnaeus, 1758) (Pieridae) *

L6; 30/IV/2024, nect. on *L. maritima* and *E. vesicaria*, 3 ex. v., JLR; **L13**; 13/VI/2020, 1 ex. v., JLR.; **L25**; 12/VI/2021, nect. on *Diplotaxis* sp., 1 ex. v., JLR.; **L35**; 15/VII/2019, perch. on *E. vesicaria* and *Diplotaxis* sp., 1 ex. v. and coll., JLR.; **L36**; 20/XI/2023, 1 ex. v., JLR.; **L132**; 16/IV/2024, nect. on *Diplotaxis* sp., 5 ex. v., JLR.; L132; 28/IV/2024, nect. on *P. maritima* and *Diplotaxis* sp., 6 ex. v., JLR.; **L145**; 18/IV/2024, nect. on *A. arvensis* and *L. sinuatum*, 4 ex. v., JLR.; L145; 22/IV/2024, nect. on *Diplotaxis* sp., 2 ex. v., JLR.; **L151**; 09/IX/2023, perch. on *Diplotaxis* sp. and *Phagnalon saxatile* (L.) Cass., 6 ex. v., JLR.; L151; 10/IX/2023, nect. on *Diplotaxis* sp. and *P. saxatile*, 3 ex. v., JLR.

Comment: Observations were made at 8 localities within 6 1×1 km UTM squares, constituting the first precise records for Ceuta. Previously, it had been mentioned only generically by Bacallado Aránega *et al.* (2012). This species is relatively scarce in Ceuta, in contrast to its abundance across much of Morocco (Tarrier & Delacre, 2008; Tarrier, 2025a) and mainland Spain, except for the Cantabrian coast (García-Barros *et al.*, 2004, 2013). Individuals recorded from April to November, with adults visiting the flowers of *L. maritima*, *E. vesicaria*, *Diplotaxis* sp., *P. maritima*, and *P. saxatile*.

Argynnis pandora ([Denis & Schiffermüller], 1775) (Nymphalidae) **

L4; 20/VI/2019, 1 ex. v., JLR.; **L19**; 27/VI/2021, 1 ex. v., JLR.; **L25**; 13/VI/2019, nect. on *T. caeruleum* L., 1 ex. v., JLR.; **L35**; 03/VIII/2019, nect. on *Carlina hispanica* Lam. O. Bolòs & Vigo, 2 ex.

v., JLR.; **L48**; 01/IX/2019, 1 ex. v., EZ.; **L58**; 02/IX/2019, 1 ex. v., EZ.; **L60**; 15/IX/2019, patrolling behaviour, 1 ex. v., JLR.

Comment: Observations were recorded at 7 localities in 7 1×1 km UTM squares, between June and September. This species appears to be a scarce and localised in Ceuta, where it is recorded for the first time. Imagines were observed nectaring on the inflorescences of *T. caeruleum* and *C. hispanica*. Larvae predominantly feed on *Viola* spp. (Violaceae), though use of *Valerianella* sp. Mill. (Valerianaceae) has also been documented (Tarrier & Delacre, 2008; García-Barros *et al.*, 2013; Tarrier, 2025d). In Ceuta, the only *Viola* L. species that could potentially support *A. pandora* populations is *Viola arborescens* Loefl. Ex Ging. (Chamorro, 1995; Ugarte *et al.*, 2003a), though this interaction has not yet been observed. The population in Ceuta belongs to the subspecies *A. pandora seitzi* (Früshstorfer, 1908), which is found in North Africa and the Canary Islands (Tennent, 1996; Tarrier & Delacre, 2008; Leraut, 2016; Tarrier, 2025d).

Charaxes jasius (Linnaeus, 1767) (Nymphalidae) *

L4; 06/VI/2019, in a wine trap for *Cerambyx* spp., 1 ex. coll., JLR.; L4; 25/IX/2019, 2 ex. v., JLR.; L4; 01/X/2020, perch. on *Arbutus unedo* L., 1 ex. v., JLR.; L4; 07/X/2021, perch. on *A. unedo*, 2 ex. v., JLR.; L4; 21/VI/2021, 1 ex. v., JLR.; L4; 20/X/2023, 1 ex. v., JLR.; **L5**; 19/IX/2019, 2 ex. v., JLR.; L5; 20/III/2019, 1 ex. v., EZ.; L5; 21/VI/2019, perch. on *A. unedo*, 1 ex. v., JLR.; L5; 30/X/2019, perch. on *A. unedo*, 1 ex. v., JLR.; L5; 31/VIII/2019, 1 egg v., EZ.; **L10**; 23/IX/2019, perch. on *A. unedo*, 1 ex. v., JLR.; **L12**; 14/VI/2021, perch. on *A. unedo*, 1 ex. v., JLR.; **L13**; 13/VI/2020, 2 ex. v., JLR.; L13; 27/VI/2021, 1 ex. v., JLR.; **L17**; 03/IX/2019, 1 larva v., EZ.; **L26**; 27/VII/2020, 1 ex. v., JLR.; **L29**; 14/X/2019, 1 ex. v., JLR.; **L35**; 03/VIII/2019, 2 ex. v., JLR.; L35; 22/V/2020, 2 ex. v., JLR.; L35; 29/VI/2020, 2 ex. v., JLR.; L35; 23/VII/2023, 2 ex. v., JLR.; **L36**; 27/IX/2019, 2 ex. v., JLR.; L36; 05/V/2023, in hilltopping, 3 ex. v., JLR.; L36; 23/VII/2023, in hilltopping, 2 ex. v., JLR.; **L40**; 02/IX/2019, 1 larva v., EZ.; **L41**; 01/IX/2019, 1 larva v., EZ.; **L44**; 30/X/2023, 1 ex. v., JLR.; **L57**; 04/X/2021, 1 ex. v., JLR.; **L87**; 01/IX/2019, 1 larva v., EZ.; **L93**; 04/IX/2019, 1 larva v., EZ.; **L98**; 13/X/2020, 1 ex. v., JLR.; **L102**; 19/IX/2021, 1 ex. v., JLR.; **L108**; 24/X/2023, perch. on inflorescences of *Heptapleurum actinophyllum* (Endl.) Lowry & G.M. Plunkett cultivated ornamentally, 1 ex. v., JLR.; **L139**; 13/VI/2020, 1 ex. v., JLR.

Comment: Walker (1890) noted its presence in Ceuta without further detail. Observations were recorded from 20 localities within 12 1×1 km UTM squares between March and October. Adult sightings increased significantly in June, July, August, and September, indicating a peak of adult activity. Larvae were found in September on *A. unedo*. Adults were observed feeding on ripe figs as well as visiting the inflorescences of *H. actinophyllum*.

Coenonympha arcanioides (Pierret, 1837) (Nymphalidae)

L4; 04/VII/2019, in a wine trap for beetles, 1 ex. v., JLR.; L4; 16/X/2020, nect. on *A. unedo*, 1 ex. v., JLR.; **L6**; 16/IV/2024, nect. on *I. gibraltarica*, 1 ex. v., JLR; L6; 17/IV/2024, nect. on *Centaurea fragilis* Durieu and *L. dentata*, 3 ex. v., JLR; **L12**; 14/VI/2021, nect. on *S. atropurpurea*, 1 ex. v., JLR.; **L13**; 04/VIII/2019, 2 ex. v., JLR.; L13; 13/VI/2020, 3 ex. v., JLR.; **L14**; 04/VIII/2019, 2 ex. v., JLR.; L14; 25/VII/2020, 1 ex. v., JLR.; L14; 17/X/2021, nect. on *M. suaveolens*, 2 ex. v., JLR.; **L17**; 03/V/2019, nect. on the flowers of *R. ulmifolius* and *M. suaveolens*, 2 ex. v., JLR.; **L19**; 27/VI/2021, nect. on *S. atropurpurea* and *M. suaveolens*, 3 ex. v., JLR.; **L20**; 03/IX/2019, 1 ex. v., EZ.; L20; 26/V/2019, 1 ex. coll., 1 ex. v., JLR.; **L21**; 12/III/2020, 2 ex. v., JLR.; L21; 27/VI/2021, nect. on *M. suaveolens*, 1 ex. v., JLR.; **L22**; 12/VII/2020, nect. on *M. suaveolens*, 4 ex. v., JLR.; L22; 14/VI/2021, 2 ex. v., JLR.; **L23**; 15/V/2021, 1 ex. v., JLR.; **L27**; 27/VII/2019, nect. on *M. suaveolens*, 1 ex. v., JLR.; L27; 27/VII/2019, 1 ex. coll., JLR.; L27; 27/VII/2020, nect. on *T. caeruleum*, 1 ex. v., JLR.; L27; 29/VI/2021, 2 ex. v., JLR.; **L28**; 12/VII/2020, 1 ex. v., JLR.; **L35**; 03/IX/2019, 1 ex. v., EZ.; L35;

03/VIII/2019, 2 ex. v., JLR.; L35; 12/V/2019, 2 ex. coll., 1 ex. v., JLR.; **L40**; 12/V/2019, 2 ex. coll., JLR.; **L41**; 10/VII/2020, nect. on *M. suaveolens*, 3 ex. v., JLR.; L41; 26/IX/2021, nect. on *M. suaveolens*, very fresh, 3 ex. v., JLR.; **L60**; 15/IX/2019, nect. on *M. suaveolens*, 1 ex. v., JLR.; L60; 25/IX/2021, nect. on *M. suaveolens*, 2 ex. v., JLR.; **L62**; 04/IX/2019, 1 ex. v., EZ.; L62; 15/IX/2019, 1 ex. v., JLR.; **L66**; 26/V/2019, 1 ex. coll., JLR.; L66; 21/VI/2020, nect. on *S. atropurpurea*, 2 ex. v., JLR.; **L73**; 06/VI/2020, 3 ex. v., JLR.; **L74**; 02/IV/2021, very fresh, 1 ex. v., JLR.; **L80**; 12/III/2023, perch. on *C. salviifolius*, 1 ex. v., JLR.; **L91**; 27/VI/2023, 1 ex. v., JLR.; **L93**; 03/IX/2019, 1 ex. v., EZ.; **L94**; 12/VI/2019, 1 ex. v., JLR.; L94; 12/VI/2019, nect. on *M. suaveolens*, 1 ex. v., JLR.; L94; 06/VI/2020, 2 ex. v., JLR.

Comment: Endemic to the Maghreb, with no recognised subspecies (Tennent, 1996; Tshikolovets, 2011; Leraut, 2016; Tarrier, 2025e), this species was first recorded in Ceuta by Monasterio *et al.* (2020). Observations were made from 25 localities within 11 1×1 km UTM squares between March and October, with peak abundance in June and July. Adults were frequently observed nectaring on *M. suaveolens*, but also on *S. atropurpurea*, *L. dentata*, *T. caeruleum*, *C. fragilis*, *A. unedo*, *R. ulmifolius*, and *I. gibraltarica*.

Coenonympha pamphilus (Linnaeus, 1758) (Nymphalidae) **

L13; 27/VI/2021, 1 ex. coll., JLR.; **L88**; 08/V/2021, 1 ex. coll., JLR.

Comment: This species is extremely scarce and highly localised in Ceuta, with only 2 sightings in May and June in 2 1×1 km UTM squares. These represent the first records for Ceuta.

Danaus chrysippus (Linnaeus, 1758) (Nymphalidae)

L2; 08/XI/2019, nect. on *D. viscosa*, 1 ex. v., JLR.; **L4**; 16/X/2020, 2 ex. v., JLR.; L4; 07/X/2021, 1 ex. v., JLR.; L4; 27/IX/2021, nect. on *D. viscosa*, 1 ex. v., JLR.; L4; 17/XI/2022, nect. on *D. viscosa*, 1 ex. v., JLR.; L4; 15/XI/2023, 2 ex. v., JLR.; **L5**; 30/X/2019, nect. on *D. viscosa*, 3 ex. v., JLR.; **L6**; 11/X/2020, nect. on *Gomphocarpus fruticosus* (L.) W.T. Aiton, 2 ex. v., JLR.; **L9**; 08/XI/2019, nect. on *D. viscosa*, 1 ex. v., JLR.; L9; 20/XI/2023, nect. on *D. viscosa*, 4 ex. v., JLR.; **L14**; 22/VI/2019, nect. on *G. fruticosus*, 2 ex. v., JLR.; L14; 25/VII/2020, nect. on *G. fruticosus* and *D. gnidium*, 3 ex. v., JLR.; L14; 17/X/2021, perch. on *G. fruticosus*, 1 ex. v., JLR.; **L19**; 27/VI/2021, 1 ex. v., JLR.; **L22**; 17/X/2021, nect. on *D. viscosa*, 2 ex. v., JLR.; **L23**; 14/VI/2021, nect. on *G. fruticosus*, 1 ex. v., JLR.; **L36**; 03/II/2020, 1 ex. v., JLR.; L36; 20/XI/2023, nect. on *D. viscosa*, 4 ex. v., JLR.; **L38**; 20/XI/2023, nect. on *D. viscosa*, 2 ex. v., JLR.; **L41**; 01/IX/2019, 1 ex. v., EZ.; L41; 05/VII/2019, nect. on *A. curassavica*, 3 ex. v., JLR.; L41; 13/IX/2019, nect. on *G. fruticosus*, 2 ex. v., JLR.; L41; 25/X/2019, perch. on *G. fruticosus* and *A. curassavica*, 5 ex. v., JLR.; L41; 27/IX/2019, 1 ex. v., JLR.; L41; 28/VI/2019, 2 ex. v., JLR.; L41; 28/VI/2019, nect. on *G. fruticosus*, 1 ex. v., JLR.; L41; 05/IX/2020, nect. on *G. fruticosus* and *A. curassavica*, 18 ex. v., JLR.; L41; 10/VII/2020, nect. on *A. curassavica*, 6 ex. v., JLR.; **L60**; 15/IX/2019, nect. on *G. fruticosus* and *A. curassavica*, 15 ex. v., JLR.; L60; 25/IX/2021, nect. on *A. curassavica*, 1 ex. v., JLR.; **L64**; 31/I/2020, perch. on *A. curassavica*, 6 ex. v., JLR.; **L65**; 17/IX/2020, nect. on *A. curassavica*, 13 ex. v., JLR.; **L69**; 23/III/2019, 1 ex. v., EZ.; **L70**; 27/X/2021, 2 ex. v., JLR.; **L73**; 20/XI/2023, nect. on *D. viscosa*, 6 ex. v., JLR.; **L88**; 12/VII/2020, nect. on *M. suaveolens* and *G. fruticosus*, 4 ex. v., JLR.; L88; 25/VII/2020, 1 ex. v., JLR.; **L92**; 06/X/2023, 1 ex. v., JLR.; **L108**; 24/X/2023, 2 ex. v., JLR.; **L110**; 01/XI/2023, 1 ex. v., JLR.; **L113**; 01/XI/2023, 2 ex. v., JLR.; **L115**; 30/X/2023, 1 ex. v., JLR.; **L116**; 10/X/2020, 4 ex. v., JLR.; **L119**; 01/XI/2023, 2 ex. v., JLR.; **L134**; 01/XI/2023, 1 ex. v., JLR.; **L135**; 05/XI/2023, nect. on *D. viscosa*, 2 ex. v., JLR.; **L136**; 01/XI/2023, 1 ex. v., JLR.; **L144**; 19/XI/2023, nect. on *D. viscosa*, 6 ex. v., JLR.; **L145**; 01/XI/2023, 3 ex. v., JLR.; **L149**; 16/X/2020, 1 ex. v., JLR.; L149; 01/XI/2023, nect. on *D. viscosa*, 3 ex. v., JLR.; **L150**; 01/XI/2023, 1 ex. v., JLR.; L150; 05/XI/2023, nect. on *D. viscosa*, 6 ex. v., JLR.

Comment: The presence of this species in Ceuta was first recorded by Chamorro (1984), who suggested that a resident reproductive population might exist. Observations have now been recorded in 33 localities located within 17 1×1 km UTM squares, from June to November, confirming the presence of a stable breeding population. Larvae have been observed on *G. fruticosus*. According to Tarrier & Delacre (2008) and Tarrier (2025d), this species has established colonies in fewer than 10 10×10 km UTM squares in Morocco. The nearest known colony to Ceuta is at Smir Lagoon (M'diq-Fnideq prefecture, approximately 17 km south of Ceuta), where it is sympatric with *Danaus plexippus*. Adults have been observed nectaring on the flowers of *Dittrichia viscosa*, *M. suaveolens*, *Daphne gnidium*, and *Genista fruticosus*, as well as on *Asclepias curassavica*, which also serves as the larval host plant (García-Barros *et al.*, 2013).

Danaus plexippus (Linnaeus, 1758) (Nymphalidae) *

L1; 01/XII/2020, nect. on *A. unedo* and *Paraserianthes lophantha* (Vent.) I.C. Nielsen, 15 ex. v., JLR.; **L4**; 18/XI/2019, 2 ex. v., JLR.; L4; 19/VI/2020, 2 ex. v., JLR.; L4; 16/X/2020, 2 ex. v., JLR.; L4; 07/X/2021, 3 ex. v., JLR.; L4; 13/X/2021, 3 ex. v., JLR.; L4; 23/I/2022, 1 ex. v., JLR.; L4; 04/II/2022, 1 ex. v., JLR.; L4; 17/XI/2022, nect. on *D. viscosa*, 1 ex. v., JLR.; L4; 20/X/2023, 3 ex. v., JLR.; L4; 15/XI/2023, 3 ex. v., JLR.; **L5**; 11/III/2020, 1 ex. v., JLR.; L5; 23/V/2020, 2 ex. v., JLR.; L5; 02/XI/2020, 1 ex. v., JLR.; L5; 10/XI/2021, 1 ex. v., JLR.; L5; 09/XII/2021, 2 ex. v., JLR.; L5; 17/II/2022, 1 ex. v., JLR.; **L6**; 11/X/2020, nect. on *G. fruticosus*, 3 ex. v., JLR.; **L11**; 25/II/2022, 1 ex. v., JLR.; **L12**; 01/XII/2020, nect. on *A. unedo*, 9 ex. v., JLR.; **L14**; 04/VIII/2019, nect. on *G. fruticosus*, 3 ex. v., JLR.; L14; 25/VII/2020, nect. on *G. fruticosus* and *D. gnidium*, 6 ex. v., JLR.; L14; 17/X/2021, nect. on *D. gnidium*, 2 ex. v., JLR.; **L21**; 29/VI/2023, 2 ex. v., JLR.; **L23**; 15/V/2021, 3 ex. v., JLR.; L23; 14/VI/2021, nect. on *G. fruticosus*, 2 ex. v., JLR.; L25; 12/VI/2021, nect. on *G. fruticosus*, 1 ex. v., JLR.; **L27**; 27/VII/2020, 2 ex. v., JLR.; L27; 29/VI/2021, 3 ex. v., JLR.; **L30**; 27/VII/2020, 2 ex. v., JLR.; L30; 02/IX/2019, 1 ex. v., EZ.; **L36**; 05/V/2023, 1 ex. v., JLR.; L38; 20/XI/2023, 2 ex. v., JLR.; **L41**; 15/V/2019, nect. on *A. curassavica*, 5 ex. v., JLR.; L41; 27/IX/2019, nect. on *A. curassavica*, 2 ex. v., JLR.; L41; 25/XI/2019, nect. on *A. curassavica* and perch. on *G. fruticosus*, 5 ex. v., JLR.; L41; 31/V/2020, 2 ex. v., JLR.; L41; 10/VII/2020, nect. on *A. curassavica* and perch. on *G. fruticosus*, 12 ex. v., JLR.; L41; 05/IX/2020, nect. on *G. fruticosus* and *A. curassavica*, 9 ex. v., also larvae on *G. fruticosus*, JLR.; L41; 14/V/2021, nect. on *A. curassavica*, 2 ex. v., JLR.; **L46**; 23/XI/2023, nect. on *D. viscosa*, 2 ex. v., JLR.; **L48**; 01/IX/2019, 1 ex. v., EZ.; **L60**; 25/IX/2021, 11 ex. v., JLR.; L60; 15/IX/2019, nect. on *G. fruticosus* and *A. curassavica*, 9 ex. v., JLR.; **L61**; 25/IX/2021, nect. on *A. curassavica*, 7 ex. v., also numerous larvae on *A. curassavica*, JLR.; L61; 03/IX/2019, 1 ex. v., EZ.; **L63**; 12/VI/2021, 2 ex. v., JLR.; **L65**; 17/IX/2020, nect. on *A. curassavica*, 11 ex. v., JLR.; **L69**; 23/III/2019, 1 ex. v., EZ.; **L70**; 27/X/2021, 2 ex. v., JLR.; **L71**; 02/XII/2020, 1 ex. v., JLR.; **L73**; 18/II/2022, 1 ex. v., JLR.; **L75**; 13/VI/2022, 1 ex. v., JLR.; **L80**; 18/II/2022, 1 ex. v., JLR.; **L82**; 26/IX/2021, nect. on *G. fruticosus* and *A. curassavica*, 9 ex. v., JLR.; **L88**; 25/VII/2020, 1 ex. v., JLR.; L88; 05/IX/2020, 1 ex. v., JLR.; L88; 21/V/2022, nect. on *G. fruticosus*, 2 ex. v., JLR.; **L102**; 19/IX/2021, 2 ex. v., JLR.; **L109**; 11/X/2023, 3 ex. v., JLR.; **L113**; 01/XI/2023, 1 ex. v., JLR.; **L116**; 10/X/2020, 5 ex. v., JLR.; **L119**; 01/XI/2023, 1 ex. v., JLR.; **L120**; 10/IX/2023, 1 ex. v., JLR.; **L125**; 30/IX/2020, 1 ex. v., JLR.; **L134**; 28/XI/2022, 1 ex. v., JLR.; **L135**; 05/XI/2023, nect. on *D. viscosa*, 1 ex. v., JLR.; **L137**; 16/X/2023, 2 ex. v., JLR.; **L139**; 17/X/2021, 1 ex. v., JLR.; L139; 05/II/2022, 1 ex. v., JLR.; **L140**; 29/XI/2022, 1 ex. v., JLR.; **L145**; 13/XII/2020, 1 ex. v., JLR.; L145; 01/XI/2023, nect. on *D. viscosa*, 1 ex. v., JLR.; **L148**; 14/II/2021, 1 ex. v., JLR.; L148; 01/XI/2023, 1 ex. v., JLR.; **L149**; 16/X/2020, 3 ex. v., JLR.; L149; 01/XI/2023, nect. on *D. viscosa*, 3 ex. v., JLR.; **L150**; 05/XI/2023, nect. on *D. viscosa*, 2 ex. v., JLR.; L150; 01/XI/2023, 1 ex. v., JLR.; **L151**; 09/IX/2023, 1 ex. v., JLR.; **L155**; 21/I/2023, 1 ex. v., JLR.; **L157**; 05/V/2019, 1 ex. v., JLR.; L157; 14/VII/2020, 2 ex. v., JLR.

Comment: Bacallado Aránega *et al.* (2012) reported this species from "Ceuta and its surroundings"

without specific data. Tarrier & Delacre (2008) reported wandering individuals at "Fnideq (Oued Smir) near Sebta" in December 2004, a site corresponding to the mouth of the Oued Smir river (M'diq-Fnideq prefecture, ~17 km south of Ceuta). Tarrier (2025d) later confirmed the presence of an established colony there and identified another, more localized, colony at Taghramt (Haus mountain range), approximately 13 km southwest of Ceuta. Thus, *D. plexippus* is well established with breeding populations in the northernmost part of the Tingitan Peninsula. In Morocco only 4 10×10 km UTM squares are known to contain established colonies. In Ceuta, records have been collected from 48 localities within 23 1×1 km UTM squares, with observations in every month of the year, though most sightings occur between June and early November. Adults primarily nectar on *A. curassavica* and *G. fruticosus*, but have also been observed nectaring on the flowers and inflorescences of *D. viscosa*, *A. unedo*, and *P. lophantha*. Larvae, occasionally in large numbers (e.g., locality L61), have been found on *A. curassavica* and *G. fruticosus*. These findings confirm the presence of a well-established breeding population in Ceuta.

Hipparchia fidia (Linnaeus, 1767) (Nymphalidae) **

L4; 10/VII/2019, in a wine trap for beetles in a cork oak forest, 1 ex. v., JLR.; **L6**; 01/IX/2019, 1 ex. v., EZ.; L6; 11/VI/2022, 2 ex. v., JLR.; **L14**; 04/VIII/2019, 2 ex. v., JLR.; **L26**; 27/VII/2020, 2 ex. v., JLR.; **L35**; 03/VIII/2019, 2 ex. v., JLR.; **L36**; 02/IX/2019, 1 ex. v., EZ.; L36; 03/VIII/2019, perch. on ground, 9 ex. v., JLR.; L36; 29/VI/2020, 1 ex. v., JLR.; **L60**; 15/IX/2019, 2 ex. v., JLR.

Comment: Observations were recorded from 7 localities located within 5 1×1 km UTM squares, constituting the first records for Ceuta. The species appears to be scarce and localized, associated with open habitats featuring rocky outcrops, as is typical in Morocco (Tarrier, 2025e). Imagines are present during the summer months, particularly from June to September.

Issoria lathonia (Linnaeus, 1758) (Nymphalidae) **

L27; 15/VII/2019, nect. on *T. caeruleum*, 1 ex. v., JLR.

Comment: This is one of three species for which only a single sighting was recorded in Ceuta during this study. The only recorded specimen was found in mid-July and may have been a dispersive individual, given the pronounced migratory tendency of this species (García-Barros *et al.*, 2013) and the very possible absence of a breeding population in the city, given its extreme rarity.

Lasiommata maera (Linnaeus, 1758) (Nymphalidae) **

L6; 04/III/2023, in a rocky slope, 1 female ex. v., JLR.; L6; 17/IV/2024, nect. on *P. maritima* and *L. dentata*, 7 ex. v., JLR; L6; 25/IV/2024, nect. on *P. maritima* and *A. monspeliensis*, 5 ex. v., JLR; L6; 30/IV/2024, in a rocky slope and nect. on *P. maritima*, 7 ex. v., JLR.

Comment: In Ceuta, this species is confined to the dolomitic rock outcrop of Mogote de Benzú (1.8 ha), where it maintains a small population. This first record for Ceuta is also the northernmost for the species in Morocco, situated approximately 45 km north of the nearest documented occurrence at Djebel Ben Karrich (Tetouan province, north-western Rif) (Tarrier, 2025e). In Morocco, *L. maera* has been recorded in only 9 10×10 km UTM squares (Rif, Middle and High Atlas) (Tarrier & Delacre, 2008; Tarrier, 2025e), typically occurring at elevations of 700–2800 m a.s.l. within meso-, supra-Mediterranean, and mountainous Mediterranean bioclimatic levels. However, the Ceuta population is found at the thermo-Mediterranean level, at very low altitude (50–105 m a.s.l.) and in close proximity to the coastline. Tarrier (2025e) reports a rapid decline of the species in Morocco, potentially due to climate change. In Ceuta, adults were recorded from March until late April, predominantly in flight or perched on scree, but also nectaring on *P. maritima*, *L. dentata*, and *A. monspeliensis*.

Lasiommata megera (Linnaeus, 1767) (Nymphalidae) **

L1; 01/XII/2020, 2 ex. v., JLR.; **L3**; 14/III/2020, 2 ex. v., JLR.; **L4**; 15/V/2019, 1 ex. v., JLR.; L4;

24/V/2019, 6 ex. v., JLR.; L4; 17/VI/2019, 2 ex. v., JLR.; L4; 16/VII/2019, 1 ex. v., JLR.; L4; 25/VII/2019, 2 ex. v., JLR.; L4; 08/V/2020, 2 ex. v., JLR.; L4; 29/V/2020, 2 ex. v., JLR.; L4; 17/VI/2020, 2 ex. v., JLR.; L4; 19/VI/2020, 6 ex. v., JLR.; L4; 06/VII/2020, nect. on *T. caeruleum*, 2 ex. v., JLR.; L4; 11/II/2021, 1 ex. v., JLR.; **L5**; 21/VI/2019, 1 ex. v., JLR.; L5; 19/IX/2019, 4 ex. v., JLR.; L5; 14/II/2020, 6 ex. v., JLR.; L5; 28/II/2020, 2 ex. v., JLR.; L5; 11/III/2020, 3 ex. v., JLR.; L5; 29/IV/2020, 4 ex. v., JLR.; L5; 23/V/2020, 4 ex. v., JLR.; L5; 02/XI/2020, 6 ex. v., JLR.; L5; 25/III/2021, 10 ex. v., JLR.; L5; 10/XI/2021, 2 ex. v., JLR.; L5; 17/II/2022, 2 ex. v., JLR.; L5; 12/III/2023, 2 ex. v., JLR.; L5; 19/III/2019, 1 ex. v., EZ.; L5; 31/VIII/2019, 1 ex. v., EZ.; **L6**; 12/III/2021, 5 ex. v., JLR.; L6; 01/IV/2021, nect. on *L. dentata*, 4 ex. v., JLR.; L6; 06/V/2021, 9 ex. v., JLR.; L6; 10/XI/2021, 5 ex. v., JLR.; L6; 12/VI/2022, nect. on *Trachelium* sp. Tourn. Ex L. and *S. atropurpurea*, 2 ex. v., JLR.; L6; 01/IX/2019, 1 ex. v., EZ.; **L12**; 14/VI/2021, 12 ex. v., JLR.; L12; 01/XII/2020, 2 ex. v., JLR.; **L13**; 07/III/2020, 6 ex. v., JLR.; L13; 13/VI/2020, nect. on *S. atropurpurea*, 4 ex. v., JLR.; L13; 25/VII/2020, 12 ex. v., JLR.; L13; 25/III/2021, 12 ex. v., JLR.; L13; 17/IV/2021, 6 ex. v., JLR.; L13; 08/V/2021, 12 ex. v., JLR.; L13; 27/VI/2021, 9 ex. v., JLR.; L13; 06/III/2022, 12 ex. v., JLR.; L13; 06/III/2022, 5 ex. v., JLR.; L13; 14/V/2022, nect. on *S. atropurpurea*, 5 ex. v., JLR.; **L14**; 22/VI/2019, 7 ex. v., JLR.; L14; 07/III/2020, 4 ex. v., JLR.; L14; 13/VI/2020, 11 ex. v., JLR.; L14; 25/VII/2020, 3 ex. v., JLR.; L14; 17/IV/2021, 3 ex. v., JLR.; **L15**; 09/II/2020, 3 ex. v., JLR.; L15; 12/III/2020, 2 ex. v., JLR.; **L16**; 16/V/2021, nect. on *C. monspeliensis*, 4 ex. v., JLR.; **L17**; 03/V/2019, 3 ex. v., JLR.; L17; 29/I/2020, trapped in *Drosophyllum lusitanicum* (L.) Link, 4 ex. v., JLR.; L17; 02/II/2020, 6 ex. v., JLR.; L17; 09/II/2020, 9 ex. v., JLR.; **L18**; 13/VI/2019, 3 ex. v., JLR.; L18; 31/VIII/2019, 1 ex. v., EZ.; **L19**; 27/VI/2021, 6 ex. v., JLR.; **L21**; 15/VII/2019, 1 ex. v., JLR.; L21; 27/VII/2019, 2 ex. v., JLR.; L21; 29/VI/2023, 3 ex. v., JLR.; **L22**; 12/VII/2020, nect. on *M. suaveolens*, 2 ex. v., JLR.; L22; 01/IV/2021, 1 ex. v., JLR.; L22; 14/VI/2021, 3 ex. v., JLR.; L22; 17/X/2021, nect. on *D. viscosa*, very fresh, 2 ex. v., JLR.; **L24**; 17/IV/2021, 2 ex. v., JLR.; **L25**; 07/III/2020, 4 ex. v., JLR.; L25; 12/VI/2021, nect. on *T. caeruleum*, 4 ex. v., JLR.; **L26**; 27/VII/2020, 4 ex. v., JLR.; **L27**; 15/VII/2019, nect. on *T. caeruleum*, very worn, 3 ex. v., JLR.; L27; 17/VII/2019, very worn, 2 ex. v., JLR.; L27; 29/VI/2021, nect. on *T. caeruleum*, 9 ex. v., JLR.; **L28**; 12/V/2019, 2 ex. v., JLR.; L28; 12/VII/2020, 1 ex. v., JLR.; **L35**; 22/V/2019, 1 ex. v., JLR.; L35; 03/VIII/2019, 4 ex. v., JLR.; L35; 22/V/2020, 5 ex. v., JLR.; L35; 29/VI/2020, 1 ex. v., JLR.; L35; 23/VII/2023, 2 ex. v., JLR.; **L36**; 15/VI/2019, in hilltopping, 15 ex. v., JLR.; L36; 03/VIII/2019, in hilltopping, 12 ex. v., JLR.; L36; 27/IX/2019, 14 ex. v., JLR.; L36; 17/I/2020, 13 ex. v., JLR.; L36; 31/I/2020, 3 ex. v., JLR.; L36; 03/II/2020, 7 ex. v., JLR.; L36; 09/II/2020, 6 ex. v., JLR.; L36; 14/II/2020, 12 ex. v., JLR.; L36; 28/II/2020, 13 ex. v., JLR.; L36; 21/VI/2020, 15 ex. v., JLR.; L36; 29/VI/2020, 12 ex. v., JLR.; L36; 19/II/2021, 17 ex. v., JLR.; L36; 25/III/2021, 21 ex. v., JLR.; L36; 17/X/2021, 12 ex. v., JLR.; L36; 23/I/2023, 2 ex. v., JLR.; L36; 05/V/2023, 11 ex. v., JLR.; L36; 23/VII/2023, 12 ex. v., JLR.; L36; 20/XI/2023, very fresh, 6 ex. v., JLR.; L36; 02/IX/2019, 1 ex. v., EZ.; **L37**; 09/VI/2021, 5 ex. v., JLR.; **L38**; 28/II/2020, 1 ex. v., JLR.; **L40**; 17/I/2020, 4 ex. v., JLR.; **L41**; 27/IX/2019, 1 ex. v., JLR.; **L59**; 19/III/2019, 1 ex. v., EZ.; **L63**; 12/VI/2021, nect. on *S. atropurpurea* and *D. carota*, 5 ex. v., JLR.; **L66**; 26/V/2019, 3 ex. v., JLR.; L66; 13/VI/2019, 2 ex. v., JLR.; L66; 03/VIII/2019, 5 ex. v., JLR.; L66; 15/V/2020, 3 ex. v., JLR.; L66; 06/VI/2020, 6 ex. v., JLR.; L66; 21/VI/2020, nect. on *S. atropurpurea*, 9 ex. v., JLR.; **L67**; 29/IX/2023, 1 ex. v., JLR.; **L71**; 02/XII/2020, 1 ex. v., JLR.; **L73**; 20/XI/2023, very fresh, 2 ex. v., JLR.; L73; 16/VI/2019, 2 ex. v., JLR.; L73; 11/V/2019, 3 ex. v., JLR.; L73; 28/VII/2019, 4 ex. v., JLR.; L73; 06/VI/2020, 3 ex. v., JLR.; **L74**; 11/V/2019, 2 ex. v., JLR.; L74; 02/IV/2021, 4 ex. v., JLR.; L74; 13/VI/2022, 1 ex. v., JLR.; **L75**; 13/VI/2022, 1 ex. v., JLR.; **L76**; 16/VI/2019, 1 ex. v., JLR.; **L77**; 28/VII/2019, 1 ex. v., JLR.; **L78**; 03/VIII/2019, 1 ex. v., JLR.; **L80**; 18/II/2022, 1 ex. v., JLR.; L80; 08/VI/2019, 1 ex. v., JLR.; **L87**; 01/IX/2019, 1 ex. v., EZ.; **L103**; 11/IV/2023, 2 ex. v., JLR.; **L130**; 16/VI/2020, 4 ex. v., JLR.; **L132**; 10/II/2020, 1 ex. v., JLR.; L132; 09/III/2020, 2 ex. v., JLR.; L132; 10/III/2021, 1 ex. v., JLR.; L132; 19/IV/2021, 7 ex. v., JLR.; L132; 21/III/2023, 1 ex. v., JLR.; **L133**; 23/III/2021, 4 ex. v., JLR.; L133; 11/IV/2021, 6 ex. v., JLR.; L133; 19/IV/2021, 2 ex.

v., JLR.; **L144**; 01/V/2021, 5 ex. v., JLR.; L144; 02/IV/2021, 1 ex. v., JLR.; **L145**; 01/XI/2023, nect. on *D. viscosa*, 3 ex. v., JLR.; **L147**; 27/I/2020, 1 ex. v., JLR.; **L148**; 14/II/2021, 1 ex. v., JLR.; **L150**; 03/V/2020, 1 ex. v., JLR.; L150; 10/III/2021, 2 ex. v., JLR.; **L154**; 01/II/2020, 1 ex. v., JLR.; L154; 16/I/2020, 3 ex. v., JLR.; L154; 11/IV/2021, 9 ex. v., JLR.; **L155**; 21/I/2023, 4 ex. v., JLR.; **L157**; 09/VI/2020, 4 ex. v., JLR.; L157; 10/III/2021, 1 ex. v., JLR.; L157; 21/I/2023, 1 ex. v., JLR.

Comment: Observations were recorded from 51 localities within 16 1×1 km UTM squares, spanning all months of the year. These represent the first records for Ceuta, where the species is frequent and widely distributed. Adults have been observed feeding on *T. caeruleum*, *L. dentata*, *M. suaveolens*, *S. atropurpurea*, *C. monspeliensis* L., and *D. viscosa*. Hilltopping behaviour was also observed.

Maniola jurtina (Linnaeus, 1758) (Nymphalidae) **

L4; 29/V/2020, 2 ex. v., JLR.; **L5**; 19/V/2020, 4 ex. v., JLR.; **L6**; 19/V/2020, 5 ex. v., JLR.; L6; 12/VI/2022, 1 ex. v., JLR.; L6; 30/IV/2024, nect. on *P. maritima*, 2 ex. v., JLR.; **L12**; 21/VI/2020, nect. on *S. atropurpurea* and *E. creticum*, 3 ex. v., JLR.; **L13**; 13/VI/2020, 1 ex. v., JLR.; L13; 08/V/2021, nect. on *C. crispus*, 2 ex. v., JLR.; **L14**; 22/VI/2019, 2 ex. v., JLR.; L14; 13/VI/2020, 1 ex. v., JLR.; **L25**; 15/VI/2019, 1 ex. v., JLR.; L25; 12/VI/2021, nect. on *S. atropurpurea* and *E. creticum*, 5 ex. v., JLR.; **L27**; 27/VII/2020, nect. on *T. caeruleum*, 1 ex. v., JLR.; **L35**; 22/V/2020, 4 ex. v., JLR.; L35; 23/VII/2023, 1 ex. v., JLR.; **L36**; 21/VI/2020, 3 ex. v., JLR.; L36; 29/VI/2020, 2 ex. v., JLR.; **L37**; 09/VI/2021, 5 ex. v., JLR.; **L41**; 31/V/2020, 1 ex. v., JLR.; **L42**; 06/VI/2020, 1 ex. v., JLR.; **L43**; 15/VII/2019, nect. on *R. ulmifolius*, 1 ex. v., JLR.; **L61**; 25/IX/2021, 1 ex. v., JLR.; **L62**; 03/IX/2019, 1 ex. v., EZ.; **L63**; 12/VI/2021, 4 ex. v., JLR.; **L66**; 26/V/2019, 1 ex. v., JLR.; L66; 13/VI/2019, 1 ex. v., JLR.; L66; 06/VI/2020, 1 ex. v., JLR.; L66; 21/VI/2020, nect. on *S. atropurpurea*, 2 ex. v., JLR.; **L72**; 01/IX/2019, 1 ex. v., EZ.; **L73**; 06/VI/2020, 1 ex. v., JLR.; **L76**; 16/VI/2019, 1 ex. v., JLR.; **L77**; 28/VII/2019, in understorey, among cork oaks, 3 ex. v., JLR.; **L83**; 12/VI/2022, nect. on *T. caeruleum*, 2 ex. v., JLR.

Comment: Recorded in Ceuta for the first time, with observations from 23 localities within 9 1×1 km UTM squares, between May and September. Adults were observed feeding on *S. atropurpurea*, *E. creticum*, *P. maritima*, *R. ulmifolius*, *C. crispus*, and *T. caeruleum*. In North Africa, the nominal subspecies *M. jurtina jurtina* occurs (Tennent, 1996; Tarrier & Delacre, 2008; Leraut, 2016; Tarrier, 2025e).

Pararge aegeria (Linnaeus, 1758) (Nymphalidae) *

L4; 03/VIII/2019, in a wine trap for beetles in a cork oak forest, 5 ex. v., JLR.; L4; 04/VII/2019, in a wine trap for beetles in a cork oak forest, 6 ex. v., JLR.; L4; 04/VIII/2019, 4 ex. v., JLR.; L4; 05/VI/2019, 2 ex. v., JLR.; L4; 06/V/2019, 5 ex. v., JLR.; L4; 07/V/2019, 2 ex. v., JLR.; L4; 10/V/2019, 7 ex. v., JLR.; L4; 10/VII/2019, in a wine trap for beetles in a cork oak forest, 3 ex. v., JLR.; L4; 15/V/2019, 10 ex. v., JLR.; L4; 16/VII/2019, 13 ex. v., JLR.; L4; 18/XI/2019, 5 ex. v., JLR.; L4; 25/IX/2019, 7 ex. v., JLr.; L4; 25/VII/2019, 18 ex. v., JLr.; L4; 25/X/2019, 3 ex. v., JLR.; L4; 04/II/2020, 3 ex. v., JLR.; L4; 06/VII/2020, 20 ex. v., JLR.; L4; 10/III/2020, 2 ex. v., JLR.; L4; 16/X/2020, 4 ex. v., JLR.; L4; 19/VI/2020, 11 ex. v., JLR.; L4; 22/IX/2020, 5 ex. v., JLR.; L4; 22/V/2020, 12 ex. v., JLR.; L4; 29/V/2020, 19 ex. v., JLR.; L4; 02/III/2021, 3 ex. v., JLR.; L4; 07/X/2021, 8 ex. v., JLR.; L4; 11/II/2021, 1 ex. v., JLR.; L4; 13/X/2021, 10 ex. v., JLR.; L4; 22/IV/2021, 7 ex. v., JLR.; L4; 03/II/2022, 12 ex. v., JLR.; L4; 04/II/2022, 6 ex. v., JLR.; L4; 24/I/2023, 5 ex. v., JLR.; **L5**; 02/XI/2020, 4 ex. v., JLR.; L5; 11/III/2020, 2 ex. v., JLR.; L5; 14/II/2020, 7 ex. v., JLR.; L5; 23/V/2020, 4 ex. v., JLR.; L5; 28/II/2020, 2 ex. v., JLR.; L5; 29/IV/2020, 5 ex. v., JLR.; L5; 06/V/2021, 6 ex. v., JLR.; L5; 10/XI/2021, 2 ex. v., JLR.; L5; 18/III/2021, 5 ex. v., JLR.; L5; 19/III/2023, 6 ex. v., JLR.; **L6**; 20/III/2019, 1 ex. v., EZ.; L6; 04/III/2023, 5 ex. v., JLR.; **L8**; 15/I/2022, 3 ex. v., JLR.; L8; 17/II/2022, 3 ex. v., JLR.; **L12**; 01/XII/2020, 1 ex. v., JLR.; L12; 21/VI/2020, 4 ex. v., JLR.; **L13**; 07/III/2020, 2 ex. v., JLR.; L13;

13/VI/2020, 6 ex. v., JLR.; L13; 25/VII/2020, 2 ex. v., JLR.; L13; 08/V/2021, 8 ex. v., JLR.; L13; 17/IV/2021, 8 ex. v., JLR.; L13; 25/III/2021, 3 ex. v., JLR.; L13; 27/VI/2021, 3 ex. v., JLR.; L13; 29/VI/2023, 6 ex. v., JLR.; **L14**; 22/VI/2019, 5 ex. v., JLR.; L14; 13/VI/2020, 9 ex. v., JLR.; L14; 16/V/2021, 4 ex. v., JLR.; L14; 17/X/2021, 3 ex. v., JLR.; **L15**; 12/III/2020, 2 ex. v., JLR.; **L17**; 03/V/2019, 6 ex. v., JLR.; **L22**; 12/VII/2020, 4 ex. v., JLR.; L22; 01/IV/2021, 5 ex. v., JLR.; **L23**; 15/V/2021, 2 ex. v., JLR.; **L25**; 22/VI/2019, 2 ex. v., JLR.; L25; 12/VI/2021, 4 ex. v., JLR.; **L27**; 14/VI/2021, 4 ex. v., JLR.; **L28**; 05/III/2023, 2 ex. v., JLR.; **L29**; 14/X/2019, 1 ex. v., JLR.; **L35**; 22/V/2019, 2 ex. v., JLR.; L35; 29/VI/2020, 4 ex. v., JLR.; **L36**; 15/VI/2019, 1 ex. v., JLR.; L36; 29/VI/2020, 5 ex. v., JLR.; L36; 17/X/2021, 2 ex. v., JLR.; **L37**; 02/IX/2019, 1 ex. v., EZ.; L37; 31/VIII/2019, 1 ex. v., EZ.; **L39**; 25/II/2022, 4 ex. v., JLR.; **L40**; 12/V/2019, 4 ex. v., JLR.; L40; 18/II/2022, 1 ex. v., JLR.; **L41**; 05/VII/2019, nect. on *R. ulmifolius*, 2 ex. v., JLR.; L41; 13/IX/2019, 2 ex. v., JLR.; L41; 15/V/2019, 5 ex. v., JLR.; L41; 25/XI/2019, 3 ex. v., JLR.; L41; 28/VI/2019, 15 ex. v., JLR.; L41; 05/IX/2020, nect. on *M. suaveolens*, 2 ex. v., JLR.; L41; 10/VII/2020, 16 ex. v., JLR.; L41; 31/V/2020, 10 ex. v., JLR.; **L42**; 19/III/2023, 3 ex. v., JLR.; **L43**; 07/VI/2019, 2 ex. v., JLR.; L43; 28/VII/2019, 4 ex. v., JLR.; **L46**; 23/XI/2023, 1 ex. v., JLR.; **L48**; 01/IX/2019, 1 ex. v., EZ.; L48; 20/III/2019, 1 ex. v., EZ.; **L49**; 19/III/2019, 1 ex. v., EZ.; **L59**; 19/III/2019, 1 ex. v., EZ.; **L60**; 15/IX/2019, 3 ex. v., JLR.; **L64**; 31/I/2020, 5 ex. v., JLR.; **L65**; 17/IX/2020, 4 ex. v., JLR.; **L66**; 13/VI/2019, 2 ex. v., JLR.; **L68**; 28/II/2020, 8 ex. v., JLR.; L68; 11/II/2022, 13 ex. v., JLR.; **L72**; 03/IX/2019, 1 ex. v., EZ.; **L73**; 11/V/2019, 8 ex. v., JLR.; L73; 18/V/2019, under eucalypts, with undergrowth of *C. villosa* and *C. crispus*, 4 ex. v., JLR.; L73; 28/VII/2019, 1 ex. v., JLR.; L73; 02/IV/2021, 10 ex. v., JLR.; **L74**; 11/V/2019, 1 ex. v., JLR.; L74; 02/IV/2021, 18 ex. v., JLR.; L74; 13/VI/2022, 1 ex. v., JLR.; **L75**; 11/V/2019, 5 ex. v., JLR.; **L77**; 28/VII/2019, in undergrowth, among cork oaks, 3 ex. v., JLR.; **L79**; 02/IV/2021, 21 ex. v., JLR.; **L80**; 18/II/2022, 3 ex. v., JLR.; L80; 12/III/2023, 5 ex. v., JLR.; **L83**; 12/VI/2022, 2 ex. v., JLR.; **L88**; 22/VI/2019, 6 ex. v., JLR.; L88; 05/IX/2020, 5 ex. v., JLR.; L88; 06/VI/2020, 15 ex. v., JLR.; L88; 12/VII/2020, 14 ex. v., JLR.; L88; 25/VII/2020, 10 ex. v., JLR.; L88; 08/V/2021, 15 ex. v., JLR.; L88; 12/VI/2021, 5 ex. v., JLR.; L88; 15/V/2021, 2 ex. v., JLR.; L88; 26/IX/2021, 8 ex. v., JLR.; L88; 21/V/2022, 5 ex. v., JLR.; **L89**; 11/V/2019, 2 ex. v., JLR.; **L90**; 13/IX/2019, 3 ex. v., JLR.; L90; 23/III/2019, 1 ex. v., EZ.; **L93**; 23/III/2019, 1 ex. v., EZ.; **L94**; 06/VI/2020, 3 ex. v., JLR.; **L103**; 11/IV/2023, 3 ex. v., JLR.; **L104**; 11/IV/2023, 1 ex. v., JLR.; **L105**; 09/VII/2019, nect. on *Lonicera* sp., 1 ex. v., JLR.; **L106**; 12/III/2020, 2 ex. v., JLR.; **L107**; 11/IV/2023, 1 ex. v., JLR.; **L112**; 09/V/2019, 1 ex. v., JLR.; **L113**; 04/IX/2019, 1 ex. v., EZ.; L113; 01/XI/2023, 9 ex. v., JLR.; **L121**; 07/III/2020, nect. on *Anacyclus* sp., 1 ex. v., JLR.; **L130**; 07/V/2023, 1 ex. v., JLR.; **L132**; 09/III/2020, 5 ex. v., JLR.; L132; 14/VII/2020, 5 ex. v., JLR.; L132; 20/VI/2020, 4 ex. v., JLR.; L132; 19/IV/2021, 6 ex. v., JLR.; **L133**; 19/IV/2021, 6 ex. v., JLR.; **L135**; 05/V/2019, 2 ex. v., JLR.; **L136**; 01/XI/2023, 5 ex. v., JLR.; **L138**; 04/IX/2019, 1 ex. v., EZ.; **L141**; 06/V/2020, 3 ex. v., JLR.; L141; 16/V/2020, 2 ex. v., JLR.; **L142**; 03/V/2020, 6 ex. v., JLR.; L142; 17/V/2020, 2 ex. v., JLR.; **L144**; 01/V/2021, 3 ex. v., JLR.; L144; 14/III/2021, 1 ex. v., JLR.; L144; 02/IV/2021, 5 ex. v., JLR.; **L145**; 14/II/2021, 2 ex. v., JLR.; **L149**; 05/V/2019, 2 ex. v., JLR.; L149; 26/V/2019, 3 ex. v., JLR.; L149; 26/II/2020, 5 ex. v., JLR.; **L150**; 03/V/2020, 5 ex. v., JLR.; **L152**; 02/V/2020, 4 ex. v., JLR.; **L153**; 21/III/2019, 1 ex. v., EZ.; **L157**; 18/V/2020, 3 ex. v., JLR.

Comment: Previously mentioned for Ceuta and its surroundings by Bacallado Aránega *et al.* (2012) without detailed data. Observations were recorded in 68 localities within 21 1×1 km UTM squares. This species is abundant and widespread throughout Ceuta, including urban green areas. Adults were observed all year round, with peak activity in May, June, and July.

Pyronia bathseba (Fabricius, 1793) (Nymphalidae) **

L4; 13/V/2019, 6 ex. v., JLR.; L4; 15/V/2019, 8 ex. v., JLR.; L4; 08/V/2020, 6 ex. v., JLR.; L4; 22/V/2020, 7 ex. v., JLR.; L4; 25/V/2020, 2 ex. v., JLR.; **L5**; 19/V/2020, 4 ex. v., JLR.; L5;

06/V/2021, 7 ex. v., JLR.; **L6**; 19/V/2020, 3 ex. v., JLR.; L6; 06/V/2021, 8 ex. v., JLR.; L6; 11/VI/2022, 7 ex. v., JLR.; L6; 12/VI/2022, 2 ex. v., JLR.; L6; 25/IV/2024, 2 ex. v., JLR.; **L13**; 08/V/2021, 2 ex. v., JLR.; **L14**; 16/V/2021, 3 ex. v., JLR.; **L25**; 13/VI/2019, very worn, 1 ex. v., JLR.; **L35**; 22/V/2019, 12 ex. v., JLR.; L35; 26/V/2019, 12 ex. v., JLR.; L35; 22/V/2020, 10 ex. v., JLR.; **L36**; 05/V/2023, 10 ex. v., JLR.; **L37**; 09/VI/2021, 1 ex. v., JLR.; **L40**; 12/V/2019, 13 ex. v., JLR.; **L43**; 07/VI/2019, 1 ex. v., JLR.; **L66**; 26/V/2019, 4 ex. v., JLR.; L66; 15/V/2020, 1 ex. v., JLR.; L66; 21/VI/2020, 2 ex. v., JLR.; **L73**; 11/V/2019, 35 ex. v., JLR.; L73; 18/V/2019, 9 ex. v., JLR.; L73; 06/VI/2020, 7 ex. v., JLR.; **L74**; 11/V/2019, 1 ex. v., JLR.; **L80**; 08/VI/2019, 3 ex. v., JLR.; **L83**; 12/VI/2022, 2 ex. v., JLR.

Comment: First recorded in Ceuta, with observations from 16 localities in 8 1×1 km UTM squares. This species is relatively frequent, with adults appearing from late April through June, and occasional sightings in July and August. Most records were concentrated in May.

Pyronia cecilia (Vallantin, 1894) (Nymphalidae) **

L4; 05/VI/2019, 2 ex. v., JLR.; L4; 17/VI/2019, 1 ex. v., JLR.; L4; 17/VI/2020, 2 ex. v., JLR.; L4; 19/VI/2020, 4 ex. v., JLR.; **L13**; 13/VI/2020, 1 ex. v., JLR.; L13; 27/VI/2021, 4 ex. v., JLR.; **L14**; 22/VI/2019, 6 ex. v., JLR.; L14; 25/VII/2020, 1 ex. v., JLR.; **L17**; 03/IX/2019, 1 ex. v., EZ.; **L18**; 13/VI/2019, 3 ex. v., JLR.; L18; 31/VIII/2019, 1 ex. v., EZ.; **L19**; 27/VI/2021, 2 ex. v., JLR.; **L25**; 15/VI/2019, 1 ex. v., JLR.; **L27**; 29/VI/2021, 1 ex. v., JLR.; **L37**; 09/VI/2021, 3 ex. v., JLR.; L37; 02/IX/2019, 1 ex. v., EZ.; **L41**; 28/VI/2019, 1 ex. v., JLR.; L41; 10/VII/2020, 1 ex. v., JLR.; **L42**; 16/VI/2019, 23 ex. v., JLR.; **L44**; 06/VI/2019, 1 ex. v., JLR.; **L52**; 16/VI/2019, 2 ex. v., JLR.; **L53**; 16/VI/2019, 1 ex. v., JLR.; **L62**; 03/IX/2019, 1 ex. v., EZ.; L62; 04/IX/2019, 1 ex. v., EZ.; **L66**; 26/V/2019, 3 ex. v., JLR.; L66; 13/VI/2019, 2 ex. v., JLR.; L66; 06/VI/2020, 1 ex. v., JLR.; L66; 21/VI/2020, 1 ex. v., JLR.; **L80**; 08/VI/2019, 1 ex. v., JLR.; **L101**; 25/VI/2019, 2 ex. v., JLR.

Comment: Recorded in Ceuta for the first time. Observed in 18 localities within 9 1×1 km UTM squares, with small population sizes at most sites. Adults were observed between May and September, with peak occurrences in June and July.

Vanessa atalanta (Linnaeus, 1758) (Nymphalidae) *

L4; 10/V/2019, 3 ex. v., JLR.; L4; 16/V/2019, 1 ex. v., JLR.; L4; 05/VI/2019, 2 ex. v., JLR.; L4; 20/III/2019, 1 ex. v., EZ.; L4; 10/III/2020, 2 ex. v., JLR.; L4; 08/V/2020, 1 ex. v., JLR.; L4; 29/V/2020, 1 ex. v., JLR.; L4; 02/III/2021, 2 ex. v., JLR.; L4; 22/IV/2021, 2 ex. v., JLR.; L4; 28/IV/2021, 2 ex. v., JLR.; L4; 13/X/2021, 10 ex. v., JLR.; L4; 23/I/2022, 4 ex. v., JLR.; **L5**; 08/VI/2019, 2 ex. v., JLR.; L5; 10/XII/2019, 3 ex. v., JLR.; L5; 18/XII/2019, nect. on *L. dentata*, 5 ex. v., JLR.; L5; 19/III/2019, 1 ex. v., EZ.; L5; 28/II/2020, 1 ex. v., JLR.; L5; 29/IV/2020, 4 ex. v., JLR.; L5; 23/V/2020, 3 ex. v., JLR.; L5; 18/III/2021, 1 ex. v., JLR.; L5; 25/III/2021, 2 ex. v., JLR.; L5; 06/V/2021, 3 ex. v., JLR.; L5; 10/XI/2021, 5 ex. v., JLR.; L5; 09/XII/2021, 1 ex. v., JLR.; L5; 17/II/2022, 9 ex. v., JLR.; L5; 19/III/2023, 2 ex. v., JLR.; **L6**; 10/XII/2019, nect. on *L. dentata*, 3 ex. v., JLR.; L6; 19/V/2020, 13 ex. v., JLR.; L6; 12/III/2021, 2 ex. v., JLR.; L6; 11/VI/2022, 1 ex. v., JLR.; L6; 04/III/2023, 1 ex. v., JLR.; L6; 12/III/2023, 2 ex. v., JLR.; L6; 30/IV/2024, nect. on *P. maritima*, *C. fragilis*, *Erica multiflora* L., and *L. dentata*, 14 ex. v., JLR.; **L8**; 19/III/2019, 1 ex. v., EZ.; L8; 15/I/2022, 3 ex. v., JLR.; L8; 17/II/2022, 6 ex. v., JLR.; **L9**; 19/III/2019, 1 ex. v., EZ.; **L11**; 25/II/2022, 4 ex. v., JLR.; **L12**; 21/VI/2020, 2 ex. v., JLR.; L12; 14/III/2020, 2 ex. v., JLR.; **L13**; 13/VI/2020, 2 ex. v., JLR.; L13; 25/III/2021, 1 ex. v., JLR.; L13; 17/IV/2021, 1 ex. v., JLR.; L13; 06/III/2022, 14 ex. v., JLR.; L13; 14/V/2022, 13 ex. v., JLR.; **L14**; 17/IV/2021, 1 ex. v., JLR.; L14; 17/X/2021, 3 ex. v., JLR.; **L15**; 09/II/2020, 1 ex. v., JLR.; L15; 12/III/2020, 1 ex. v., JLR.; L15; 12/III/2021, 2 ex. v., JLR.; **L16**; 06/III/2022, 4 ex. v., JLR.; **L17**; 03/V/2019, 2 ex. v., JLR.; **L22**; 01/IV/2021, 2 ex. v., JLR.; L22; 17/X/2021, 4 ex. v., JLR.; **L23**; 18/IV/2021, 2 ex. v., JLR.; **L24**; 17/IV/2021, 3 ex. v., JLR.; **L25**; 22/V/2019, 2 ex. v., JLR.; L25; 07/III/2020, 2 ex. v., JLR.; L25;

12/VI/2021, 1 ex. v., JLR.; **L28**; 12/V/2019, 1 ex. v., JLR.; L28; 12/III/2020, 1 ex. v., JLR.; **L35**; 22/V/2019, nect. on *E. creticum*, 2 ex. v., JLR.; L35; 26/V/2019, 2 ex. v., JLR.; L35; 07/VI/2019, 1 ex. v., JLR.; L35; 18/XII/2019, 2 ex. v., JLR.; **L36**; 17/I/2020, 3 ex. v., JLR.; L36; 03/II/2020, 2 ex. v., JLR.; L36; 09/II/2020, 4 ex. v., JLR.; L36; 21/VI/2020, 6 ex. v., JLR.; L36; 29/VI/2020, 1 ex. v., JLR.; L36; 25/III/2021, 2 ex. v., JLR.; L36; 17/X/2021, 2 ex. v., JLR.; L36; 05/V/2023, 2 ex. v., JLR.; L36; 20/XI/2023, 2 ex. v., JLR.; **L37**; 09/VI/2021, 1 ex. v., JLR.; **L40**; 12/V/2019, 3 ex. v., JLR.; L40; 17/I/2020, 6 ex. v., JLR.; **L41**; 15/V/2019, 3 ex. v., JLR.; L41; 20/III/2019, 1 ex. v., EZ.; L41; 31/V/2020, 1 ex. v., JLR.; L41; 26/IX/2021, 1 ex. v., JLR.; **L42**; 25/XI/2019, 1 ex. v., JLR.; L42; 06/VI/2020, 3 ex. v., JLR.; **L44**; 06/VI/2019, 2 ex. v., JLR.; L44; 07/V/2022, 1 ex. v., JLR.; **L46**; 23/XI/2023, 1 ex. v., JLR.; **L61**; 25/IX/2021, 1 ex. v., JLR.; **L64**; 31/I/2020, 1 ex. v., JLR.; **L66**; 06/VI/2020, 2 ex. v., JLR.; L66; 21/VI/2020, 2 ex. v., JLR.; **L68**; 28/II/2020, 2 ex. v., JLR.; L68; 11/II/2022, 3 ex. v., JLR.; **L69**; 23/III/2019, 2 ex. v., EZ.; **L70**; 27/X/2021, 3 ex. v., JLR.; **L73**; 11/V/2019, 5 ex. v., JLR.; **L74**; 11/V/2019, 1 ex. v., JLR.; L74; 02/IV/2021, 3 ex. v., JLR.; **L75**; 11/V/2019, 1 ex. v., JLR.; **L76**; 16/VI/2019, 1 ex. v., JLR.; **L80**; 18/II/2022, 5 ex. v., JLR.; L80; 12/III/2023, 2 ex. v., JLR.; **L82**; 26/IX/2021, 1 ex. v., JLR.; **L88**; 06/VI/2020, 1 ex. v., JLR.; L88; 17/IV/2021, 2 ex. v., JLR.; L88; 08/V/2021, nect. on *M. suaveolens* and *D. viscosa*, 4 ex. v., JLR.; L88; 26/IX/2021, 1 ex. v., JLR.; L88; 15/V/2022, 5 ex. v., JLR.; **L89**; 11/V/2019, 2 ex. v., JLR.; **L92**; 23/III/2019, 1 ex. v., EZ.; **L94**; 06/VI/2020, 2 ex. v., JLR.; **L102**; 19/IX/2021, nect. on *D. viscosa*, 1 ex. v., JLR.; **L103**; 11/IV/2023, 1 ex. v., JLR.; **L104**; 11/IV/2023, 1 ex. v., JLR.; **L121**; 07/III/2020, 1 ex. v., JLR.; **L126**; 23/XI/2021, 2 ex. v., JLR.; **L131**; 14/III/2021, 3 ex. v., JLR.; **L132**; 09/III/2020, 2 ex. v., JLR.; L132; 10/III/2021, 2 ex. v., JLR.; L132; 19/IV/2021, 1 ex. v., JLR.; **L135**; 05/V/2019, 1 ex. v., JLR.; **L139**; 17/X/2021, 1 ex. v., JLR.; **L141**; 06/V/2020, 2 ex. v., JLR.; L141; 16/V/2020, 1 ex. v., JLR.; **L142**; 17/V/2020, 1 ex. v., JLR.; **L143**; 06/XII/2020, 1 ex. v., JLR.; L143; 01/XII/2021, 2 ex. v., JLR.; **L144**; 01/V/2021, 3 ex. v., JLR.; L144; 14/III/2021, 1 ex. v., JLR.; L144; 02/IV/2021, 3 ex. v., JLR.; **L145**; 14/II/2021, 1 ex. v., JLR.; L145; 18/IV/2024, nect. on *Glebionis coronaria* (L.) Cass. Ex Spach, *A. arvensis*, *P. marítima*, and *L. sinuatum*, 13 ex. v., JLR.; **L146**; 01/X/2023, 1 ex. v., JLR.; **L147**; 27/I/2020, 1 ex. v., JLR.; **L148**; 30/XI/2021, 2 ex. v., JLR.; **L149**; 12/V/2019, 1 ex. v., JLR.; L149; 26/II/2020, 3 ex. v., JLR.; **L151**; 06/V/2020, 2 ex. v., JLR.; L151; 02/X/2021, 1 ex. v., JLR.; L151; 20/X/2021, 1 ex. v., JLR.; **L154**; 01/II/2020, 1 ex. v., JLR.; L154; 11/IV/2021, 2 ex. v., JLR.; **L156**; 25/IV/2024, nect. on *P. maritima*, *G. coronaria*, *L. sinuatum*, and *C. althaeoides*, 9 ex. v., JLR.; **L157**; 05/V/2019, 2 ex. v., JLR.; L157; 23/III/2021, 2 ex. v., JLR.; L157; 21/IV/2024, nect. on *G. coronaria*, *G. tomentosus*, and *P. maritima*, 7 ex. v., JLR.

Comment: Previously cited for Ceuta and its surroundings by Bacallado Aránega *et al.* (2012) without specific records. Observations were recorded from 63 localities within 21 1×1 km UTM squares. The species is abundant and widely distributed throughout Ceuta. This migratory butterfly was observed all year round, with peak numbers in March, May, June, and September. Adults were observed nectaring on *L. dentata*, *P. maritima*, *A. arvensis*, *G. coronaria*, *D. viscosa*, *C. fragilis*, *G. tomentosus*, *L. sinuatum*, *C. althaeoides*, *M. suaveolens*, *E. multiflora,* and *E. creticum*.

Vanessa cardui (Linnaeus, 1758) (Nymphalidae) *

L3; 14/III/2020, 5 ex. v., JLR.; **L4**; 03/VII/2019, >60 ex. v., JLR.; L4; 07/X/2019, 86 ex. v., JLR.; L4; 10/V/2019, 2 ex. v., JLR.; L4; 16/V/2019, 3 ex. v., JLR.; L4; 18/XI/2019, 22 ex. v., JLR.; L4; 29/X/2019, 17 ex. v., JLR.; L4; 06/VII/2020, 3 ex. v., JLR.; L4; 08/V/2020, 5 ex. v., JLR.; L4; 22/IX/2020, very worn, 1 ex. v., JLR.; L4; 22/V/2020, nect. on *S. atropurpurea*, 1 ex. v., JLR.; L4; 29/V/2020, 4 ex. v., JLR.; L4; 02/III/2021, 2 ex. v., JLR.; L4; 22/IV/2021, 6 ex. v., JLR.; L4; 28/IV/2021, 6 ex. v., JLR.; L4; 24/I/2023, 1 ex. v., JLR.; **L5**; 07/VI/2019, 5 ex. v., JLR.; L5; 08/VI/2019, 3 ex. v., JLR.; L5; 10/XII/2019, 38 ex. v., JLR.; L5; 18/XII/2019, 10 ex. v., JLR.; L5; 19/IX/2019, 6 ex. v., JLR.; L5; 30/X/2019, 87 ex. v., JLR.; L5; 02/XI/2020, 4 ex. v., JLR.; L5; 14/II/2020, 5 ex. v., JLR.; L5; 17/I/2020, 14 ex. v., JLR.; L5; 19/V/2020, nect. on *L. dentata*, 75 ex. v., JLR.; L5; 23/V/2020, 28 ex. v., JLR.; L5; 28/II/2020, 2 ex. v., JLR.; L5; 29/IV/2020, 6 ex. v.,

JLR.; L5; 06/V/2021, nect. on *L. dentata*, 27 ex. v., JLR.; L5; 09/XII/2021, nect. on *L. dentata*, 2 ex. v., JLR.; L5; 25/III/2021, 8 ex. v., JLR.; L5; 19/III/2023, nect. on *L. dentata*, *Sonchus* sp., and *Crepis* sp., 22 ex. v., JLR.; **L6**; 10/XII/2019, 58 ex. v., JLR.; L6; 19/V/2020, nect. on *L. dentata*, 62 ex. v., JLR.; L6; 01/IV/2021, nect. on *L. dentata*, 29 ex. v., JLR.; L6; 06/V/2021, nect. on *L. dentata*, 122 ex. v., JLR.; L6; 12/III/2021, 1 ex. v., JLR.; L6; 11/VI/2022, nect. on *P. maritima*, 6 ex. v., JLR.; L6; 12/VI/2022, nect. on *S. atropurpurea*, 1 ex. v., JLR.; L6; 04/III/2023, nect. on *L. dentata* and *Helianthemum* sp. Mill., 7 ex. v., JLR.; L6; 12/III/2023, nect. on *L. dentata*, 21 ex. v., JLR.; L6; 19/III/2023, nect. on *L. dentata* and *R. hosmariense*, 54 ex. v., JLR.; L6; 16/IV/2024, nect. on *P. maritima*, *L. dentata*, and *I. gibraltarica*, 12 ex. v., JLR; **L9**; 30/X/2019, 62 ex. v., JLR.; **L11**; 25/II/2022, 2 ex. v., JLR.; **L12**; 03/IX/2019, 1 ex. v., EZ.; L12; 01/XII/2020, 2 ex. v., JLR.; L12; 14/III/2020, 6 ex. v., JLR.; L12; 21/VI/2020, nect. on *S. atropurpurea*, 11 ex. v., JLR.; **L13**; 13/VI/2020, nect. on *S. atropurpurea*, 21 ex. v., JLR.; L13; 08/V/2021, 17 ex. v., JLR.; L13; 17/IV/2021, 11 ex. v., JLR.; L13; 25/III/2021, 3 ex. v., JLR.; L13; 06/III/2022, 10 ex. v., JLR.; L13; 14/V/2022, nect. on *P. spinosa* and *P. odora*, 37 ex. v., JLR.; L13; 29/VI/2023, very worn, 1 ex. v., JLR.; **L14**; 04/VIII/2019, nect. on *C. hispanica*, 1 ex. v., JLR.; L14; 17/IV/2021, nect. on *L. stoechas*, 8 ex. v., JLR.; L14; 17/X/2021, 10 ex. v., JLR.; **L15**; 20/III/2019, 1 ex. v., EZ.; L15; 24/III/2019, 1 ex. v., EZ.; L15; 09/II/2020, 4 ex. v., JLR.; L15; 12/III/2020, 4 ex. v., JLR.; **L17**; 03/IX/2019, 1 ex. v., EZ.; L17; 09/II/2020, 10 ex. v., JLR.; **L18**; 13/VI/2019, 5 ex. v., JLR.; **L21**; 15/VII/2019, 13 ex. v., JLR.; L21; 27/VII/2019, nect. on *C. Calcitrapa* and *M. suaveolens*, 13 ex. v., JLR.; L21; 27/VI/2021, nect. on *M. pulegium* and *M. suaveolens*, 2 ex. v., JLR.; **L22**; 01/IV/2021, nect. on *L. stoechas*, 10 ex. v., JLR.; L22; 14/VI/2021, 10 ex. v., JLR.; L22; 17/X/2021, nect. on *D. viscosa*, 8 ex. v., JLR.; **L23**; 14/VI/2021, 22 ex. v., JLR.; L23; 15/V/2021, nect. on *L. stoechas*, *C. crispus*, *A. clavatus*, *A. radiatus*, *A. arvensis*, *S. atropurpurea*, and *P. odora*, 14 ex. v., JLR.; L23; 18/IV/2021, nect. on *C. crispus*, *P. spinosa*, *U. dalechampii*, and *L. stoechas*, 21 ex. v., JLR.; L23; 15/V/2022, nect. on *Trifolium isthmocarpum* Brot., *G. tomentosus*, *A. clavatus*, *T. barbata*, *P. spinosa*, and *P. odora*, 37 ex. v., JLR.; **L24**; 15/VII/2019, 3 ex. v., JLR.; L24; 17/IV/2021, nect. on *L. stoechas*, 16 ex. v., JLR.; **L25**; 13/VI/2019, very fresh, 1 ex. v., JLR.; L25; 15/VI/2019, 2 ex. v., JLR.; L25; 22/V/2019, 1 ex. v., JLR.; L25; 07/III/2020, 2 ex. v., JLR.; L25; 12/VI/2021, nect. on *M. pulegium*, *T. caeruleum*, *S. atropurpurea*, and *R. ulmifolius*, 37 ex. v., JLR.; **L27**; 15/VII/2019, 14 ex. v., JLR.; L27; 17/VII/2019, 20 ex. v., JLR.; L27; 27/VII/2019, 4 ex. v., JLR.; L27; 14/VI/2021, nect. on *T. caeruleum*, 8 ex. v., JLR.; L27; 29/VI/2021, nect. on *T. caeruleum* and *S. atropurpurea*, 10 ex. v., JLR.; **L28**; 12/III/2020, 18 ex. v., JLR.; **L30**; 02/IX/2019, 3 ex. v., EZ.; **L34**; 04/V/2023, 3 ex. v., JLR.; **L35**; 07/VI/2019, 1 ex. v., JLR.; L35; 18/XII/2019, 3 ex. v., JLR.; L35; 18/XII/2019, 3 ex. v., JLR.; L35; 22/V/2019, 3 ex. v., JLR.; L35; 29/VI/2020, 12 ex. v., JLR.; **L36**; 15/VI/2019, 3 ex. v., JLR.; L36; 27/IX/2019, 86 ex. v., JLR.; L36; 03/II/2020, 6 ex. v., JLR.; L36; 09/II/2020, 6 ex. v., JLR.; L36; 14/II/2020, 1 ex. v., JLR.; L36; 17/I/2020, 8 ex. v., JLR.; L36; 21/VI/2020, 34 ex. v., JLr.; L36; 29/VI/2020, 31 ex. v., JlR.; L36; 17/X/2021, 11 ex. v., JLR.; L36; 25/III/2021, 5 ex. v., JLR.; L36; 05/V/2023, 6 ex. v., JLR.; L36; 23/I/2023, 3 ex. v., JLR.; **L37**; 15/VII/2019, 12 ex. v., JLR.; L37; 09/VI/2021, 4 ex. v., JLR.; **L40**; 12/V/2019, 2 ex. v., JLR.; L40; 17/I/2020, 8 ex. v., JLR.; **L41**; 05/VII/2019, 17 ex. v., JLR.; L41; 25/XI/2019, 2 ex. v., JLR.; L41; 27/IX/2019, 54 ex. v., JLR.; L41; 28/VI/2019, 36 ex. v., JLR.; L41; 10/VII/2020, nect. on *M. pulegium* and *M. suaveolens*, 2 ex. v., JLR.; **L42**; 25/XI/2019, 10 ex. v., JLR.; L42; 06/VI/2020, nect. on *L. stoechas*, 4 ex. v., JLR.; **L43**; 15/VII/2019, 7 ex. v., JLR.; L43; 28/VII/2019, nect. on *M. suaveolens*, 2 ex. v., JLR.; **L48**; 01/IX/2019, 1 ex. v., EZ.; **L59**; 19/III/2019, 1 ex. v., EZ.; **L60**; 15/IX/2019, 6 ex. v., JLR.; L60; 17/IX/2020, nect. on *M. suaveolens*, very worn, 1 ex. v., JLR.; **L62**; 03/IX/2019, 1 ex. v., EZ.; L62; 04/IX/2019, 1 ex. v., EZ.; **L63**; 12/VI/2021, nect. on *S. atropurpurea*, very fresh, 16 ex. v., JLR.; **L64**; 31/I/2020, 6 ex. v., JLR.; **L66**; 26/V/2019, 2 ex. v., JLR.; L66; 27/VII/2019, 2 ex. v., JLR.; L66; 06/VI/2020, 6 ex. v., JLR.; L66; 15/V/2020, 2 ex. v., JLR.; L66; 31/I/2020, 2 ex. v., JLR.; **L68**; 28/II/2020, 1 ex. v., JLR.; **L69**; 23/III/2019, 1 ex. v., EZ.; L69; 24/III/2019, 1 ex. v., EZ.; **L70**; 01/IX/2019, 1 ex. v., EZ.; L70; 27/X/2021, nect. on *D. viscosa*, 2 ex. v., JLR.; **L73**; 11/V/2019, 13 ex. v., JLR.; L73; 18/V/2019, 4 ex.

v., JLR.; L73; 06/VI/2020, nect. on *D. gerardi* and *L. stoechas*, 16 ex. v., JLR.; L73; 02/IV/2021, nect. on *L. stoechas*, 3 ex. v., JLR.; **L74**; 11/V/2019, 2 ex. v., JLR.; L74; 02/IV/2021, nect. on *L. stoechas*, 25 ex. v., JLR.; L74; 13/VI/2022, 4 ex. v., JLR.; **L75**; 13/VI/2022, nect. on *R. ulmifolius*, 2 ex. v., JLR.; **L80**; 01/IX/2019, 1 ex. v., EZ.; L80; 08/VI/2019, nect. on *P. spinosa* and *S. atropurpurea*, 6 ex. v., JLR.; **L86**; 14/II/2020, 2 ex. v., JLR.; **L88**; 23/III/2019, 1 ex. v., EZ.; L88; 24/III/2019, 1 ex. v., EZ.; L88; 12/VII/2020, nect. on *M. suaveolens*, 1 ex. v., JLR.; L88; 25/VII/2020, nect. on *M. suaveolens*, 7 ex. v., JLR.; L88; 08/V/2021, 13 ex. v., JLR.; L88; 12/VI/2021, nect. on *M. pulegium*, very worn, 1 ex. v., JLR.; L88; 17/IV/2021, 19 ex. v., JLR.; L88; 15/V/2022, 16 ex. v., JLR.; L88; 21/V/2022, nect. on *A. radiatus* and *A. arvensis*, very worn, 6 ex. v., JLR.; **L89**; 11/V/2019, 1 ex. v., JLR.; **L92**; 23/III/2019, 1 ex. v., EZ.; L92; 24/III/2019, 1 ex. v., EZ.; **L94**; 06/VI/2020, 2 ex. v., JLR.; **L111**; 01/IX/2019, 2 ex. v., JLR.; L111; 01/IX/2019, 2 ex. v., JlR.; **L117**; 29/VI/2019, 14 ex. v., JLR.; **L126**; 04/VII/2019, >30 ex. v., JLR.; **L130**; 07/V/2023, nect. on *Diplotaxis* sp., *A. radiates*, and *P. maritima*, 4 ex. v., JLR.; **L131**; 14/III/2021, 1 ex. v., JLR.; **L132**; 09/III/2020, 5 ex. v., JLR.; L132; 10/II/2020, 1 ex. v., JLR.; L132; 14/VII/2020, nect. on *V. karroo*, 2 ex. v., JLR.; L132; 20/VI/2020, 3 ex. v., JLR.; L132; 19/IV/2021, 7 ex. v., JLR.; **L133**; 11/IV/2021, 7 ex. v., JLR.; **L139**; 05/VII/2019, >50 ex. v., JLR.; L139; 23/VII/2019, 20 ex. v., JLR.; L139; 27/VI/2019, 27 ex. v., JLR.; L139; 29/VI/2019, >90 ex. v., JLR.; L139; 17/X/2021, 4 ex. v., JLR.; **L140**; 04/VII/2019, >35 ex. v., JLR.; **L141**; 06/V/2020, 1 ex. v., JLR.; **L144**; 01/V/2021, nect. on various flowers, 27 ex. v., JLR.; L144; 02/IV/2021, 15 ex. v., JLR.; L144; 19/XI/2023, nect. on *D. viscosa*, 2 ex. v., JLR.; **L145**; 13/XII/2020, 4 ex. v., JLR.; L145; 01/XI/2023, nect. on *D. viscosa*, 12 ex. v., JLR.; L145; 18/IV/2024, nect. on *P. maritima*, *E. creticum*, and *L. sinuatum*, 8 ex. v., JLR.; **L147**; 27/I/2020, 4 ex. v., JLR.; **L149**; 26/II/2020, 2 ex. v., JLR.; **L151**; 24/IX/2019, 14 ex. v., JLR.; L151; 06/V/2020, 6 ex. v., JLR.; **L154**; 15/X/2019, 12 ex. v., JLR.; L154; 01/II/2020, 10 ex. v., JLR.; L154; 11/IV/2021, 15 ex. v., JLR.; **L156**; 05/VII/2019, >40 ex. v., JLR.; **L157**; 14/IX/2019, 4 ex. v., JLR.; L157; 21/III/2019, 1 ex. v., EZ.; L157; 24/III/2019, 1 ex. v., EZ.; L157; 08/XI/2020, 2 ex. v., JLR.; L157; 23/III/2021, 1 ex. v., JLR.; L157; 21/IV/2024, nect. on *G. coronaria* and *P. maritima*, 7 ex. v., JLR.

Comment: Previously mentioned for Ceuta and surroundings by Bacallado Aránega *et al.* (2012) without precise records. Observations were recorded from 65 localities within 22 1×1 km UTM squares. This species is well known for its large-scale migration between Europe and Africa, with the Tingitan Peninsula likely serving as an important passage area (Suchan *et al.*, 2024). In Ceuta, adults were observed all year round, with peak occurrences in May and July, and large aggregations noted from late June to early July. This was the most frequently recorded species in Ceuta, where it is abundant and widely distributed, occurring in all habitat types. Adults were observed nectaring on a diverse range of plant species, including *L. dentata*, *L. stoechas*, *A. radiatus*, *A. clavatus*, *G. coronaria*, *A. arvensis*, *Sonchus* sp., *Crepis* sp., *S. atropurpurea*, *Diplotaxis* sp., *C. corymbosa*, *P. odora*, *D. carota*, *P. spinosa*, *P. odora*, *C. vesicaria* subsp. *taraxacifolia*, *A. integrifolia*, *G. tomentosus*, *C. calcitrapa*, *J. foliosa*, *Helianthemum* sp., *C. salviifolius*, *C. crispus*, *D. viscosa*, *Urospermum dalechampii*, *T. barbata*, *R. ulmifolius*, *M. suaveolens*, *M. pulegium*, *I. gibraltarica*, *E. creticum*, *L. sinuatum*, *V. karroo*, *T. isthmocarpum*, *D. gerardi*, *P. maritima*, and *R. hosmariense*.

Aricia cramera (Eschscholtz, 1821) (Lycaenidae) **

L3; 12/VI/2022, nect. on *S. atropurpurea*, 1 ex. v., JLR.; **L4**; 22/V/2020, nect. on *S. atropurpurea*, 1 ex. v., JLR.; L4; 22/IX/2020, very worn, 1 ex. v., JLR.; L4; 06/VII/2020, 3 ex. v., JLR.; **L5**; 07/VI/2019, 4 ex. v., JLR.; L5; 08/VI/2019, 3 ex. v., JLR.; L5; 23/V/2020, 4 ex. v., JLR.; **L12**; 21/VI/2020, nect. on *S. atropurpurea* and perch. on *H. murinum* subsp. *leporinum*, 3 ex. v., JLR.; **L13**; 13/VI/2020, nect. on *S. atropurpurea*, 5 ex. v., JLR.; L13; 29/VI/2023, 1 ex. v., JLR.; **L17**; 04/VIII/2019, nect. on *C. hispanica*, 1 ex. v., JLR.; **L21**; 27/VII/2019, nect. on *C. calcitrapa* and *M. suaveolens*, 3 ex. v., JLR.; L21; 27/VI/2021, nect. on *M. pulegium* and *M. suaveolens*, 2 ex. v., JLR.; **L22**; 14/VI/2021, 1 ex. v., JLR.; L22; 14/VI/2021, 2 ex. v., JLR.; L22; 15/V/2022, nect. on *T.*

isthmocarpum, 2 ex. v., JLR.; **L25**; 12/VI/2021, nect. on *M. pulegium*, 1 ex. v., JLR.; **L27**; 29/VI/2021, nect. on *S. atropurpurea*, 2 ex. v., JLR.; **L35**; 29/VI/2020, 4 ex. v., JLR.; **L36**; 29/VI/2020, 5 ex. v., JLR.; **L41**; 10/VII/2020, nect. on *M. pulegium* and *M. suaveolens*, 2 ex. v., JLR.; **L43**; 28/VII/2019, nect. on *M. suaveolens*, 2 ex. v., JLR.; **L62**; 03/IX/2019, 1 ex. v., EZ.; L62; 17/IX/2020, very worn, nect. on *M. suaveolens*, 1 ex. v., JLR.; **L69**; 23/III/2019, 1 ex. v., EZ.; **L73**; 06/VI/2020, nect. on *D. gerardi*, 4 ex. v., JLR.; **L75**; 13/VI/2022, nect. on *R. ulmifolius*, 2 ex. v., JLR.; **L79**; 13/VI/2022, 4 ex. v., JLR.; **L80**; 08/VI/2019, nect. on *P. spinosa* and *S. atropurpurea*, 6 ex. v., JLR.; **L88**; 12/VII/2020, nect. on *M. suaveolens*, 1 ex. v., JLR.; L88; 25/VII/2020, nect. on *M. suaveolens*, 7 ex. v., JLR.; L88; 12/VI/2021, very worn, nect. on *M. pulegium*, 1 ex. v., JLR.; L88; 21/V/2022, very worn, nect. on *A. radiatus* and *A. arvensis*, 6 ex. v., JLR.; **L94**; 06/VI/2020, 2 ex. v., JLR.; **L132**; 20/VI/2020, 3 ex. v., JLR.; L132; 14/VII/2020, nect. on *V. karroo*, 2 ex. v., JLR.; **L147**; 29/IV/2024, nect. on *T. isthmocarpum*, 1 ex. v., JLR.

Comment: Observations have recorded from 24 localities within 13 1×1 km UTM squares, representing the first documented records for Ceuta. Adults are primarily active from May to September, indicating a flight period extending from late spring to early autumn. Imagines have been observed feeding on the flowers of various plants, including *S. atropurpurea*, *C. hispanica*, *C. calcitrapa*, *M. suaveolens*, *M. pulegium*, *T. isthmocarpum*, *R. ulmifolius*, *P. spinosa*, *D. gerardi*, *V. karroo*, *A. radiatus*, and *A. arvensis*.

Azanus jesous (Guérin-Méneville, 1849) (Lycaenidae) **

L92; 02/IX/2019, 1 ex. coll., EZ.; **L82**; 26/IX/2021, nect. on *M. suaveolens*, 1 ex. v., JLR.; **L88**; 25/VII/2020, nect. on *V. karroo*, 4 ex. v., JLR.; L88; 26/IX/2021, nect. on *V. karroo* and *M. suaveolens*, 5 ex. v., JLR.; **L132**; 14/VII/2020, nect. on *V. karroo*, 1 ex. v., JLR.; **L151**; 02/X/2021, nect. on *S. rosmarinus*, 2 ex. v. and 2 ex. coll., JLR.; L151; 20/X/2021, nect. on *S. rosmarinus*, 3 ex. v., JLR.; L151; 09/IX/2023, nect. on *S. rosmarinus*, 1 ex. v., JLR.

Comment: Observations of this migratory species have been recorded from 4 localities located within 4 1×1 km UTM squares, from mid-July to late October, indicating an activity period in Ceuta spanning mid-summer to early autumn. Larvae develop on *V. karroo*, and adults also visit the flowers of this legume (Williams, 2018). Although reproduction in Ceuta has not yet been confirmed, it is considered highly probable. Additionally, adults have been observed nectaring on *M. suaveolens* and *S. rosmarinus*.

Cacyreus marshalli Butler, 1898 (Lycaenidae)

L4; 05/VII/2019, 1 ex. v., JLR.; L4; 06/VII/2020, nect. on *Pelargonium* sp. L'Hér. ex Aiton, 2 ex. v., JLR.; **L6**; 01/IX/2019, 1 ex. v., EZ.; **L41**; 27/IX/2019, nect. on *M. suaveolens* and *R. ulmifolius*, 3 ex. v., JLR.; L41; 26/IX/2021, nect. on *M. suaveolens*, 3 ex. v., JLR.; **L42**; 20/III/2019, 1 ex. v., EZ.; **L60**; 03/IX/2019, 1 ex. v., EZ.; L60; 15/IX/2019, 2 ex. v., JLR.; L60; 25/IX/2021, nect. on *R. ulmifolius* and *M. suaveolens*, 3 ex. v., JLR.; **L61**; 04/IX/2019, 1 ex. v., EZ.; **L88**; 26/IX/2021, nect. on *M. suaveolens*, 2 ex. v., JLR.; **L92**; 23/III/2019, 1 ex. v., EZ.; **L93**; 04/IX/2019, 1 ex. v., EZ.; **L102**; 19/IX/2021, 2 ex. v., JLR.; **L113**; 01/XI/2023, 3 ex. v., JLR.; **L114**; 01/XI/2023, 1 ex. v., JLR.; **L116**; 19/V/2019, perch. on *Pelargonium* sp., 4 ex. v., JLR.; **L117**; 29/VI/2019, nect. on *Pelargonium* sp., 4 ex. v., JLR.; **L118**; 16/X/2019, nect. on *Petunia* sp. Juss., (ornamental), 3 ex. v., JLR.; **L123**; 09/VI/2019, nect. on *Pelargonium* sp., 4 ex. v., JLR.; **L124**; 10/VI/2020, 4 ex. v., JLR.; **L126**; 04/VII/2019, 4 ex. v., JLR.; **L127**; 03/VII/2019, 5 ex. v., JLR.; **L128**; 07/X/2023, 5 ex. v., JLR.; **L136**; 06/VI/2019, 5 ex. v., JLR.; L136; 24/V/2019, 3 ex. v., JLR.; **L138**; 04/IX/2019, 10 ex. v., JLR.; L138; 04/IX/2019, 1 ex. v., EZ.; L138; 24/IX/2019, 7 ex. v., JLR.; L138; 13/VI/2021, perch. on lawn, 5 ex. v., JLR.; **L139**; 15/V/2019, nect. on *R. ulmifolius*, 2 ex. v., JLR.; L139; 24/V/2019, nect. on *R. ulmifolius*, 4 ex. v., JLR.; L139; 17/X/2021, 2 ex. v., JLR.; **L151**; 24/IX/2019, nect. on ornamental *S. rosmarinus*, 1 ex. v., JLR.

Comment: First recorded in Ceuta by Ruiz & Pérez-López (2000), this species has been observed from 24 localities within 11 1×1 km UTM squares, occurring both in natural habitats (primarily around temporary streams and reservoirs) and urban environments, including gardens and even among buildings. Adults are active from March to November, suggesting multiple annual generations, as previously noted by Ruiz & Pérez-López (2000). The highest frequency of records and individual abundance occurs in September and October. Adults have been observed nectaring on *M. suaveolens*, *Pelargonium* sp. (ornamental), *Petunia* sp. (ornamental), *R. ulmifolius*, and *S. rosmarinus*.

Callophrys avis (Linnaeus, 1758) (Lycaenidae) **

L50; 25/IV/2024, nect. on *P. maritima*, 1 ex. coll., JLR.

Comment: A single, heavily worn adult was recorded in Ceuta during the study period, constituting the first documented occurrence in the Autonomous City. The nearest known record is from Tangier, and the species is considered uncommon and localised in Morocco (Rungs, 1981; Tennent, 1996; Tarrier, 2017, 2024, 2025c). Tarrier & Delacre (2008) and Tarrier (2017, 2025c) report its presence in only 25 10×10 km UTM squares. The individual observed in April was nectaring on *P. maritima* in a coastal area. Despite extensive searches between March and May in habitats containing its primary host plant, *Arbutus unedo* (Tarrier & Delacre, 2008; García-Barros *et al.*, 2013), no additional individuals were found.

Callophrys rubi (Linnaeus, 1758) (Lycaenidae) *

L5; 19/III/2019, 1 ex. v., EZ.; L5; 20/III/2019, 1 ex. v., EZ.; L5; 11/III/2020, nect. on *A. unedo* and *Viburnum tinus* L., 3 ex. v., JLR.; L5; 19/III/2023, perch. on grasses, 3 ex. v., JLR.; **L12**; 20/III/2019, 1 ex. v., EZ.; **L15**; 20/III/2019, 1 ex. v., EZ.; L15; 12/III/2020, nect. on *A. ramosus*, 4 ex. v., JLR.; **L16**; 06/III/2022, nect. on *C. monspeliensis*, 2 ex. v., JLR.; **L22**; 01/IV/2021, 3 ex. v., JLR.; **L28**; 12/III/2020, 2 ex. v., JLR.; **L47**; 20/III/2019, 1 ex. v., EZ.; **L59**; 19/III/2019, 1 ex. v., EZ.; **L74**; 02/IV/2021, nect. on *C. monspeliensis*, 1 ex. coll., JLR.; L74; 02/IV/2021, perch. on *C. monspeliensis*, 10 ex. v., JLR.; **L131**; 14/III/2021, perch. on *C. monspeliensis*, 3 ex. v., JLR.

Comment: Previously mentioned for Ceuta and surroundings by Bacallado Aránega *et al.* (2012) without specific records. Observations were recorded from 10 localities within 7 1×1 km UTM squares, with most sightings occurring in March and a few in April, consistent with the species' typical spring activity period (Tennent, 1996; Tarrier & Delacre, 2008; García-Barros *et al.*, 2013). Adults were observed nectaring on *A. unedo*, *V. tinus*, *A. ramosus*, and *C. monspeliensis*.

Celastrina argiolus (Linnaeus, 1758) (Lycaenidae) **

L4; 02/III/2021, 2 ex. v., JLR.; **L13**; 25/VII/2020, nect. on *M. suaveolens*, 1 ex. v., JLR.; L13; 27/VI/2021, nect. on *M. suaveolens*, 1 ex. v., JLR.; **L17**; 03/IX/2019, 1 ex. v., EZ.; **L19**; 27/VI/2021, 2 ex. v., JLR.; **L21**; 27/VI/2021, 8 ex. v., JLR.; L21; 29/VI/2023, nect. on *R. ulmifolius*, 2 ex. v., JLR.; **L27**; 29/VI/2021, nect. on *M. suaveolens* and *R. ulmifolius*, 9 ex. v., JLR.; **L33**; 01/IX/2019, 1 ex. v., EZ.; **L41**; 15/V/2019, 1 ex. v., JLR.; L41; 27/IX/2019, 2 ex. v., JLR.; L41; 28/VI/2019, 6 ex. v., JLR.; L41; 10/VII/2020, 2 ex. v., JLR.; L41; 31/V/2020, 1 ex. v., JLR.; L41; 26/IX/2021, 1 ex. v., JLR.; **L47**; 01/IX/2019, 1 ex. v., EZ.; **L60**; 17/IX/2020, 3 ex. v., JLR.; L60; 25/IX/2021, 3 ex. v., JLR.; **L62**; 03/IX/2019, nect. on *M. suaveolens*, 1 ex. v., EZ.; **L69**; 23/III/2019, 1 ex. v., EZ.; **L82**; 26/IX/2021, 2 ex. v., JLR.; **L88**; 25/VII/2020, 2 ex. v., JLR.; **L90**; 13/IX/2019, 3 ex. v., JLR.; **L132**; 20/VI/2020, 1 ex. v., JLR.; **L139**; 13/VII/2023, nect. on *R. ulmifolius*, 2 ex. v., JLR.

Comment: First records for Ceuta. Observed from 17 localities within 10 1×1 km UTM squares, from March to September, peaking in June and September. In the study area, the species is primarily associated with streams, temporary ponds, and reservoirs, fying over riparian vegetation composed

of *R. ulmifolius*, *S. pedicellata*, and *N. oleander*, on which it perches frequently. Adults were observed nectaring on *M. suaveolens* and *R. ulmifolius*.

Glaucopsyche melanops (Boisduval 1828) (Lycaenidae) **

L15; 20/III/2019, 1 female ex. v., coll. EZ.

Comment: One of three species documented in Ceuta with only a single sighting, representing the first record for the Autonomous City. A female was captured in mid-March in low scrub dominated by *C. monspeliensis*, *C. crispus*, and *L. stoechas*. Northern Moroccan (e.g., Rif, Beni Snassen massif, Middle Atlas) and Ceutan populations belong to the subspecies *G. melanops algirica* (Heyne, 1895) (Tarrier & Delacre, 2008; Leraut, 2016; Tarrier, 2025c).

Lampides boeticus (Linnaeus, 1767) (Lycaenidae) *

L4; 25/X/2019, nect. on *Thymus* sp. L. cultivated, 1 ex. v., JLR.; L4; 13/V/2019, 1 ex. v., JLR.; L4; 15/V/2019, 2 ex. v., JLR.; L4; 24/V/2019, perch. on *G. linifolia*, 3 ex. v., JLR.; L4; 16/VII/2019, nect. on cultivated *Thymus* sp. and *S. rosmarinus*, 3 ex. v., JLR.; L4; 18/XI/2019, 1 ex. v., JLR.; L4; 08/V/2020, on *G. linifolia*, 11 ex. v., JLR.; L4; 22/V/2020, nect. on *G. linifolia* and *C. villosa*, 7 ex. v., JLR.; L4; 29/V/2020, nect. and perch. on *G. linifolia* and *C. villosa*, 7 ex. v., JLR.; L4; 17/VI/2020, perch. on *G. linifolia*, 3 ex. v., JLR.; L4; 19/VI/2020, on *G. linifolia* and *C. villosa*, 9 ex. v., JLR.; L4; 06/VII/2020, on *Spartium junceum* L. and *G. monspessulana*, 10 ex. v., JLR.; L4; 22/IV/2021, mostly on *G. linifolia*, 10 ex. v., JLR.; L4; 28/IV/2021, 7 ex. v., JLR.; L4; 16/VI/2022, 5 ex. v., JLR.; L4; 28/VI/2022, 2 ex. v., JLR.; **L5**; 07/VI/2019, perch. on *S. junceum* and *Coronilla coronata* L., 13 ex. v., JLR.; L5; 21/VI/2019, on *S. junceum* and *G. linifolia*, 5 ex. v., JLR.; L5; 14/II/2020, on *S. junceum* and *C. coronata*, 2 ex. v., JLR.; L5; 29/IV/2020, on *S. junceum*, 5 ex. v., JLR.; L5; 19/V/2020, on *S. junceum*, *S. atropurpurea*, and *L. dentata*, 23 ex. v., JLR.; L5; 23/V/2020, on *S. junceum* and *G. linifolia*, 17 ex. v., JLR.; L5; 06/V/2021, on *Lathyrus* sp. L. and *S. junceum*, 15 ex. v., JLR.; **L6**; 19/V/2020, on *S. junceum*, 15 ex. v., JLR.; L6; 01/IV/2021, on *L. dentata*, 5 ex. v., JLR.; L6; 06/V/2021, on *L. dentata*, 6 ex. v., JLR.; L6; 11/VI/2022, 6 ex. v., JLR.; **L12**; 21/VI/2020, on *L. stoechas* and perch. on *C. villosa*, 23 ex. v., JLR.; L12; 14/VI/2021, 12 ex. v., JLR.; **L13**; 13/VI/2020, 5 ex. v., JLR.; L13; 17/IV/2021, 4 ex. v., JLR.; L13; 14/V/2022, 1 ex. v., JLR.; **L14**; 22/VI/2019, on *D. gnidium*, 1 ex. v., JLR.; L14; 13/VI/2020, on *G. linifolia* and *C. villosa*, 12 ex. v., JLR.; L14; 25/VII/2020, on *R. ulmifolius*, 2 ex. v., JLR.; L14; 16/V/2021, 4 ex. v., JLR.; **L17**; 03/V/2019, perch. and flying over *G. linifolia*, 2 ex. v., JLR.; **L22**; 01/IV/2021, on *L. stoechas*, 2 ex. v., JLR.; L22; 17/X/2021, on *D. gnidium*, 4 ex. v., JLR.; **L23**; 15/V/2021, 2 ex. v., JLR.; L23; 14/VI/2021, 10 ex. v., JLR.; **L25**; 13/VI/2019, 1 ex. v., JLR.; **L27**; 14/VI/2021, on *T. caeruleum*, 2 ex. v., JLR.; **L28**; 12/VII/2020, 2 ex. v., JLR.; **L29**; 22/VI/2019, 1 ex. v., JLR.; **L35**; 22/V/2019, 1 ex. v., JLR.; L35; 26/V/2019, 2 ex. v., JLR.; L35; 07/VI/2019, 2 ex. v., JLR.; **L36**; 28/II/2020, 6 ex. v., JLR.; L36; 29/VI/2020, 5 ex. v., JLR.; L36; 17/X/2021, 1 ex. v., JLR.; L36; 05/V/2023, 13 ex. v., JLR.; L36; 20/XI/2023, very worn, 7 ex. v., JLR.; **L37**; 09/VI/2021, 12 ex. v., JLR.; **L41**; 15/V/2019, 1 ex. v., JLR.; L41; 28/VI/2019, on *M. suaveolens*, 3 ex. v., JLR.; L41; 28/VI/2019, on *R. ulmifolius*, 1 ex. v., JLR.; L41; 05/VII/2019, on *M. suaveolens* and *R. ulmifolius*, 7 ex. v., JLR.; L41; 27/IX/2019, on *R. ulmifolius*, 2 ex. v., JLR.; L41; 25/X/2019, 2 ex. v., JLR.; L41; 10/VII/2020, on *R. ulmifolius* and *Lotus rectus* L., 19 ex. v., JLR.; L41; 14/V/2021, perch. on *L. rectus*, 8 ex. v., JLR.; **L42**; 16/VI/2019, on *M. pulegium*, 2 ex. v., JLR.; **L43**; 07/VI/2019, 3 ex. v., JLR.; **L62**; 04/IX/2019, 1 ex. v., EZ.; **L63**; 12/VI/2021, on *S. atropurpurea* and *D. carota*, 3 ex. v., JLR.; **L66**; 26/V/2019, 4 ex. v., JLR.; L66; 13/VI/2019, 3 ex. v., JLR.; L66; 06/VI/2020, on *S. atropurpurea* and *C. crispus*, 8 ex. v., JLR.; L66; 21/VI/2020, on *L. stoechas*, *C. crispus*, and *S. atropurpurea*, 16 ex. v., JLR.; **L68**; 11/II/2022, perch. on *R. ulmifolius*, 1 ex. v., JLR.; **L73**; 06/VI/2020, on *D. gerardi* and *L. stoechas*, 9 ex. v., JLR.; L73; 11/V/2019, 7 ex. v., JLR.; **L74**; 11/V/2019, 2 ex. v., JLR.; **L75**; 13/VI/2022, on *R. ulmifolius*, 3 ex. v., JLR.; **L88**; 06/VI/2020, on *M. suaveolens*, 5 ex. v., JLR.; L88; 12/VII/2020, on *M. suaveolens*, 2 ex.

v., JLR.; **L94**; 12/VI/2019, on *M. suaveolens*, 2 ex. v., JLR.; L94; 06/VI/2020, on *R. ulmifolius*, 3 ex. v., JLR.; **L101**; 25/VI/2019, on *M. suaveolens*, 1 ex. v., JLR.; **L112**; 02/VII/2020, on *Trifolium* sp. Tourn. Ex L., and *Leontodon* sp. L. in a lawn bed, 2 ex. v., JLR.; **L130**; 07/V/2023, 1 ex. v., JLR.; **L132**; 20/VI/2020, on *V. karroo* and *G. linifolia*, 13 ex. v., JLR.; L132; 14/VII/2020, on *V. karroo*, 2 ex. v., JLR.; L132; 19/IV/2021, on *Lathyrus* sp., 3 ex. v., JLR.; L132; 13/VI/2022, on *V. karroo*, 3 ex. v., JLR.; **L133**; 19/IV/2021, 10 ex. v., JLR.; **L134**; 16/VI/2020, 2 ex. v., JLR.; **L138**; 13/VI/2021, perch. on lawn and on *Trifolium* sp., 21 ex. v., JLR.; **L144**; 01/V/2021, 5 ex. v., JLR.; **L151**; 24/IX/2019, on ornamental *S. rosmarinus*, 3 ex. v., JLR.; L151; 09/IX/2023, on *S. rosmarinus*, 1 ex. v., JLR.; **L154**; 11/IV/2021, perch. on *G. linifolia*, 12 ex. v., JLR.; L154; 26/V/2019, perch. on *G. linifolia*, 1 ex. v., JLR.; **L156**; 29/IV/2024, nect. on *P. maritima*, *C. fragilis*, and *G. linifolia*, 11 ex. v., JLR.; **L157**; 09/VI/2020, 2 ex. v., JLR.

Comment: Previously cited for Ceuta and its surroundings by Bacallado Aránega *et al.* (2012) without precise data. Observations were recorded from 40 localities within 17 1×1 km UTM squares, with adults active from February through November, and peaking between May and July. This species is widespread and abundant across all habitat types in the study area. Imagines have been observed nectaring on the flowers or inflorescences of *Thymus* sp., *S. rosmarinus*, *G. linifolia*, *C. villosa*, *S. junceum*, *C. coronata*, *G. monspessulana*, *L. dentata*, *L. stoechas*, *S. atropurpurea*, *M. suaveolens*, *R. ulmifolius*, *L. rectus*, *D. carota*, *C. crispus*, *D. gnidium*, *C. althaeoides*, *P. spinosa*, *Leontodon* sp., *P. maritima*, *C. fragilis*, *Trifolium* sp., *Lathyrus* sp., and *V. karroo*.

Leptotes pirithous (Linnaeus, 1767) (Lycaenidae) **

L4; 24/V/2019, perch. on *G. linifolia*, 8 ex. v., JLR.; L4; 05/VI/2019, 5 ex. v., JLR.; L4; 17/VI/2019, 3 ex. v., JLR.; L4; 16/VII/2019, nect. on cultivated *Thymus* sp., 1 ex. v., JLR.; L4; 08/V/2020, nect. on *G. linifolia*, 11 ex. v., JLR.; L4; 22/V/2020, nect. on *G. linifolia* and *C. crispus*, 15 ex. v., JLR.; L4; 29/V/2020, nect. on *G. linifolia*, 12 ex. v., JLR.; L4; 17/VI/2020, egg-laying observed on *G. linifolia*, 19 ex. v., JLR.; L4; 19/VI/2020, nect. on *G. linifolia*, 23 ex. v., JLR.; L4; 06/VII/2020, perch. on *G. monspessulana*, *G. linifolia*, and *C. coronata*, 19 ex. v., JLR.; L4; 22/IV/2021, nect. on *G. linifolia*, 3 ex. v., JLR.; L4; 07/X/2021, nect. on *D. viscosa*, very fresh, 21 ex. v., JLR.; L4; 13/X/2021, nect. on *D. viscosa*, 7 ex. v., JLR.; L4; 16/VI/2022, 3 ex. v., JLR.; **L5**; 07/VI/2019, perch. on *S. junceum* and *Coronilla coronata* L., 10 ex. v., JLR.; L5; 21/VI/2019, nect. on *S. junceum* and *G. linifolia*, 5 ex. v., JLR.; L5; 30/X/2019, perch. on *P. lentiscus*, 5 ex. v., JLR.; L5; 18/XII/2019, 3 ex. v., JLR.; L5; 29/IV/2020, nect. on *S. junceum*, 8 ex. v., JLR.; L5; 23/V/2020, nect. on *G. linifolia* and *S. junceum*, 1 ex. v., JLR.; L5; 06/V/2021, nect. on *S. junceum*, 3 ex. v., JLR.; L5; 10/XI/2021, nect. on *L. dentata*, 8 ex. v., JLR.; L5; 19/III/2019, 1 ex. v., EZ.; **L6**; 06/V/2021, nect. on *L. dentata*, 4 ex. v., JLR.; L6; 10/XI/2021, nect. on *L. dentata*, 12 ex. v., JLR.; **L12**; 21/VI/2020, nect. on *L. stoechas*, *C. crispus*, *C. corymbosa*, and *C. villosa*, 23 ex. v., JLR.; **L13**; 08/V/2021, nect. on *G. linifolia*, 2 ex. v., JLR.; L13; 29/VI/2023, 6 ex. v., JLR.; **L14**; 22/VI/2019, nect. on *D. gnidium*, 7 ex. v., JLR.; L14; 13/VI/2020, nect. on *G. monspessulana*, *G. linifolia*, and *C. villosa*, 28 ex. v., JLR.; L14; 25/VII/2020, nect. on *R. ulmifolius*, 4 ex. v., JLR.; L14; 16/V/2021, 4 ex. v., JLR.; L14; 17/X/2021, nect. on *D. viscosa*, 6 ex. v., JLR.; **L17**; 03/V/2019, perch. and flying over *G. linifolia*, 6 ex. v., JLR.; **L23**; 15/V/2021, 1 ex. v., JLR.; **L28**; 12/VII/2020, 1 ex. v., JLR.; **L34**; 04/V/2023, 8 ex. v., JLR.; **L35**; 22/V/2019, 3 ex. v., JLR.; L35; 26/V/2019, 4 ex. v., JLR.; **L36**; 28/II/2020, 1 ex. v., JLR.; L36; 29/VI/2020, 2 ex. v., JLR.; L36; 25/III/2021, 3 ex. v., JLR.; L36; 17/X/2021, 2 ex. v., JLR.; L36; 05/V/2023, 17 ex. v., JLR.; L36; 20/XI/2023, very worn, 7 ex. v., JLR.; **L37**; 09/VI/2021, 2 ex. v., JLR.; **L41**; 28/VI/2019, nect. on *M. suaveolens* and *R. ulmifolius*, 10 ex. v., JLR.; L41; 05/VII/2019, nect. on *M. suaveolens* and *R. ulmifolius*, 16 ex. v., JLR.; L41; 27/IX/2019, nect. on *M. suaveolens* and *R. ulmifolius*, 9 ex. v., JLR.; L41; 10/VII/2020, nect. on *R. ulmifolius*, *L. rectus*, and *M. suaveolens*, 19 ex. v., JLR.; L41; 14/V/2021, perch. on *L. rectus*, 4 ex. v., JLR.; **L43**; 07/VI/2019, 5 ex. v., JLR.; L43; 15/VII/2019, nect. on *R. ulmifolius*, very worn, 1 ex. v., JLR.; **L44**; 06/VI/2019, perch. on *Genista monspeliensis*, 2 ex. v., JLR.;

L60; 15/IX/2019, nect. on *L. rectus*, 1 ex. v., JLR.; **L62**; 03/IX/2019, 1 ex. v., EZ.; **L63**; 12/VI/2021, nect. on *G. linifolia*, 2 ex. v., JLR.; **L66**; 26/V/2019, 10 ex. v., JLR.; L66; 06/VI/2020, nect. on *S. boivinii* and *L. stoechas*, 11 ex. v., JLR.; L66; 21/VI/2020, nect. on *L. stoechas*, *C. crispus*, and perch. on *C. villosa*, *G. linifolia*, and *Q. suber*, 52 ex. v., JLR.; **L69**; 23/III/2019, 1 ex. v., EZ.; **L73**; 06/VI/2020, nect. on *D. gerardi* and *L. stoechas*, 16 ex. v., JLR.; L73; 11/V/2019, 2 ex. v., JLR.; **L74**; 11/V/2019, 1 ex. v., JLR.; **L82**; 26/IX/2021, nect. on *L. rectus*, *M. suaveolens*, and *D. viscosa*, 18 ex. v., JLR.; **L88**; 06/VI/2020, nect. on *M. suaveolens*, 4 ex. v., JLR.; **L92**; 23/III/2019, 1 ex. v., EZ.; **L112**; 02/VII/2020, nect. on *Trifolium* sp. and *Leontodon* sp. in a lawn bed, 8 ex. v., JLR.; **L113**; 01/XI/2023, 1 ex. v., JLR.; **L124**; 10/VI/2020, 5 ex. v., JLR.; **L130**; 07/V/2023, 8 ex. v., JLR.; L130; 16/VI/2020, 15 ex. v., JLR.; **L132**; 20/VI/2020, nect. on *V. karroo*, *G. linifolia*, and perch. on *P. lentiscus*, 57 ex. v., JLR.; L132; 14/VII/2020, nect. on *V. karroo*, 9 ex. v., JLR.; L132; 13/VI/2022, nect. on *V. karroo*, 2 ex. v., JLR.; **L133**; 19/IV/2021, 1 ex. v., JLR.; **L134**; 16/VI/2020, nect. on *P. lophantha*, 9 ex. v., JLR.; **L139**; 15/V/2019, nect. on *R. ulmifolius*, 1 ex. v., JLR.; L139; 29/VI/2019, nect. on *R. ulmifolius*, 5 ex. v., JLR.; **L141**; 06/V/2020, 2 ex. v., JLR.; **L145**; 14/II/2021, nect. on *G. linifolia*, 2 ex. v., JLR.; L145; 01/XI/2023, nect. on *D. viscosa*, 2 ex. v., JLR.; L145; 05/XI/2023, nect. on *D. viscosa*, 1 ex. v., JLR.; **L151**; 02/X/2021, nect. on *S. rosmarinus*, 17 ex. v., JLR.; L151; 20/X/2021, nect. on *S. rosmarinus*, 9 ex. v., JLR.; L151; 09/IX/2023, nect. on *S. rosmarinus*, 19 ex. v., JLR.; L151; 24/IX/2023, nect. on *S. rosmarinus*, 23 ex. v., JLR.; **L154**; 11/IV/2021, perch. on *G. linifolia*, 7 ex. v., JLR.; L154; 26/V/2019, perch. on *G. linifolia*, 15 ex. v., JLR.; L154; 06/X/2019, perch. on *G. linifolia*, 2 ex. v., JLR.; **L156**; 29/IV/2024, nect. on *P. maritima* and flying over and perching on *G. linifolia*, 37 ex. v., JLR.; **L157**; 18/V/2020, nect. on *G. linifolia*, 7 ex. v., JLR.; L157; 09/VI/2020, nect. on *G. linifolia*, 6 ex. v., JLR.; L157; 23/III/2021, 3 ex. v., JLR.; L157; 02/X/2021, perch. on *G. linifolia*, 8 ex. v., JLR.

Comment: First records for Ceuta, with observations from 40 localities within 18 1×1 km UTM squares, spanning February to December, peaking between April and July. Imagines have been observed feeding on *G. linifolia*, *S. junceum*, *Thymus* sp., *G. monspessulana*, *C. coronata*, *D. viscosa*, *P. lentiscus*, *L. rectus*, *M. suaveolens*, *R. ulmifolius*, *L. stoechas*, *C. crispus*, *C. corymbosa*, *P. maritima*, *C. villosa*, *D. gnidium*, and *P. lophantha*. Additionally, egg-laying was detected on *G. linifolia*, a potential new host plant for the species (Clarke, 2023), which may explain the observed concentrations of individuals on this legume.

Lycaena phlaeas (Linnaeus, [1761]) (Lycaenidae) *****

L4; 17/VI/2019, 1 ex. v., JLR.; **L5**; 19/III/2019, 1 ex. v., EZ.; L5; 11/III/2020, 1 ex. v., JLR.; L5; 19/V/2020, nect. on *S. atropurpurea* and *P. maritima*, 3 ex. v., JLR.; L5; 06/V/2021, nect. on *Crepis* sp., 2 ex. v., JLR.; L5; 25/III/2021, nect. on *Crepis* sp. and *Leontodon* sp., 2 ex. v., JLR.; **L6**; 19/V/2020, nect. on *P. maritima*, 2 ex. v., JLR.; L6; 11/VI/2022, nect. on *P. maritima*, 9 ex. v., JLR.; L6; 12/VI/2022, nect. on *P. maritima*, 1 ex. v., JLR.; **L13**; 13/VI/2020, nect. on *Crepis* sp. and *S. atropurpurea*, 2 ex. v., JLR.; L13; 08/V/2021, nect. on *P. odora*, 1 ex. v., JLR.; L13; 27/VI/2021, nect. on *S. atropurpurea*, 1 ex. v., JLR.; **L14**; 04/VIII/2019, 1 ex. v., JLR.; **L19**; 27/VI/2021, nect. on *S. atropurpurea*, 3 ex. v., JLR.; **L21**; 27/VI/2021, nect. on *M. suaveolens* and *A. integrifolia*, 2 ex. v., JLR.; L21; 29/VI/2023, nect. on *S. atropurpurea*, 2 ex. v., JLR.; **L22**; 12/VII/2020, nect. on *T. barbata*, 1 ex. v., JLR.; L22; 01/IV/2021, 5 ex. v., JLR.; **L27**; 27/VII/2019, nect. on *M. suaveolens*, 2 ex. v., JLR.; L27; 29/VI/2021, nect. on *S. atropurpurea*, 2 ex. v., JLR.; **L28**; 12/III/2020, 1 ex. v., JLR.; L28; 05/III/2023, 1 ex. v., JLR.; **L34**; 04/V/2023, 2 ex. v., JLR.; **L35**; 04/VII/2019, 1 ex. v., JLR.; L35; 22/V/2019, perch. on *P. odora*, 1 ex. v., JLR.; L35; 22/V/2020, nect. on *P. spinosa* and *P. odora*, 5 ex. v., JLR.; **L36**; 25/III/2021, 1 ex. v., JLR.; L36; 05/V/2023, 2 ex. v., JLR.; L36; 20/XI/2023, 2 ex. v., JLR.; **L37**; 02/IX/2019, 1 ex. v., EZ.; **L41**; 05/IX/2020, nect. on *M. suaveolens*, 1 ex. v., JLR.; **L43**; 28/VII/2019, nect. on *M. suaveolens*, 1 ex. v., JLR.; **L59**; 19/III/2019, 1 ex. v., EZ.; **L60**; 15/IX/2019, nect. on *Eryngium* sp. Tourn. ex L., 2 ex. v., JLR.; **L62**; 03/IX/2019, 2 ex. v.,

EZ.; L62; 04/IX/2019, 1 ex. v., EZ.; **L66**; 26/V/2019, 1 ex. v., JLR.; **L73**; 16/VI/2019, 2 ex. v., JLR.; **L80**; 08/VI/2019, nect. on *D. carota*, *P. spinosa*, *P. odora*, and *S. atropurpurea*, 7 ex. v., JLR.; **L83**; 12/VI/2022, 2 ex. v., JLR.; **L88**; 08/V/2021, 3 ex. v., JLR.; L88; 17/IV/2021, 3 ex. v., JLR.; **L90**; 13/IX/2019, 1 ex. v., JLR.; **L94**; 11/V/2019, 2 ex. v., JLR.; L94; 06/VI/2020, 2 ex. v., JLR.; **L132**; 13/VI/2022, nect. on *V. karroo*, 2 ex. v., JLR.; **L133**; 11/IV/2021, 1 ex. v., JLR.; **L142**; 02/V/2020, 1 ex. v., JLR.; **L145**; 01/XI/2023, 1 ex. v., JLR.; **L157**; 18/V/2020, nect. on *P. spinosa*, 1 ex. v., JLR.; L157; 23/III/2021, 2 ex. v., JLR.

Comment: Previously mentioned for "Ceuta and surroundings" by Bacallado Aránega *et al.* (2012) without precise records. Observations were collected from 31 localities within 16 1×1 km UTM squares, spanning from March to November. While widely distributed throughout the study area, most records correspond to single or very few individuals, suggesting that the species is relatively scarce. Adults have been observed nectaring on *S. atropurpurea*, *P. maritima*, *Crepis* sp., *Leontodon* sp., *P. odora*, *M. suaveolens*, *A. integrifolia*, *T. barbata*, *P. spinosa*, *D. carota*, *Eryngium* sp., and *V. karroo*.

Polyommatus celina (Austaut, 1879) (Lycaenidae) **

L4; 16/V/2019, 1 ex. v., JLR.; L4; 08/V/2020, nect. on *Lotus* sp. L., 3 ex. v., JLR.; L4; 22/V/2020, 1 ex. v., JLR.; **L5**; 11/III/2020, perch. on *Medicago* sp. L. and other creeping herbs, 15 ex. v., JLR.; L5; 29/IV/2020, 7 ex. v., JLR.; L5; 23/V/2020, nect. on *Leontodon* sp. and perch. on grasses, 18 ex. v., JLR.; **L13**; 25/VII/2020, nect. on *Leontodon* sp., 1 ex. v., JLR.; L13; 08/V/2021, 1 ex. v., JLR.; L13; 14/V/2022, 1 ex. v., JLR.; **L14**; 13/VI/2020, 1 ex. v., JLR.; **L17**; 02/II/2020, 3 ex. v., JLR.; **L22**; 12/VII/2020, nect. on *M. suaveolens* and *T. barbata*, 12 ex. v., JLR.; **L25**; 13/VI/2019, 3 ex. v., JLR.; L25; 12/VI/2021, nect. on *M. pulegium* and *L. tenue*, 4 ex. v., JLR.; **L26**; 27/VII/2020, 4 ex. v., JLR.; **L27**; 27/VII/2020, nect. on *T. caeruleum* and *T. barbata*, very fresh, 6 ex. v., JLR.; L27; 29/VI/2021, nect. on *R. ulmifolius*, 4 ex. v., JLR.; **L35**; 07/VI/2019, 3 ex. v., JLR.; **L36**; 29/VI/2020, 1 ex. v., JLR.; **L37**; 09/VI/2021, 1 ex. v., JLR.; **L41**; 28/VI/2019, nect. on *M. suaveolens*, 3 ex. v., JLR.; L41; 05/VII/2019, nect. on *M. suaveolens*, 5 ex. v., JLR.; L41; 10/VII/2020, perch. on grasses, on *Leontodon* sp. and *M. suaveolens*, 12 ex. v., JLR.; **L42**; 16/VI/2019, nect. on *M. pulegium*, 2 ex. v., JLR.; **L43**; 07/VI/2019, nect. on *Crepis* sp., 1 ex. v., JLR.; **L60**; 15/IX/2019, nect. on *Eryngium* sp. and *M. suaveolens*, 3 ex. v., JLR.; **L66**; 06/VI/2020, 3 ex. v., JLR.; L66; 21/VI/2020, nect. on *Crepis* sp., *L. stoechas*, and *S. atropurpurea*, 4 ex. v., JLR.; **L69**; 23/III/2019, 1 ex. v., EZ.; **L73**; 11/V/2019, nect. on *Lotus* sp., 2 ex. v., JLR.; **L75**; 13/VI/2022, nect. on *R. ulmifolius*, 6 ex. v., JLR.; **L80**; 08/VI/2019, nect. on *P. spinosa* and *S. atropurpurea*, 2 ex. v., JLR.; **L88**; 22/VI/2019, nect. on *M. suaveolens*, 3 ex. v., JLR.; L88; 06/VI/2020, nect. on *M. suaveolens* and *M. pulegium*, 3 ex. v., JLR.; L88; 12/VII/2020, nect. on *M. suaveolens* and *M. pulegium*, 5 ex. v., JLR.; L88; 25/VII/2020, nect. on *M. suaveolens*, 15 ex. v., JLR.; L88; 08/V/2021, 4 ex. v., JLR.; L88; 15/V/2021, 2 ex. v., JLR.; L88; 12/VI/2021, nect. on *M. pulegium*, very worn, 4 ex. v., JLR.; L88; 15/V/2022, 1 ex. v., JLR.; L88; 21/V/2022, nect. on *M. pulegium*, 1 ex. v., JLR.; **L94**; 12/VI/2019, nect. on *M. suaveolens*, 5 ex. v., JLR.; L94; 06/VI/2020, 3 ex. v., JLR.; **L112**; 02/VII/2020, nect. on *Trifolium* sp. and *Leontodon* sp. in a lawn bed, 5 ex. v., JLR.; **L130**; 07/V/2023, 1 ex. v., JLR.; L130; 16/VI/2020, 2 ex. v., JLR.; **L132**; 20/VI/2020, 6 ex. v., JLR.; L132; 14/VII/2020, nect. on *V. karroo*, 1 ex. v., JLR.; L132; 19/IV/2021, 1 ex. v., JLR.; **L141**; 06/V/2020, 1 ex. v., JLR.; **L142**; 17/V/2020, 3 ex. v., JLR.; **L144**; 01/V/2021, 1 ex. v., JLR.; **L154**; 26/V/2019, 1 ex. v., JLR.

Comment: First records for Ceuta. Observations were made from 30 localities within 16 1×1 km UTM squares. Adults appear from February to September, with no observations in August. The highest numbers were recorded in May and June, suggesting that peak activity occurs in spring and early summer. Adults were observed nectaring on *Lotus* sp., *Medicago* sp., *Leontodon* sp., *M. suaveolens*, *T. barbata*, *L. tenue*, *T. caeruleum*, *R. ulmifolius*, *Eryngium* sp., *L. stoechas*, *S. atropurpurea*, *P. spinosa*, and *V. karroo*.

Satyrium esculi (Hübner, [1804]) (Lycaenidae) **

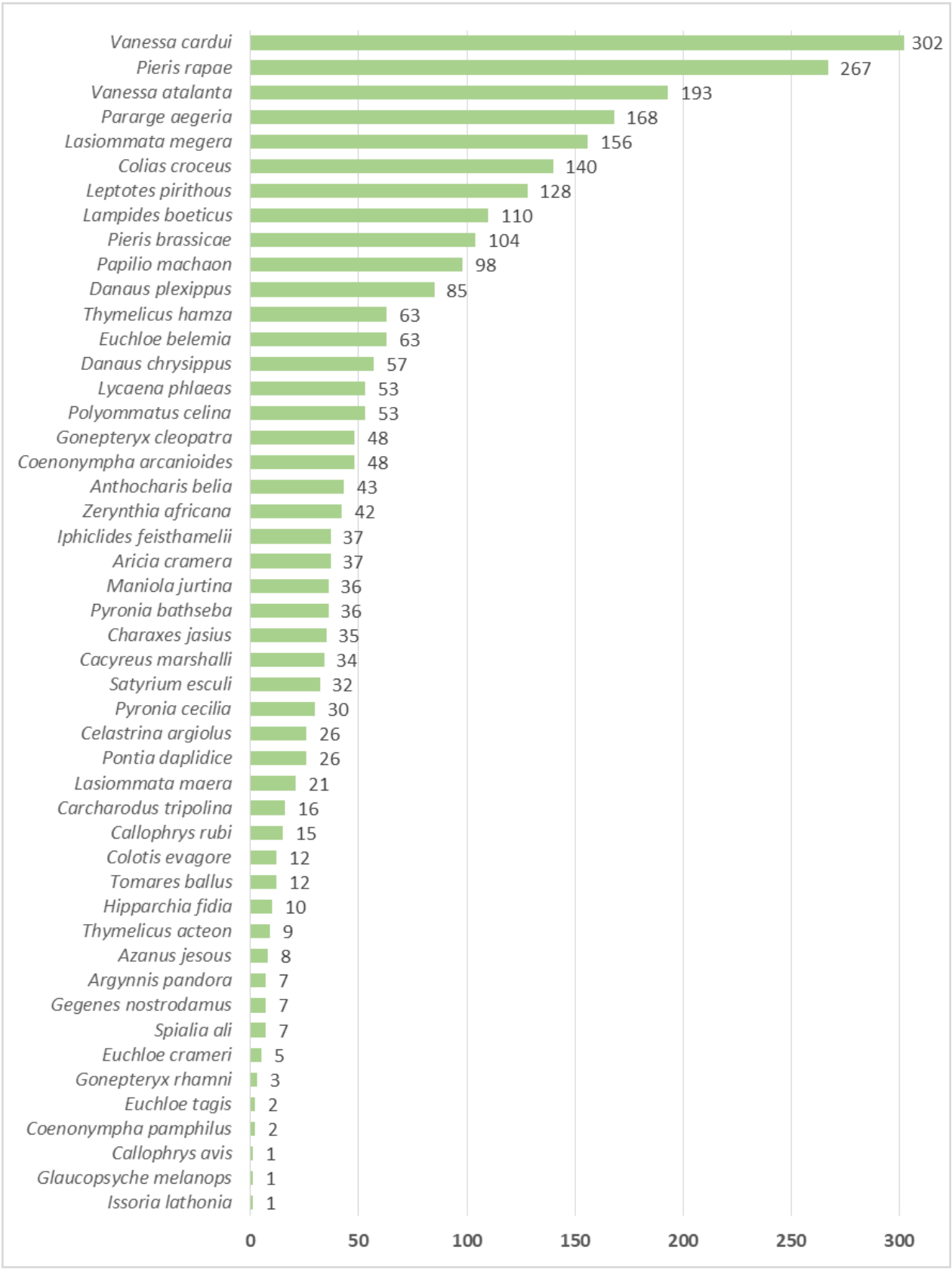
L4; 24/V/2019, perch. on *Q. suber* sapling, nect. on new shoots, 1 ex. v., JLR.; L4; 05/VI/2019, 1 ex. v., JLR.; L4; 17/VI/2019, nect. on *Q. suber*, 3 ex. v., JLR.; L4; 20/VI/2019, nect. on *D. carota*, 1 ex. v., JLR.; L4; 22/V/2020, nect. on *S. atropurpurea* and perch. on *Q. suber*, 5 ex. v., JLR.; L4; 29/V/2020, perch. on *Q. suber*, 6 ex. v., JLR.; L4; 17/VI/2020, nect. on *S. atropurpurea* and perch. on *Q. suber* leaves, 9 ex. v., JLR.; L4; 19/VI/2020, nect. on *G. linifolia* and *Q. suber* leaves, 5 ex. v., JLR.; **L12**; 21/VI/2020, nect. on *S. atropurpurea* and perch. on *Q. suber*, 5 ex. v., JLR.; L12; 14/VI/2021, nect. on *S. atropurpurea* and perch. on *Q. suber*, 7 ex. v., JLR.; **L25**; 13/VI/2019, nect. on *T. caeruleum*, 1 ex. v., JLR.; **L29**; 22/VI/2019, perch. on *Q. suber*, 3 ex. v., JLR.; **L35**; 07/VI/2019, nect. on *Q. suber*, 1 ex. v., JLR.; L35; 29/VI/2020, nect. on *D. carota*, 2 ex. v., JLR.; **L36**; 15/VI/2019, 3 ex. v., JLR.; L36; 21/VI/2020, 3 ex. v., JLR.; L36; 29/VI/2020, nect. on *D. carota*, 4 ex. v., JLR.; **L37**; 09/VI/2021, perch. on *Q. suber*, 12 ex. v., JLR.; **L43**; 07/VI/2019, perch. on *Q. suber*, 5 ex. v., JLR.; **L44**; 06/VI/2019, perch. on *Q. suber* leaves, 8 ex. v., JLR.; **L63**; 12/VI/2021, nect. on *D. carota*, 2 ex. v., JLR.; **L66**; 26/V/2019, perch. on *Q. suber*, 2 ex. v., JLR.; L66; 13/VI/2019, perch. on *Q. suber*, 5 ex. v., JLR.; L66; 06/VI/2020, nect. on *L. stoechas*, *C. crispus*, and perch. on *Q. suber*, 13 ex. v., JLR.; L66; 21/VI/2020, nect. on *L. stoechas* and perch. on *Q. suber*, 29 ex. v., JLR.; **L73**; 06/VI/2020, nect. on *D. gerardi*, 18 ex. v., JLR.; **L74**; 13/VI/2022, perch. on young *Q. suber* leaves, 3 ex. v., JLR.; **L75**; 13/VI/2022, nect. on *R. ulmifolius* and *D. carota*, 10 ex. v., JLR.; **L76**; 16/VI/2019, nect. on *Q. suber*, 1 ex. v., JLR.; **L80**; 08/VI/2019, nect. on *D. carota*, *P. spinosa*, and *S. atropurpurea* and perch. on *Q. suber*, 21 ex. v., JLR.; **L88**; 06/VI/2020, nect. on *D. carota* and *Diplotaxis* sp., 4 ex. v., JLR.

Comment: First records for Ceuta, based on observations from 17 localities within 9 1×1 km UTM squares. The species has a flight period primarily from May to June, with additional observations in September. It is usually associated with formations or small stands of *Q. suber*. Adults have been observed nectaring on *S. atropurpurea*, *D. carota*, *T. caeruleum*, *R. ulmifolius*, *L. stoechas*, *C. crispus*, *D. gerardi*, *P. spinosa*, and *Diplotaxis* sp. The most likely larval host plant in Ceuta is *Q. suber*, as adults have frequently been seen flying and perching around it. Notably, *S. esculi* has been reported as a defoliator of cork oak (*Q. suber*) in southern Iberia (Robles *et al.*, 2020) and is closely associated with other *Quercus* species across its range (García-Barros *et al.*, 2013). Northern African populations, including the one in Ceuta, belong to the subspecies *S. esculi mauretanica* (Staudinger, 1892) (Rungs, 1981; Tennent, 1996; Tarrier & Delacre, 2008; Leraut, 2016; Tarrier, 2025c).

Tomares ballus (Fabricius, 1787) (Lycaenidae) **

L5; 11/III/2020, 2 ex. v., JLR.; L5; 18/III/2021, 3 ex. v., JLR.; L5; 25/III/2021, 5 ex. v., JLR.; L5; 19/III/2023, perched on grasses, 3 ex. v., JLR.; **L18**; 20/III/2019, 1 ex. v., EZ.; **L22**; 01/IV/2021, 1 ex. v., JLR.; **L23**; 18/IV/2021, nect. on *L. stoechas*, very worn, 1 ex. v., JLR.; **L28**; 12/III/2020, 2 ex. v., JLR.; **L69**; 23/III/2019, 1 ex. v., EZ.; **L132**; 09/III/2020, 3 ex. v., 2 ex. coll., JLR.; L132; 10/III/2021, 1 ex. v., JLR.

Comment: Observed from 7 localities within 5 1×1 km UTM squares, denoting its first documented occurrence in Ceuta. Adults were seen in flight during March and April, with most sightings in March, consistent with the univoltine flight period reported for Morocco (e.g., Tennent, 1996; Tarrier & Delacre, 2008). Based on current data, *T. ballus* appears to be scarce and localised within the study area. Adults have been observed nectaring on *L. stoechas*. The Ceuta population, along with those occurring in Morocco, belongs to the nominal subspecies *T. ballus ballus* (Fabricius, 1787) (Tennent, 1996; Tarrier & Delacre, 2008; Leraut, 2016; Tarrier, 2025c).



Graph 1.- Observation frequency of the different species of Papilionoidea present in Ceuta. Number of records for each species over the entire study period.

Final comments

The fieldwork conducted over the past five years, featuring extensive territorial coverage (Figs. 1, 2; Annex I), has significantly advanced our understanding of the lepidopteran community present in the Autonomous City of Ceuta. It also establishes a crucial faunistic foundation for further ecological, biogeographical, bionomic, and evolutionary studies. A total of 48 species have been recorded, representing 18.4% of all species documented in Spain, 260 spp. according to ZERYNTHIA Association (2025), and 9.5% of those known in the European Union (Wiemers *et al.*, 2018; Monasterio León *et al.* 2020). Given Ceuta's limited area, just 19.7 km², of which 6.8 km² is urban or peri-urban land, and with a very narrow altitudinal range (0–358 m a.s.l.), this is a remarkably high figure. In comparison with Morocco, where approximately 141 species have been recorded (see Tennent, 1996; Tarrier & Delacre, 2008); Tarrier, 2019, 2025a, 2025b, 2025c, 2025d, 2025e; Leraut, 2016; Zhang *et al.*, 2020; and Cassa *et al.*, 2025), Ceuta harbours 34% of that country's total butterfly diversity. This comparison is particularly relevant given the disparities in species richness on either side of the Strait of Gibraltar and Ceuta's biogeographical contextualization as part of the Maghreb region.

From a qualitative perspective, the autonomous cities of Ceuta and Melilla hold significant biological interest, as they contribute Maghreb-native or endemic species to the Spanish fauna. Ceuta is the only Spanish territory where *Zerynthia africana*, *Anthocharis belia*, *Spialia ali*, *Thymelicus hamza*, and *Coenonympha arcanioides* have been recorded (Monasterio *et al.*, 2019a, 2020; this paper), along with *Papilio saharae*, which is reported here for the first time and would also be present in the Autonomous City of Melilla. Additionally, Ceuta hosts North African subspecies of widely distributed taxa. Meanwhile, Melilla is known to support a population of *Tomares mauretanicus* (Lucas, 1849) (Velázquez González, 1984). Furthermore, Ceuta is home to populations of three species that are highly localised and rare in the Maghreb, *Lasiommata maera*, *Euchloe tagis*, and *Danaus plexippus* (see comment for these species), highlighting the conservation importance of the study area. Notably, the first two species are confined to a small dolomitic outcrop within the Natura 2000 network site Calamocarro-Benzú, an area with a high concentration of plant endemisms (Ugarte *et al.*, 2003a).

Most of the species recorded in Ceuta (45 spp., 93.7%) were found within its two protected Natura 2000 Network sites (Table I), underscoring their conservation value. All 45 species were recorded in Calamocarro-Benzú, while 23 were recorded in the Acantilados del Monte Hacho site. This distribution aligns with the larger area (601.8 ha vs. 31 ha) and greater habitat diversity of the former (Chamorro, 1995; Ugarte *et al.*, 2003a; www.rednatura2000ceuta.es). Among Ceuta's three principal environmental units (Table I), the Campo Exterior hosts all recorded species, followed by Monte Hacho (29 spp., 60.4%), and lastly, the Isthmus-urban core (19 spp., 39.6%), where species were primarily observed in gardens, non-built-up areas with ruderal vegetation, and along the urban-forest interface. While Monte Hacho has significantly fewer species than the Campo Exterior, it is plausible that subpopulations of certain species yet to be recorded in this territorial unit (e.g., *Euchloe crameri*, *Gonepteryx cleopatra*, *Coenonympha arcanioides*, *Hipparchia fidia*, *Pyronia cecilia* or *Satyrium esculi*) may still be discovered.

These findings highlight the need for continued research on Ceuta's butterfly fauna, integrating ongoing fieldwork with targeted ecological studies to ensure long-term monitoring and conservation of this valuable lepidopteran community.

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Annex I.– Localities table (Autonomous City of Ceuta, Spain).

The coordinates offered are in UTM MGRS format with a precision of 1x1 km per side. To maintain geographical and cultural accuracy, the names of the localities have been kept in their original Spanish form, as many of them refer to specific toponyms, informal place names or local references.

Locality number	Coordinate	Name of the locality	Altitude (m)
L1	30STE8573	Pista hacia Finca Berrocal	160
L2	30STE8575	Aranguren	225
L3	30STE8576	Mogote de Benzú, Yacimiento del Abrigo	58
L4	30STE8576	Parcela 114-OBIMASA	45-165
L5	30STE8576	Mirador de Benzú e inmediaciones	132
L6	30STE8576	Mogote de Benzú	12-105
L7	30STE8576	Alcornocal de Benzú	85-95
L8	30STE8576	Mirador de Beliones	165
L9	30STE8576	Aranguren	210
L10	30STE8576	Barranco Central, Benzú	100
L11	30STE8577	Barriada Benzú	10
L12	30STE8673	Torre Francisco de Asís	247-268
L13	30STE8673	Torre Piniers y alrededores	120-192
L14	30STE8673	Parcela K	120-192
L15	30STE8673	Curva Viudas-Pista Perreras Legión	215-225
L16	30STE8673	Pista Piniers a Finca Berrocal	171
L17	30STE8673	Cercanías de Piniers-Parcela K	125-156
L18	30STE8673	Cercanías Francisco de Asís, Pista Perreras Legión	225-240
L19	30STE8673	Cabecera Arroyo de la Aguada	227
L20	30STE8673	Pista Mendicuti-cercanías área aeromodelismo	134
L21	30STE8674	Área Recreativa Isabel II	290-295
L22	30STE8674	Pista Perreras Legión-Parcela 260	240-265
L23	30STE8674	Cercanías Finca Berrocal	215-230
L24	30STE8674	Loma Luengo	223-238
L25	30STE8674	Pista Mendicuti	193-265
L26	30STE8674	Loma de las Codornices	223
L27	30STE8674	Crtra. Autonómica nº 2	280
L28	30STE8674	Pista Perreras Legión-Cerro de los Buitres	244-276
L29	30STE8674	Mirador Isabel II	260-294
L30	30STE8674	Acuartelamiento García-Aldave	285
L31	30STE8674	Torre de Isabel II	283
L32	30STE8674	Torre de Francisco de Asís (subida)	263-277
L33	30STE8674	Cercanías Loma de las Arvejas	203
L34	30STE8674	Sendero Isabel II-Carretera del Embalse	253
L35	30STE8675	Pista Loma de la Lastra	173-285
L36	30STE8675	Monte de la Tortuga	287-303
L37	30STE8675	Sidi Bou Draus-Pista Lastra	181-205
L38	30STE8675	Campo de Tiro Renegado	245
L39	30STE8675	Pista de los Cazadores-oeste	230
L40	30STE8675	Loma de la Lastra	261-271
L41	30STE8676	Arroyo Calamocarro	9-50
L42	30STE8676	Pista del Cojo	67-130
L43	30STE8676	La Chocolata-Pista Lastra	165-169
L44	30STE8676	Alcornocal de Benzú	65-84
L45	30STE8676	Inmediaciones Batería K-8	73
L46	30STE8676	Finca Serrano-Torre Alquería	145
L47	30STE8676	Barranco de Calamocarro	19-43
L48	30STE8676	Inmediaciones Residencia Canina	14-23
L49	30STE8676	Apartadero ctra. N-362	183
L50	30STE8676	La Ventolera (inmediaciones), Cuenca Arroyo Calamocarro (desembocadura)	17
L51	30STE8676	Llano en cercanías Loma de los Huesos	78
L52	30STE8676	Pista del Cojo-Calamocarro, La Ventolera	15
L53	30STE8676	Pista Loma Huesos-Calamocarro, La Ventolera	15

Locality number	Coordinate	Name of the locality	Altitude (m)
L54	30STE8677	Entrada a Acuartelamiento K-8, Benzú	58
L55	30STE8677	Ctra. N-354, E. de Benzú	10
L56	30STE8677	Benzú-alrededores Colegio	40
L57	30STE8677	Cercanías Barriada Benzú	8
L58	30STE8677	Carretera Autonómica nº 2, cercanías de K-8, Benzú	50-58
L59	30STE8772	Senda Fuerte Mendizábal	23-106
L60	30STE8773	Arroyo de la Aguada-cercanías Presa Pequeña	74-98
L61	30STE8773	Cola del Embalse Infierno	63-87
L62	30STE8773	Arroyo del Infierno	70-87
L63	30STE8774	Crtra. Embalse-Loma de las Arvejas	145
L64	30STE8774	Arroyo de la Aguada-Embalse Infierno	95
L65	30STE8774	Arroyo de la Aguada-Presa Pequeña	89
L66	30STE8774	Pista Mendicuti	160-191
L67	30STE8774	Parcela 193-Pista aeromodelismo	147
L68	30STE8774	Arroyo del Renegado-tramo bajo-Cola embalse	113-117
L69	30STE8774	Cola del Embalse Infierno	67-88
L70	30STE8774	Cercanías Loma de las Arvejas	132-193
L71	30STE8774	Loma Luengo	185
L72	30STE8774	Complejo Rural Miguel de Luque	70
L73	30STE8775	Pista de los Cazadores	121-235
L74	30STE8775	Polvorín del Renegado	82-189
L75	30STE8775	Centro Ecuestre (suroeste)	84
L76	30STE8775	Monte del Renegado (este)	235
L77	30STE8775	Arroyo San José (este)	12-142
L78	30STE8775	Campo Tiro El Jaral	79
L79	30STE8775	Centro Hípico (frente oeste), El Jaral	87
L80	30STE8776	Parcela 54, Pista Lastra	123-144
L81	30STE8776	Pista Lastra, a nivel del Arroyo San José	126
L82	30STE8776	Arroyo Calamocarro (desembocadura)	9
L83	30STE8776	Merendero de Calamocarro	32
L84	30STE8776	Carretera N-354-Punta Blanca	2-7
L85	30STE8776	Finca Ferrer, Calamocarro	5-18
L86	30STE8776	Los Hornillos	72
L87	30STE8776	Pista Lastra Baja	92-84
L88	30STE8874	Azud del Infierno e inmediaciones	28-45
L89	30STE8874	Carretera del Embalse (este)	54
L90	30STE8874	Arroyo del Infierno-entre Presa y Azud	30-51
L91	30STE8874	Instalaciones CEPSA-Benítez	27
L92	30STE8874	Embalse del Infierno	59-63
L93	30STE8874	Complejo Rural Miguel de Luque	69
L94	30STE8875	Barriada Postigo, Pista acceso a ETAP	25-71
L95	30STE8875	Carretera N-354, a nivel de El Jaral	5
L96	30STE8875	Carretera a Embalse	36
L97	30STE8875	Carretera de Benítez-Planta Desaladora	5
L98	30STE8875	Planta Desaladora-Benítez	2-5
L99	30STE8875	Centro Hípico (frente oeste), El Jaral	36
L100	30STE8876	Fuente Punta Bermeja	4
L101	30STE8973	c/ 12 de diciembre (descampado) (área urbana)	53
L102	30STE8973	Estadio Murube-Otero, área urbana	70
L103	30STE8973	Hospital Militar (norte)	38
L104	30STE8973	Acuartelamiento González Tablas-Hadú	79
L105	30STE8974	Loma del Pez (talud) (área urbana)	12
L106	30STE8974	Jardines de la Mutua-Otero (área urbana)	38
L107	30STE8974	Arroyo Guillén-Vereda 133	23
L108	30STE8974	Parques de Ceuta, área urbana	15
L109	30STE8974	Barriada Benítez (área urbana)	5
L110	30STE9073	Murallas Reales (área urbana)	12
L111	30STE9073	Avenida Martínez Catena (área urbana)	10

Locality number	Coordinate	Name of the locality	Altitude (m)
L112	30STE9074	Estación Marítima-Puerto	3
L113	30STE9074	Parque Jardines de Argentina (área urbana)	17-20
L114	30STE9074	Murallas Reales (área urbana)	12
L115	30STE9074	Residencia Galera (área urbana)	11
L116	30STE9074	Plaza de África (área urbana)	12
L117	30STE9074	Avenida Juan Pablo II-Puerto Deportivo (área urbana)	2
L118	30STE9173	Plaza de los Reyes (área urbana)	37
L119	30STE9173	Recinto Sur	30-40
L120	30STE9173	c/ Gral. Serrano Orive-jardín (área urbana)	40
L121	30STE9173	c/ Manuel Lería (talud descampado) (área urbana)	43
L122	30STE9173	c/ Independencia (área urbana)	15
L123	30STE9173	c/ Antioco (área urbana)	23
L124	30STE9174	Parque Marítimo del Mediterráneo (este)	4
L125	30STE9174	Avenida Marina Española (área urbana)	13
L126	30STE9174	Parque Juan Carlos I-Avda. Compañía de Mar	7
L127	30STE9174	Puerto Deportivo (área urbana)	2
L128	30STE9174	Plaza Constitución (área urbana)	14
L129	30STE9273	Recinto sur	53
L130	30STE9274	Sarchal-Inmediaciones antigua Cárcel de Mujeres	2-40
L131	30STE9274	Sendero Fortaleza del Hacho a Pista del Toro	127
L132	30STE9274	Carretera del Hacho-Subida a Fortaleza	76-113
L133	30STE9274	Acantilados Sarchal	33-42
L134	30STE9274	Barriada Sarchal	34-37
L135	30STE9274	Solar El Brull (área urbana)	37-45
L136	30STE9274	Parque San Amaro, Monte Hacho	19-26
L137	30STE9274	Barriada San Amaro (área urbana)	10
L138	30STE9274	Avenida Compañía de Mar-este (área urbana)	5-16
L139	30STE9275	Residencial Pueblo San Antonio, Monte Hacho	47-52
L140	30STE9275	Parque San Amaro, Monte Hacho	25-78
L141	30STE9275	Carretera Santa Catalina-Pino Gordo, Monte Hacho	10-14
L142	30STE9275	Mirador San Antonio, Monte Hacho	90-100
L143	30STE9275	Carretera San Antonio, Monte Hacho	96-100
L144	30STE9374	Fortaleza del Hacho	145-177
L145	30STE9374	Camino de Ronda-Sidi Bel Abbas, Monte Hacho	26-47
L146	30STE9374	Barriada Sarchal (este), Monte Hacho	64
L147	30STE9374	Ladera Sur-Monte Hacho	150
L148	30STE9374	Cala Desnarigado, Monte Hacho	5-56
L149	30STE9375	Ermita San Antonio y cercanías, Monte Hacho	47-120
L150	30STE9375	Cuatro Caminos Monte Hacho	93-117
L151	30STE9375	Parque Santa Catalina y cercanías, Monte Hacho	7-21
L152	30STE9375	Mesón Serafín-Camino a Fortaleza, Monte Hacho	135
L153	30STE9375	Carretera Castillo del Desnarigado	56
L154	30STE9474	Castillo Desnarigado e inmediaciones, Monte Hacho	25-65
L155	30STE9474	Faro-Punta Almina, Monte Hacho	103
L156	30STE9474	Cala Desnarigado, Monte Hacho	9-14
L157	30STE9475	La Sirena-Punta Almina, Acantilados, Monte Hacho	20-104

Table I.- List of butterfly species present in Ceuta, organized by families and in alphabetical order within each family. Species documented for the first time in this autonomous city are marked with a double asterisk (**), while those previously reported generically for Ceuta but without specific data, now supported by precise records, are marked with a single asterisk (*). The table indicates the presence (+) or absence (-) of each species recorded in the Autonomous City of Ceuta across different reference units: UTM 10×10 km grids (30STE87, 30STE97); Natura 2000 network protected areas (C-B = Calamocarro-Benzú; AcMH = Acantilados del Monte Hacho – Monte Hacho Cliffs); and Territorial-Environmental Units (CE = Campo Exterior – Outer Field; Ist-UC = Isthmus-Urban Core; MH = Monte Hacho).

	UTM 10X10 km		NATURA 2000		ENVIRONMENTAL UNITS		
SPECIES	30STE87	30STE97	C-B	AcMH	CE	Ist-UC	MH
PAPILIONIDAE							
Iphiclides feisthamelii **	+	+	+	+	+	-	+
Papilio saharae **	+	+	+	+	+	+	+
Zerynthia africana	+	+	+	+	+	+	+
HESPERIIDAE							
Carcharodus tripolina **	+	+	+	+	+	-	+
Gegenes nostradamus *	+	+	+	+	+	-	+
Spialia ali	+	-	+	-	+	-	-
Thymelicus acteon **	+	-	+	-	+	-	-
Thymelicus hamza	+	+	+	-	+	-	+
PIERIDAE							
Anthocharis belia	+	-	+	-	+	-	-
Colias croceus *	+	+	+	+	+	+	+
Colotis evagore **	+	+	+	+	+	-	+
Euchloe belemia *	+	+	+	+	+	+	+
Euchloe crameri **	+	-	+	-	+	-	-
Euchloe tagis **	+	-	+	-	+	-	-
Gonepteryx cleopatra **	+	-	+	-	+	-	-
Gonepteryx rhamni **	+	-	+	-	+	-	-
Pieris brassicae *	+	+	+	+	+	+	+
Pieris rapae *	+	+	+	+	+	+	+
Pontia daplidice *	+	+	+	+	+	+	+
NYMPHALIDAE							
Argynnis Pandora **	+	-	+	-	+	-	-
Charaxes jasius *	+	+	+	-	+	+	+
Coenonympha arcanioides	+	-	+	-	+	-	-
Coenonympha pamphilus **	+	-	-	-	+	-	-
Danaus chrysippus	+	+	+	+	+	+	+
Danaus plexippus *	+	+	+	+	+	+	+
Hipparchia fidia **	+	-	+	-	+	-	-
Issoria lathonia **	+	-	-	-	+	-	-
Lasiommata maera **	+	-	+	-	+	-	-
Lasiommata megera **	+	+	+	+	+	+	+
Maniola jurtina **	+	-	+	-	+	-	-
Pararge aegeria *	+	+	+	+	+	+	+
Pyronia bathseba **	+	-	+	-	+	-	-
Pyronia cecilia **	+	-	+	-	+	+	-
Vanessa atalanta *	+	+	+	+	+	+	+
Vanessa cardui *	+	+	+	+	+	+	+
LYCAENIDAE							
Aricia cramera **	+	+	+	-	+	-	+
Azanus jesous **	+	+	+	+	+	-	+
Cacyreus marshalli	+	+	+	+	+	+	+
Callophrys avis **	+	-	+	-	+	-	-
Callophrys rubi *	+	+	+	-	+	-	+
Celastrina argiolus **	+	+	+	-	+	-	+
Glaucopsyche melanops **	+	-	-	-	+	-	-
Lampides boeticus *	+	+	+	+	+	+	+

	UTM 10X10 km		NATURA 2000		ENVIRONMENTAL UNITS		
SPECIES	30STE87	30STE97	C-B	AcMH	CE	Ist-UC	MH
Leptotes pirithous **	+	+	+	+	+	+	+
Lycaena phlaeas *	+	+	+	+	+	-	+
Polyommatus celina **	+	+	+	+	+	+	+
Satyrium esculi **	+	-	+	-	+	-	-
Tomares ballus **	+	+	+	-	+	-	+

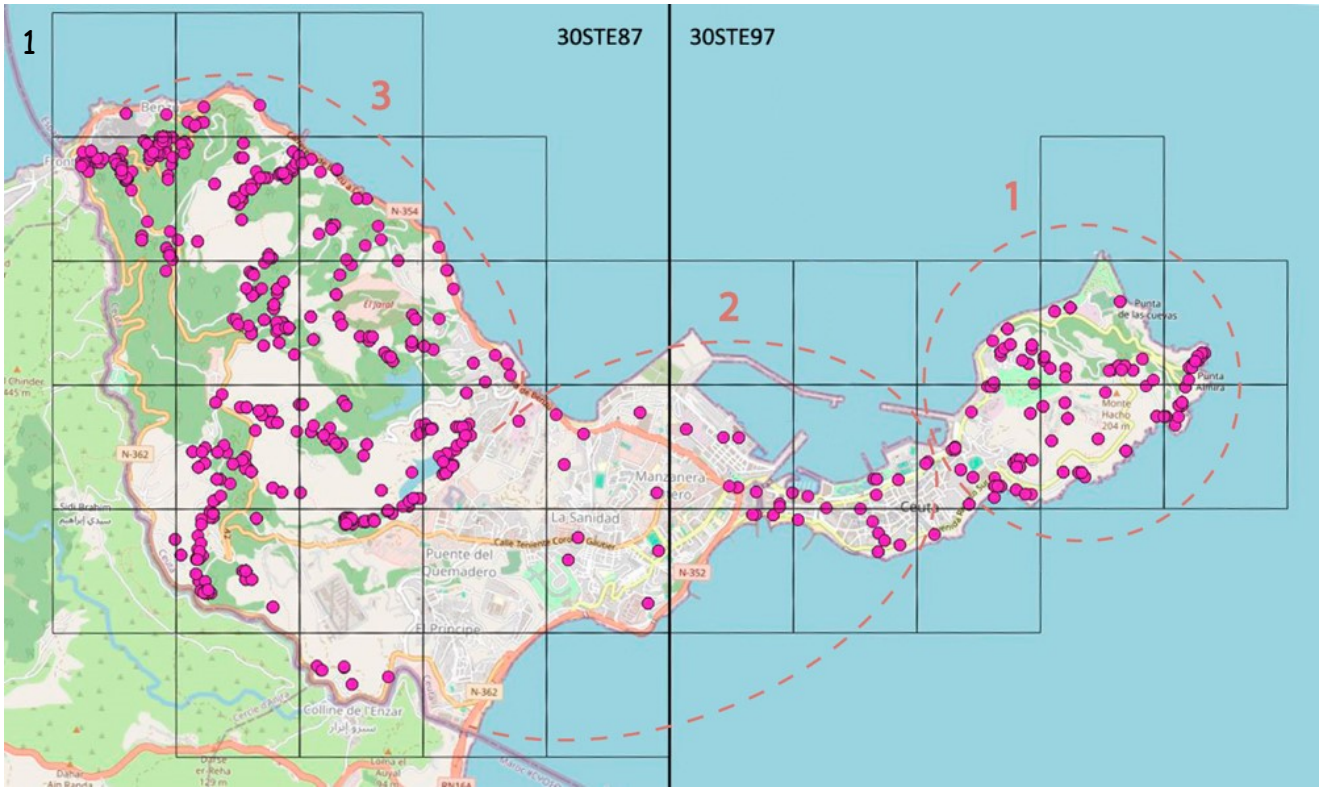

Fig. 1.- Territorial coverage of the study in the Autonomous City of Ceuta. The study area encompasses 2 10x10 km UTM grids and 30 1x1 km UTM grids. All 1×1 km UTM grids have been surveyed, except for two that correspond exclusively to residential areas without natural habitats. The three well-defined territorial and environmental units in Ceuta are indicated with dashed lines: 1) Monte Hacho, a small peninsula with cliffs and natural or reforested vegetation; 2) Isthmus-urban nucleus, a highly urbanized area; 3) Campo Exterior (Outer Field), located to the west, containing most of the city's natural spaces, including the Natura 2000 protected area Calamocarro-Benzú.

Fig. 2.- Adult *Papilio saharae* Oberthür, 1879, flying and nectaring on *Asclepias curassavica* in the surroundings of Embalse del Infierno, Ceuta, Spain. Photograph: Yeray Monasterio.

Fig. 3.- Upperside of *Papilio saharae* Oberthür, 1879. Benzú, Ceuta, Spain. Photograph: Arturo Iglesias.

Fig. 4.- Underside of *Papilio saharae* Oberthür, 1879. Benzú, Ceuta, Spain. Photograph: Teresa Farino.

Fig. 5.- Larvae of *Papilio saharae* Oberthür, 1879 at various developmental stages (from right to left, L2, L3, L4). Reared in captivity, *ex ovo*. Benzú, Ceuta, Spain. Photograph: Yeray Monasterio.

Fig. 6.- Fully developed caterpillar of *Papilio saharae* Oberthür, 1879. Surroundings of Embalse del Infierno, Ceuta, Spain. Photograph: Antonio García Carrillo.

Fig. 7.- Chrysalis of *Papilio saharae* Oberthür, 1879. Surroundings of Embalse del Infierno, Ceuta, Spain. Photograph: Antonio García Carrillo.

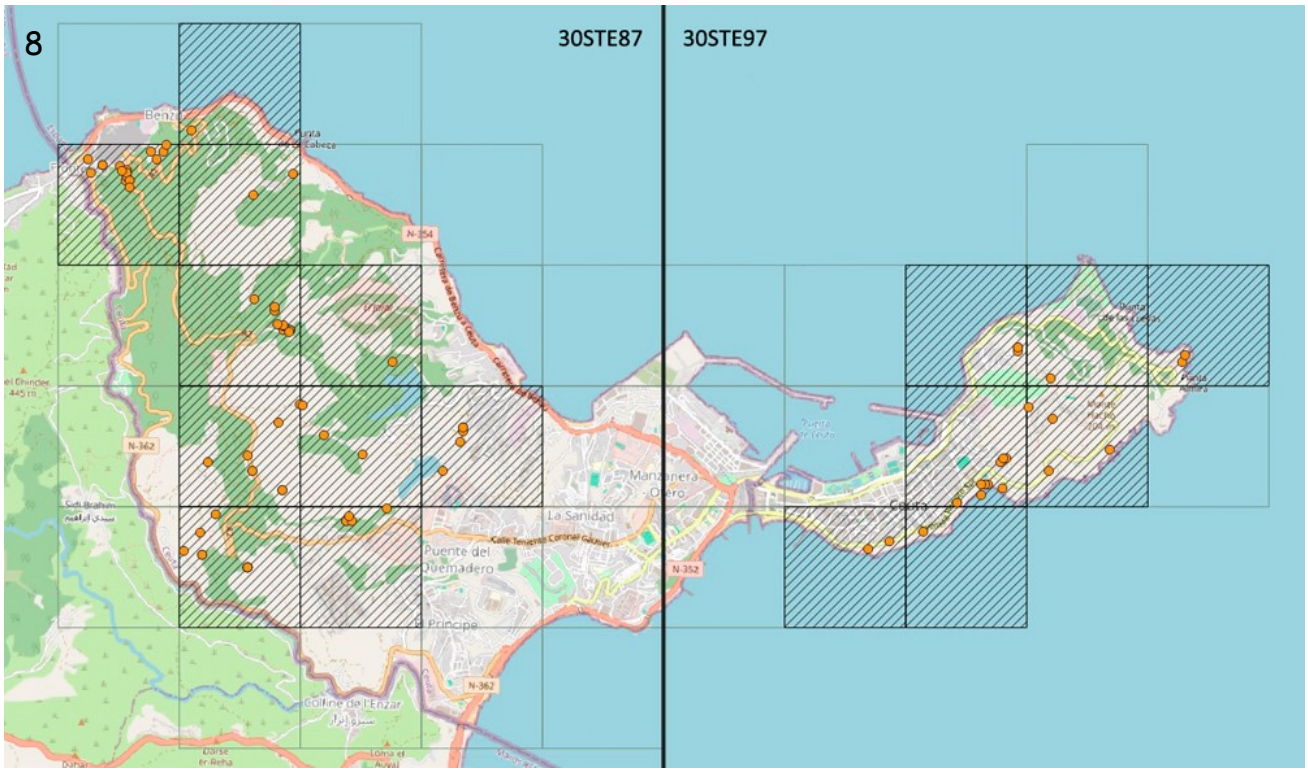

Fig. 8.- Distribution of *Papilio saharae* Oberthür, 1879 in the Autonomous City of Ceuta (Spain). It has been recorded in the 2 10×10 km UTM grids where the study area is located (30STE87 and 30STE97). Within these grids, it has been recorded in 40 localities situated in 17 1×1 km UTM squares, demonstrating its wide local distribution. These are the first records of its presence in Spain.