



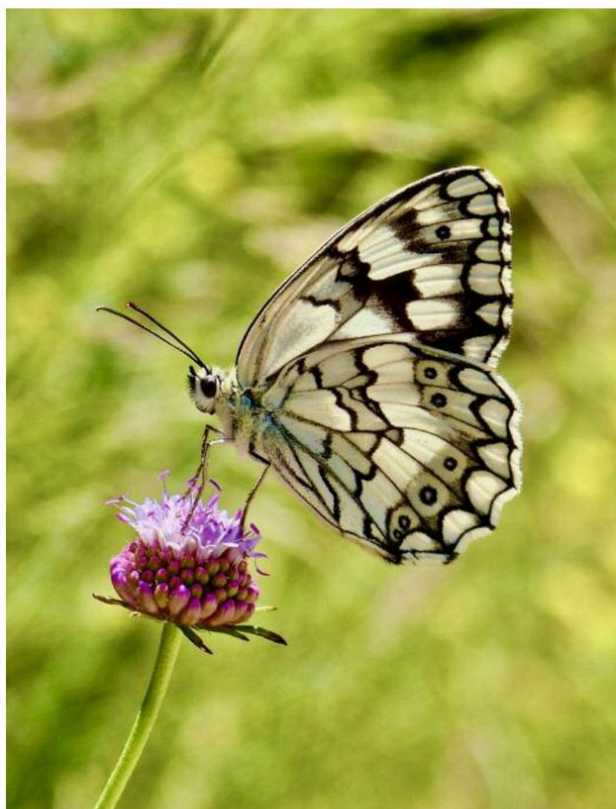
Corfu Butterfly Conservation – How do you start to conserve eastern Mediterranean habitats for butterflies?

by Dan Danahar

Butterfly abundance, species richness and diversity

These days seeing clouds of butterflies is not a particularly common phenomenon. It's true that I have driven through clouds of migratory *Libythea* butterflies in West Africa, so dense that their squashed bodies covered the grill of our minibus. Furthermore, I've watched clouds of **Painted Ladies** (*Vanessa cardui*) in the Peloponnese, Greece, when this species has also been on mass migration, through the passes close to Mt Chelmos.

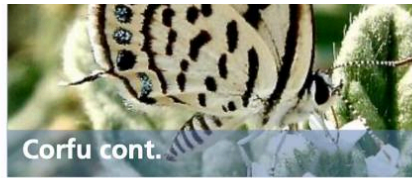
However, in Corfu - Kerkyra, the clouds of **Balkan Marbled Whites** (*Melanargia larissa*) have not been migrating, but they have been superabundant in the mountainous regions on the north of the island. **Meadow Browns** (*Maniola jurtina*) too have been seen in their millions. Simply put, butterflies in Corfu are common and it is this superabundance and high species richness (75+ species known at the present time) that originally attracted my attention to the butterfly fauna of this island, way back in 1976 (I'm now on my 20th visit). In fact, the number of butterflies found on Corfu is an order of magnitude greater per sq km (0.13) than they are in my home county of Sussex (0.012), which has an area 6.43 times larger than Corfu.



Balkan Marbled White (*Melanargia larissa*)



Plain Tiger (*Danaus chrysippus*)



Why so many butterflies on Corfu?

Therefore, the question must be, “why are there so many butterflies here?” Well, we know that Corfu’s geographical location favours higher annual temperatures than the UK but there is also significantly higher rainfall here than there is in many other parts of the Mediterranean. Both these factors lead to good growing conditions for butterfly hostplants and so this helps explain the high abundance of butterflies, but what about species richness? Once again, I think we must look to the island’s geographical location because it sits at the junction between Europe, Asia and north Africa. Each of these continents must contribute species to the island’s butterfly assemblage (for example Corfu is on a regular migration route for the **Painted Lady** (*Vanessa cardui*) and the **Plain Tiger** (*Danaus chrysippus*) from Africa). Consequently, Corfu demonstrates a remarkably high species diversity considering the size of the island.

In contrast, the UK has other more intense anthropogenic factors that tend to diminish our butterfly communities. In fact, according to recent estimates, the UK retains only 53% of its original biodiversity, whereas the global average is closer to 75%. Hence, I suspect that the species diversity of butterflies in Corfu is also high because so much habitat remains intact. It’s true that we have anecdotal evidence that pollinator numbers decline when locals spray their Olive groves with insecticides and there are examples of local habitat loss through development that leads to decreases in butterfly abundances. However, recently insecticide loads have been reduced and indeed spraying by aircraft no longer takes place. So, for the most part, habitat quality remains good and broadly speaking butterfly species diversity remains high.

The need for a baseline assessment

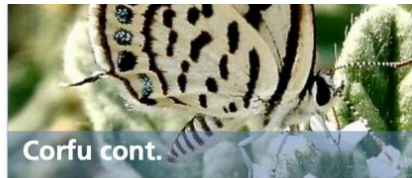
So, you may wonder why there is a need for Corfu Butterfly Conservation? This is a question I answer (in part) in this summer’s edition of BC’s Butterfly magazine. But in short, I believe that we need to establish a baseline assessment from which we can make future comparisons. This is why Corfu Butterfly Conservation initiated the Corfu Butterfly Survey on the 1 January 2021 and to date we have 69 registered recorders and 17,050 butterflies have been sighted. Our goal is to stimulate informed interest and produce robust scientific data that can be used to influence policy and protect habitat for the benefit of Corfu’s butterflies and the wider natural environment on which we all depend.

Conservation Management

Ultimately, our objective is to produce the first comprehensive Corfiot Butterfly Atlas at some point close to 2025-26. In the atlas we intend to make recommendations for the conservation of different butterfly species and so it becomes pertinent to consider this whilst undertaking our field surveys, where observations and conjecture can work together. Whilst there are some similarities between the management practices that are conducted in Corfu and northern Europe (i.e., coppicing/pollarding), in other practices this is not the case (i.e., the use of burning). Early thoughts on human land use that may influence butterfly populations today include the following:

Management of Woodland

The deciduous Valonia Oak (*Quercus macrolepis*) forests and to a lesser extent, a variety of some pine species form the authentic fragments of original woodland remaining on the island. To date we have yet to explore these regions. ▼

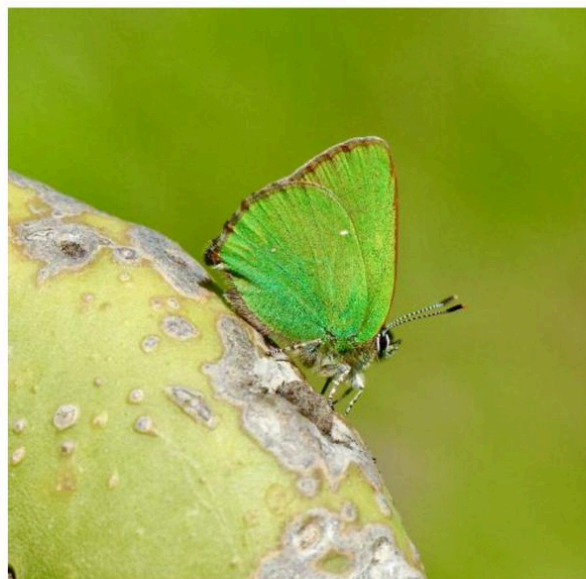


A recently-managed Olive grove



However, the Olive (*Olea europaea*) in combination with the tall Mediterranean Cypress (*Cupressus sempervirens*) make up the quintessential elements of the contemporary Corfiot landscape. These are the trees that inspired Edward Lear to paint and draw so much of the historic Corfiot countryside. It was the Venetians

who from 1401 until 1797 incentivised the Corfiots to plant Olives widely and now its fruits and oil are a major crop, along with the wood that is sold to fire so many pizza ovens in Italy. Four hundred years is a very long time to work with a crop and so the Corfiots have become familiar with the process of managing their Olive trees, in a way that can easily look like butchery to our untrained eyes. However, what they essentially do is to periodically pollard their trees, and this leads to similar successional processes to those that we are familiar with in the English woodlands of the southeast.



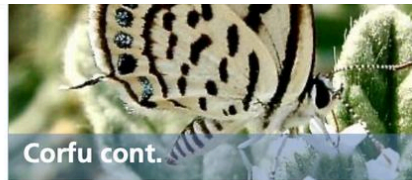
Green Hairstreak
(*Callophrys rubi*)

The coppiced Sweet Chestnut managed in commercial Sussex woodlands, like Rewel Wood, creates early successional conditions for violet regrowth on the woodland floor that allow the **Pearl-bordered Fritillary** (*Boloria euphrosyne*) to colonise these newly-managed compartments. In contrast, when the Corfiot Olive groves are managed in a similar way, they support not just the one but a host of butterfly species, such as the **Green Hairstreak** (*Callophrys rubi*), **Wood White** (*Leptidea sinapis*), **Glanville Fritillary** (*Melitaea cinxia*) and **Southern Festoon** (*Zerynthia polyxena*). Of course, all these species benefit from the extensive and abundant habitat because Olive groves are so widespread (some sources estimate that there between 3 to 4 million Olive trees on the island). This allows functional metapopulation dynamic processes to easily take place across the Corfiot landscape.

Management by Fire

When undisturbed by cultivation, maquis can become the major natural vegetation type in Corfu. Back in the early 2000s I spent time with Oliver Rackham when we took some Cambridge undergraduates to study the flora of Portugal. Oliver made it abundantly clear that fire in the maquis and garrigue of the Mediterranean was an essential component which impacted greatly on the ecology of species that lived within these habitats. In fact, these plants have evolved to burn, with many of the different species being laden with essential oils, allowing flash fires to take place easily, essentially resetting the successional clock.

In Corfu I was reminded of this when Corfu Butterfly Conservation led a joint field meeting with the 'Save Erimitis' campaign, in August 2020. Whilst we walked our group of 30 individuals through the maquis, arsonists set fire to the site at five ▼



different locations. Fortunately, we were rescued by some quick-thinking local fishermen. Such reckless action took place because this stunning natural coastal environment was at the centre of a heated dispute over its potential development and has now been built on, despite its obvious biodiversity value. Since this date, some undeveloped parts of the site have started to regenerate, in some places forming a monoculture of Jerusalem Thorn or Christ's Thorn (*Paliurus spina-christi*). This shrub is the sole hostplant of the **Little Tiger Blue** (*Tarucus balkanicus*).

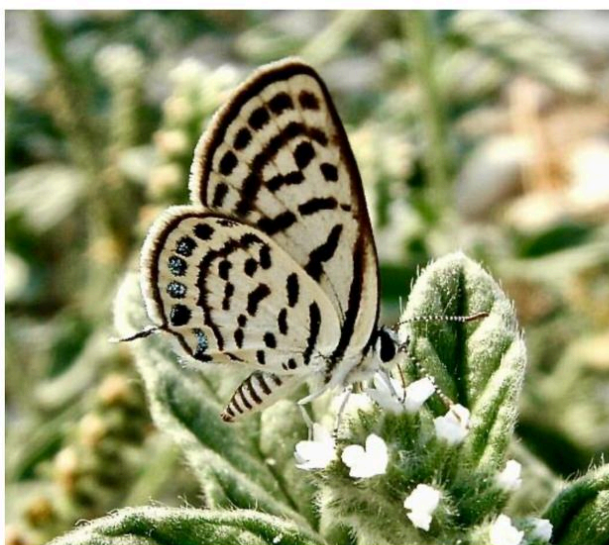
This century, I am the sole individual to find this species on Corfu, where I photographed and filmed approximately 8 individuals, courting and nectaring on a small plant of a *Heliotropium sp.*, on Kalami beach on the 24 August 2007. Prior to this few other records have been made, for example, Baldock & Bretherton reported one female in fair condition from Kaminaki, on 22nd August 1980. In both cases, the butterfly was seen on the north-eastern coast of the island, which at its nearest point is just 2.7km from Albania, where the species can be locally common. It seems very likely that the individuals we saw were migrants from the mainland.



Erimitis burns

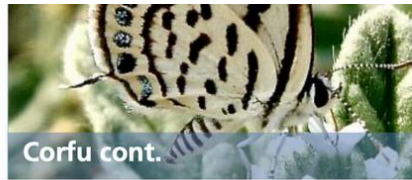


Christ's Thorn (*Paliurus spina-christi*) regeneration



Little Tiger Blue (*Tarucus balkanicus*)

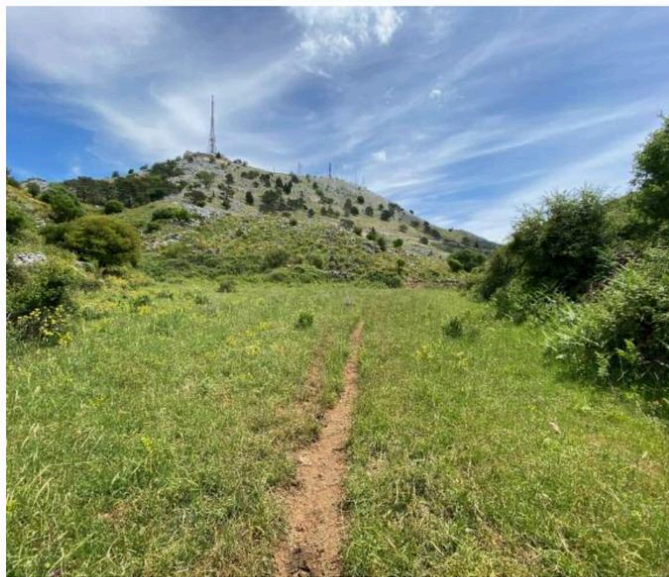
Since that time Chris Little and Max Anderson have both searched this area intensively but have not been successful in relocating the species. For obvious reasons, the Corfiots are very concerned about fire. In recent years climate change appears to have increased the occurrence of wildfires and so very real efforts are made to stop the likelihood of wildfires occurring on the island. However, the appearance of so much Christ's Thorn after the Erimitis burn raises the question, "does the Christ's Thorn and therefore the Little Tiger Blue require fire to maintain their populations?" Certainly, every year Corfiots can see the underpopulated Albanian hillsides burn and so conditions may prevail there which could support this butterfly species (which as I have said is known to be locally common on the Albanian mainland). Either way, we will be keeping a keen eye on those recently burnt areas of Erimitis that now host extensive stands of Christ's Thorn. ▼



Management of Ancient Pastures

In recent times, our only records for the **Mazarine Blue** (*Cyaniris semiargus*) come from the old pastures found in the Corfiot uplands. The question this raises is, "Why is this species so restricted in Corfu?"

Pockets of ancient pasture



These small, grazed meadows characteristically have species-poor, relatively short swards, with desire lines produced by livestock to minimize the energy they expend when moving from one meadow to the next. The edges of these dry paths are with little doubt far warmer than the adjacent sward, and it is on the flowers of the Clover that grow over the edges of the desire lines that we expect oviposition by the Mazarine Blue to take place. To keep these habitats in this condition must require regular grazing. Where such land practices still take place, it is probable that the land can't be used for much else and so consequently, it is agricultural economic factors that maintain the small populations of the Mazarine Blue.

Given that grazing is rarely practiced in the lowlands of the island, populations of Mazarine Blues are no longer found there. Therefore, our work is already beginning to identify areas that might influence regional government to create policy or write legislation to protect local species.

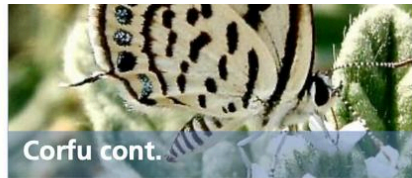


Mazarine Blue
(*Cyaniris semiargus*)

Coastal Development and the Management of Brownfield Sites

Every autumn in Corfu brownfield sites produce a second flush of wildflowers, frequently dominated by the **Aromatic Inula** (*Dittrichia viscosa*). Visitor to these blooms include the **Swallowtail** (*Papilio machaon*), **Pygmy Skipper** (*Gegenes pumilio*), **Large Skipper** (*Ochlodes sylvanus*), **Clouded Yellow** (*Colias croceus*), **Eastern Bath White** (*Pontia edusa*), **Large White** (*Pieris brassicae*), **Small White** (*Pieris rapae*), **Small Copper** (*Pieris rapae*), **Long-tailed Blue** (*Lampides boeticus*), **Holly Blue** (*Celastrina argiolus*), **Lang's Short-tailed Blue** (*Leptotes pirithous*), **Silver-washed Fritillary** (*Argynnis paphia*), **Painted Lady** (*Vanessa cardui*), **Red Admiral** (*Vanessa atalanta*), **Plain Tiger** (*Danaus chrysippus*) and the **Wall Brown** (*Lasiommata megera*), amongst others. Such habitat is commonly located close to developments associated with tourism, especially along the coast, where disturbance of the seed bank leads to the growth of a variety of different wildflower species.

However, such habitat is frequently short-lived. For example, in Paleokastritsa there is a monastery traditionally visited by many thousands of tourists every year. In 2020 the owners of a free car park decided that they would charge visitors to park at the location and this encouraged other local landowners to create more parking on brownfield sites, destroying the existing wildflower patches. In 2021 the only ▼



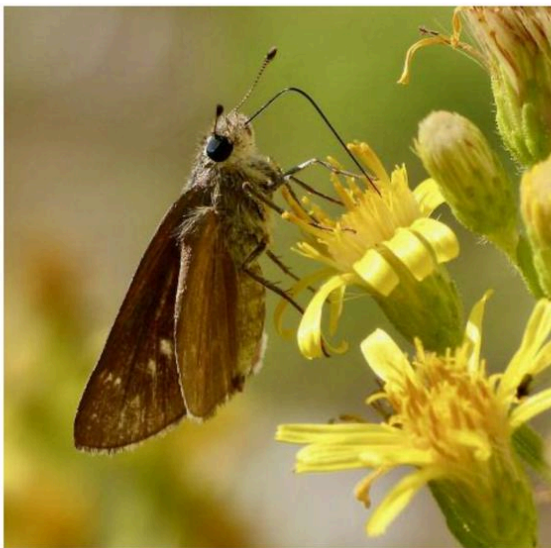
remaining patch of this habitat in the area was identified as the only location for a newly confirmed species of butterfly on the island: the **Mediterranean Skipper** (*Gegenes nostradamus*). Whilst it's entirely possible that the Mediterranean Skipper is to be found in other locations on the island, this is currently the only location from which we have been able to record it. So, whilst it is disturbance by humans which frequently create this habitat, as more development takes place along the coast, ultimately the potential for newly-disturbed ground is reduced and with it the chance for creating more pollinator's habitat.

Lost habitat of Paleokastritsa



Summary

As can be seen, our thoughts about the ecology and conservation of butterflies in Corfu are very much in their infancy. The reflections on the Little Tiger Blue and the Mazarine Blue are purely speculative, but such speculation forms a starting point for considering the future not only of Corfu's butterflies but also for its entire natural heritage. At the very least we have begun to identify some vulnerable species, their habitats and we are thinking about the mechanisms which may influence the populations of these butterflies.



In the last sixty years, people in Corfu have redirected their focus from working the land to one which has capitalised on the potential for making a more prosperous living through tourism. This has led to a reduction in many traditional practices such as grazing, which is now reducing in its influence annually. Indeed, the island did at one point support wild deer and so there is now an argument for reintroducing them, as a form of 'rewilding tool', that may also reduce the risk of catastrophic wildfires. Furthermore, the standard tourist model mostly neglects the potential for ecotourism and so the Corfiots are yet to capitalise on their remarkable natural heritage and consequently may not yet fully understand its value.

As an embryonic organisation, Corfu Butterfly Conservation intends to promote discussion about these issues and in the long term make some lasting contribution to the Corfiot culture.

Mediterranean Skipper (*Gegenes nostradamus*)

Currently, we have regular visits from UK butterfly enthusiasts who contribute to our recording scheme. If you would like to participate in such a trip or feel you can contribute to our project in other ways, we would like to hear from you. However, more importantly, if you travel to Corfu and make butterfly sightings whilst there, please record them on our website: <https://www.corfubutterflyconservation.org/>

Finally, I would like to say a special thank you to the trustees of the **Percy Sladen Memorial Fund**, administered by the **Linnean Society of London** and colleagues at **Butterfly Conservation** for their support. •

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