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Observations on the behaviour of *Hipparchia fidia* (L.) (Lep.: Satyridae) from Majorca, Balearic Islands

During a recent family holiday in the popular Spanish resort of Alcudia, Majorca, I attempted to incorporate as much entomology as time would allow. We visited the area at the end of July and beginning of August 2016, and throughout this period the temperatures averaged around 30˚C, reaching highs of 37˚C, which made any entomological work, even in the morning or early evening, very taxing. However, on 31 July the weather was intermittently cloudy and I used the opportunity of slightly less oppressive conditions to attempt an ascent of the Puig de Sant Martí, a hill to the west of the resort, with an approximate maximum altitude of 260m, on the very periphery of the urban, developed area.

Around the base of this hill, and along the western slopes, the character of the vegetation is reminiscent of that found in British coniferous woodlands, being dominated by large pine trees with sparse, scrubby plant growth beneath. The grass, which grows widely during the wetter months, had almost entirely died back during our visit exposing scorched and compacted bare earth, except in moist, shady corners. Within about 10-20m of the hill summit the pines become more sparse, with the whole site being much more open and the road which leads toward the top begins to curve back and forth, avoiding numerous large rock outcrops. At these outcrops I spotted several large satyrids which, after closer examination, I was able to identify as *Hipparchia fidia*. Though I failed to obtain any specimens for confirmation, this appears to be the only "grayling-like" species which inhabits the island (Tolman. 1997. *Butterflies*. Collins). After watching these insects for some time I recorded a total of seven individuals and made several observations which, given that little appears to have been written on the behaviour of this species (a search of available

literature and the *Web of Science* online publication database yielded nothing of relevance), are worthy of note.

Hipparchia fidia appears to exhibit marked territorial behaviour. I observed one individual fly past a particular rocky outcrop, about five or six metres in width and three in height, several times as if patrolling and then come to rest at a particular point. After adopting a presumably cryptic resting posture it was very difficult to see, but when another individual (the "invader") flew past the same rocky outcrop the original insect (the "occupant") immediately took to the air and pursued it. The two came together in the air and fluttered together at close quarters. While doing so they ascended, to a height of perhaps 15m, before suddenly disengaging and seeming to fall back toward the ground. The invader flew off in another direction and the occupant flew back toward its rocky outcrop, made several patrols, and then re-assumed its original resting position. I observed almost identical behaviour from the same territory occupant several times and while I assumed each invader represented a different individual insect, it is possible that there were fewer.

In addition, while attempting to obtain a specimen of this species, I twice threw pebbles of the pale grey rock which comprised the outcrops at different individuals while they were at rest in an inaccessible location, in the hopes that they would be frightened into flight and adopt a new resting site more amenable to their capture. In both instances the targeted individual took flight and attempted to pursue the pebble while it was still in the air, apparently thinking it an invader into its territory, before reoccupying its original resting site after the stone fell to the ground. This would seem to provide further evidence of territoriality.

Furthermore, while observing individuals taking up their resting positions I noted that upon landing they would orient themselves before settling down, positioning their wings in an (apparently) particular way, often at a tilt. In our native *H. semele* (L.) such behaviour is associated with thermoregulation, where the insect adjusts the angle of its wings in relation to the sun so as to control the amount of heat absorbed, hence regulating internal temperature (Thomas and Lewington. 2011. *The Butterflies of Britain and Ireland*. British Wildlife Publishing). It seems reasonable, given the taxonomic closeness of these species, to suggest that these observations constitute evidence that *H. fidia* might exhibit a similar mechanism of thermoregulation.

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