

## Satyrium ilavia (Ilavia Hairstreak)

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Steve Cary,

### Taxonomy

- **Class:** INSECTA
- **Order:** LEPIDOPTERA
- **Family:** LYCAENIDAE
- **Genus:** Satyrium
- **Scientific Name:** *Satyrium ilavia* (Beutenmüller, 1899)
- **Common Name:** Ilavia Hairstreak
- **Synonyms:** *Thecla ilavia* Beutenmüller, 1899  
Beutenmuller, 1899
- **Taxonomic Name Source:** Pelham, J. P. 2008. A catalogue of the butterflies of the United States and Canada with a complete bibliography of the descriptive and systematic literature. *The Journal of Research on the Lepidoptera*. Volume 40. 658 pp. Revised 14 February, 2012.

### Agency Status

- **NMDGF:**
- **Federal Status:**
- **BLM Sensitive:**
- **USFS:**
- **IUCN Red List:** [Not Evaluated](#)
- **Nature Serve Global:** [G2](#)
- **NHNM State:** S1
- **NM Endemic:** NO

### Description

Ilavia Hairstreak is brown above with orange-tan patches. Below, it is pale gray-brown with a standard Satyrium false head but an indistinct postmedian white line. The ventral surface is much plainer than in related species.

Description courtesy of Steven J. Cary, [Butterflies of New Mexico](#), 2024

### Habitat and Ecology

This species inhabits arid hills and slopes of chaparral and shrublands where Scrub Oak host plants can be found (Glassberg 2001, Brock and Kaufman 2003, Lotts and Naberhaus 2021, Bailowitz and Brock 2022). The larval host plant, Desert Scrub Oak (*Quercus turbinella*), often goes by the common names of Sonoran Scrub Oak and Turbinella

Oak (Glassberg 2001, Brock and Kaufman 2003, Bailowitz and Brock 2022, Cary and Toliver 2023).

This species has one short flight, which is described as occurring from early May to early June, in southeastern Arizona. However, in northern Arizona there are reports of the species flying as late as early July (Brock and Kaufman 2003, Bailowitz and Brock 2022). In New Mexico, extreme flight records occur from May 29th to July 7th, although there are few records of the species in the state (Cary and Toliver 2023). In Arizona, this species was observed having a second emergence, in September of 2022, which was theorized to be the result of favorable summer monsoons (Beck 2023, Cary and Toliver 2023). This species is also thought to be able to extend diapause during drought years, in order to wait for wetter years (Cary and Toliver 2023). This leads to very few or no adults some years and then large flights in wet years (Cary and Toliver 2023). During flight this species is often found perching on its host plant or nectaring nearby on a wide variety of genera including *Marrubium*, *Apocynum*, and *Amorpha* (Bailowitz and Brock 2022, Cary and Toliver 2023). Males also hilltop, and have been observed using tall junipers on top of hills to try to locate females (Bailowitz and Brock 2022).

## Geographic Range:

This species is found in oak-pine foothills of the Mogollon Rim, in southwestern New Mexico and central and southern Arizona, in the United States (Lotts and Naberhaus 2021). The original description of this species lists the type locality as "Texas" but the species has not been recorded from there since its description in 1899 (Warren *et al.* 2023).

## Conservation Considerations:

There are no conservation measures in place for this infrequently encountered butterfly. Research on population size and trends, as well as habitat trends, is needed to ensure the long term viability of this species.

## Threats:

The threats to this species are not well understood, though increasing incidence and severity of drought due to climate change is likely the main threat. The sole host plant of this species, Scrub Oak (*Quercus turbinella*), is adversely impacted by drought conditions (Neilson and Wullstein 1983, Rowlands 1993). One study found very high mortality (26%) of Scrub Oak plantings under drought conditions (Pase 1969). Monsoon rains in Arizona and New Mexico drive the successful reproduction of this shrub. As droughts intensify and monsoon rains fall less predictably, reproductive potential of this shrub may be inhibited (Neilson and Wullstein 1983). Pase (1969) suggested that only one out of every ten years would be wet enough for Scrub Oak to have seed germination and successful establishment (Pase 1969). Acorn production is also heavily dependent on winter precipitation, so lower levels of precipitation will result in less acorn counts and fewer offspring (Pase 1969). The Iliamna Haristreak is also dependent on specific moisture thresholds; the species can extend diapause during dry years, and often the population numbers boom in wet years (Cary and Toliver 2023).

Forister *et al.* (2023) used biological, ecological, and climate data to rank the imperilment of western butterfly species for which long-term monitoring data are not available (including this species) (Forister *et al.* 2023). Using a weighted scheme, the authors found this species to be among the most imperiled butterfly species in the western United States due to a combination of relatively small body size, univoltine life history, and relatively small geographic range, all traits that have been associated with increased vulnerability to various threats or have been found to be useful in conservation assessments (Forister *et al.* 2016, 2018; Bried and Rocha-Ortega 2023). Species that are univoltine are thought to have decreased dispersal abilities, which limits the area they can utilize, in turn making them less resilient to stressors and more prone to extinction (Eskildsen *et al.* 2015). This species also only has a single host plant; which is another key indicator of extinction risk, as declines in the host plant will impact butterfly populations (Kotiaho *et al.* 2005, Palash *et al.* 2022).

This species is found across five watersheds, which allow the effects of a drought on one system to endanger large chunks of the overall population. This species lives within two hydrological regions which is then split into five subregions which are the Lower Colorado, Upper Gila, Middle Gila, Salt, and Agua Fria. Within these subregions the species lives in 10 watersheds. These specific watersheds also are already facing high levels of drought and these conditions are expected to continue (Cook *et al.* 2009, Cayan *et al.* 2010, Cook *et al.* 2015, Mankin *et al.* 2021, Williams *et al.* 2022). However, there is still much research that needs to be done on the threats to this species and how they are affecting its populations.

## Population:

The population size and trend are not known for this species, though it is very sparsely distributed throughout its range. This species is recorded very infrequently; it has only 47 records on GBIF.org (2024). Monitoring of population trends is necessary to determine if this population is stable, as many butterfly species are facing widespread declines in the southwest region (Forister *et al.* 2021, Crossley *et al.* 2021, Edwards *et al.* 2024).

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## More Information

