

Satyrium polingi organensis (Organ Mountains Poling's Hairstreak)



Steve Cary,

Taxonomy

- **Class:** INSECTA
- **Order:** LEPIDOPTERA
- **Family:** LYCAENIDAE
- **Genus:** Satyrium
- **Scientific Name:** *Satyrium polingi ssp. organensis* Ferris, 1980
- **Common Name:** Organ Mountains Poling's Hairstreak
- **Synonyms:** *Fixsenia polingi ssp. organensis* Ferris, 1980
- **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:** [T1](#)
- **NHNM State:** S2
- **NM Endemic:** YES

Description

Poling's Hairstreak is like its close relatives, but the forewing apex is rounded, there is no orange above, the ventrum is slate gray and the hindwing submarginal band of orange spots is reduced, though not as much as in *Ilavia*.

Comments. Colonies of the nominate subspecies live in the Guadalupe, Sacramento and Capitan mountains. Subspecies *Satyrium polingi organensis* was first captured by Richard Holland in the Organ Mountains on 16 April 1979. It has slightly weak or faded hindwing markings compared to the nominate race. Its colonies extend north along the San Andres Mountains almost to US 380.

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

Habitat and Ecology

Very little is known about the ecology of this taxon. However, this taxon is associated with scrub oaks, especially Turbinella Oak (*Quercus turbinella*) (Ferris 1980, Cary and Toliver 2023). There seems to be evidence in fact that Turbinella Oak is the sole host plant of *S. p. organensis* (Cary *et al.* 2012). However, more research is needed on the subject. The original authors write that these scrub oaks usually grow on steep talus slopes which makes finding individuals difficult. This species is found between 5400 and 7000 feet (1646 - 2134 meters)(Cary and Toliver 2023). This taxon has been observed nectaring on Antelope Horns (*Asclepias asperula*) a milkweed species, however, it likely nectars on other species as well (Ferris 1980). Although nectar sources are generally very limited for this taxon as its flight occurs during a very dry time of year (Cary Pers comm. 2023). Larvae of *S. p. organensis* hatch in March and feed through March and April before pupating generally in early May (Cary *et al.* 2012). This taxon then flies from mid-May to mid-June before overwintering as eggs (Cary *et al.* 2012).

It has been hypothesized that this taxon exists as multiple small colonies within a single metapopulation in which there's a balance between extinction and recolonization over years (Cary *et al.* 2012). This is interesting as evidence suggests most years that females don't wander more than a few meters from their host plant. Likely this taxon only disperses and recolonizes in years where conditions are exceptionally good (Cary *et al.* 2012).

Geographic Range:

This taxon exists only along a small stretch of habitat in New Mexico. This habitat extends from the Organ Mountains north along the San Andres Mountains, almost to US 380. The western slope of the San Andres Mountains is predominantly part of the White Sands Missile Range, which is managed by the United States Department of Defense, and access is limited (Ferris 1980, Cary *et al.* 2012). The eastern slope is a mix of private property and Bureau of Land Management lands. The San Andres Mountains themselves are largely protected by the U.S. Fish and Wildlife Service, as part of the San Andres National Wildlife Refuge (Ferris 1980, Cary *et al.* 2012). The Organ Mountains are largely protected as part of the Organ Mountains-Desert Peaks National Monument which is managed by the Bureau of Land Management (BLM 2023).

Conservation Considerations:

This taxon lives in several protected areas including the Organ Mountains-Desert Peaks National Monument protected by the Bureau of Land Management as well as the San Andres National Wildlife Refuge managed by the Fish and Wildlife Service. *S.p. organensis* is not protected throughout its range; however, it has been considered critically imperiled since 1998 (NatureServe 2023). This taxon was also listed as a species of greatest conservation need in 2006 by the New Mexico Department of Game and Fish, however, was later removed (New Mexico Department of Game and Fish 2006).

Threats:

The threats for this taxon are not well understood and more research is required however, a variety of threats affect this taxon currently to an unknown degree. First off, the eastern slope of this taxon's habitat in the San Andres mountains lies within the boundaries of the White Sands Missile Range. This area is inaccessible except by special permit and even then, only in certain areas (Ferris 1980). Thus, the area is thought to be decently protected; however, military training and exercises can cause serious impacts to biodiversity and species populations (Lawrence *et al.* 2015).

The western slope of this taxon's range in the San Andres mountains is experiencing a very different threat coming

from the Bureau of Land Management grazing allotments and private inholdings. Feral cattle and the invasive species they bring with them are potentially seriously disrupting the local fauna including nectar sources that this taxon relies on. In other places across the American west grazing and the invasive grasses and broadleaved plants that come with them have been disastrous for butterfly populations (Schtickzelle et al. 2007, Cushman 2009). Grazing was recently expanded in 2016 in Organ Mountain Desert Peaks National Monument (Eilperin 2017) leading to the intensification of this threat. There have already been some observed impacts of this in the Organ and San Andres Mountains with other species. A prominent one is the Organ Mountains Scaleshed (*Spermolepis organensis*) which is endemic to the Organ mountains and considered globally critically imperiled due to the threat of livestock ranching and the invasive species brought with it (New Mexico Rare Plant Technical Council 2017). Historically there was domestic grazing of Angora Goats (*Capra aegagrus hircus*) in the area and observations of known former angora goat ranches showed large numbers of acacia trees and no oaks (Cary et al. 2012). Additionally, there is grazing from the introduced African oryx (*Oryx gazella*) within this taxon's range (Cary et al. 2012).

Additionally major threats to the flora and fauna of this region include drought and climate change. Way back to its description it was remarked how dry even for the American southwest this area is (Ferris 1980). This butterfly also usually is out in a very dry time of the year and so nectar sources are usually very limited for this taxon (Cary pers comm 2023). Already with so little water larger droughts and competition with cattle could easily result in major impacts to this taxon. This is especially true as this species host plant has been documented to need very wet years in order to germinate its seeds and recently with increasing drought length and severity few years have reached the threshold required for seed germination (Pase 1969, Williams et al. 2022). It has also been well documented that drought and rising temperatures are leading to declines in many butterfly species across the United States (Forister et al. 2010, 2021 Wepprich et al. 2019). Additionally, a large wildfire could potentially wipe out a large amount of the viable habitat for *S.p. organensis* as well as resulting in mortality of larvae and eggs this could result in sharp population declines from which it would be difficult to recover from (Bond and Bradley 2003, Marschalek and Deutschman 2019). Habitat loss from development and resource extraction are also threats to this taxon. Habitat loss across the American west has been a major threat to many butterfly species (Forister et al. 2010, Flockhart et al. 2015, Wepprich et al. 2019). This is all compounded by how geographically isolated this taxon is in these two mountain ranges (Ferris 1980) one threat could easily spread and affect the entire population. This seemingly puts *S.p. organensis* at risk and efforts should be made to understand the threats potentially threatening this taxon and reduce them.

As a metapopulation, this species is thought to go through a regular balance of extinction and recolonization with populations disappearing in dry years and then recolonizing lost territory in really good wet years (Cary et al. 2012). However, there is concern that as drought severity and length increases that this species may be unable to recolonize territory it is losing and that the species EOO, AOO, and population could crash (Cary et al. 2012, Williams et al. 2022). This could also be further extenuated by host plant declines due to severe drought, nectar scarcity, and wildfire (Pase 1969, Cary et al. 2012).

Population:

The population size and trend are not known for this taxon. However, this taxon has very few records ever recorded. While part of this may be the difficulty of surveying the taxon which is highlighted in their original description as they are described as residing on steep talus slopes (Ferris 1980). It is made additionally difficult to sample by the fact that permits are required to access San Andres National Wildlife Refuge and the White Sands Missile Range (Cary pers comm. 2023). Additionally, there are few roads in these areas and so generally quite a bit of hiking is required to go survey or sample this population (Ferris 1980, Cary pers comm 2023).

References:

- Bond, M., & Bradley, C.. 2003. Impacts of the 2003 Southern California Wildfires on Four Species Listed as Threatened or Endangered Under the Federal Endangered Species Act.. Center for Biological Diversity..

- Forister, M.L., Grames, E.M., Halsch, C.A., Burls, K.J., Carroll, C.F., Bell, K.L., Jahner, J.P., Bradfod, T., Zhang, J., Cong, Q., Grishin, N.V., Glassberg, K., Shapiro, A.M. and Riecke, T.V.. 2023. Assessing risk for butterflies in the context of climate change, demographic uncertainty, and heterogenous data sources. *Ecological Monographs* 93: (e1584).
- C. P. Pase. 1969. Survival of *Quercus turbinella* and *Q. emoryi* seedlings in an Arizona Chaparral Community. *The Southwestern Naturalist* 14: (149-156).
- Marschalek, D., & Deutschman, D.. 2019. Hermes Copper Surveys..
- [Eilperin, J.. 2017. hrink at least 4 national monuments and modify a half-dozen others, Zinke tells Trump.. The Washington Post. . \[https://www.washingtonpost.com/national/health-science/shrink-at-least-4-national-monuments-and-modify-a-half-dozen-others-zinke-tells-trump/2017/09/17/a0df45cc-9b48-11e7-82e4-f1076f6d6152_story.html\]\(https://www.washingtonpost.com/national/health-science/shrink-at-least-4-national-monuments-and-modify-a-half-dozen-others-zinke-tells-trump/2017/09/17/a0df45cc-9b48-11e7-82e4-f1076f6d6152_story.html\)](https://www.washingtonpost.com/national/health-science/shrink-at-least-4-national-monuments-and-modify-a-half-dozen-others-zinke-tells-trump/2017/09/17/a0df45cc-9b48-11e7-82e4-f1076f6d6152_story.html)
- ITIS. 2021. Integrated Taxonomic Information System (ITIS). <https://www.itis.gov/>
- Schtickzelle, N., Turlure, C., & Baguette, M.. 2007. Grazing management impacts on the viability of the threatened bog fritillary butterfly *Proclissiana eunomia*.. *Biological Conservation* 136: (651-660). <https://doi.org/10.1016/j.biocon.2007.01.012>
- Cushman, H. J.. 2009. Impact of Cattle Grazing on the Smithâ€™s Blue Butterfly, Its Host Plant and the Surrounding Plant Community. . Sonoma State University, Rohnert Park, California .
- [New Mexico Department of Game and Fish \(NMDGF\). 2006. Comprehensive Wildlife Conservation Strategy for New Mexico.. New Mexico Department of Game and Fish, Sante Fe . \[https://bison-nm.org/documents/47967_Comprehensive-Wildlife-Conservation-Strategy.pdf\]\(https://bison-nm.org/documents/47967_Comprehensive-Wildlife-Conservation-Strategy.pdf\)](https://bison-nm.org/documents/47967_Comprehensive-Wildlife-Conservation-Strategy.pdf)
- Ferris, C.D.. 1980. Field notes on two hairstreaks from New Mexico with description of a new subspecies. *Journal of the Lepidopterists' Society* 34: (217-223).
- Forister, M.L., Halsch, C.A., Nice, C.C., Fordyce, J.A., Dilts, T.E., Oliver, J.C., Prudic, K.L., Shapiro, A.M., Wilson, J.K. and Glassberg, J. . 2021. Fewer butterflies seen by community scientists across the warming and drying landscapes of the American West. *Science* 371: (1042-1045).
- Williams, A.P., Cook, B.I. and Smerdon, J.E. . 2022. Rapid intensification of the emerging southwestern North American megadrought in 2020â€™2021. *Nature Climate Change* 12: (232-234).
- Wepprich, T., Adrion, J.R., Ries, L., Wiedmann, J. and Haddad, N.M.. 2019. Butterfly abundance declines over 20 years of systematic monitoring in Ohio, USA. *PLoS ONE* 14: (e0216270).
- Flockhart, D.T.T., Pichancourt, J.B., Norris, D.R. and Martin, T.G. . 2015. Unravelling the annual cycle in a migratory animal: breeding-season habitat loss drives population declines of monarch butterflies. *Journal of Animal Ecology* 84: (155-165).
- Forister, M.L., McCall, A.C., Sanders, N.J., Fordyce, J.A., Thorne, J.H., Oâ€™Brien, J., Waetjen, D.P. and Shapiro, A.M.. 2010. Compounded effects of climate change and habitat alteration shift patterns of butterfly diversity. *Proceedings of the National Academy of Sciences* 107: (2088-2092).
- [Lawrence, M. J., Stemberger, H. L. J., Zolderdo, A. J., Struthers, D. P., and Cooke, S. J.. 2015. The effects of modern war and military activities on biodiversity and the environment. *Environmental Reviews* 23: \(443-460\). <http://www.ncresearchpress.com/doi/full/10.1139/er-2015-0039#.WJrV5xCQNQM>](http://www.ncresearchpress.com/doi/full/10.1139/er-2015-0039#.WJrV5xCQNQM)
- [New Mexico Rare Plant Technical Council. 1999. New Mexico Rare Plants. Albuquerque, New Mexico 2010. <http://nmrareplants.unm.edu>](http://nmrareplants.unm.edu)
- Cary, S. J., DeLay, L. S., & Pfeuil, J. J.. 2012. Conservation Assessment of *Satyrion polingi organensis* (Ferris) Year 1 Report.. New Mexico Department of Game and Fish.

More Information

