

Oeneis chryxus socorro (Socorro Chryxus Arctic)



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Taxonomy

- **Class:** INSECTA
- **Order:** LEPIDOPTERA
- **Family:** NYMPHALIDAE
- **Genus:** Oeneis
- **Scientific Name:** *Oeneis chryxus socorro* R. Holland, 2010
- **Common Name:** Socorro Chryxus Arctic
- **Synonyms:**
- **Taxonomic Name Source:** Holland, R. 2010. A new subspecies of *Oeneis chryxus* (Nymphalidae: Satyrinae) from south central New Mexico. *Journal of the Lepidopterists' Society* 64(3):161-165.

Agency Status

- **NMDGF:**
- **Federal Status:**
- **BLM Sensitive:**
- **USFS:**
- **IUCN Red List:** [Not Evaluated](#)
- **Nature Serve Global:** [TNR](#)
- **NHNM State:** S1
- **NM Endemic:** YES

Description

Chryxus is tawny orange above with a few dark eyespots. Underneath, a pattern of white, tan and gray mimics lichen-covered rocks, usually with a dark hindwing median band. The forewing ventrum has postmedian marks resemble a bird's head in profile, beak and all. **Comments.** A disjunct, relict colony of Chryxus in the San Mateo Mountains (So) was recently described as subspecies *Oeneis chryxus socorro* R. Holland 2010.

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

Habitat and Ecology

Little is known about the life history of this specific subspecies. However, it is known that it is found on a single ridge in New Mexico in the alpine zone (Holland 2010). This taxon parent species is also an alpine zone specialist often living in mountain meadows, alpine tundra or in mountain forest clearings (Ferris and Brown 1981, Scott 1986, Pyle 2002, Lotts and Naberhaus 2021, NatureServe 2023, Montana Natural Heritage Program 2023). This species is univoltine and the

flight period is reported as being at least the end of May to late July but may extend a bit on either end (Holland 2010). Most *Oeneis* species are biennial and *O. chryxus* can complete its life cycle in either one or two years (Lotts and Naberhaus 2021, Cary and Toliver 2023). However, Butterflies of New Mexico reports that *O. Chryxus* seems to fly about equally every year; however, it is unknown if this subspecies is following the same pattern and whether its completing a one or two year life cycle (Cary 2023). Likely due to how far south the species is its doing a one year life cycle and flying every year.

Nothing has been reported of this subspecies specific host plant but the parent species uses grasses and sedges including the genera *Danthonia*, *Festuca*, *Imperata*, *Oryzopsis*, *Phalaris*, *Poa*, *Scirpus*, *Carex*, *Cyperus* (Pyle 2002, James *et al.* 2011, Montana Natural Heritage Program 2023). Butterflies of New Mexico has suggested that the host plants for *O. c. socorro* are likely *Carex geophila* and *C. pennsylvanica heliophila*; however, it is unknown what specifically this subspecies is using (Cary and Toliver 2023).

Geographic Range:

Oeneis chryxus socorro is a subspecies of the widespread Chryxus Arctic (*Oeneis chryxus*) (Warren *et al.* 2016, Pelham 2023). This subspecies is found only in the San Mateo Mountains, in Socorro county New Mexico, in a disjunct, Pleistocene relict colony (Holland 2010, Cary and Toliver 2023). The subspecies lives on a single ridge in the northern half of the San Mateo Mountains. Despite searches, it has never been found in the southern half of the San Mateo Mountains or in any of the other nearby mountain ranges (Holland 2010).

Conservation Considerations:

This taxa has no protections throughout its range and it is not listed as an endangered species. Additionally, no specific management is being done for this taxa throughout its range currently. However, actions should be taken soon or else this species risks imminent extinction. Population monitoring is needed to make sure we don't lose this subspecies and that it remains healthy well also need additional research on the taxa's life history in order to properly conserve this taxa and determine what conservation measures might best benefit this taxa. Additionally, in order to prevent the extinction of this taxa likely a management plan and long term strategy as well as protection of this species habitat will be required in some capacity.

Threats:

This species is an extremely range and habitat restricted disjunct colony of *O. chryxus* (Holland 2010). Being a mountaintop isolate, this species is very vulnerable to extermination by just a small amount of climate change (Holland 2010). This is especially true for this taxa where it is already at the southern extreme of the parent species range and experiences much warmer temperatures than other *O. chryxus* (Holland 2010, NatureServe 2023). Additionally, the nearest population of other *O. chryxus* to this taxa is in the Jemez Mountains of New Mexico in between these two populations is over 125 miles of the Chihuahuan Desert an inhospitable environment for *Oeneis* (Holland 2010). As a result, this species is isolated in the mountain range it's currently in and likely continually declining as New Mexico continues to get hotter and drier (Forister *et al.* 2010, 2021, 2023). This area is expected to just be getting further hotter and drier over the coming years which will force this species to even higher elevations until it has nowhere else to go (Cook *et al.* 2009, Holland 2010, Forister *et al.* 2010, Cook *et al.* 2015). Already this species only exists on one mountain ridge in the San Mateo's and its the ridge at the highest elevation which seems to imply this species already can go no higher (Holland 2010). This warming and drying also puts the species at more risk of fires and off season fires threaten this univoltine species with a sudden extinction (Hill *et al.* 2017).

Additionally, this increased drought and temperature puts the species at further risk from wildfire. A large wildfire the

Vics Peak Fire burned through the area in 2020 and some thought it might drive the taxa fully to extinction although we have a single photograph from 2021 that shows that some of this taxa made it out. Since then several other smaller wildfires have burned in the Magdalena mountains further threatening this species (S. Cary Pers Comm 2023). With such a small range being restricted to just one ridge just a single catastrophic fire is likely to cause the extinction of this taxa and as catastrophic wildfires become worse with climate change care should be taken to try to save this taxa from wildfire (Liu et al. 2010, Virgillio et al. 2019).

This taxa also has a single brood a year makes species much less adaptable and can be used as a key indicator of extinction risk in butterflies (Forister *et al.* 2023). Also the two year life cycle if it is occurring in this subspecies potentially puts the species at additional risk of extinction as individuals have to survive two years in order to be able to reach sexual maturity this means the species can't bounce back as quickly and is more prone to many threats as larvae (Hernández-Yáñez *et al.* 2022).

Population:

The population size and trend are not known for this species. Determination of population size and monitoring of population trends is necessary to ensure the population is stable. Especially as this species has such a small range and severe threats that may be affecting it. There was some concern that this taxa may have gone extinct due to a big fire the Vics Peak Fire in 2020 however, since then there is one photograph of the species taken in 2021 (S. Cary Pers Comm. 2023). However, since its citing in 2021 the Magdalena mountains in which this taxa solely resides in have been the victims of several other wildfires and so the current status of this taxa is unknown.

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