

Cercyonis meadii alamosa (Alamosa's Mead's Wood-Nymph)



iNat User: colocritters,

Taxonomy

- **Class:** INSECTA
- **Order:** LEPIDOPTERA
- **Family:** NYMPHALIDAE
- **Genus:** Cercyonis
- **Scientific Name:** *Cercyonis meadii alamosa* T. Emmel and J. Emmel, 1969
- **Common Name:** Alamosa's Mead's Wood-Nymph
- **Synonyms:**
- **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:** [T3](#)
- **NHNM State:** S1
- **NM Endemic:** NO

Description

Mead's Wood-Nymph is largely brown with fine striations, but you have to admire the diagnostic ember-red overscaling on the forewing, above and below. There are two prominent, usually equal-sized, ocelli on each forewing; each has a white "pupil" and a black iris surrounded by a pale, yellow ring. Smaller ocelli punctuate the hindwing. Comments. This species is named to honor prolific Rocky Mountain frontier naturalist Theodore Luttrell Mead. There are four named subspecies and NM could have all of them, but they seem poorly differentiated from a phenotypic standpoint. The nominotypical versions have no white "frosting" on the underside and VHW ocelli are few, small and not prominent. Examples from central New Mexico generally seem to fit that description. Populations in and around Colorado's San Luis Valley, including New Mexico's Taos Plateau, can be like that, too, but some have a white frosting or suffusion on the underside which is more like *Cercyonis meadii alamosa* T. Emmel and J. Emmel 1969, whose whiter underside may improve camouflage in the alkali soils typical of parts of the San Luis Valley. That extra white marginal and submarginal grizzling also occurs in *C. meadii* populations in the white limestone/dolomite bedrock

of the Guadalupe Mountains (Eddy County, NM, Culberson Co., TX) where VHW ocelli also are more numerous and more prominent. Prominent VHW ocelli are consistent with ssp. *C. m. melania* (Wind 1946), but the white ventral grizzling is not consistent based on examples of *melania* shown on the Butterflies of America website. Individuals from the SW part of NM (Ca,Gr,Hi,So) might be classed with *Cercyonis meadii mexicana* (R. Chermock 1949). Mead's Wood-Nymphs in northwest New Mexico (San Juan Co.) show evidence of introgression (= past hybridization) with *Cercyonis sthenele* (next species). Richard Holland took a female *C. meadii* mating with a male *C. pegala* in the Sandia Mts., further indicating the "mixed-up" nature of *Cercyonis* in NM!

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

Habitat and Ecology

The Alamosa Satyr lives primarily in arid grasslands and seems to prefer Blue Grama savannas with minimal human influence (Cary and Toliver 2024, NatureServe 2024). The taxon, however, is also found in pinon-juniper savannas (Cary and Toliver 2024). This subspecies is closely associated with two grass species which serve as its host plants firstly Blue Grama (*Bouteloua gracilis*) then Alkali Sacaton (*Sporobolus airoides*) (Scott 2022). Generally the Alamosa satyr lives at middle elevations between 4600 and 7000 feet (1400 to 2150 meters) (Cary and Toliver 2024). Females oviposit eggs singly in shaded litter where they are usually glued onto litter, dead grass, or dicot leaves near their host plants and under the shade of shrubs and trees (Scott 2022). Larvae feed on the leaves of their host plants and do not build a nest or shelter (Scott 2022). This subspecies overwinters as a first instar larvae before feeding and then awakens again in early summer (Scott 2022). The pupae of this taxa are usually found suspended from several grass blades which are tied together with silk (Scott 2022). Then this subspecies has one flight from late July to August (Scott 2022). Adults of this taxa usually visit mostly white or yellow flowers for nectar however, can sometimes be seen on pink or purple flowers as well (Scott 2022). Known nectar sources include *Aster porteri* now known as *Symphotricum porteri*, and *Heterotheca villosa*; they also sometimes can be seen sipping at mud or wet soil (Scott 2022). The parent species also nectars on *Achillea*, *Chrysothamnus*, *Cirsium*, *Geranium*, *Grindelia*, *Senecio*, and *Solidago* (Scott 1986, 2014). Scott (2022) reports that in courtship the female can be seen hovering and that the male will rise up and touch her around four to ten times if she is receptive then the female will land and they will join (Scott 2022).

Geographic Range:

Little information is available on the distribution of this subspecies, partially due to poor phenotypic differentiation between the known subspecies of *Cercyonis meadii* (Cary and Toliver 2024). However, it is known that the Alamosa Satyr occurs in and around Colorado's San Luis Valley, south to New Mexico's Taos Plateau (Scott 2022, Cary and Toliver 2024). A 1998 NatureServe assessment suggested the amount of viable habitat for this subspecies in New Mexico, Arizona, and Colorado was around 2,331 km². However, as it is unknown whether this subspecies occurs in Arizona, this estimate is likely high (NatureServe 2024).

Conservation Considerations:

This taxa is not protected throughout its range and has no endangered species status. NatureServe ran a conservation assessment on the subspecies in 1998 and found it to be globally vulnerable and imperiled in Colorado; however, this assessment is now very out of date (NatureServe 2024). Additional information is needed on this subspecies and steps should be taken to try to learn more about the Alamosa Satyrs population, threats, and geographic range. This is especially true in light of the large declines that Forister *et al.* 2021 estimated for the parent species.

Threats:

Little is known about the threats to this subspecies and no research has been done on the topic. However, it is known that the Alamosa Satyr has a very limited range (NatureServe 2024, GBIF.org 2024). A 1998 NatureServe assessment found a maximum of 900 square miles (2331km²) of viable habitat for this subspecies in Arizona, New Mexico, and Colorado. Additionally, this species' Area of Occupancy has a lower bound of just 10km² although the upper bound is 3212km². The taxa also has an Extent of Occurrence of just 3537km². This small extent of occurrence could qualify the taxon as endangered under criteria B1 and its lower bound for AOO could qualify it as critically endangered under criteria B2. In *Butterflies of New Mexico* it is also stated that this subspecies is never very common throughout its distribution (Cary and Toliver 2024). Additionally, in the *Butterflies of New Mexico* it is remarked that this subspecies is most attached to Blue Grama savannas showing minimal human influence (Cary and Toliver 2024). This is a habitat condition that has become increasingly rare in the western United States with this habitat being one of the main habitats used in livestock grazing (Grace *et al.* 2019). An absence of fire in native grasslands can also result in largely increased shrub cover pushing out native grasses like Blue Grama that this taxon depends on (Anderson 2003). Additionally, having only two known host plants both of which are grasses is a very specific life history and this puts the subspecies at increased risk of extinction as if threats start to remove its host plant or native grasses than they will lead to decreases in this subspecies population as well (Kotiaho *et al.* 2005, New 2013, Palash *et al.* 2022, Forister *et al.* 2023).

On top of all of this the Alamosa Satyr is a native to the American west, an area where many butterfly species, even widespread ones, have been experiencing sweeping declines to a series of threats that may be affecting this subspecies as well (Forister *et al.* 2021). The most prevalent of these threats is drought and extreme heat, both of which have been remarked as threats to the parent species (Forister *et al.* 2010, 2021, 2023). This area is also just getting hotter and drier as climate change takes its course this can stress species already living in these hot and dry environments (Cook *et al.* 2009, Cook *et al.* 2015, Forister *et al.* 2021). Land use and water use change also have been shown to affect many other western species however, it is unknown how they are affecting this taxon (Forister *et al.* 2010). Ultimately more research needs to be done on the threats to this butterfly and the degree to which this subspecies may be being affected by those threats.

This species is also thought to mostly be a specialist on grasslands and its only known host plants are native grass species; these grassland habitats are currently under threat across the southwestern United States due to overgrazing, invasive species, changes in fire frequency and intensity, and changes in land use (Ludwig *et al.* 2017, NatureServe 2024). The specific threats to this species' host plant have not been studied; however it is known that many other native grass species in the southwestern United States are currently facing declines due to these factors (Noss *et al.* 1995, Gori and Enquist 2003). Noss *et al.* (1995) stated that grasslands in the American southwest are now a critically endangered ecosystem having declined by more than 98% (Noss *et al.* 1995). As the southwestern United States continue to get hotter and drier these grasslands are now more vulnerable than ever as invasive species and climate change reduce diversity in these grasslands they become less drought tolerant at a time where the southwest is seeing longer and more severe droughts thus further extenuating the losses to native grasses (Ludwig *et al.* 2017, Williams *et al.* 2022). Furthermore existing in the valley this species is also adverse to losing habitat to development which could kill off its host plants reducing the amount of habitat available for this species.

Population:

The population size and trend are not known for this subspecies. However, there are some indications it may be declining. Forister *et al.* (2021) found declines in abundance of most of 272 widespread western butterfly species. Using Bayesian Poisson regression to model trends in long term butterfly monitoring data across the United States, these declines were estimated to be a continual 1.6% decline in abundance per year. These declines in abundance of butterfly communities were found to be primarily correlated with warming temperatures during the fall season; the authors hypothesize this may be due to increased physiological stress on both plants and butterflies during this time. The authors also analyzed count data collected over the last few decades by the North American Butterfly Association (NABA). The parent species *C. meadii* was observed at one of this NABA sites and the population growth rate, which

was modeled as the natural log of the ratio of current to previous year population counts, with the log of the previous year's count, sampling effort and census date as independent variables, was found to be -.075 which translates to a 7% annual reduction in the number of *C. meadii* seen at the site. When this is scaled to 10 years, a 52.7% decline in the number of individuals observed is estimated for the site (Forister *et al.* 2021). This data only comes from one site and could represent a localized decline or it could be the effect of an unknown threat on this species which likely would also affect its subspecies. As a result, population monitoring is needed on *C.m. alamosa* to see if it is experiencing similar declines to the ones Forister observed at the NABA site.

References:

- [ITIS. 2021. Integrated Taxonomic Information System \(ITIS\). https://www.itis.gov/](https://www.itis.gov/)
- Scott, J. A.. 2022. Butterflies of the southern Rocky Mountains area, and their natural history and behavior..
- Grace, J., Brischke, A., Hall, A., & McReynolds, K.. 2019. Utilizing Blue Grama Rangelands in Arizona. The University of Arizona Cooperative Extension.
- [Anderson, Michelle D. 2003. Bouteloua gracilis. U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station, Fire Sciences Laboratory. https://www.fs.usda.gov/database/feis/plants/graminoid/bougra/all.html](https://www.fs.usda.gov/database/feis/plants/graminoid/bougra/all.html)
- [GBIF.org . GBIF Occurrence Download. 2024. https://doi.org/10.15468/dl.sfhy8f](https://doi.org/10.15468/dl.sfhy8f)
- [Cary, S.J. and Toliver, M.E. . 2024. Butterflies of New Mexico.. Pajarito Environmental Education Center \(PEEC\). https://peeccnature.org/butterflies-of-new-mexico/](https://peeccnature.org/butterflies-of-new-mexico/)
- [Ludwig, J. A., Wondzell, S. M., Muldavin, E. H., Blanche, K. R., & Chauvin, Y.. 2017. Native Desert Grassland Plant Species Declines and Accelerated Erosion in the Paint Gap Hills of Southwest Texas . *The Southwestern Naturalist* 62: \(53-61\). https://www.jstor.org/stable/26748735](https://www.jstor.org/stable/26748735)
- [NatureServe. 2024. NatureServe Network Biodiversity Location Data accessed through NatureServe Explorer. NatureServe, Arlington, Virginia . https://explorer.natureserve.org/](https://explorer.natureserve.org/)
- [Noss, R.F., LaRoe, E.T. and Scott, J.M.. 1995. Endangered Ecosystems of the United States: A Preliminary Assessment of Loss and Degradation. USDI National Biological Service, Washington D.C. : \(95\). https://iucnrl.org/static/media/uploads/references/background/assessments/noss-et-al-1995-endangered-ecosystems-usa-preliminary-assessment-loss-degradation-en.pdf](https://iucnrl.org/static/media/uploads/references/background/assessments/noss-et-al-1995-endangered-ecosystems-usa-preliminary-assessment-loss-degradation-en.pdf)
- Gori, David & Enquist, Carolyn.. 2003. An Assessment of the Spatial Extent and Condition of Grasslands in Central and Southern Arizona, Southwestern New Mexico and Northern Mexico. .
- [Cook, B.I., Ault, T.R. and Smerdon, J.E.. 2015. Unprecedented 21st century drought risk in the American Southwest and Central Plains.. *Science Advances* 1. https://doi.org/10.1126/sciadv.1400082](https://doi.org/10.1126/sciadv.1400082)
- 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).
- 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).
- 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).
- 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).
- [Kotiaho, J. S., Kaitala, V., Komonen, A. and PÃ¤ivinen, J.. 2005. Predicting the risk of extinction from shared ecological characteristics. *Proceedings of the National Academy of Sciences* 102: \(1963-1967\). https://doi.org/10.1073/pnas.0406718102](https://doi.org/10.1073/pnas.0406718102)
- New, T. R.. 2013. Lepidoptera and conservation. John Wiley & Sons..
- [Palash, A., Paul, S., Resha, S. K. & Khan, M. K.. 2022. Body size and diet breadth drive local extinction risk in](#)

butterflies. *Heliyon* 8. <https://doi.org/10.1016/j.heliyon.2022.e10290>

- [Cook, E.R., Seager, R., Heim, R.R., Vose, R.S., Herweijer, C. and Woodhouse, C.. 2009. Megadroughts in North America: Placing IPCC projections of hydroclimatic change in a long-term paleoclimate context.. *Journal of Quaternary Science* 25: \(48-61\). <https://doi.org/10.1002/jqs.1303>](#)
- U.S. Fish and Wildlife Service (USFWS), Otero County, The Village of Cloudcroft, and U.S. Forest Service. 2004. Conservation Plan for the Sacramento Mountains Checkerspot Butterfly (*Euphydryas anicia cloudcrofti*). Albuquerque, NM : (80).

More Information

