Euphilotes spaldingi pinjuna (Pinyon-Juniper Spalding's Blue)

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Taxonomy

- **Class**: INSECTA
- **Order**: LEPIDOPTERA
- **Family**: LYCAENIDAE
- **Genus**: Euphilotes
- **Scientific Name**: *Euphilotes spaldingi pinjuna* Scott, 1981
- **Common Name**: Pinyon-Juniper Spalding's Blue
- **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**: TU
- **NHNM State**:
- **NM Endemic**:NO

Description

Spalding’s Blue is the most distinctive member of this genus in New Mexico, with marginal orange spots on ventral forewings and hindwings on males and females, whereas congeners have orange only on the hindwing. Spalding’s Blue also resembles Melissa Blue (Plebejus melissa), but it lacks iridescent blue scintillae in the ventral hindwing submargin and male Melissa’s have no orange above.

Comments. This species was once considered a subspecies of Euphilotes rita. Our populations belong to subspecies Euphilotes spaldingi pinjuna J. Scott 1981, in recognition of the pinon/juniper savanna habitat it often occupies. The first New Mexico record dates to 6 August 1907 from near Ft. Wingate (MK), probably collected by John Woodgate and now in the American Museum of Natural History in New York.

Description courtesy of Steven J. Cary, Butterflies of New Mexico, 2024

Habitat and Ecology

The Pinjuna Spaldingâ€™s Blue occupies grasslands and dry meadows near Pinyon-juniper woodlands (Scott 1986, Opler and Wright 1999, Glassberg 2001, Cary and Toliver 2024). They require sun exposure and can be found on hills and rocky outcrops (Glassberg 2001). As larvae their only known hostplant is Racemose Buckwheat also known as Redroot Buckwheat (*Eriogonum racemosum*) (Scott 1986, Opler and Wright 1999, Glassberg 2001, Cary and Toliver 2024) It requires Racemose Buckwheat in all parts of its range including easternmost part of its range at Eagle Nest Lake State Park (Cary and Toliver 2024). The butterfly is univoltine and eggs hatch immediately so larvae can feed and pupate before winter (Cary and Toliver 2024).

The butterfly has one flight lasting from June to August (Scott 1986, Opler and Wright 1999, Cary and Toliver 2024). New Mexico records stretch from June 27 to August 25 (Cary and Toliver 2024). Adults feed on flower nectar, Colorado populations favor Jamesâ€™ Buckwheat (*Eriogonum jamesi*) (Scott 1986). They are known to siphon nutrients in mud after summer rains (Scott 1986, Cary and Toliver 2024). When seeking females, males patrol all day near the hostplant, flying erratically .5 meters above the ground (Scott 1986).

Geographic Range:

The Pinjuna Spalding's Blue butterfly occupies grasslands and dry meadows near Pinyon-juniper woodlands (Scott 1986, Opler and Wright 1999, Glassberg 2001, Cary and Toliver 2024). The northernmost part of the range starts just west of central Colorado and continues south to central New Mexico (Scott 1986, Opler and Wright 1999, Glassberg 2001, Cary and Toliver 2024). In New Mexico it lives between elevations of 1524 to 2743 m and it has been found as far south as the Gallo and Manzano mountains, there are historical records in the following New Mexico counties: Bernalillo, Catron, Cibola, Colfax, McKinley, Rio Arriba, Sandoval, San Juan, Santa Fe, Taos, Torrance (Cary and Toliver 2024).

In the last 20 years, this butterfly has been observed in five general localities. Two of these sites are in New Mexico, with one at the base of the Sandia Mountains near Albuquerque and one east of Taos, in Eagle Nest Lake State Park. The other three populations are in Colorado: one is east of Durango, stretching from the San Juan National Forest to east of the South San Juan Wilderness; and one is in Ouray County, east of the Mount Sneffels Wilderness; one is north of Gunnison, just west of the Fossil Ridge Wilderness (GBIF.org 2024).

Conservation Considerations:

There are currently no known conservation actions being taken to protect this species and it does not have any status throughout its range. More research is needed on the species population size and trends as well as the status of and threats to its obligate host plant. This information will be crucial in order to better determine the status of this species and plan conservation actions.

Threats:

This butterfly's range includes the Southwestern United States which saw its driest 22-year period from 2000 to 2021 since at least 800 CE (the time period used in previous climatic reconstructions) (Williams *et al.* 2022) and droughts are projected to become more prolonged, severe, and common in the region under future climate change scenarios (USGCRP 2018). Drought conditions over the last few years have severely limited food and nectar resources (Hughes 2020) and environmental stochasticity, especially variation in host quantity, quality, and phenology (Ehrlich and Murphy 1987). This can further stress butterflies already living in these hot and dry environments, many butterflies, even very

common ones, have been experiencing widespread declines due to a series of threats that may be affecting the Spaldingâ€™s Blue as well (Forister *et al.* 2021). Land use and water use change also have been shown to affect many other western United States species (Forister *et al.* 2010).

Relying on grasslands, the butterfly will face the same threats as grasslands such as grazing. Though some argue grazing has no impact on different species and may even be beneficial due to decreased fire potential (fuel loads), there is some evidence over grazing may be harmful. For some butterflies, including the Sacramento Mountains Checkerspot Butterfly, grazing also directly degrades the habitat by reducing the health and abundance of host plants (by as much as 60% in some studies) (McIntyre 2010), and promotes the spread of invasive species, which outcompete host plants and change the composition of vegetation communities (Souther *et al.* 2019). Grazing not only limits host plant availability and degrades habitat but causes direct mortality of caterpillars and eggs as well. For example, mortality of post-diapause larvae may be higher due to trampling; this has been observed in the Sacramento Mountains (Pittenger and Yori 2003).

Another threat facing this butterfly is catastrophic fire or lack of fire. The impacts of fire on this species may depend on the intensity and size of the fire, as well as seasonal timing (USFWS 2004). With population numbers in small areas one fire, controlled or wild, could wipe out a large percentage of what's left of this species and potentially cause its extinction (Cary *et al.* 2004, Wasserman *et al.* 2023). However, at the same time with no fire these grasslands may grow senescent or be succeeded which will also drive the taxa towards potential extinction (Cary *et al.* 2004, Wasserman *et al.* 2023). The impacts of land use on fire intensity and spread may also be consequential. For example, grazing may temper a fire, as grazed meadows carry less fuel load, but the presence of some invasive grasses which are more abundant in grazed areas, such as Cheatgrass (*Bromus tectorum*), may cause more frequent fires due to invasive grasses adding novel and continuous fuels (USFWS 2004, Fusco *et al.* 2019).

Invasive plants are also a threat to this butterfly as non-native species become more prevalent in grasslands (Gaskin *et al.* 2020). This butterfly is known to only use one hostplant (Scott 1986, Opler and Wright 1999, Glassberg 2001, Cary and Toliver 2024), the current conservation status of Racemose Buckwheat is unknown however, other species of Buckwheats are highly threatened by drought, invasive species, fire, development, and off road vehicles (USFWS 2009). Using just one species as a host plant (Scott 1986, Opler and Wright 1999, Glassberg 2001, Cary and Toliver 2024) leaves this butterfly at risk of environmental stochastic events that could affect the host plant such as extreme weather, wildfires, and predation (Forister *et al.* 2023). However, currently more research is needed on the threats to this host plant and butterfly.

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 several widespread, relatively common species of butterfly are in decline across the American west (Forister *et al.* 2021).

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