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A NEW SUBSPECIES OF *SPEYERIA ATLANTIS* (EDWARDS) (NYMPHALIDAE) FROM THE GREAT BASIN OF NEVADA

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ABSTRACT. A new subspecies of *Speyeria atlantis* (Edwards) of the unsilvered northern Great Basin cline from northeastern Nevada is described. This is the palest of the cline and occurs in an area known for pallidity in other *Speyeria* taxa.

A number of new taxa of butterflies have been discovered and named from the more remote regions of the Great Basin over the past several years (Bauer, *in* Howe, 1975; Brown, 1975; Emmel & Emmel, 1971a, b; Emmel & Mattoon, 1972; Herlan, 1970; Howe, 1975; Scott, 1981; Shields, 1975). A distinct fritillary of the unsilvered, northern Great Basin cline of *Speyeria atlantis* (Edwards) has been known by a few collectors to occur in the Jarbidge and Independence ranges of northeastern Nevada for about 20 years. The cline involved is largely unsilvered, running from *tetonia* dos Passos and Grey from Wyoming through *viola* dos Passos and Grey in Idaho to *dodgei* (Gunder) in Oregon and ending in *irene* (Boisduval) in the Sierra Nevada of California (see Moeck, 1957). The Nevada phenotype has usually been designated *Speyeria atlantis* near *dodgei*. It is, however, distinct enough to warrant recognition.

Speyeria atlantis elko, new subspecies
(Figs. 1 and 2)

Description. Male, dorsal surface—Primaries and secondaries deep fulvous with the usual speyerian black markings moderately developed. Marginal band of primaries black with narrow lines of fulvous in each cell. Basal suffusion light to moderate on both wings. No lightening of ground color indicating positions of ventral surface pale markings. Ventral surface—Primaries basically pale tan with slight basal flush of fulvous. Markings of apical area and suffusion within marginal band a warm, slightly reddish, brown. On secondaries, all pale areas of same tan color as on primaries. Normal discal spots large and prominent. Narrower streaks of tan occur in median area of most or all cells. Disc pale brick red. Discal pale spots bordered basally with black; submarginal spots narrowly bordered distally with black. Basal spots in discal cell and cell Cu_2 usually completely encircled with black. Remaining dark areas of secondaries (marginal suffusion, basal border of submarginal spots) of same brown as markings of apical area of primaries. No silvering of any ventral spots. Size (all measurements of right primary along costal margin to furthest extent of apex)—Holotype = 27 mm, paratypes = 25–28 mm (N = 16). Material examined—Holotype and 28 paratypes.

Female, dorsal surface—Ground color of primaries and secondaries of paler fulvous than male; black markings usually slightly less well developed. Marginal band of primaries tends to be filled completely with black apically but shows the fulvous ground, as in male posteriorly. Basal suffusion as in male. Ground color slightly lighter above positions of ventral pale spots. Ventral surface—Basic coloration similar to that of male

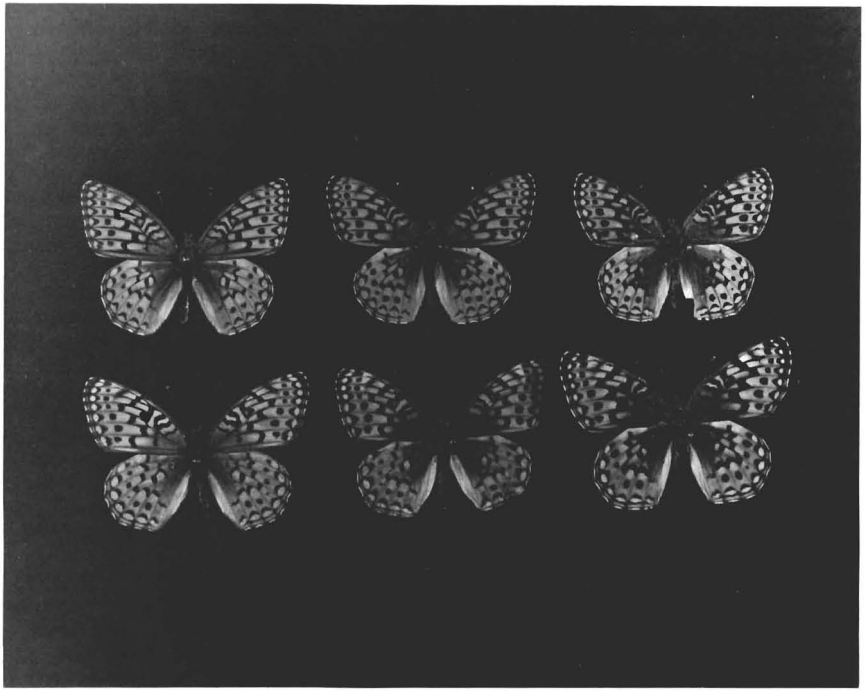

FIG. 1. *Speyeria atlantis* subspecies dorsal surface. **Top row,** males: **left,** *elko,* holotype, NV: Elko Co.; Owyhee R. Valley, Wildhorse Creek Campgr., ca. 10 mi. S Mountain City, 8 July 1978, leg. G. T. Austin. **Center,** *irene,* CA: Nevada Co.; nr. Norden Lake, 6700', 26 July 1976, leg. C. Hageman. **Right,** *dodgei,* OR: Dead Indian Rd., 22 June 1934, coll. unknown. **Bottom row,** females: **left,** *elko,* allotype, same data as holotype. **Center,** *irene,* CA: Nevada Co.; Soda Springs, 12 Aug. 1977, leg. B. O'Hara. **Right,** *dodgei,* CA: Siskiyou Co.; Methodist Camp, Castle Lake Rd., 27 July 1972, leg. L. P. Grey.

but fulvous flush of primaries extending more into discal cell and noticeably to outer margin posteriorly. Pale spots of primaries and secondaries proportionally larger than those of males. Size—Allotype = 29 mm, paratypes = 28–30 mm (N = 10). Material examined—Allotype and 15 paratypes.

Types and type locality.* Holotype: NEV(ada): Elko Co(unty); Owyhee R(iver) Valley, Wild Horse Creek Campg(round), ca. 10 mi(les) S(outh) (of) Mountain City, 8 July 1978, leg. G. T. Austin. Paratype males: six with same data as holotype; two with same data except collected on 2 July 1980; one with same data except collected on 24 June 1981; six from Pine Creek, (Jarbidge Mountains) Elko Co(unty), Nevada, Jul(y) 10 (19)'72, leg. P. Herlan; three from Sawmill Creek, (Jarbidge Mountains) Elko Co(unty), Nevada, Jul(y) 8, (19)'74, leg. P. Herlan; one from same location, 7 (=July)-18-(19)76, leg. P.

* Data on types are as indicated on specimen labels; parenthetical data correct errors or clarify label data; all from Nevada.

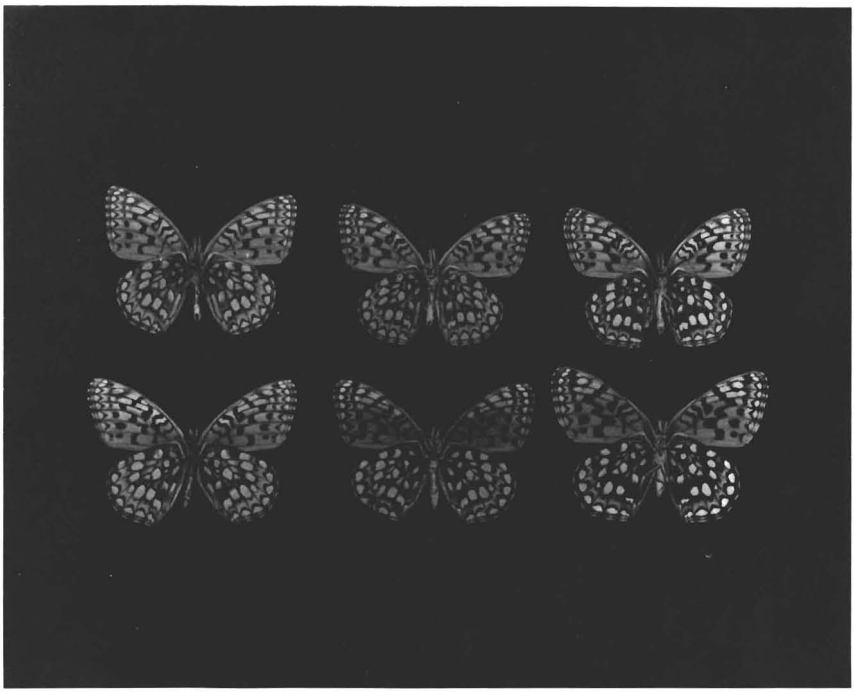

FIG. 2. *Speyeria atlantis* subspecies ventral surface. Same specimens as in Fig. 1 (note especially the paleness and large spots of *elko*).

Herlan; two from Elko Co(unty); Indep(endence) Range, Bull Run M(oun)t(ain)s, slope and summit of Porter Peak, 5 mi(les) W(est of) Maggie Summit, N(e)v(ada State Route) 11A, 8000–9265′, 11 July 1982, leg. S. Mattoon; one from Elko Co(unty); Indep(endence) Range, N(e)v(ada State Route) 11A, Bull Run Basin to Columbia Basin at Aura Hist(orical) site, 6–10 mi(les) NNE H(igh)w(a)y 11, Deep Cr(eek) J(un)ct(ion), 6000–6300′, 11 July 1982, leg. S. Mattoon; four from Elko Co(unty); Indep(endence) Range, Bull Run M(oun)t(ain)s, N(e)v(ada State Route) 11A, vic(inity) Maggie Summit, 6500′, 20 July 1973, leg. S. Mattoon; two from Elko Co(unty); Indep(endence) Range, Bull Run M(oun)t(ain)s, N(e)v(ada State Routes) 226 and 11a, Jack Cr(eek) Campg(round) to Maggie Sum(mit), 5500–6619′, 10 July 1982, leg. S. Mattoon.

Allotype: NEV(ada): Elko Co(unty); Owyhee R(iver) Valley, Wild Horse Creek Campg(round), ca. 10 mi(les) S(outh) (of) Mountain City, 8 July 1978, leg. G. T. Austin. Paratype females: two with same data as allotype; one from Jarbidge, (Jarbidge Mountains) Elko Co(unty), Nev(ada), Aug(ust) 11, (19)63, leg. P. Herlan; one from Jarbidge, (Jarbidge Mountains) Elko Co(unty), Nevada, Jul(y) 10, (19)'72, leg. P. Herlan; 11 from Elko Co(unty), Independence Range, Nev(ada State Route) 11A, 0.5 mi(les) E(ast) (of) Maggie Summit, 28 July 1981, leg. G. T. Austin.

Due to the small number of specimens from any one specific location, the type series includes all specimens from Elko Co., Nevada, at hand. They were taken essentially from three colonies within 60 km of each other, one in the Jarbidge Mountains near Jarbidge, one in the Independence Range near Maggie Creek and the other along Wild Horse Creek, 6400′, in the Owyhee River Valley (R54E T44N S16). The latter was chosen as the type locality. The type locality is a creek bottom along which the males patrol. The surrounding area consists of low hills with sagebrush (*Artemisia*) as the predominant

vegetation. The new taxon flies with five other *Speyeria*: *coronis snyderi* (Skinner), *zerene gunderi* (Comstock), *callippe harmonia* dos Passos & Grey, *egleis linda* (dos Passos & Grey), *mormonia artonis* (Edwards).

Deposition of types. The holotype, allotype, 10 male and seven female paratypes are deposited in the Nevada State Museum, one male paratype is deposited in the collection of C. S. Lawson in Las Vegas, Nevada, nine male paratypes are deposited in the collection of S. Mattoon, Chico, California, and the remaining paratypes are in the author's personal collection.

Other records. All NEVADA: Elko Co. (specimens not seen): Jarbidge Mts., Pine Creek, 9 July 1964 (J. Lane *fide* L. P. Grey); same location, 11 July 1972 (D. Bauer); same location, 10 Aug. 1967 (J. F. Emmel); Jarbidge Mts., Jarbidge-Charleston Road, 8 mi. S. of Jarbidge, 9 Aug. 1967 (J. F. Emmel); Jarbidge River, 12 and 31 July 1974 (C. Ferris *fide* L. P. Grey); Rt. 11A, Maggie Creek, 21 July 1973 (L. P. Grey, Mattoon, *fide* L. P. Grey); same location, 21 July 1976 (L. P. Grey).

Etymology. This subspecies is named after Elko County, Nevada, its type locality and only presently known range.

Diagnosis. This new taxon is immediately recognizable from any other *atlantis*. The dorsal ground color is paler and the black patterning is finer than in *tetonia, viola* and *dodgei*. The males of those three subspecies tend to have the marginal area of the primaries largely black which is not the case in *elko*. In color, *elko* is similar to *irene* but the pattern is finer, especially on the secondaries, of *elko*. The ventral surface is particularly distinctive. The reddish brown is paler in *elko* than in all the above-named taxa. The palest (aside from *elko*), *irene*, still shades towards a deeper brick red color which becomes progressively darker eastward. The submarginal band is wider, and the spots of the secondaries are larger than in any of the conspecifics, and the tan coloration of these gives the ventral surface of *elko* an almost yellowish appearance, an aspect not attained by any other taxon.

Discussion

Geographically, the paleness of *elko* corresponds closely with pallidity exhibited by other *Speyeria* of this same general region of the Great Basin (i.e., *S. atlantis greyi* Moeck, *S. mormonia artonis*, *S. zerene gunderi*). It is interesting that two very different clines of western *atlantis* coming from two directions terminate in extremes of pallidity within 80 km of each other. The populations of *greyi* in the Ruby Mountains and East Humboldt Range, Elko Co., Nevada may represent the western pallid extreme of the *chitone* (Edwards) and *wasatchia* dos Passos and Grey cline, while the taxon described herein is the pallid extreme of the northern Great Basin-Sierra Nevada cline which apparently colonized Nevada from the north. This situation approaches that shown by another pair of *atlantis* subspecies, *hollandi* (Chermock & Chermock) and *dennisi* (Gunder), which fly together in the Black Hills (Grey et al., 1963) and by a pair of *S. zerene* (Boisduval) subspecies, *zerene* and *gunderi*, which overlap in northeastern California (Grey & Moeck, 1962).

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