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Review of Montana *Euphilotes* Mattoni, [1978], with descriptions of new taxa (Lepidoptera: Lycaenidae: Polyommatainae)

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ABSTRACT: The genus *Euphilotes* at the northern end of its distribution is reviewed, with special emphasis on populations in Montana. Also discussed are some *Euphilotes* populations in Oregon, Washington, Idaho and southwestern Canada that have affinities with Montana. This region has until recently been essentially neglected in studies of the genus. We characterize and discuss six species (two newly described) and twenty-five subspecies (six newly described) of *Euphilotes*, including a number of yet undescribed populations. **New species** include *Euphilotes heracleoides* Kohler & A. Warren (type locality in Sanders County, Montana) and *Euphilotes oakleyi* Kohler (type locality in Missoula County, Montana). **New subspecies** include *Euphilotes baueri borealis* Kohler (type locality in Sanders County, Montana), *Euphilotes baueri shoshone* Kohler (type locality in Butte County, Idaho), *Euphilotes oakleyi madisonensis* Kohler (type locality in Madison County, Montana), *Euphilotes ancilla montosa* Kohler (type locality in Missoula County, Montana), *Euphilotes ancilla campestris* Kohler (type locality in Powder River County, Montana), and *Euphilotes rita montanensis* Kohler (type locality in Carbon County, Montana). Adults and male and female genitalia are figured for all newly described taxa, and compared to various congeners.

Additional key words: Biogeography, distribution, genitalia, larval food plant associations, phenology.

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INTRODUCTION

Euphilotes Mattoni, [1978] blues are among the least well-known of North American butterflies. Since the original description of the genus, myriad subspecific taxa have been described, and the most recent review of the genus (Pratt & Emmel, 1998) only partially resolved species-level taxonomic issues. Much of the confusion surrounding *Euphilotes* stems from the very similar superficial appearances of several taxa. Knowledge of larval food plants, adult genitalia, and local geographical and temporal distributions are often necessary for identification. The life cycles of *Euphilotes* are closely coordinated with those of their larval food plants, which are various *Eriogonum* Michx. species (Polygonaceae), wild buckwheat. More than one taxon of *Euphilotes* may co-occur, either synchronously or not, but most co-occurring species use different food plants (Austin et al., 2008).

Kohler (1980) listed only two species of *Euphilotes* as occurring in Montana, *E. battoides glaucon* (W. H. Edwards, 1871) and *E. enoptes ancilla* (W. Barnes & McDunnough, 1918). Pratt & Emmel's (1998) revision of the *Euphilotes enoptes* and *E. battoides* complexes elevated *E. ancilla* to the species-level, but otherwise provided little information relative to Montana. This last and earlier works with a

primary focus on California and Nevada have essentially neglected the northern end of the distribution of the genus, including Oregon, Washington, Idaho, Montana and southwestern Canada. Warren (2005) presented considerable information on *Euphilotes* in Oregon, including some discussions of a few populations in other northwestern states. Pelham (2008) presented a complete synonymic list of *Euphilotes*, including all of the then known 57 described subspecies-level taxa (except *E. bernardino garthi* Mattoni, 1989, endemic to Isla de Cedros, Baja California, Mexico), arranged into thirteen species. At the time Pelham (2008) was published, several of the taxa described by Pratt & Emmel (1998) as subspecies of *E. battoides* (Behr, 1867) had not been formally aligned with species-level taxa in that complex. As a result, the arrangement of subspecific taxa under *E. battoides* in Pelham (2008) apparently represented a polyphyletic assemblage. The listing of *Euphilotes* taxa by Warren et al. (2009) followed Pelham's (2008) arrangement, except that it also indicated a number of undescribed segregates among then recognized species, included the recently described *Euphilotes stanfordorum* Opler & A. Warren, 2009, and included the Mexican endemic *E. bernardino garthi*. Pelham's (2021) revised online catalog lists 60 described subspecies-level *Euphilotes* taxa, arranged into 16 species. Color images of adults of essentially all taxa discussed herein, including a large number of primary and secondary types, are provided in Warren et al. (2016).

Males of most *Euphilotes* taxa may travel a considerable distance from their larval food plants in search of mud, where they sometimes congregate in large numbers. In such situations, determining the identities of these males in the absence of larval food plant information can be difficult. Rarely, females also visit mud. Without prior detailed knowledge of what *Euphilotes* segregates in the different species groups occur in any given area, *Euphilotes* adults found at mud sometimes cannot be reliably identified in the field, even when voucher specimens are sampled (Warren 2005). We have used caution in applying and citing information gleaned from the literature on *Euphilotes* taxa due to confusion between similar species, the complex taxonomy of their *Eriogonum* food plants, and the large number of museum specimens that are incorrectly determined to species-group (in these cases, male genitalia usually have not been examined). Considerable variation exists between individuals in any given population of *Euphilotes*, both in details of the configuration of the male and female genitalia, and wing characters in the adult butterflies. In addition, some adults of the different described species can be very similar to one another. To define species boundaries, recent authors have used a combination of food plant associations, biological studies of the immature stages, geographic isolation, isolation due to seasonal differences in adult flight periods, and adult morphology (various wing characters including ventral forewing suffusion, maculation, the aurora of the hind wing, wing borders and fringes, the amount and shade of blue dorsally, and male and female genitalia). Often, the food plant species for the taxon is more important in identifying the taxon to species or subspecies than is the external morphology of the butterfly.

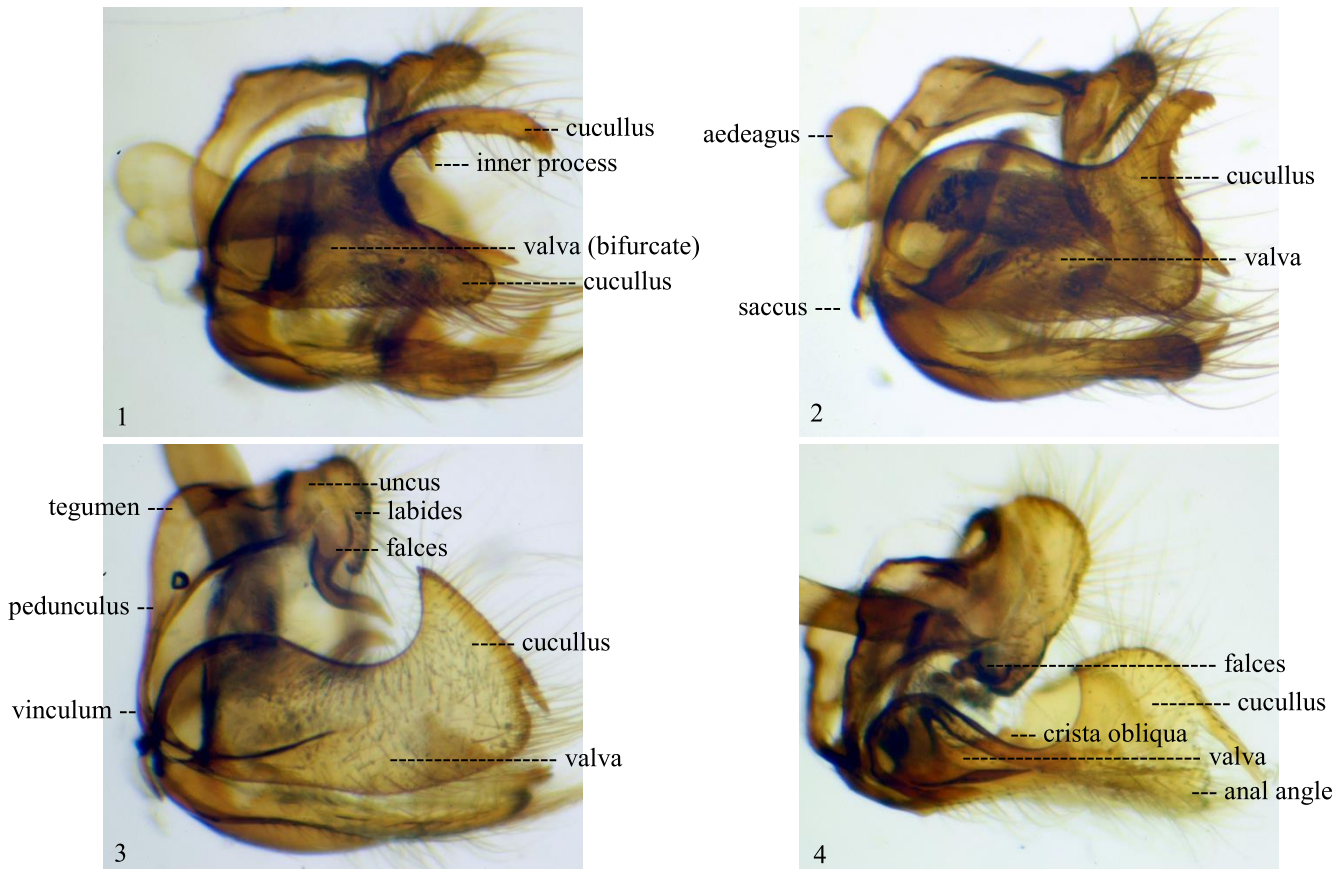
MATERIALS AND METHODS

Specimens examined are deposited in the collections of the McGuire Center for Lepidoptera and Biodiversity, Florida Museum of Natural History, University of Florida, Gainesville (MGCL); Oregon State Arthropod Collection, Oregon State University, Corvallis (OSAC); research material of Andrew D. Warren, Castle Rock, Colorado (ADW); private collections of Steve Kohler, Missoula, Montana (SK), and Dana Ross, Corvallis, Oregon (DR). Specimens that form the basis for other records cited herein are housed in American Museum of Natural History, New York, New York (AMNH); Essig Museum of Entomology, University of California, Berkeley, California (EMEC); California Academy of Sciences, San Francisco, California (MCAS); Museum of Comparative Zoology, Harvard University, Cambridge, Massachusetts (MCZC); Natural History Museum of Los Angeles County, Los Angeles, California (NHMLA); Peabody Museum of Natural History, Yale University, New Haven, Connecticut (PMNH); National Museum of Natural History, Smithsonian Institution, Washington, D. C. (USNM); University of Washington Burke Museum, University of Washington, Seattle, Washington (UWBM); William F. Barr Entomological Museum, University of Idaho, Moscow, Idaho (WFBM); Washington State University, Pullman, Washington (WSU).

Full data are provided for all *Euphilotes* specimens examined from Montana. In addition, full data are provided from other states and provinces for all specimens examined of newly described taxa. For most other taxa discussed herein, complete specimen data from MGCL, OSAC, and private collections have not been listed. Partial listings of specimens examined, with an emphasis on those examined by the senior author (SK), are provided for taxa occurring adjacent to those that exist in Montana or to accompany specimens figured in captions; in most cases, data from specimens examined of California-Nevada taxa described since 1998 have not been listed. For taxa discussed herein that also occur in Oregon, data from specimens examined leading up to the publication of Warren (2005) are provided; data obtained since 2005 generally are not.

Distribution maps were constructed using base topographical maps, to which were added the captions, legends and dots, visually placed in the approximate collection localities. Each finished map was then saved as a Word file. In addition to specimens we have personally examined, maps are populated with locality data provided by Shields (1975, 1977), Stanford & Opler (1993), Austin (1998), Layberry et al. (1998), Pratt & Emmel (1998, 2008), Davenport (2004a, b), Warren (2005) and Austin et al. (2008), when unambiguous.

Figures of the adult butterflies are shown at 1.6X life size and to scale. Both dorsal and ventral surfaces are shown for each specimen. Full data for each specimen is provided. Figures of the male and female genitalia are shown at approximately 50X magnification. For comparison, the entire genital capsule of each male is shown in the same position, with the left valva in lateral view, anterior left and posterior right. For the female genitalia, the sclerotized ventral portion (lodix) of the terminal segments of the female abdomen is shown in ventral view with the posterior end up. Previous authors of *Euphilotes* studies have used a variety of terms to describe the external structures and configuration of the male and female genitalia, at times using different terminology for the same structure. To avoid confusion when describing and comparing the various structures for the purpose of this review, we list below in glossary form the definitions upon which these comparisons will be made. The definitions are largely based on those from Ehrlich & Ehrlich (1961), Klots (1970) and Tuxen (1970). The locations of these structures are indicated on photos of the genitalia below.



Male genitalia of *Euphilotes* showing the shape of the left valva and the location of the associated structures. 1. *Euphilotes battoides* complex. 2. *Euphilotes oakleyi*. 3. *Euphilotes enoptes* complex. 4. *Euphilotes rita* complex. All shown in left lateral view.

MALE GENITALIA

Aedeagus: Penis or phallus, the male intromittent organ.

Anal angle: An angle of the cucullus, forming the ventrocaudal angle of the valva.

Crista obliqua (pl. cristae obliquae): Oblique, dentate process of the median, basal region of the valva.

Cucullus: Distal portion of the valva.

Falces (= gnathos): Paired, heavily sclerotized, curved or angulate arms, articulated with the caudal margin of the tegumen ventrad of the base of the uncus and extending ventro-caudad.

Labides: Lobes of the uncus.

Pedunculus: Lateral part of the tegumen, articulating with the dorsal part of the vinculum.

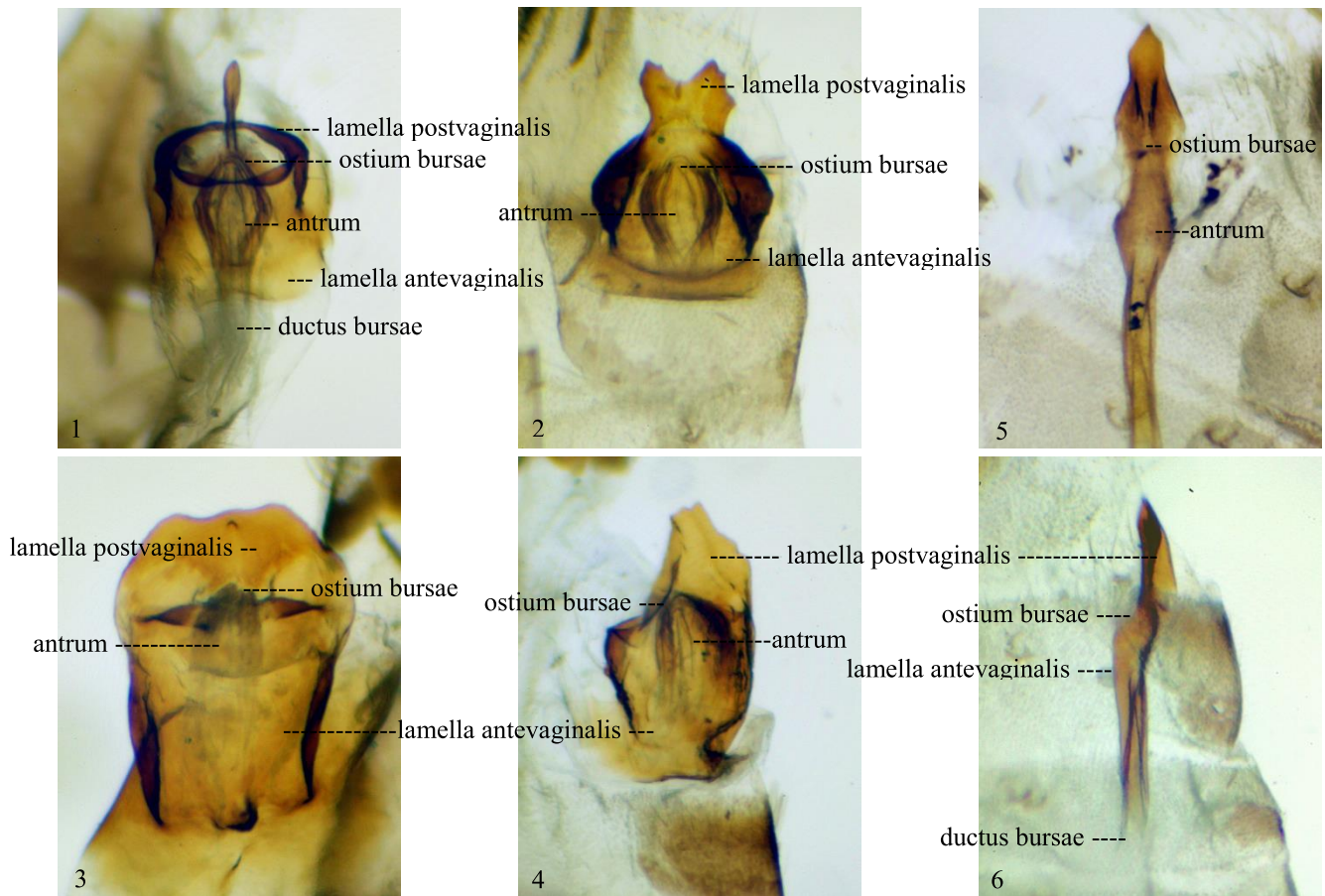
Saccus: Anterior projection from the base of the vinculum.

Tegumen: The dorsal basal structure of the male genitalia, roof-like or hood-like.

Uncus: The dorsal distal structure extending caudad from the tegumen.

Valva (pl. valvae): Paired, presumably claspings organs of the male genitalia.

Vinculum: The U-shaped sclerite to which the valvae are attached.



Female genitalia of *Euphilotes* showing the shape of the lodix and the location of the associated structures. 1. *Euphilotes battoides* complex, ventral view. 2. *Euphilotes oakleyi*, ventral view. 3. *Euphilotes enoptes* complex, ventral view. 4. Same, lateral view. 5. *Euphilotes rita* complex, ventral view. 6. Same, lateral view.

FEMALE GENITALIA

Antrum: A bulbous, ribbed mating tube, the most caudal part of the ductus bursae when more heavily sclerotized and differentiated from the remainder of the ductus bursae.

Bursa copulatrix: A collective term for the structure comprised of the ostium bursae, antrum, ductus bursae and corpus bursae.

Corpus bursae: The enlarged sac-like distal part of the bursa copulatrix.

Ductus bursae: A tube of varying length, most commonly relatively narrow, and connecting the ostium bursae with the corpus bursae, including the antrum. Part of the bursa copulatrix.

Lamella antevaginalis: The part of the lodix which is cephalad and ventral of the ostium bursae.

Lamella postvaginalis: the part of the lodix which is caudad and dorsal of the ostium bursae.

Lodix: The entire complex of sclerotized structures surrounding the ostium bursae, consisting of the lamella antevaginalis and lamella postvaginalis, located mid-ventrally and caudad of the seventh sternite, which fit corresponding structures of the male genitalia and presumably serve to hold the mating individuals together. It is also called the genital plate or sterigma.

Ostium bursae: The copulatory entrance into the ductus bursae.

Note: No sharp distinction between the lamella antevaginalis and lamella postvaginalis is possible in *Euphilotes*, with the two being joined and surrounding the ostium bursae and antrum. Mattoni [1978], in erecting the genus stated "Lodix large subcuboid formed as a single apparent sclerite. Deeply invaginated into the seventh segment".

RESULTS AND CONCLUSIONS

Below, we review described and known undescribed populations of *Euphilotes*, with a special emphasis on those occurring in Montana and other northwestern states and Canadian provinces, at the northern distributional limit of the genus. We document the distributions of all *Euphilotes* populations known to occur in Montana, based on nearly five decades of extensive field work researching the butterfly fauna of Montana, by the senior author. We describe two new species and six new subspecies of *Euphilotes*, and figure adults and male and female genitalia of newly named taxa, as well as of other taxa as relevant in comparisons with new taxa. Full synonymies for all taxa discussed are provided by Pelham (2021).

Pratt & Emmel (1998) recognized three species complexes in *Euphilotes* and outlined characters of the male and female genitalia used to separate them. As a result of the current study, we have confirmed that the conformation of the valvae in the male genitalia and the lodix in the female genitalia have highly significant taxonomic value for specific, and in some cases, subspecific determination. In this study, we have refined the use of these differences in defining populations discussed below. The taxa we discuss are organized according to the three species complexes as defined by Pratt & Emmel (1998).

THE *EUPHILOTES BATTOIDES* COMPLEX

Pelham (2021) included the following species in the *Euphilotes battoides* complex: *E. battoides* (Behr) (Figs. 235, 316), *E. bernardino* (W. Barnes & McDunnough) (Figs 236-237, 317-318), *E. allyni* (Shields), *E. glaucon* (W. H. Edwards) (Figs. 238-249, 319-323), *E. baueri* (Shields) (Figs. 261-271, 332-340), *E. centralis* (W. Barnes & McDunnough) (Fig. 272) and *E. ellisii* (Shields). Warren (2005) discussed two additional undescribed taxa in the *E. battoides* complex, treated at the species-level, in the Pacific Northwest. One of these, which is associated with *Eriogonum heracleoides* Nutt., is described below. The second taxon, endemic to high elevations in the Cascade Range and associated with *Eriogonum marifolium* Torr. & A. Gray, will be described by the authors in a subsequent publication. In this species complex, the male genitalia have bifurcate valvae, consisting of a broad lower portion and a narrow, usually curved upper prong of approximately equal length. In the female genitalia, the lodix is considerably reduced, being more ring-shaped.

Euphilotes glaucon glaucon (W. H. Edwards, 1871) (Figs. 1-22, 238-245, 319-321)

Lycaena Glaucon W. H. Edwards, 1871, Trans. Am. Entomol. Soc. 3(3/4): 205, 210, no. 9.

Philotes glaucon glaucon Edw.; McDunnough, 1938, Mem. S. Calif. Acad. Sci. 1: 28.

Philotes battoides glaucon (Edwards); dos Passos, 1964, Mem. Lepid. Soc. (1): 67; Langston, 1969, J. Lepid. Soc. 23(1): 50.

Shijimaeoides battoides glaucon (Edwards, 1871); Shields, 1977, J. Res. Lepid. 16(1):31.

Euphilotes battoides glaucon (W. H. Edwards); Miller & Brown, 1981, Mem. Lepid. Soc. (2): 118.

Euphilotes battoides glaucon (W. H. Edws.); Mattoni, 1989, J. Res. Lepid. 27(3/4): 175.

Euphilotes battoides glaucon (Edwards, 1871); Pratt & Emmel, 1998, Syst. W. N. Am. Butterflies (16): 216.

Euphilotes glaucon glaucon (W. H. Edwards, 1871); Warren, 2005, Butts. Ore.: 173; Pelham, 2008, J. Res. Lepid. 40: 247; Pelham, 2021, <http://www.butterfliesofamerica.com/US-Can-Cat.htm>.

Type Locality: Nevada: Storey County; near Virginia City.

Mattoni (1989) was the first to suggest that *E. glaucon* may represent a species-level taxon. Warren (2005) elaborated on this hypothesis and applied the name broadly, as a wide-ranging polytypic species, to all populations in Oregon (then mostly known from the western half of the state) feeding on *Eriogonum umbellatum* Torr. This application was supported by adult morphology and the timing of

adult flight in populations occurring in sympatry and parapatry with other members of the *E. battoides* complex. Additional fieldwork in the Pacific Northwest since Warren (2005) has documented *Er. umbellatum*-feeding populations of *E. glaucon* in northeastern Oregon, on the east side of the Cascades in Washington, and at several sites in Montana. *Eriogonum umbellatum*-feeding populations of *E. "battoides glaucon"* in western Montana were discussed by Shields (1977), but he listed only one record—Ravalli County. Kohler (1980) listed records of *E. "battoides glaucon"* for only three Montana counties (Madison, Missoula [in error], and Ravalli). As discussed above, *E. glaucon* is now considered a species-level taxon. Since Kohler (1980), we have documented additional Montana localities for *E. glaucon*, as detailed below. The morphology of Montana populations of *E. glaucon* does not differ significantly from that of the nominotypical populations of the Great Basin.

Because of its use of (early blooming) *Er. umbellatum*, Davenport (2004a) treated *Euphilotes comstocki* (Shields, 1975) as a subspecies of *Euphilotes intermedia* (W. Barnes & McDunnough, 1917) (although Pelham (2021) includes *intermedia* as a subspecies of *E. glaucon*). This circumscription of *E. glaucon* also implies that some additional taxa (outside the range of taxa treated by Davenport), described as subspecies of *E. battoides* by Pratt & Emmel (1998) and so treated by Pelham (2008), should be associated with *E. glaucon*.

The known distribution of *E. g. glaucon* includes northern California, northern Nevada, western Oregon, southern Idaho, southwestern Montana and northern Utah (Fig. 383).

Specimens Examined: **USA: IDAHO: Lemhi County:** W. side Bitterroot Range, upper Cow Creek Rd. fork, off Lemhi Pass Rd., E. of Tendoy, 6205', 18 July 2006, T.W. Ortenburger, 1 ♂ (at mud) (ADW); **MONTANA: Beaverhead County:** near Lemhi Pass, 20 July 1982, S. Kohler, 4 ♂ (SK); Gold Cr., 6000', FR 73, 15 mi. S. Wise River, 30 June 2017, S. Kohler, 1 ♂ 1 ♀ (SK); **Ravalli County:** Railroad Creek, 4950', off Skalkaho-Rye Road, 25 June 1981, S. Kohler, 1 ♂ (SK); same locality, 25 June 2001, S. Kohler, 12 ♂ 3 ♀ (SK); **Silver Bow County:** Barrel Spring trail, 6100', 4-5 mi. NE of Melrose, 7 June 2004, S. Kohler, 8 ♂ 1 ♀ (SK); same locality, 1 June 2006, S. Kohler, 5 ♂ (SK); 5 June 2006, S. Kohler, 13 ♂ (SK); 6 June 2006, S. Kohler, 12 ♂ (SK); 30 May 2007, S. Kohler, 1 ♂ (SK); Barrel Spring trail, 5680', off Camp Creek Rd., 5 mi. NE Melrose, 15 June 2015, S. Kohler, 1 ♂ (SK); Camp Creek Road, 4-5 mi. E. of Melrose, 4 June 2004, S. Kohler, 1 ♂ (SK); same locality, 14 June 2004, S. Kohler, 3 ♂ (SK); Soap Gulch, 6980', 7 mi. up, NE Melrose, 15 June 2015, S. Kohler, 4 ♂ (SK); Soap Gulch, 6850-7150', 7-8 mi. up, NE Melrose, 17 June 2015, S. Kohler, 24 ♂ (SK); Soap Gulch, 6900', 6 mi. up, NE Melrose, 21 June 2016, S. Kohler, 4 ♂ (SK); Same locality, 23 June 2016, S. Kohler 2 ♂ 2 ♀ (SK); Soap Gulch, 6875-7300', 6-7 mi. up, NE Melrose, 24 June 2015, S. Kohler, 14 ♂ (SK); Same locality, 25 June 2015, S. Kohler, 4 ♂, (SK); Soap Gulch, 7300', 7 mi. up, NE Melrose, 3 July 2020, S. Kohler, 2 ♂, (SK); **USA: NEVADA: Douglas County:** US 395, 2.1 mi. S. Carson City line, 30 May 1980, G. T. Austin, 4 ♂ 4 ♀ (SK); Clear Creek Canyon, 2 mi. NW US 395, 29 May 1980, G. T. Austin, 2 ♂ 2 ♀ (SK); **Washoe County:** 3 mi. E. US 395 on Hwy. to Virginia City, 19 June 1980, J. B. Vernon, 4 ♀ (SK); **OREGON: Deschutes County:** Hwy. 20, 1.5 mi. E. Millican, 8 June 2003, assoc. *Er. umbellatum*, A.D. Warren, 1 ♂ 1 ♀ (ADW); Rd.16, 1-2 mi. S. Sisters, 7 June 2003, assoc. *Er. umbellatum*, A.D. Warren, 23 ♂ 11 ♀ (ADW) (some males in the population have widened dark wing margins, approaching the phenotype seen in *E. g. oregonensis*); Sisters, 8 July 1953, S. Jewett, 2 ♂ 3 ♀ (OSAC); same locality, 24 June 1954, J. C. Downey, 1 ♀ (MGCL); **Grant/Baker counties:** Elkhorn Mts., saddle at 8000', 24 July 2005, D. Trochlell, 2 ♂ 3 ♀ (ADW); **Harney County:** Hwy. 20, mi.85, just W. of Lake Co. line, 10 June 2003, assoc. *Er. umbellatum*, A.D. Warren, 3 ♂ 1 ♀ (ADW); Steens Cirque, 26 July 2000, D. Ross, 1 ♂ 1 ♀ (DR); Steens Mtn., Wildhorse Lake, 8450', 21 June 1992, D. Ross, 1 ♂ 1 ♀ (DR); Steens Mt., 25 July 1936, S. Jewett, 1 ♂ (OSAC); same locality, 19 July 1957, R. Albright, 1 ♂ 1 ♀ (OSAC); 18 July 1958, 1 ♂ 2 ♀ (OSAC); Steens Mt., E. rim overlook, 11 July 2000, D. Ross, 1 ♀ (DR); Steens Mtn., trailhead to summit, 25 July 1997, D. Ross, 2 ♂ 1 ♀ (DR); summit of Steens Mt., 9600', 28 July 1958, D. Jewett, 1 ♀ (OSAC); same locality, 17 July 1968, S. Dornfeld, 1 ♀ (MGCL); 1 ♂ 2 ♀ (OSAC); 15 August 1971, S. Dornfeld, 1 ♂ (MGCL); 2 August 1975, Hinchliff, 1 ♂ 2 ♀ (OSAC); **Jackson County:** Burnt Ck. Ranch Rd., 2 mi. S. Dead Indian Rd., 5400', 1 July 1991, 1 ♂ (OSAC); Hyatt Lake, 9 June 1940, 1 ♂ (SK); Hyatt Prairie Rd., 1.2 mi. N. Hwy. 66, ca. 4750', on *Er. umbellatum*, 2 June 2000, A.D. Warren, 1 ♂ 1 ♀ (ADW); near summit, Mt. Ashland, 6600', assoc. *Er. umbellatum*, 23 June 2000, A. D. Warren, 3 ♂ (ADW); same locality and plant association, 19 July 1997, D. Ross, 1 ♀ (DR); many more from this locality (OSAC); N. Fork Scotch Ck. Cyn. and Lone Pine Ridge, 3800-4600', on *Er. umbellatum*, 27 June 2000, A.D. Warren, 1 ♂ 1 ♀ (ADW); meadow above Soda Mtn. Rd., 3.8 mi. S. of jct. with Hwy. 66, 4900', 21 June 2000, R.L. Romeyn 2 ♂ 2 ♀ (SK); Soda Mtn. Rd. to Hobart Peak (ca. 3 mi. S. Hwy. 66), 5200-5450', on *Er. umbellatum*, 22 June 2000, A.D. Warren, 3 ♂ 4 ♀ (ADW); **Jefferson County:** along Metolius River at lower bridge, ca. 8 mi. N. Metolius Spring, 2300', 31 May 2002, at mud but assoc. *Er. umbellatum*, 1 ♂ (ADW); Canyon Creek Meadows, 30 July 1978, [V. McHenry], 3 ♂ (OSAC); Metolius River, 10 July 1952, S. Jewett, 1 ♂ (OSAC); Rd. 11 at jct. Meadow Creek, E. side of Green Ridge, ca. 3200', 2 June 2003, assoc. *Er. umbellatum*, A.D. Warren, 4 ♂ 2 ♀ (ADW); **Klamath County:** Bly Mtn., 5000', 16 June 1963, E. Dornfeld, 3 ♂ (OSAC); same locality, 17 June 1963, E. Dornfeld, 1 ♂ 1 ♀ (OSAC); 22 June 1959, E. Dornfeld, 2 ♂ (OSAC); 21 June 1958, R. Woodyly, 3 ♂ (OSAC); Keno, 30

May 1939, S. G. Jewett, 1 ♂ (MGCL); 8 ♂ 8 ♀ (OSAC); Hwy. 66, at W. end jct. Hwy. 97, SW edge Klamath Falls, 4000', 18 June 2003, assoc. *Er. umbellatum*, A.D. Warren, 3 ♂ 6 ♀ (ADW); **Lake County:** Chandler State Park, 12 mi. N. Lakeview, 16 June 1958, E. Dornfeld, 1 ♂ (OSAC); Hwy. 20, mi. 81, ENE Glass Buttes, ca. 4500', 9 June 2003, assoc. *Er. umbellatum*, A.D. Warren, 3 ♂ 1 ♀ (ADW); same locality, 10 June 2003, assoc. *Er. umbellatum*, A.D. Warren, 3 ♂ 4 ♀ (ADW); Lost Forest nr. Christmas Valley, 16 June 1970, 1 ♂ (OSAC); Warner Mts., Kelly Creek, T40S R21E S9, 4810', 13 June 1999, V. Covlin, 1 ♂ (ADW).

Additional Records: The following include published records or others known to us. Specimens have not been examined. **USA: IDAHO: Lemhi County:** Fourth of July Cr. at Blacktail Cr., 17 June 1999, L. May (WFBM); Salmon River Rd., 41 mi. SW North Fork, 26 June 1999, L. May (WFBM); **MONTANA: Madison County:** C. Durden (reported to R. E. Stanford, 1978; these could be the new taxon described from Madison County, below); **Ravalli County:** Sula, 4700', 23 June 1929, 1 ♂ (WFBM) (Shields, 1977).

Euphilotes glaucon oregonensis (W. Barnes & McDunnough, 1917)
(Figs. 23-26, 246)

Philotes battoides oregonensis B. & McD., 1917, Contrib. Nat. Hist. Lepid. N. Am. 3(4): 214; McDunnough, 1938, Mem. S. Calif. Acad. Sci. 1: 28.

Philotes battoides oregonensis Barnes & McDunnough, 1917; dos Passos, 1964, Mem. Lepid. Soc. (1): 67; Langston, 1969, J. Lepid. Soc. 23(1): 50.

Shijimaeoides battoides oregonensis (Barnes & McDunnough, 1917); Shields, 1977, J. Res. Lepid. 16(1):44.

Euphilotes battoides oregonensis (Barnes and McDunnough); Miller & Brown, 1981, Mem. Lepid. Soc. (2): 118.

Euphilotes battoides oregonensis (B. & McD.); Mattoni, 1989, J. Res. Lepid. 27(3/4): 175.

Euphilotes battoides oregonensis (Barnes & McDunnough, 1917); Pratt & Emmel, 1998, Syst. W. N. Am. Butts. (16): 220.

Euphilotes glaucon oregonensis (Barnes & McDunnough, 1917); Warren, 2005, Butts. Ore.: 173; Pelham, 2008, J. Res. Lepid. 40: 247; Pelham, 2021, <http://www.butterfliesofamerica.com/US-Can-Cat.htm>.

Type Locality: Oregon: [Klamath County]; Crater Lake.

Typical *E. g. oregonensis* occurs in the pumice flats and low hills of central Klamath County, Oregon (e.g., Sand Creek area, ca. 4800'; south entrance to Crater Lake National Park), north to extreme southwestern Deschutes County (Fig. 383). As with other *E. glaucon* populations, it is associated with *Er. umbellatum*. Adults of *E. g. oregonensis* fly mostly from mid-June to mid-July. Males are dark blue above, usually with very wide dark wing borders (Fig. 23). Above, females are dark brown, with a narrow orange aurora (Fig. 25). Below, both sexes have a ground color similar to *E. g. glaucon*, and the spot size averages somewhat larger (Warren, 2005) (Figs. 24, 26).

Specimens Examined: **USA: OREGON: Klamath County:** Antelope Desert, W. of Hwy 97 at mi. 226.6, 22 June 2017, B. A. O'Hara, 1 ♂ 2 ♀ (SK); Antelope Desert, Sand Creek area, flats W. Hwy. 97 at mi. 226, 4557', 29 June 2017, R. L. Romeyn, 5 ♀ (SK); Crater Lake, 11 July 1925, 1 ♂ 3 ♀ (OSAC); same locality, 12 July 1937, 4 ♂ (SK); 27 July 1933, 1 ♂ (SK); 11 July 1930, 2 ♀ (MGCL); 23 July 1944, 2 ♂ (OSAC); 26 July 1963, Hinchliff, 2 ♂ 2 ♀ (OSAC); 18 July 1970, D. W. Jenkins, 1 ♂ 2 ♀ (MGCL); 22 July [??], 1 ♂ (MGCL); Crater Lake N. P., 17 July 1944, B. Weber, 2 ♂ 10 ♀ (MGCL); same locality, 23 July 1944, B. Weber, 5 ♂ 4 ♀ (MGCL); Hwy. 97, vic. mi. 226.4, ca. 4700', on *Er. umbellatum*, 21, 28 June 2000, A. D. Warren, 48 ♂ 25 ♀ (ADW); same locality and plant association, 23 June 2001, A. D. Warren, 2 ♂ 2 ♀ (ADW); same locality, association and date, D. Ross, 6 ♂ 5 ♀ (DR); 18 June 1992, D. Ross, 5 ♂ 3 ♀ (DR); 17 June 2000, D. Ross, 7 ♂ 2 ♀ (DR); Sand Creek, Hwy. 232, 3 July 1968, E. J. Dornfeld, 1 ♂ (MGCL); 0.9 mi. N. Sand Creek, and W. of US 97, 4500', 18 June 2006, J. & F. Preston, 1 ♂ (MGCL); 1.6 mi. E. Hwy. 97, 9 mi. N. Kirk, 4650', 27 July 1964, E. M. & S. F. Perkins, 2 ♂ (MGCL); 5 mi. N. Sun Pass, Hwy. 232, 4750', 10 July 1962, 1 ♀ (MGCL).

Euphilotes glaucon australoglaucon Pratt & J. Emmel, 1998
(Figs. 27-30)

Euphilotes battoides austroglaucon Pratt & J. Emmel, 1998, Syst. W. N. Am. Butts. (16): 216-217.

Euphilotes glaucon australoglaucon Pratt & J. Emmel, 1998; Pelham, 2008, J. Res. Lepid. 40: 247; Pelham, 2021, <http://www.butterfliesofamerica.com/US-Can-Cat.htm>.

Type Locality: California: Inyo County; east slope Sierra Nevada, Independence Creek, 6300' elevation.

Pratt & Emmel (1998) considered this taxon to be “ecologically very close to subspecies *glaucon*”, but treated both as subspecies of *E. battoides*. Davenport (2004b), who stated, “The occurrence of *battoides* on Glass Mountain well east of the Sierra Nevada within the range of *glaucon* suggests that these may be two different species”, aligned *astraloglaucon* with *E. glaucon*, an arrangement followed by Pellham (2008). This taxon differs from nominate *glaucon* mainly in the presence of extensive bluish scaling above on many (but not all) females, and a somewhat paler blue color above in males. As reported in its original description, *E. g. astraloglaucon* uses *Eriogonum umbellatum* Torr. var. *nevadense* Gand. as its larval food plant. This taxon was reported (Pratt & Emmel, 1998) to occur along the east slope of the Sierra Nevada in California, from about the latitude of Lone Pine in Inyo County, north to the Sherwin Grade of the south part of Mono County (Fig. 383).

Specimens Examined: USA: CALIFORNIA: Inyo County: S. Fork Bishop Creek Canyon, S. of South Lake Rd., 0.2 mi. W. of Mountain Glen CG, 8600', 20 June 2017, assoc. *Er. umbellatum*, R. L. Romeyn, 1 ♂ (SK); flats S. FR 7S01, 4.5 mi. W. Hwy. 168 via Buttermilk Rd., 6840', Sierra Nevada Mts., 23 May 2017, R. L. Romeyn, 11 ♂ 9 ♀ (SK); Mono County: S. facing slope along upper Rock Creek Rd., 8500', 2.5-3.4 mi. W. of jct. with Hwy. 395, 1 July 2011, assoc. *Er. umbellatum*, R. L. Romeyn, 1 ♂ 1 ♀ (SK); NW jct. of Hwy. 395 and McGee Creek Rd., 7050', Sierra Nevada Mts., 7 June 2016, assoc. *Er. umbellatum* var. *nevadense*, R. L. Romeyn, 13 ♂ 16 ♀ (SK).

Euphilotes glaucon comstocki (Shields, 1975)

Shijimiaeoides battoides comstocki Shields 1975, Bull. Allyn Mus. (28): 12.

Euphilotes battoides comstocki (Shields); Miller & Brown, 1981, Mem. Lepid. Soc. (2): 118; Mattoni, 1989, J. Res. Lepid. 27(3/4): 175.

Euphilotes battoides comstocki (Shields, 1975); Pratt & J. Emmel, 1998, Syst. W. N. Am. Butts. (16): 220.

Euphilotes intermedia comstocki [Shields]; Davenport, 2004a, Tax. Rept. Int. Lepid. Surv. 4(7): 10.

Euphilotes glaucon comstocki (Shields, 1975); Pelham, 2008, J. Res. Lepid. 40: 248; Pelham, 2021, <http://www.butterfliesofamerica.com/US-Can-Cat.htm>.

Type Locality: California: Kern County; Tehachapi.

In the original description, Shields (1975) stated that *comstocki* was known only from the type locality (Tehachapi, Kern Co., California), and that the larval host was an unknown *Eriogonum* species. Pratt & Emmel (1998) noted that *comstocki* is phenotypically much like *E. g. glaucon*, though it has slightly narrower orange aurorae and smaller macules, and has a slightly later emergence, feeding on a later-blooming *Er. umbellatum*. Davenport (2004a) stated that Pratt (pers. comm.) had concluded that *comstocki* was better placed with *intermedia* than *battoides*. He also noted recent records expanding the known distribution of *comstocki* in California as follows: Piute Mtn. Vista, Piute Mts., Kern Co. (Jim Brock); Kennedy Meadows, Kern Plateau, Tulare Co. (James Scott); Bald Mountain, Kern Plateau, Tulare Co., Pine Flat at the south end of the Kern Plateau, the Piute Mtn. Rd. overlooking Lake Isabella and several sites in the Greenhorn Mts., all Kern Co. (Ken Davenport). Davenport (2004a) also noted that *E. g. comstocki* is common in its localized habitats where its larval food plant is *Er. umbellatum*. The distribution is shown in Fig. 383.

Euphilotes glaucon intermedia (W. Barnes & McDunnough, 1917)
(Figs. 31-34, 249)

Philotes battoides intermedia B. & McD., 1917, Contrib. Nat. Hist. Lepid. N. Am. 3(4): 214.

Philotes glaucon intermedia B. & McD.; McDunnough, 1938, Mem. S. Calif. Acad. Sci. 1: 28.

Philotes battoides intermedia Barnes & McDunnough, 1917; dos Passos, 1964, Mem. Lepid. Soc. (1): 67; Langston, 1969, J. Lepid. Soc. 23(1): 50.

Shijimaeoides battoides intermedia (Barnes & McDunnough, 1917); Shields, 1977, J. Res. Lepid. 16(1): 44.

Euphilotes battoides intermedia (Barnes and McDunnough); Miller & Brown, 1981, Mem. Lepid. Soc. (2): 118.

Euphilotes battoides intermedia (B. & McD.); Mattoni, 1989, J. Res. Lepid. 27(3/4): 175.

Euphilotes battoides intermedia (Barnes & McDunnough, 1917); Pratt & Emmel, 1998, Syst. W. N. Am. Butts. (16): 220.

Euphilotes intermedia (Barnes & Benjamin) ; Davenport, 2004a, Tax. Rept. Int. Lepid. Surv. 4(7): 10.

Euphilotes glaucon intermedia (Barnes & McDunnough, 1917); Warren, 2005, Butts. Ore.: 173; Pelham, 2008, J. Res. Lepid. 40: 247; Pelham, 2021, <http://www.butterfliesofamerica.com/US-Can-Cat.htm>.

Type Locality: [California]: Shasta County; (presumably in the vicinity of Castella in the Upper Sacramento Valley).

Mattoni (1989) noted that *intermedia* is sympatric and synchronic with *E. b. battoides* at Gold Lake, California, and Warren (2005) allied *intermedia* with *E. glaucon*, since they become indistinguishable in southwestern Oregon. This arrangement was followed by Pelham (2008). The distribution of *E. g. intermedia* includes northern and east-central California (Fig. 383). Warren (2005) discussed Oregon populations of *E. glaucon* from Josephine and Curry counties which he called *Euphilotes glaucon* nr. *intermedia*. Adults from these two counties differ from typical *E. g. intermedia* by having somewhat better-developed dark wing margins and darker blue males above, and in having slightly bolder spots below. The two taxa share the same pale ventral ground coloration. He also discussed another unique population from along the western slope of the Cascades in Lane County, apparently related to *E. g. nr. intermedia*. Adults from this population average larger than those from Josephine and Curry counties and males are darker blue above, with somewhat wider dark wing margins. Below, adults of the Lane County segregate have very small discal spots (some spots are occasionally absent), and ground color is whitish, even paler than that of *E. g. nr. intermedia*. However, ventral hind wing aurorae are bold and well-developed on adults in Lane County, and contrast strongly with the otherwise mostly immaculate ventral surface. These populations will be treated by the authors in greater detail in a subsequent publication, but for now are mapped as *E. g. intermedia* (Fig. 383).

Populations of *E. glaucon* in Jackson, southern Klamath, and southern Lake (Warner Mts.) counties of southwestern Oregon are highly variable. Adults from these populations generally resemble *E. g. glaucon*, though occasional males approach the appearance of *E. g. oregonensis* with somewhat widened dark wing margins. For now, all of these populations are mapped (Fig. 383) as *E. g. glaucon*.

Euphilotes glaucon (W. H. Edwards, 1871) (N. Oregon-Washington Cascades segregate)
(Figs. 35-38, 247-248, 322-323)

Warren et al., 2016, Illustrated lists of American butterflies, Revised 21 Nov. 2017, Accessed 19 Feb., 2021, <http://www.butterfliesofamerica.com>.

Warren (2005) discussed a population of *E. glaucon* that occurs at the north end of the Cascades in Oregon, at and above tree line on Mt. Hood (Clakamas and Hood River counties), and referred to it as *Euphilotes glaucon* nr. *glaucon*. These populations occur in association with *Eriogonum umbellatum* var.

haussknechtii (Dammer) M.E. Jones, and adults are phenotypically most similar to *E. g. glaucon*. However, adults from the Mt. Hood area differ from nominate *E. glaucon* in having paler blue males, wing fringes not strongly checkered, and a somewhat darker ventral coloration (Figs. 35-38). Adults fly well into August on Mt. Hood, and probably begin to fly shortly after the snow has melted in their habitats. Similar populations of *E. glaucon* also occur in the vicinity of Mt. Adams in Yakima County, Washington and perhaps further north on the eastern slope of the Cascades in Washington (Fig. 383). *Euphilotes glaucon* may range considerably further north in the Washington Cascades than Mt. Adams, as suggested by the additional records listed below. Whether or not some of these populations could represent *E. umbellatum*-feeding populations of the new species described below, which normally utilizes *Er. heracleoides* as a larval food plant, remains to be fully investigated. We will treat these populations in greater detail in a subsequent publication.

Specimens Examined: USA: OREGON: Clackamas County: Timberline Lodge, [Mt. Hood], 21 July 1979, 1 ♀ (OSAC); Clackamas/Hood River Counties: Mt. Hood, NW Timberline Lodge, 5700-6000', 20 July 2003, on *Er. umbellatum* var. *haussknechtii*, A. D. Warren, many males and females (ADW); Hood River County: Lookout Mtn., 6600', 22 July 1978, Hinchliff, 1 ♂ 2 ♀ (OSAC); S. slope of Mt. Hood, above Timberline Lodge, 6 August 2010, assoc. *Er. umbellatum*, B. O'Hara, 1 ♂ 1 ♀ (SK); WASHINGTON: Yakima County: vic. Bird Meadows, Mt. Adams, 7 August 1953, S. Jewett, 1 ♂ OSAC); Bethel Ridge Microwave Tower Rd., 18 July 2009, assoc. *Er. umbellatum*, K. Kendall, 1 ♂ SK); same locality, 18 July 2009, assoc. *Er. umbellatum*, D. Nunnallee, 1 ♂ (SK); same locality, 18 July 2009, assoc. *Er. umbellatum*, R. M. Pyle, 1 ♀ (SK).

Additional records: USA: WASHINGTON: Chelan County: Entiat Summit Road, 5550' collected a large sample of *Eriogonum umbellatum* var. *haussknechtii* for larvae, 6 August 2006, 19 larvae obtained 12 August 2006, adults pinned, 10 September 2010, D. & J. Nunnallee; Chumstick Mountain summit, 5810', 24 July 2007, on *Er. umbellatum*, D. & J. Nunnallee, 12 adults including ♂ ♀; Derby Canyon 3055-3075', 11 July 2010, J. Pelham, D. & J. Nunnallee, A. Warren, J. Lane, on *Er. umbellatum haussknechtii*; same locality, 27 July 2011, assoc. *Er. umbellatum*, 4 ♀; NF 7100, Derby Canyon, 27 July 2011, assoc. *Er. umbellatum*; NF 7400, 4692', 27 July 2011, assoc. *Er. umbellatum*, D. & J. Nunnallee, sample collected; Chumstick Mountain summit, 5780-5829', 6 August 2011, on *Er. umbellatum haussknechtii*, D. & J. Nunnallee; Kittitas County: Reecer Creek Road, 4800' 15 July 2010, nectaring on *Er. umbellatum*, D. & J. Nunnallee, 1 ♀; same locality, collected *Er. umbellatum* flowers, 5 August 2010, found 1 nearly mature larva, 7 August 2010, found 3 pupae, 20 September 2010, obtained adults; same locality, 13 July 2011, on *Er. umbellatum*, D. & J. Nunnallee, 2 ♂; Stevens County: Cottonwood Divide Road, Chewelah Mountain, 5070', 22 July 2012, B. Yake, J. Barreca; Chewelah Mountain Summit, 5560-5773', 22 July 2012, assoc. *Er. umbellatum*, B. Yake, J. Barreca; same locality, 5760-5780', 1 August 2012, assoc. *Er. umbellatum*, D. Nunnallee, mostly ♀; Yakima County: Mt. Adams, south side via trail, 6000', 11 June 2012, D. & J. Nunnallee; Bird Creek Meadows Trail, 5820' 11 August 2012, assoc. *Er. umbellatum* dwarf mountain variety, D. & J. Nunnallee, 1 ♀; Bethel Ridge Microwave Tower, 6080-6223', 18 July 2009, strongly attracted to *Er. umbellatum* plants, D. & J. Nunnallee, 5 voucher adults collected.

***Euphilotes heracleoides* Kohler & A. Warren – new species**
(Figs. 39-60, 250-260, 324-331)

ZooBank registration: urn:lsid:zoobank.org:act:F72E0453-D30A-4E39-AF2D-61DB7D595CEB

Warren (2005), who was the first to diagnose this taxon, treated it as an undescribed species, and discussed its morphological and ecological attributes in detail. As early as 2000, Kohler found what appeared to be two different species of *Euphilotes* in the *battoides* complex occurring at the same locality in Sanders County, Montana. The area has an extensive stand of *Eriogonum ovalifolium*, Nutt. var. *pansum* Reveal as well as a considerable amount of *Er. heracleoides*, Nutt. The first *Euphilotes* species (*E. baueri* subspecies, see below) begins to fly when the *Er. ovalifolium* is in the full pre-bloom stage, which typically occurs in early May. The *Er. heracleoides* in the same area blooms about one month later, in early to mid-June, and the second *battoides* complex *Euphilotes* species, *E. heracleoides* is associated with it.

Definition: As its name implies, *Euphilotes heracleoides* is found almost everywhere *Eriogonum heracleoides* var. *heracleoides* Nutt. (Fig. 378, upper left) is abundant. While all *Euphilotes* are directly associated with their larval food plants, few taxa are as reliable among random searches of unfamiliar stands of *Eriogonum* as *E. heracleoides*. However, this species does appear to use *Er. douglasii* Benth. as a larval food plant at some sites in Washington (as indicated below) and possibly in northern Oregon as

well (Warren, 2005). At sites where *Er. heracleoides* grows in sympatry with *Er. umbellatum* (e.g., summit of Pine Mountain, Deschutes County, Oregon), adults strongly orient towards and perch (e.g., for the night) on flowers of *Er. heracleoides*, and show interest in *Er. umbellatum* only rarely, apparently to seek nectar. At one site in Lincoln County, Montana, where *Er. heracleoides* grows in sympatry with *Er. flavum* Nutt., adults of *E. heracleoides* occasionally perch or nectar on the *Er. flavum*. At another site in Lincoln County, a long series of both males and females was collected on *Er. flavum* and no other *Eriogonum* were present, strongly indicating that at this site, *E. heracleoides* may be utilizing *Er. flavum* as a larval food plant.

Adult *E. heracleoides* males are bright blue above, with fairly bold black wing margins. The orange aurora of the dorsal hindwing is variable from none (Figs. 43, 53) to just a hint (Fig. 39), to more extensive (Fig. 45). The majority of male individuals have little to no dorsal orange. Females are warm brown dorsally, and usually have a somewhat broad orange aurora. Ventrally, both sexes of *E. heracleoides* are quite similar to *E. g. glaucon* in having a bold forewing spot pattern and suffusion of dark scales at the base of both forewings and hindwings, however, in *E. g. glaucon*, the suffusion continues out into the discal portion of both the forewing and hindwing, while in *E. heracleoides* the discal area is free of suffusion, allowing the light gray ground color to be more visible, giving the ventral wing surfaces a brighter appearance. The genitalia are typical of the *E. battoides* complex, with males having bifurcate valvae (Figs. 250-260), and females with the lodix ring-shaped (Figs. 324-331).

The life history of *E. heracleoides* was recorded by James & Nunnallee (2011), as “Cascadia Blue”, *Euphilotes* on *Eriogonum heracleoides* (undescribed). They reared or partially reared *E. heracleoides* on *Er. heracleoides* on several occasions, most frequently from partially grown larvae found on buckwheat flowers, which pupated and eclosed as adults the following spring. They estimated the development period from egg-hatch to pupation to be approximately 25 days. During development, the larvae fed first on flowers and later on the developing seeds after the petals had senesced. As detailed by James & Nunnallee (2011), the most closely related species, *E. glaucon*, is fairly distinct from *E. heracleoides* in several immature stages. The egg of *E. glaucon* has a much less conspicuous micropyle, and the first instar larva is much lighter in color and has more extensive dorsal setae. In *E. glaucon* the second instar larva is pale off-white and the third instar larva is generally pale, while the *E. heracleoides* second instar larva is red and white, and it is strongly colored and maculated in the third instar. The fourth instar of *E. heracleoides* is variable, ranging from pale gray with diffused red markings to having much brighter red markings, while this stage in *E. glaucon* is less brightly marked.

Etymology: This species is named after its primary food plant, *Eriogonum heracleoides*. While it may use other species of *Eriogonum* food plants in some areas (see below), any *Euphilotes* found in close association with *Er. heracleoides* in Oregon, Washington, British Columbia, Idaho and Montana, is very likely to be *Euphilotes heracleoides* (although *Euphilotes a. ancilla* is associated with this plant in Nevada (see below), and might be associated with it in far southern Idaho).

Distribution and Phenology: *Euphilotes heracleoides* is known from essentially all sites north of Nevada where *Eriogonum heracleoides* is abundant (Fig. 384). This range includes most of northeastern Oregon, including Baker, Crook, Deschutes, Gilliam, Grant, Harney, Jefferson, Malheur, Morrow, Sherman, Umatilla, Union, Walllowa and Wasco counties. The report by Hinchliff (1994) of *Euphilotes “battoides”* from Wheeler County, Oregon, almost certainly refers to *E. heracleoides* as well. The species flies across most of eastern Washington; specimens were examined from Chelan, Columbia, Klickitat, Kittitas and Okanogan counties. Records for *E. “battoides”* in Hinchliff (1996) suggest that this taxon also occurs in Adams, Asotin, Benton, Douglas, Ferry, Franklin, Garfield, Grant, Lincoln, Pend Orielle, Spokane, Stevens, Walla Walla, Whitman and Yakima counties. Washington records recently received from Jonathan Pelham (pers. comm., 2021; see below) confirm all of these counties (Fig. 384). As study of museum collections has shown, the great majority of records for *E. “battoides glaucon”* from Washington (e.g., Pratt & Emmel, 2008) represent *E. heracleoides*, although the distribution of *E. glaucon* there remains poorly known (see above). *Euphilotes heracleoides* appears to be common in much of western Idaho, where *Er. heracleoides* is widespread, at least including Boise, Camas, Elmore, Latah and Lewis counties, based on specimens we examined (Fig. 384). Few specimens from the *E.*

battoides complex are available from far southern and eastern Idaho, and almost no information on food plant associations from that region is known. Thus, the southeastern distribution of *E. heracleoides* remains to be determined, in conjunction with that of *E. glaucon*.

The distribution of *E. heracleoides* in Montana includes only the far northwestern portion of the state, in Flathead, Lake, Lincoln and Sanders counties (Fig. 384). However, *Er. heracleoides* is found farther south in the western end of Montana (Beaverhead, Gallatin and Madison counties) and also in north central (Chouteau County) areas of the state (Lesica, 2012). Additional field work is needed to determine if any populations of *E. heracleoides* are present in these additional areas where the food plant occurs. Apparently, all records for the *E. battoides* complex from British Columbia, all from the extreme south-central part of the province, represent *E. heracleoides*.

It remains somewhat unclear how far south the distribution of *Euphilotes heracleoides* extends. The apparent occurrence of this species in the Warner Mountains of Lake County, Oregon (see additional records below and Warren, 2005) suggests that it may also occur in parts of the same range in Modoc County, California. Reports of both *Euphilotes g. glaucon* and *E. g. oregonensis* (as a subspecies of *intermedia*) from the Warner Mountains of Modoc County, California, by Pratt & Emmel (1998, 2008) may imply that their “*oregonensis*” refers to the same taxon we herein consider to be *E. heracleoides*; we do not consider the Warner Mountains to be part of the range of *E. g. oregonensis* (see above), although acknowledge that populations of *E. glaucon* in this range appear to be highly variable, with some adults approaching the dark-margined phenotype of *E. g. oregonensis*. Obviously, further research on *Euphilotes* in the Warner Mountains is needed.

As with most *Euphilotes*, the adult flight time of the single brood of *E. heracleoides* usually coincides with the period just before the peak blooming time of its *Eriogonum* food plant, but adults can sometimes be found for some time after the peak blooming period, although generally in worn condition. Records of adults in Montana extend from 1 June through 9 July at 2900-3600' elevation, but Oregon flights can be earlier; late April to mid-July at elevations from 1500-7500' (Warren, 2005), as indicated by material examined. The timing of adult flights of any population may be variable on an annual basis, as a result of local weather conditions.

Types: Holotype male: **MONTANA: Sanders County:** W. of Niarada, 3 June 2004, S. Kohler Coll. (47.81588, -114.62969). Allotype female: **MONTANA: Sanders County:** 1.5 mi. N. of Niarada, 13 June 1996, S. Kohler Coll. (47.82988, -114.61261). Paratypes: **MONTANA: Sanders County:** 2 mi. W. of Niarada, 3300', 14 June 1996, S. Kohler, 45♂ 52♀; 1.5 mi. W. of Niarada, 9 June 1997, S. Kohler, 6♂ 5♀; same locality, 1 June 2000, S. Kohler, 19♂ 12♀; same locality, 2 June 2000, S. Kohler, 13♂ 14♀; 5 mi. SW of Niarada, 8 June 2000, S. Kohler, 2♂; SW of Niarada, 15 June 2001, S. Kohler, 10♂ 4♀; SW of Niarada, 19 June 2001, S. Kohler, 19♂ 4♀; West of Niarada, 3 June 2004, S. Kohler, 32♂ 8♀ (all collected in association with *Eriogonum heracleoides* var. *heracleoides*).

Deposition of Types: The holotype male, allotype female and four male and four female paratypes will be deposited in the McGuire Center for Lepidoptera and Biodiversity, Florida Museum of Natural History, University of Florida, Gainesville, Florida. The remaining paratypes are in the Kohler Collection.

Type Locality: USA: MONTANA: Sanders County: vicinity of Niarada.

Additional Specimens Examined: (All collected in association with *Eriogonum heracleoides* var. *heracleoides*). **USA: IDAHO: Boise County:** FR 380, from summit of Mores Pass, 7119', 43 56.796', 115 41.029', 14 July 2005, T. W. Ortenburger, 6♂ (ADW); **MONTANA: Flathead County:** 1.5 mi. N. of Niarada, 13 June 1996, S. Kohler, 23♂ 8♀ (SK); **Lake County:** 3 mi. E. Hot Springs, 3600', 20 June 1996, S. Kohler, 9♂ 6♀ (SK); **Lincoln County:** Dancing Prairie, NW Eureka, 3350', 1 July 1996, S. Kohler, 6♂ 6♀ (SK); Dancing Prairie, 5 mi. NW Eureka, 25 June 1997, S. Kohler, 3♂ 4♀ (SK); Burma Road, NE Eureka, 9 July 1999, S. Kohler, 1♀ (SK); same locality, 6 July 2005, S. Kohler, 1♂ 4♀ (SK); Dancing Prairie, NW Eureka, 28 June 2011, S. Kohler, 46♂ 26♀ (SK); same locality, 6 July 2011, S. Kohler, 1♂ 2♀ (SK); lower Burma Road, state section, NE of Eureka, 6 July 2011, 1♂ 1♀ (SK); S. Burma Road, 0.8 mi. SE Hwy. 93, 2840', 5 June 2018, S. Kohler, 46♂ 11♀ (SK); **Sanders County:** 13 mi. N. of Perma, 13 June 1996, S. Kohler, 8♂ 3♀ (SK); 4.5 mi. N. Camas prairie, 9 June 1998, S. Kohler, 38♂ 22♀ (SK); 1 mi. west of Perma, 11 June 2013, S. Kohler, 29♂ 28♀ (SK); 1 mi. west of Perma, south of Hwy. 200, 2675', 19 June 2017, S. Kohler, 10♂ 5♀ (SK); **OREGON: Baker County:** Blue Mts., Elkhorn Range, Rock Ck. Cyn., 1-2 mi. SW Nat. For. boundary, 21 June 2002, A. D. Warren, 1♂ 1♀ (ADW); **Grant County:** Aldrich

Mts., Fields Creek Cyn., vic. jct. Rd. 21 and NFD 2140, 4000-4200', 28 May 2001, A. D. Warren, 2 ♂ (ADW); same locality, 16 June 2001, A. D. Warren, 4 ♂ (ADW); Aldrich Mts., Fields Creek Rd., T14S R28E, 23 June 1995, D. Ross, 1 ♂ (DR); Wickup Ck., 0-1 mi. S. jct. Canyon Ck., S. of C.G., ca. 4600', 20 June 2002, A. D. Warren, 1 ♂ (ADW); Rd. 16, 2-3 mi. W. Malheur Co. line, ca. 5000', 20 June 2002, A. D. Warren, 1 ♀ (ADW); **Harney County:** Blue Mts., King Mtn. Lookout, ca. 6500', 16 June 1996, V. Covlin, 2 ♂ 2 ♀ (ADW); same locality, 25 June 1997, V. Covlin, 1 ♂ 2 ♀ (ADW); **Malheur County:** Bendire Mtn. – Hunter Creek area, ca. 6 mi. N. Beulah Res. on Bendire Rd., 4100-4500', 17 May 2002, A. D. Warren, 1 ♂ (ADW); **Malheur/Baker counties:** N. end Sheephead Mtn. to E. Camp Creek Rd., 2-4 mi. W. Hwy. 26, 4700-4900', 20 June 2002, A. D. Warren, 10 ♂ 2 ♀ (ADW); **Morrow County:** Blue Mts., Rd. 53, 4 mi. W. Umatilla Co. line, ca. 5200', 26 June 2002, A. D. Warren, 1 ♂ (ADW); **Umatilla County:** Blue Mts., Hwy. 244 at Lake Ck. C. G., 4200', 25 June 2002, A. D. Warren, 1 ♂ (ADW); Blue Mts., Hwy. 244, ca. 2 mi. SE Lane Ck. C. G., ca. 4300', 25 June 2002, A. D. Warren, 3 ♂ 2 ♀ (ADW); Blue Mts., Rd. 020 at Frazier Ck. C. G. 4400', 25 June 2002, A. D. Warren, 3 ♂ 2 ♀ (ADW); **Union County:** Marley Ck. Lane (NFD 2442), ca. 2 mi. SW Starkey on Hwy. 244, 25 June 2002, A. D. Warren, 1 ♂ (ADW); Phillips Cyn., ca. 2 mi. W. Elgin, ca. 3000', 23 June 2002, A. D. Warren, 1 ♀ (ADW); Wallowa Mts., North Fork Catherine Creek, NFD 7785, ca. 3 mi. E. Medical Springs Hwy. (203), 22 June 2002, A. D. Warren, 2 ♂ (ADW); **Wallowa County:** Blue Mts., Powwotka Ridge, ca. 11 mi. N. of Wallowa on Troy Rd., 4100', 23 June 2002, A. D. Warren, 8 ♂ 11 ♀ (ADW); Minam, along Wallowa River, 2900', 23 June 2002, A. D. Warren, 9 ♂ (ADW); Wallowa Mts., Gumboot Ck., vic. jct. Innaha River on Rd. 39, 3900', 24 June 2002, A. D. Warren, 2 ♂ (ADW); Wallowa Mts., Salt Creek Summit Rec. Site, NFD 3915, 6000', 24 June 2002, A. D. Warren, 1 ♂ (ADW).

Additional Records: The following specimens are listed here because they occur in association with a variety of *Eriogonum heracleoides* other than *Er. heracleoides* var. *heracleoides*, because there may be doubt about food plant associations, and/or because they were considered to represent another taxon in publications on the genus by Shields (e.g., 1975). Many museum specimens labeled without specific food plant association information fall into the latter two categories. **CANADA: BRITISH COLUMBIA:** Oliver, 3 June 1933, J. McDunnough, 1 ♀ (MGCL); same locality, 15 June 1978, 1 ♂ (MGCL); Penticon, 4 May 1978, 2 ♂ (MGCL); same locality, May 1978, K. Thorne, 2 ♂ (MGCL); same locality, May 1979, K. Thorne, 1 ♂ (MGCL); same locality, June 1978, K. Thorne, 1 ♀ (MGCL); Princeton, 26 June [?], B. Weber, 3 ♂ 3 ♀ (MGCL); Shingle Ck. Rd., Keremos, 19 June 1933, A. N. Gartrell, 1 ♂ (MGCL); Summerland, May 1978, 1 ♀ (MGCL); same locality, May 1979, 2 ♂ 1 ♀ (MGCL); same locality, 6 June 1986, 1 ♂ (MGCL); 3 km N. of Grand Forks, assoc. *Er. heracleoides*, 3 June 2003, N. Kondla, 19 ♂ 10 ♀ (ADW); **USA: IDAHO: Boise County:** Arrowrock Dam, 15 May [?], 1 ♂ (MGCL); Banks NF Campground, off SR-55, nr. Payette River, 2800', 26 June 1990, D. L. Eiler, 1 ♂ 1 ♀ (MGCL); Cottonwood Canyon, 30 May [?], J. H. Manning, 2 ♂ (MGCL); Deep Park, 4200', N. Fork Boise River, [no date], J. H. Manning, 1 ♂ (MGCL); Grimes Ck. Cyn., 2 mi. upstream ID Hwy. 21, 12 June 1989, L. D. Beutler, 2 ♂ (ADW); nr. Boise, 2700', [no date], J. H. Manning, 3 ♂ (MGCL); road by Arrow Rock Reservoir just above Arrow Rock Dam, 12 June 1988, D. L. Eiler, 1 ♀ (MGCL); Shafer Butte Picnic Area, near Bogus Basin Winter Sports Area, ca. 7000', 28 July 1981, D. L. Eiler, 2 ♂ 3 ♀ (MGCL); **Camas County:** Sawtooth Nat. For., Couch Summit, 7000', 15 July 1964, J. Baker, 1 ♂ (MGCL); **Elmore County:** Arrowrock Dam, 4000', 30 May [?], J. H. Manning, 1 ♂ (MGCL); Sawtooth Nat. For., nr. Featherville, 4900', 13 July 1964, J. Baker, 1 ♂ (MGCL); **Latah County:** [no locality], 1 June 1986, 1 ♀ (MGCL); **Lewis County:** Clearwater River, 10 km west of Kamiah, 500m, 20 May 1982, J. Reichel, 1 ♂ (MGCL); same locality, 28 May 1981, J. Reichel, 1 ♂ (MGCL); same locality, 1 June 1984, J. Reichel, 1 ♂ (MGCL); same locality, 3 June 1984, J. Reichel, 2 ♂ (MGCL); 10 mi. W. Kamiah, 29 May 1981, J. Reichel, 5 ♂ (SK); **MONTANA: Lincoln County:** Dancing Prairie, NW Eureka, 28 June 2011, assoc. *Er. flavum*, S. Kohler, 7 ♂ 5 ♀ (SK); N. Sophie Lake, 2600', NW Eureka, 6 June 2018, assoc. *Er. flavum*, S. Kohler, 24 ♂ 44 ♀ (SK); **OREGON: Baker County:** along rd. between Joseph & Hwy. 86, 13.2 rd. mi. N. jct. Hwy. 86, Duck Creek turnoff to Fish Lake, 14 July 1970, S.K. Dvorak & O. Shields, 2 ♂ (MGCL); Anthony Lake, 10 July 1947, J. Baker, 1 ♂ (OSAC); 17 July 1970, J. Baker, 2 ♂ (OSAC); 7 July 1973, J. Baker, 5 ♂ (OSAC); Anthony Lakes, Whitman Nat. For., 25 July 1946, 1 ♂ (MGCL); Baker, 4 July 1941, M. Plomley, 3 ♂ (MGCL); Big Lookout Mtn., 13 July 1974, J. H. Baker, 1 ♀ (VC); Blue Mts., Pine Creek, 6 July 1967, J. M. Plomley, 2 ♂ (MGCL); Burnt Riv. Cyn., Lookout Mtn. Rd. vic. jct. I-84 exit 338, 2700', 11 June 1999, taken while feeding at flower of *Eriogonum compositum*, no other *Eriogonum* observed in area, A. D. Warren, 1 ♂ (ADW); Durkee, 8 June 1940, L. W. Morley, 1 ♂ (OSAC); same locality, 2640', 11 June 1942, J. H. Baker, 1 ♂ (OSAC); Eagle Creek nr. Richland, 11 July 1960, 2 ♂ (OSAC); FR 11 to Bald Mtn., 19 June 2001, V. Covlin, 1 ♂ 1 ♀ (VC); Halfway, N. Fork Pine Creek, 20 June 1972, S. Jewett, 1 ♂ (MGCL); Hwy. 86 at Snake River, near Homstead, 20 June 1971, 1 ♂ (ADW); N. Powder Lake, 23 July 1959, J. Baker, 1 ♀ (OSAC); North Fork Pine Creek, near Halfway, 20 June 1972, L. M. Scott, 3 ♂ (SK); North Pine Ck. nr. Halfway, 20 June 1959, S. Jewett, 18 ♂ (OSAC); same locality, 4100', 2 July 1942, J. Baker, 1 ♂ (OSAC); 4 June 1961, R. Woodley, 1 ♂ (OSAC); Pine Creek, 7 July 1954, B. Weber, 3 ♂ 2 ♀ (MGCL); same locality, 6 July 1969, 2 ♂ (MGCL); Pine Creek Rd., 4000', 6 July 1968, 1 ♂ (ADW); Spring Creek, 21 June 1956, J. Baker, 2 ♂ (OSAC); Whitman Nat. For., Rock Creek, 18 July 1943, J. Baker, 1 ♂ (MGCL); **Crook County:** Ochoco Mts., creek N. of Hwy. 26, 2.7 mi. SW jct. Little Hay Creek Rd. (NFD 2610), assoc. *Eriogonum heracleoides* var. *angustifolium*, 4500', 8 Jun 2001, A. D. Warren, 3 ♂ 4 ♀ (ADW); same locality and plant association, 10 June 2003, A. D. Warren, 5 ♂ 5 ♀ (ADW); Ochoco Mts., Hwy. 26 at Viewpoint Rd., 4700', 2 July 1968, E. Dornfeld, 1 ♂ (OSAC); same locality, 15 June 2001, D. Ross, 1 ♂ (DR); Ochoco Mts., McKay Ck. at Nat. For. boundary,

assoc. *Er. heracleoides* var. *angustifolium*, 19 June 2002, A. D. Warren, 1 ♂ (ADW); **Deschutes County**: vic. summit Pine Mtn., ca. 6400', S. of Millican (s. of Hwy. 20), assoc. *Er. heracleoides* var. *angustifolium* and *Er. umbellatum*, 29 June 2003, A. D. Warren, 7 ♂ 6 ♀ (ADW); same locality and plant associations, 2 July 2003, A. D. Warren, 7 ♂ 6 ♀ (ADW); **Gilliam County**: Lonerock, 12 June 1965, C. W. Nelson, 2 ♂ 5 ♀ (OSAC); SR 206 by Rock Creek tributary, 3.6 mi. W. confluence, ravine in grass rangeland, 22 June 1985, D. L. Eiler, 1 ♂ 1 ♀ (MGCL); 4.5 mi. S. Condon, 2500', 2 May 1965, E. M. & S. F. Perkins, 1 ♂ (MGCL); same locality, 14 June 1964, E. M. & S. F. Perkins, 3 ♂ 7 ♀ (MGCL); **Grant County**: Beech Creek Summit, 4 July 1962, B. Weber, 3 ♂ 2 ♀ (MGCL); same locality, 9 July 1962, B. Weber, 1 ♂ 1 ♀ (MGCL); Fall Mtn., SE of John Day, 23 June 1990, P. Savage, 4 ♂ 7 ♀ (MGCL); Hwy. 395, 14 mi. S. John Day, 23 June 1990, P. Savage, 1 ♀ (MGCL); Sugarloaf Gulch nr. Canyon Ck., 1 August 1975, 1 ♂ (ADW); Summit Prairie at jct. Rd. 162 & Rd. 1427, T16S, R34E, Malheur Nat. For., SE of Prairie City, 13 July 1970, S. K. Dvorak & O. Shields, 1 ♂ (MGCL); 5 rd. mi. WSW jct. Rd. 162 & Rd. 1427, along Rd. 162, T16S R33.5E, E. of Seneca, 13 July 1970, S. K. Dvorak & O. Shields, 1 ♂ (MGCL); **Harney County**: Blue Mts., Divine Cyn., 5036', 29 June 1964, R. Crowe, 5 ♂ (OSAC); same locality, 18 July 1969, E. Dornfeld, 1 ♂ (OSAC); 1 August 1965, Hinchliff, 1 ♂ (OSAC); Devine Cyn., 12 mi. N. Burns, 5036', Hwy. 395, pine forest on Rd. to Boy Scout Camp, Thimer Ck., 16 July 1964, C. R. Crowe, 2 ♂ (MGCL); Hwy. 395, Devine Cyn. N. of Burns, 23 June 1990, P. Savage, 1 ♂ 1 ♀ (MGCL); King Mtn. Lookout, T21S R32E S27, 8, 16 June 1996, V. Covlin, 2 ♂ 2 ♀ (ADW); same locality, 25 June 1997, V. Covlin, 1 ♂ 2 ♀ (ADW); Stinkingwater Mountains, 24 June 1961, J. H. Baker, 1 ♀ (MGCL); **Jefferson County**: Warm Springs, 4 June 1967, Hinchliff, 1 ♂ (OSAC); same locality, 6 July 1969, 1 ♂ (MGCL); **Lake County**: Warner Mts., Drake Peak, 19 July 1969, 1 ♀ (MGCL); Warner Mts., Drake Peak, 8000', 3 August 1963, Newcomer, 1 ♀ (OSAC); Warner Mts., Drake Peak Lookout, 8222', 27 July 1995, V. Covlin, 2 ♂ 2 ♀ (ADW); Warner Mts., vic. Drake Peak Lookout on Light Peak, 8230', 16 July 2003, assoc. *Er. heracleoides*, A.D. Warren, 5 ♂ 6 ♀ (ADW); **Morrow County**: Rd. 21, ca. 0.5 mi. N. of rd. to Lake Penland, at mud, 16 June 2001, D. Ross, 1 ♂ (DR); Willow Ck. Rd., T45 R28E S27, 31 May 1992, V. Covlin, 1 ♂ 1 ♀ (VC); **Sherman County**: Deschutes Cyn. vic. Jones Cyn., *Er. heracleoides* var. *angustifolium*, 1100-1200', A. D. Warren, 2 ♂ (ADW); **Umatilla County**: Blue Mts., Spring Creek Cyn., 18 July 1991, A. L. Alderman, 1 ♂ (OSAC); Pearson Ck. Rd. at NF boundary, 3100', 8 June 1996, V. Covlin, 4 ♂ (VC); same locality, 8 June 1997, V. Covlin, 1 ♂ (VC); Pole Spr., Skyline Rd., 4500', 2 July 1967, 5 ♂ (OSAC); S. Fork Umatilla Riv., 13 June 1972, A. L. Alderman, 1 ♂ (OSAC); **Wallowa County**: along rd. between Joseph & Hwy. 86, 17.8 rd. mi. N. jct. Hwy. 86, 1.2 rd. mi. SW Wallowa Mtn. summit, 14 July 1970, S. K. Dvorak & O. Shields, 1 ♂ 1 ♀ (MGCL); Spring along FR 66, T5S R47E S32, 5100', 20 June 2001, V. Covlin, 3 ♂ (VC); Wallowa Mts., Wallowa Lake, 12 July 1948, B. Weber, 1 ♂ (MGCL); same locality, 9 July 1954, B. Weber, 2 ♂ (MGCL); **Wasco County**: Beaver Creek, 13 May 1972, J. Wells, 1 ♂ (MGCL); Beaver Creek, Simnasho, 2400', 10 June 1973, Hinchliff, 4 ♂ (OSAC); same locality, 8 June 1973, Hinchliff, 2 ♂ (OSAC); gulch at top of Butler Canyon, Hwy. 197, ca. 4 air mi. N. Tygh Valley, assoc. *Er. heracleoides* var. *angustifolium*, 4 June 2003, A. D. Warren, 8 ♂ 9 ♀ (ADW); Juniper Flat, 10 mi. W. Maupin, 1890', 26 May 1964, E. M. & S. F. Perkins, 4 ♂ 7 ♀ (MGCL); same locality, 13 June 1964, E. M. & S. F. Perkins, 8 ♂ 8 ♀ (MGCL); roadside, Rte. 216, 1 mi. W. to 6.5 mi. E. Wapinita, 2 June 1994, B. O'Hara, 1 ♂ 2 ♀ (ADW); Shitike Ck., 4 June 1967, Hinchliff, 1 ♂ 1 ♀ (OSAC); Simnasho Rd., 15 June 1968, Hinchliff, 2 ♂ (OSAC); Warm Springs Riv. Rd., W. of Simnasho, 2500', 30 May 1968, Hinchliff, 1 ♂ (OSAC); 2 mi. NNW Mill Cr. Bridge, Warm Spgs. Indian Res., 2500', 18 June 1966, E. M. & S. F. Perkins, 1 ♂ 1 ♀ (MGCL); 2 mi. SE Tygh Valley, Hwy. 197, 1400', 30 May 1965, E. M. & S. F. Perkins, 10 ♂ 16 ♀ (MGCL); same locality, 13 June 1964, E. M. & S. F. Perkins, 3 ♂ 11 ♀ (MGCL); same locality, assoc. *Er. heracleoides* var. *angustifolium*, 6 June 2000, A. D. Warren, 1 ♂ (ADW); 11.2 mi. SW The Dalles, 1750', 17 May 1964, E. M. & S. F. Perkins, 6 ♂ 8 ♀ (MGCL); **WASHINGTON: Chelan County**: Swakane Cyn., 6 June 1986, R. F. Hirzel #025, 1 ♂ (MGCL); Swakane Canyon Rd., 8 July 2010, S. Kohler, 6 ♂ (SK); Swakane Spring, Swakane Canyon Rd., 8 July 2010, S. Kohler, 29 ♂ (SK); **Columbia County**: Blue Mts., Tucannon River, above Camp Wooten, 8 June 1963, R. Woodley, 3 ♂ (OSAC); **Kittitas County**: Colockum Pass Rd., at Sheep x Trail Creeks, 2595-2640', assoc. *Er. douglasii*, 47.093N, 120.351W, 21 May 1983, M. A. Peterson, 1 ♂ (ADW); same locality and plant association, 11 May 1990, M. A. Peterson, 1 ♀ (ADW); **Klickitat County**: 2 mi. S. Bickleton, 5 June 1986, R. F. Hirzel #021, 3 ♀ (MGCL); **Okanogan County**: Black Cyn., 28 May 1961, R. Woodley, 1 ♂ (OSAC); Brewster, 18 May 1940, J. C. Hopfinger, 1 ♀ (MGCL); same locality, 11 May 1946, J. C. Hopfinger, 1 ♀ (MGCL); same locality, 18 May 1956, J. C. Hopfinger, 2 ♂ (MGCL); 5 May 1948, J. C. Hopfinger, 1 ♀ (MGCL); 20 May 1956, J. C. Hopfinger, 1 ♀ (MGCL); 6 June 1959, J. C. Hopfinger, 2 ♂ 1 ♀ (OSAC); 14 June 1948, J. C. Hopfinger, 1 ♂ (MGCL); 23 June 1959, J. C. Hopfinger, 1 ♂ 1 ♀ (OSAC); Buttermilk Butte, 5471', assoc. *Er. heracleoides*, 48.30N, 120.30W, 23 July 1983, M. A. Peterson, 1 ♀ (ADW); Carlton, 12 June 1986, R. F. Hirzel #031, 2 ♂ (MGCL); Hart's Pass, 6000', 16 July 1971, 1 ♂ (ADW); Poorman Ck., 3200', assoc. *Er. heracleoides*, 48.32N, 120.25W, 18 July 1983, S. J. Collman, 1 ♀ (ADW); summit, Chelan Butte, 30 May 1965, 1 ♀ (OSAC); Tunk Mtn., 1845m, 25 June 1982, 1 ♂ 1 ♀ (OSAC).

Additional Washington Records: Washington records provided by Jonathan P. Pelham, some with host plant associations. We have not examined these specimens, but consider the identifications reliable. **USA: WASHINGTON: Adams County:** 5 mi. SW Sprague, June, P. A. Opler, 1 ♂ (Shields, 1977); Sprague Lake, S. shore, 1890', 27 May 1992, R. M. Pyle; **Asotin County:** Lick Creek at Dry Fork Lick Creek, 12 July 1978, J. P. Pelham, 1 ♂ (UWBM); **Chelan County:** Chelan, 1089-1140', B. V. Leighton, 1946; Olalla Canyon, 1220', 25 May 1941, D. R. Orcutt, 2 ♂ (UWBM) (recorded as *Philotes battoides* var. *oregonensis* in Leighton, 1946 [Dryden]); Cashmere, 795', May, D. L. Bauer, 3 ♂ 3 ♀ (Shields, 1977); Chelan Butte Lookout,

3820-3835', 30 May 1965, R. E. Woodley, 1 ♂; "First Crator", 1 ♂ (MCZ) (Shields, 1977); Tumwater Canyon, Drury, footbridge, 1310-1325', June, D. L. Bauer, 2 ♂ (Shields, 1977); same locality, May, D. L. Bauer, 1 ♂; same locality, 18 May 1968, J. P. Pelham, 6 ♂ (UWBM); 31 May 1969, J. P. Pelham, 1 ♂ (UWBM); 1 June 1975, J. P. Pelham, 4 ♂ (UWBM); 16 June 1975, J. P. Pelham, J. Rozdilsky, A. Mesford, 5 ♂ (UWBM); 18 June 1978, J. P. Pelham, 1 ♂ (UWBM); Tumwater Canyon, The Alps, 1500-1510', 31 May 1970, J. P. Pelham, 3 ♂ (UWBM); Tumwater Canyon, Mica Canyon, 1600-1680', 31 May 1970, J. P. Pelham, 3 ♂ (UWBM); Leavenworth, 1150-1180', May, D. L. Bauer, 1 ♂ (Shields, 1977); Mills Canyon, 1150-1220', 15 April 1971, J. P. Pelham, 1 ♂ (UWBM); Mills Canyon, 2010-2050', 19 May 1972, J. P. Pelham, 3 ♂ 1 ♀ (UWBM); Mills Canyon Road, 3000', 13 July 1985, R. M. Pyle, T. L. Pyle; Swakane Canyon, 800-1200', 28 June 1976, D. R. Pauson, 6 ♂ (1 genitalia prep.) (UWBM); Swakane Canyon, 1180-1185', 28 May 1984, R. M. Pyle, T. L. Pyle, 1 ♂ (UWBM); same locality, 1480-1600', 8 July 1984, R. M. Pyle, T. L. Pyle, 2 ♂ (UWBM); Swakane Spring, 5060-5070', 7 July 1985, J. P. Pelham, M. A. Peterson, 2 ♂; Swakane Canyon at creek ford, 2375', 23 May 2019, M. Weiss, V. & M. Elledge, C. Bellin, C. C. Weiss Folder, 14; same locality, 20 June 1993, 31 May 1998, 28 May 2005, D. & J. Nunnallee slides; 23 May 1998, D. & J. Nunnallee slides; Swakane Canyon near reservoir, 1670', 23 May 1998, 18 June 1995, D. & J. Nunnallee; Swakane Canyon, 2080', 25 June 1993, 18 June, 25 June 1995, D. & J. Nunnallee; Swakane Canyon, 1670', 25 June 1995, D. & J. Nunnallee; Swakane Canyon, 860', 20 June 1993, D. & J. Nunnallee slides; Swakane Canyon, 3160-3240', 17 June 2000', J. P. Pelham, Z. A. Pelham, K. Hiruma, D. & J. Nunnallee, 3 ♂ WBA; Swakane Springs, 5070', 15 August 1999, D. Nunnallee, larvae; same locality, 31 July 1993, 22 July 2006; Swakane Springs, 5060-5070', 6 July 1991, J. P. Pelham, K. Hiruma, 21 ♂ 5 ♀ (UWBM); Slide Ridge Road, 4510', 15 July 1997, D. & J. Nunnallee; Hatchery Creek Road, 18 June 1978, J. P. Pelham, 3 ♂ (UWBM); Sand Creek, 1850-1950', 22 May 1998, J. P. Pelham, M. A. Peterson, J. P. Pearson, 1 ♂; Sand Creek, 1640-1680', 13 May 1989, J. P. Pelham, K. Hiruma, 2 ♂; Chumstick Mountain, summit, 5780-5829', 12 July 1982, J. P. Pearson, 4 ♂ 8 ♀; same locality, 7 July 1985, J. P. Pelham, M. A. Peterson, 1 ♀; same locality, 6 July 1991, J. P. Pelham, K. Hiruma, 2 ♀; same locality, 28 June 1997, K. Hiruma, 5 ♂; same locality, 3 August 2002, K. Hiruma, 1 ♀ worn; same locality, 13 June 2005, C. C. LaBar, 1 ♂ D&V (figured in Butterflies of Sinlahekin Wildlife Area: 162); same locality, 27 July 2011, D. & J. Nunnallee, on *Er. heracleoides* at parking area, several mating pairs on the flowers and numbers of individuals, mostly females. Collected a good sample of adults, pinned; Chumstick Mountains Road, 4560', 12 July 1982, J. P. Pearson, 5 ♂ 2 ♀; Chumstick Mountain below summit, 5480-5580', 12 July 1982, J. P. Pearson, 13 ♂; Buck Spring, 5525-5650', 12 July 1982, J. P. Pearson 5 ♂ 3 ♀; Entiat Ridge, SE Chumstick Mountain, 5400-5450', 13 July 1985, R. M. Pyle, T. L. Pyle; Entiat Ridge, 4900-5221', 12 July 1984, J. P. Pearson, 1 ♂; same locality, 26 July 1984, J. P. Pearson, 1 ♂; Entiat Summit Road, below Chumstick Mountain, 5160', 7 July 1985, J. P. Pelham, M. A. Peterson, 1 ♂ 1 ♀; Rattlesnake Spring, 4300-4450' 13 July 1985, R. M. Pyle, T. L. Pyle; Mission Creek, 1440-1520', 27 May 1984, J. P. Pearson, M. A. Peterson, 1 ♂; East Fork Mission Creek, 2136', 27 May 1991, K. Hiruma, 1 ♂; Antoine Creek, 1950-1970', 14 June 1975, J. P. Pelham, J. Rozdilsky, A. Mesford, 2 ♂; Colockum Pass Road, 1534', 10 June 1984, R. M. Pyle, T. L. Pyle, 1 ♂ (UWBM); Derby Canyon, 2230', 28 May 1984, D. & J. Nunnallee; Eagle Creek Road, near end of pavement, 2190-2210', 9 July 1988, K. Hiruma, S. Tojo, 1 ♂; Dick Mesa 3250-3320', 3 June 1995, J. P. Pelham, Z. A. Pelham, K. Hiruma, B. Hardbarger, 10 ♂ 9 ♀, saw many; **Columbia County:** Stockade Springs, 4530-4540', 26 June 1941, B. V. Leighton, 1 ♂ 3 ♀ (UWBM); same locality, 12 July 1964, R. E. Miller, 1 ♂; Lewis Creek, 2720-2725', 7 July 1957, R. E. Miller; same locality, 9-10 July 1978, J. P. Pelham, 2 ♂ (UWBM); Jasper Mountain road at Wilson Creek, 1700-1800', 9 July 1978, J. P. Pelham, T. S. Pelham; North Touchet Road, 4000', 12 July 1956, R. E. Miller; Dayton, 1556-1600', 9 July 1956, R. E. Miller; Camp Wooten State Park, 2700', 8 June 1963, R. E. Woodley, 2 ♂; same locality, 20 June 1964, R. E. Woodley, 1 ♂; **Douglas County:** Bridgeport, 800-860', 22 May 1955, G. F. Tiedt, 2 ♂ (UWBM); same locality, 6 June 1955, G. F. Tiedt, 4 ♂ (UWBM); same locality, 9 June 1955, G. F. Tiedt, 1 ♀ (UWBM); McGinnis Canyon, Badger Mountain, 3510-3600', 17 June 1978, J. P. Pelham, 10 ♂ 10 ♀ (UWBM); Ruud Canyon, Badger Mountain, 3200-3500', 17 June 1978, J. P. Pelham, 24 ♂ 2 ♀ (UWBM); **Ferry County:** Lambert Creek, 3480-3500', 27 June 1977, J. P. Pelham, 1 ♂ (UWBM); Herron Creek Road, 3000', 27 June 1977, J. P. Pelham, 11 ♂ 4 ♀ (UWBM); Mires Creek Road, 3300-3450', 28 June 1983, J. P. Pelham, M. A. Peterson, J. P. Pearson, J. A. Austin, 4 ♂; Lake Roosevelt, 1290-1320', 29 May 2007, F. Bentler photo; Deadman Creek Road, 4320', 24 July 2006, C. Loggers, Rick Moore (ID'd as *E. columbiae*); **Garfield County:** Pataha Creek, 3700-3950', 13 July 1978, J. P. Pelham, T. S. Pelham, 3 ♂; Pataha Creek, 3780', 19 June 1991, R. L. Crawford, J. P. Pelham, 13 ♂ 1 ♀; NF 40, 4270' 29 July 2010, D. & J. Nunnallee, on *Er. heracleoides*, pinned; **Kittitas County:** Easton, 2150', 3 ♀ (CAS) (Shields, 1977); Wymer, R.R. siding, 1300', June, D. L. Bauer, 2 ♂ (Shields, 1977); Robinson Canyon, 2200-2400', L. Montgomery, 1 ♂ (CWSC); Colockum Pass Road, 2620-3000', 18 May 1971, J. P. Pelham, M. D. Van Buskirk, S. Hills; Colockum Pass Road, 4900', 17 July 1971, J. P. Pelham, F. Van Buskirk, 2 ♂ (UWBM); Colockum Pass Road, 5000', 17 July 1971, J. P. Pelham, F. Van Buskirk, 2 ♀ (UWBM); Colockum Pass Road, 4690', 26 June 2011, D. & J. Nunnallee, assoc. *Er. douglasii*, pinned; Colockum Pass Road, 4695-4705', 25 June 2012, D. & J. Nunnallee, assoc. *Er. douglasii*, 14 collected, no other *Eriogonum* present, photographed mating pair on the *douglasii*; same locality, 21 June 2012, D. & J. Nunnallee, 1 ♂ 1 ♀; Colockum Pass Road, 3150-3550', 9 June 1979, J. P. Pelham, S. F. Jones, R. Williams, 1 ♂ (UWBM); Colockum Pass Road, 4240-4320', 9 June 1979, J. P. Pelham, S. F. Jones, R. Williams, 1 ♂ (UWBM); Colockum Pass Road, unnamed creek, 3200-3280', 14 May 1972, J. P. Pelham, L. R. Lew, R. Seto, 2 ♂ 2 ♀ (UWBM); same locality, 21 May 1983, J. P. Pelham, M. A. Peterson, J. P. Pearson, 7 ♂; Colockum Pass Road at unnamed creek, 3880-4000', 26 May 2001, J. P. Pelham, D. Nunnallee, B.

Hardwick, 4♂ 4♀; same locality, 7 June 2003, J. P. Pelham, M. W. Robinson, P. Charvet, 2♂ 1♀; Colockum Pass Road, ridge W., 3120-3240', 2 June 1984, R. E. Kirk; same locality, 21 May 1983, assoc. *Eriogonum douglasii*, J. P. Pelham, M. A. Peterson, J. P. Pearson, 2♂ 2♀; Colockum Pass Road at Sheep Creek x Trail Creek, 2595-2640', 2 June 1984, R. E. Kirk; same locality, 2 June 1979, J. P. Pelham, S. F. Jones, R. Williams, 3♀ (UWBM); Umtanum Creek, mouth, 1350-1450', 14 June 1964, J. H. Shepard, 1♂; same locality, 17 June 1984, J. P. Pelham, M. A. Peterson, J. P. Pearson, B. Ostenson, R. L. Crawford, 3♂; same locality, 23 June 1984, J. P. Pelham, M. A. Peterson, J. P. Pearson, 5♂; same locality, 2 May 2015, D. G. James, T. James, J. James, R. James, B. James, M. Weiss, WBA; same locality, 24 June 1990, K. Hiruma, 2♂ 3♀; Umtanum Creek at Old Durr Road, 1925-1950', 24 June 1984, J. P. Pelham, M. A. Peterson, J. P. Pearson, 1♂; same locality, 16 May 1987, J. P. Pelham, K. Burgess, G. Knesal, 2♂ (UWBM); same locality, 12 June 1989, K. Hiruma, 1♂; same locality, 23 May 1992, J. P. Pelham, K. Hiruma, 1♂; Reecer Creek Road, 4800', 5 July 1982, M. A. Peterson, J. P. Pearson; same locality, 24 May 2018, M. Weiss WBA; Reecer Creek Road, 4640' 4 July 1981, J. P. Pelham, M. A. Peterson, S. Fujikawa, 1♂; Reecer Creek Road, 3850', 26 May 1991, C. Albright; Reecer Creek Road at Garrison Spring, hill SE, 4925-5035', 22 June 1985, R. E. Kirk; same locality, 4 June 2005, C. C. LeBar, 3; Reecer Creek Road at water tank road, 4200', 1 May 2016, D. & J. Nunnallee; same locality, 24 May 1979, J. P. Pelham, S. F. Jones, T. S. Pelham, 1♂ (UWBM); same locality, 4 July 1987, K. Hiruma, 1♀; Reecer Creek Road, rock quarry to Garrison, 4840', D. & J. Nunnallee, digital; Reecer Creek Road, Azure corner, 3520-3560', 28 June 2009, D. & J. Nunnallee; same locality, 8 June 2018, M. Weiss; same locality, 2 June 2017, C. Clark, M. Weiss, 6; same locality, 28 May 2017, M. Weiss, 6; same locality, 30 May 2016, C. Clark, M. Weiss; same locality, 8 June 2008, C. C. LaBar, 1♀ (D&V, figures in Butterflies of Sinlahekin Wildlife Area: 162); Reecer Creek Road at Garrison Spring, 4925-5053', 26 June 2011, C. LaBar, J. LaBar, R. LaBar, 5♂ 1♀; Reecer Creek Road at Green Canyon Road, powerline, 2160-2240', 24 May 1979, J. P. Pelham, S. F. Jones, T. S. Pelham, 2♀ (UWBM); Reecer Creek Road at Johnson Creek, 2815-2820', 24 May 1979, J. P. Pelham, S. F. Jones, T. S. Pelham, 6♂ (UWBM); Reecer Creek Road, 3400-3500', 24 May 1979, J. P. Pelham, S. F. Jones, T. S. Pelham, 7♂; Wilson Creek Road at Bar 14 Road, 2050-2060', 3 July 1981, J. P. Pelham, M. A. Peterson, S. Fujikawa, 1♂; McPherson Canyon, 1450-1600', 23 June 1984, J. P. Pelham, M. A. Peterson, J. P. Pearson, 1♂; Red Top Lookout, summit, 5040-5361', 30 June 1985, R. E. Kirk; Elk Heights Road, 2255-2265', 5 June 2009, D. & J. Nunnallee, mating pair, ovipositing female on *Er. heracleoides*, photos; same locality, 6 June 2009, D. & J. Nunnallee, photos; same locality, 21 June 2011, D. & J. Nunnallee, 1 mating pair on *Er. heracleoides*, however all other activity was on the *Er. douglasii*, as it was the best nectar available, 3 specimens collected on *Er. douglasii*, pinned; same locality, 26-27 May 2012, D. & J. Nunnallee, single males, females and mating pairs common on *Er. douglasii* in fresh bloom. *Er. heracleoides* and *Er. compositum* both with tight green buds, at least two weeks from flower, but nothing on them, photos; same locality, 10 June 2012, D. & J. Nunnallee, on *Er. heracleoides*, 2 weeks after collecting *Euphilotes* on *Er. douglasii* at same site, 8 specimens collected, mostly ♂, strictly associated with *Er. heracleoides*, no *Euphilotes* seen on *Er. douglasii*. The *Euphilotes* on *Er. heracleoides* were reasonably fresh and mostly males, so it appears these belong to a new hatch separate from the earlier May 27 batch. *Er. compositum* was also in bloom, and *Euphilotes* (probably *columbiae*) were seen on it; Elk Heights, 2270', 22 June 2010, D. & J. Nunnallee, digital; same locality, 14 June 2012, D. J. Nunnallee, pinned; NF 9702 to Red Top Lookout, side road, 3600-3620', 6 June 1987, A. Swengel; Ingals Lake trail, 5000', 22 June 2010, D. & J. Nunnallee, digital; Horse Canyon, Bettas Road, 2440', 25 May 1995, D. A. Rolfs, 1; Red Top Lookout, summit, 4920-5361', 25 June 1994, J. P. Pelham, C. & J. Albright, B. Byers, 1♂; South Fork Manastash Creek, 2800', 12 June 1988, K. Hiruma, L. Crabo, 2♂; Old Durr Road at Umtanum Ck., 1930', 23 May 1992, D. & J. Nunnallee; Umtanum Road, "The Well", 1980', 21 June 1992, D. & J. Nunnallee, slides; **Klickitat County**: East Prong Little Klickitat River, 3520-3590', 15 June 2002, J. P. Pelham, K. Hiruma, 4♂; State Highway 142, 1630-1640', 1 June 2013, J. P. Pelham, 3♂ 2♀; **Klickitat/Yakima County**: Kusshi Creek at US Highway 97, 1945-2000', 20 May 1959, D. Carney, 1♂ (UWBM); same locality, 8 May 1960, R. Cheyne, 1♂ (UWBM); same locality, 15 May 1964, C. W. Nelson; **Lincoln County**: Hawk Creek Campground, 1290-1300', 19 May 1979, J. H. Shepard; Avista Park, below Long Lake Dam, Spokane River, 1394', 14 June 2019, J. Dammarell, photos; Highline Road N., 2080' 15 June 2019, J. Dammarell; same locality, 2 July 2019, J. Dammarell, photo; Sylvan Lake, N. of, 1700-1750', 2 June 1991, J. P. Pelham, R. L. Crawford, 2♂ 2♀; **Okanogan County**: Brewster, 790-830', 6 May 1934, A. Anderson, 1♂ (UWBM); same locality, 22 June 1955, J. C. Hopfinger (USNM); same locality, 2 May 1935, J. C. Hopfinger (USNM); same locality, 11-18 May 1946, J. C. Hopfinger (AMNH); same locality, 2 May 1936, T. W. Dunkle (AMNH); same locality, May, June, P. A. Opler, 20♂ 11♀ (PMNH, AMNH, NHMLA) (Shields, 1977); Pateros, 780-790', May, 2♂ 1♀ (MCZC, MCAS) (Shields, 1977); 4 mi. E. Brewster, May, assoc. *Er. heracleoides* var. *angustifolium*, 10♂ 19♀ (AMNH) (Shields, 1977); Similkameen River, June, 1♂ 1♀ (EMEC) (Shields, 1977); Black Canyon, 1280-2000', 26 May 1946, J. C. Hopfinger (USNM); same locality, 18 June 1959, D. Carney, 1♂ (UWBM); same locality, 28 May 1961, R. E. Woodley, 1♀; same locality, 17 May 1973, J. P. Pelham, 3♂ (UWBM); Winthrop, 1750-1800', 11 June 1961, J. H. Shepard, 7♂; same locality, 23 June 1961, J. H. Shepard; Strawberry Mountain, 4400-4742', 21 June 1961, J. H. Shepard, 1♀; Beaver Creek, 2600', 22 June 1966, J. H. & S. Shepard, 1♂; Chopaka Creek, 2400' 6 June 1968, R. E. Miller; Chopaka Creek Road, 3600', 16 July 1972, R. Littlefield, 2♂ 7♀ (UWBM); Toats Coulee Creek, 1500-2000', W. Rogers; Chesaw, 2900', W. Rogers; Wannacut Lake, N. end, 1860-1880', 9 June 1968, R. Littlefield, 2♂ (UWBM); same locality, 10 June 1968, R. Littlefield, 1♂ (UWBM); same locality, 16 June 1968, R. Littlefield, 3♂ (UWBM); same locality, 15 June 1972, R. Littlefield, 2♂ (1 genitalia prep.) (UWBM); Hicks Canyon, 2300-2500', R. Littlefield; same locality, 26 May 1973, J. P. Pelham; Thirtymile Campground, 3435-3455', 20 June 1970, J. P.

Pelham, D. Carney, M. D. Van Buskirk, M. Kimura; Alta Lake (State Park), 1160', June, 1 ♂ (AMNH) (Shields, 1977); same locality, May, D. M. McCorkle, 1 ♂ 2 ♀ (Shields, 1977); same locality, 17 June 1959, D. Carney, 1 ♂ (UWBM); same locality, 8 June 1963, D. Carney, 1 ♂ 2 ♀ (UWBM); same locality, 21 May 1971, D. Carney, 4 ♂ 4 ♀ (UWBM); same locality, 17 May 1973, J. P. Pelham, 5 ♂ 2 ♀ (UWBM); same locality, 25 May 1975, J. P. Pelham, 3 ♂ 1 ♀ (UWBM); same locality, 8 May 1977, J. P. Pelham, 3 ♂ 1 ♀ (UWBM); Boulder Creek, 3050', 27 June 1976, J. P. Pelham, 2 ♂ 1 ♀ (1 genitalia prep.) (UWBM); Bernhardt Creek, 5200-5240', 27-28 June 1976, J. P. Pelham, T. S. Pelham, B. Ostenson, 1 ♂ (UWBM); Mount Hull, Summit Lake Road at Forest Service Road 350, 3225-3260', 2 July 1976, J. P. Pelham, B. Ostenson, 1 ♂ (UWBM); Tonasket Creek, 2990', 2 July 1976, J. P. Pelham, B. Ostenson, 1 ♂ (UWBM); Rusty Creek at Salmon Meadows Road, 3000-3120', 28 June 1976, J. P. Pelham, T. S. Pelham, B. Ostenson, 1 ♂ (UWBM); McKay Creek, 5770-5780', J. P. Pelham, T. S. Pelham, B. Ostenson, 1 ♂ (UWBM); Salmon Meadows, 4400-5780', 28-29 June 1976, J. P. Pelham, T. S. Pelham, B. Ostenson, 1 ♀; State Highway 20, 2 mi. W. Winthrop, 1810-1820', 27 June 1963, 4 ♂ 9 ♀; Salmon Creek Road, below Happy Hill, 2080-2100', 14 June 1981, J. P. Pelham, M. A. Peterson, 9 ♂ 2 ♀ (6 ♂ 1 ♀ UWBM); Salmon Creek Road at Salmon Creek, 1830-1860', 14 June 1981, J. P. Pelham, M. A. Peterson, 9 ♂ 1 ♀ (UWBM); Benson Canyon, lower, 1720-1800', 15 June 1981, J. P. Pelham, M. A. Peterson, 22 ♂ 11 ♀ (11 ♂ 9 ♀ UWBM); Libby Creek, 1550-1650', 15 June 1981, J. P. Pelham, M. A. Peterson, 8 ♂ 11 ♀ (7 ♂ UWBM); Boulder Creek 3050', 25 June 1983, J. P. Pelham, M. A. Peterson, J. P. Pearson, J. A. Austin, 1 ♀; Fish Lake, W. end, Sinlahekin Wildlife Area, 1800-1815', 30 June 1976, J. P. Pelham, 7 ♂ 1 ♀; same locality, 25 May 1987, R. E. Kirk; same locality, 25 June 1983, J. P. Pelham, M. A. Peterson, J. P. Pearson, J. A. Austin, worn ♂ ♀; Loomis-Oroville Road, 6 mi. W. Oroville, Similkameen River, N. bank, 1060', 28 May 1961, D. Carney, 2 ♀ (UWBM); Paradise Hill Road [ca. 3 mi. N. Brewster], 1360-1370', 29 May 1971, D. Carney, 1 ♀; Mission Creek, 3200', 18 July 1983, M. A. Peterson, J. P. Pearson, S. J. Collman, 2 ♂ 1 ♀; Mission Creek, 3640', 18 July 1983, M. A. Peterson, J. P. Pearson, S. J. Collman, 18 ♂; Mission Creek, 4165-4175', [NF nr. Blackpine Lake, 4080], 18 July 1983, M. A. Peterson, J. P. Pearson, S. J. Collman, 9 ♂; same locality, 23 July 1983, M. A. Peterson, J. P. Pearson, 1 ♂; Poorman Creek Road, 3200', 18 July 1983, M. A. Peterson, J. P. Pearson, S. J. Collman, 1 ♂ 1 ♀; Mission Creek, 3640', 23 July 1983, M. A. Peterson, J. P. Pearson, 8 ♂; Buttermilk Butte, 5200-5471', 23 July 1983, M. A. Peterson, J. P. Pearson, 3 ♂ 6 ♀; Toats Coulee Road, 3000', 17 July 1971, J. Hinchliff; Mary Ann Creek, 3800', 13 July 1976, J. Hinchliff; Finley Canyon, 2550-2650', 13 & 15 June 1984, J. Austin, 3 ♂ 1 ♀ (UWBM); Mary Ann Creek, 3500', 28 June 2003, D. & J. Nunnallee, adults abundant on *Er. heracleoides*, collected 7 ♀, slides; Lyman Lake to Moses Meadow Road, pass, 4080', T34N R29E S34, 24 May 1987, R. E. Kirk; Omak Mountain, 5640-5747', 24 May 1987, R. E. Kirk; Aeneas Mountain, south, 3900-4589', R. E. Kirk; Pearrygin Lake State Park, N. end, entrance road to Methow Wildlife Recreation Area, 2160-2170', 14 June 1987, A. Swengel; Methow Wildlife Recreation Area, road at S. end Pearrygin Lake State Park, N. of Y intersection, 1950-1960', 14 June 1987, A. Swengel; Goat Peak Road at Goat Peak, 2400-2450', 9 July 1991, R. E. Kirk, J. P. Pelham, 2 ♂; NF 37, 2855-2860', 3 July 2013, R. Bjorklund, BAMONA photo; Long Swamp road loop, 6130', 29 June 2015, D. & J. Nunnallee, WBA; Goat Peak trail, 5770', 24 July 2005, C. C. LaBar, 1 ♂; Blue Lake, Sinlahekin Wildlife Area, 1705-1715', 28 June 2015, J. P. Pelham, D. & J. Nunnallee, WBA conference; Forde Lake, campground S., Sinlahekin Wildlife Area, 1600', 15 June 2005, C. C. LaBar 2 ♂; Forde Lake, deer lick along rd. E. of, Sinlahekin Wildlife Area, 1570', 17 June 2008, C. C. LaBar 2 ♂ (D&V, figured in Butterflies of Sinlahekin Wildlife Area: 162); Sinlahekin Road, southern pot hole slough, Sinlahekin Wildlife Area, 1782', 5 June 2003, N. G. Kondla, 10 ♂ 1 ♀, Sinlahekin Road, middle pot hole slough, Sinlahekin Wildlife Area, 1766' 5 June 2003, N. G. Kondla; Blue Lake Campground, Sinlahekin Wildlife Area, 1640', N. G. Kondla 1 ♂; Forde Lake, 1585', N. G. Kondla, 7 ♂; Cecil Road, forest opening, Sinlahekin Wildlife Area, 2461', 5 June 2003, N. G. Kondla, 1 ♂; Conner Lake, dam area, Sinlahekin Wildlife Area, 1555', 4 June 2003, N. G. Kondla, 6 ♂; Fish Lake Road, wet spot, Sinlahekin Wildlife Area, 1781', 28 June 2012, C. C. LaBar; Fish Lake Road, wet spot, puddling, Sinlahekin Wildlife Area, 1755', 28 June 2012, C. C. LaBar, ♂ (figured in Butterflies of Sinlahekin Wildlife Area: 163); Sinlahekin Creek Road, small creek north side of road, Sinlahekin Wildlife Area, 2574', 28 June 2012, C. C. LaBar; ridge E. Sinlahekin Creek Road, Sinlahekin Wildlife Area, 1666', 29 June 2012, C. C. LaBar; Sinlahekin Creek Road, wet area at small tributary, Sinlahekin Wildlife Area, 2761', 29 June 2012, C. C. LaBar, mating pair (figured in Butterflies of Sinlahekin Wildlife Area: 162); Hunters Camp, Sinlahekin Road, Sinlahekin Wildlife Area, 1852' 30 June 2012, C. C. LaBar, 1 ♂ (figured in Butterflies of Sinlahekin Wildlife Area: 163); Hunters Camp, Sinlahekin Wildlife Area, 1775-1780', 6 June 2013, C. C. LaBar, puddling ♂ (figured in Butterflies of Sinlahekin Wildlife Area: 163); Sinlahekin Road, 1755', meadow north of Fish Lake, 30 June 2012, C. C. LaBar; Forde Lake deer lick along rd. E. of, Sinlahekin Wildlife Area, 1584', 30 June 2012, C. C. LaBar; Sinlahekin Creek Road, 2761', 1 July 2012, C. C. LaBar; Lemanasky S., Sinlahekin Wildlife Area, 4185', 10 July 2006, T. Stuart, 5; Zachman, Sinlahekin Wildlife Area, 3350', 3 July 2006, T. Stuart, ♂ & ♀ (D&V figured in Butterflies of Sinlahekin Wildlife Area: 162); Eden Valley Guest Ranch, 3290-3310', 22-24 June 2012, D. & J. Nunnallee, on *Er. heracleoides*, 12, WBA conference; ca. 12 mi. N. Brewster, D. Carney, 3 ♂ 3 ♀ (UWBM); **Pend Oreille County:** State Highway 20, Pend Oreille River, 2050', 11 July 1961, J. H. Shepard, 1 ♂ 1 ♀; same locality, 14 July 1976, J. H. Shepard; Monumental Mountain, 5550-5700', 24 June 1992, J. P. Pelham 1 ♂; **Spokane County:** Kepple Peninsula Overlook Trail, near beginning, Turnbull National Wildlife Refuge, 2280-2290', 5 June 1987, A. Swengel; Kepple Overlook Trail, .2 mi. E., Turnbull National Wildlife Refuge, 2300', 5 June 1987, A. Swengel, several; Auto Loop Road, between Blackhorse Lake and 30 Acre Lake, Turnbull National Wildlife Refuge, 2260-2270', 5 June 1987, A. Swengel; Dishman Hills Natural Area,

2010, 21 July 1994, D. & J. Nunnallee, Video Notes; Palisades Park, W. Spokane, 2200', 23 July 1994, D. & J. Nunnallee, Video Notes; Hog Lake, 1960-2000', 2 July 2011, J. Baumann; same locality, 13 May 2019, J. Dammarell, Photo; Isaacson Lake, west of, Turnbull Wildlife Refuge, 2270-2280', 14 June 2009, J. Baumann; Knothead Loop, Little Spokane Natural Area, 1650', 6 June 2010, J. Baumann, 3; Smith Road, entrance sign to Headquarters, Turnbull National Wildlife Refuge, 2250', 12 July 1990, T. L. Pyle, 1 ♂ (UWBM, ID'd as *E. enoptes*); Pine Loop Trail, pond edge, Turnbull National Wildlife Refuge, 2180', 5 June 1987, A. Swengel, 4; Spokane, slope above Hangman Creek, 2250-2290', 8 June 2008, T. Stuart, mating pair apparently associated with *Er. compositum* (?), photo; Kepple Peninsula Overlook Trail, near beginning, Turnbull National Wildlife Refuge 2280-2290', 24 June 2010, J. Baumann; Turnbull National Wildlife Refuge, SW corner trail, 2310-2320', 5 July 2010, J. Baumann, many; Blackhorse Lake area, Turnbull National Wildlife Refuge, 2280-2300', 22 July 2010, J. Baumann; vic. Stubblefield Lake, Turnbull National Wildlife Refuge, 2330-2350', 13 June 2010, J. Baumann, 20; same locality, 23 June 2011, J. Baumann, abundant; Stubblefield Lake, mounds north of lake, 2335-2345', 23 June 2011, J. Baumann, 10; W. Burnett Road, Forest-Steppe south, 2350-2360', 8 June 2013, J. Baumann, 5; Salnave Road, 2355', 7 July 2012, D. & J. Nunnallee, pinned; **Stevens County:** Northport, 1325-1350', 1946, Leighton (WSU); **Walla Walla County:** South Fork Dry Creek, 2380-2400', 18 June 1991, R. L. Crawford, J. P. Pelham, 2 ♂; **Whitman County:** Wawawai, 650-700', 30 May 1964, J. H. Shepard; Snake River, below Wawawai, 600', 26 May 1965, J. H. Shepard, 1 ♂; Rosalia, Pine Creek, 2200', 25 June 1964, R. E. Miller, 1 ♀; Kamiak Butte, 3200-3650', 27 June 2002, J. H. & S. Shepard; **Yakima County:** Toppenish Creek, 1300', [3 mi. SE Fort Simcoe], 6 May 1959, D. Carney, 2 ♂ (UWBM); Oak Creek, 1800-2500', 23 June 1962, D. Carney, 1 ♂ (UWBM); Naches, 1450-1470', 19 June, R. B. Nagle; Ahtanum Creek, 1800-2000', 19 May 1958, E. J. Newcomer; same locality, 26 May 1962, E. J. Newcomer, 1 ♂ 1 ♀, ex. J. H. Shepard; Bear Canyon, 2000-2500', 25 June 1964, S. J. Newcomer; same locality, 6 July 1968, J. P. Pelham, M. D. Van Buskirk, P. K. Wiley, 1 ♂ 1 ♀ (UWBM); same locality, 18 May 1970, J. P. Pelham, R. M. Pyle, M. D. Van Buskirk, 1 ♂ (UWBM); same locality, 10 July 1983, R. E. Kirk, 3 ♂ 1 ♀; Mount Adams Highway, near gravel pit, 1280-1300', 6 May 1959, E. J. Newcomer; same locality, 10 May 1958, E. J. Newcomer; Cottonwood Canyon, 1850-1900', 25 June 1967, E. J. Newcomer; same locality, 16 June 1961, D. V. McCorkle, 1 ♂; Priest Rapids at Priest Rapids Dam, 480-500', 2 June 1959, E. E. Newcomer; same locality, 26 May 1962, E. J. Newcomer, 1 ♂, ex. J. H. Shepard; same locality, June, 2 ♂ (NHMLA) (Shields, 1977); Short and Dirty Ridge, 5400-5650', 14 July 1959, J. H. Shepard, 1 ♂; Satus Creek at U.S. Highway 97, 1050', 22 April 1978, J. H. Shepard, 1 ♂; Satus Creek, Highway 97, 1440', 22 May 1971, J. Hinchliff; Satus Creek at U.S. Highway 97, [15 mi. SW Toppenish], 960-1200', May, D. V. McCorkle, 2 ♂ (Shields, 1977); Blue Slide Lookout Tower, 6785', T12N R13E S4, 14 July 1959, J. H. Shepard, 3 ♂ 1 ♀; lower Cowiche Canyon, 1450-1460', 24 May 2011, D. & J. Nunnallee, assoc. *Er. heracleoides*; Cowiche Creek Canyon, 1430', 10 May 1998, D. & J. Nunnallee, slides; Wenas Creek, 1800', 16 May 1958, E. J. Newcomer; N. Wenas Road at Umtanum Creek Trailhead, 2530', 21 May 1959, D. V. McCorkle, 3 ♂ (OSAC) (Shields, 1977); same locality, 9 June 1991, S. Masta, 1 ♂; N. Wenas Road, 2680', 17 June 2018, C. Clark, M. Weiss, photo; same locality, 23 May 1992, D. & J. Nunnallee, assoc. *Er. heracleoides*, slides; N. Wenas Road at Umtanum Creek Trailhead, 2515-2530', 22 June 2013, D. & J. Nunnallee; Audubon Road, [Wenas Creek], 2550-2600', June, P. A. Opler (Shields, 1977).

Euphilotes baueri baueri (Shields, 1975)
(Figs. 61-64, 261-262, 332)

Shijimiaeoides battoides baueri Shields, 1975, Bull. Allyn Mus. (28); 15-16.

Euphilotes battoides baueri (Shields); Miller & Brown, 1981, Mem. Lepid. Soc. (2): 118; Mattoni, 1989, J. Res. Lepid. 27(3/4): 175.

Euphilotes baueri (Shields, 1975); Pratt & J. Emmel, 1998, Syst. W. N. Am. Butts. (16): 220.

Euphilotes baueri baueri (Shields, 1975); Pelham, 2008, J. Res. Lepid. 40: 249; Pelham, 2021, <http://www.butterfliesofamerica.com/US-Can-Cat.htm>.

Type Locality: California: Inyo County; W. side Gilbert Pass, 6200'.

Pratt & Emmel (1998) considered *E. baueri* a species distinct from *E. battoides*. Male genitalia of *E. baueri* are typical of the *battoides* complex, with bifurcate valvae (Figs. 261-262). The female is typical for the complex as well, with a ring-shaped lodix, but the antrum is much shorter than in other members of the complex (Fig. 332). *Euphilotes b. baueri* flies mainly from mid-May to early June, and the larval food plant is *Eriogonum ovalifolium* var. *ovalifolium*. The most prominent distinguishing characteristic of *E. b. baueri* is the large amount of blue on the dorsal wing surfaces of females (Fig. 63). The distribution of *E. b. baueri* includes northeastern to east-central California and west-central Nevada (Fig. 385).

***Euphilotes baueri vernalis* Pratt & J. Emmel, 1998**
(Figs. 65-68)

Euphilotes battoides vernalis Pratt & J. Emmel, 1998, Syst. N. Am. Butts. (16): 221.

Euphilotes baueri vernalis Pratt & J. Emmel; Davenport, 2004a, Tax. Rept. Int. Lepid. Surv. 4(7): 10.

Euphilotes battoides vernalis Pratt & J. Emmel, 1998; Pelham, 2008, J. Res. Lepid. 40: 247.

Euphilotes baueri vernalis Pratt & J. Emmel, 1998; Pelham, 2021, Cat. Butterflies U.S. Can.

<http://www.butterfliesofamerica.com/US-Can-Cat.htm>.

Type Locality: California: San Bernardino County; Coxey Meadow, 1600m.

Euphilotes b. vernalis was described as a subspecies of *E. battoides* (Pratt & Emmel, 1998), but Davenport (2004a) aligned it with *E. baueri*, citing comments by Gordon Pratt, as reason for the change. Pratt & Emmel (1998) cited *Eriogonum kennedyi* var. *kennedyi*, a close relative of *Er. ovalifolium*, as the larval food plant. Females have significant blue dorsally, and adults usually fly in April. *Euphilotes b. vernalis* is apparently endemic to the northwestern slopes of the San Bernardino Mountains, in San Bernardino County, California (Fig. 385).

***Euphilotes baueri orientis* Austin, 1998**
(Figs. 69-72, 263, 333)

Euphilotes baueri orientis Austin, 1998, Syst. W. N. Am. Butts. (45): 550-551; Pelham, 2008, J. Res. Lepid. 40: 249; Pelham, 2021, <http://www.butterfliesofamerica.com/US-Can-Cat.htm>.

Type Locality: Nevada: Lincoln County; Bristol Mountains, U. S. Highway 93, 12.5 road miles north of Pioche, 1826m, T3N R66E (unsectioned) on USGS Bristol Range SE, Nev., 7.5' quadrangle.

Austin (1998) discussed the differences between *E. b. baueri* and the more eastern populations which he named *E. b. orientis*, as follows. *Euphilotes b. orientis* males are slightly more purplish than those of *E. b. baueri*, have broader dark margins on the forewing, and have more marginal black on the hindwing. Females of *E. b. orientis* have much less blue dorsally and have a narrower aurora on average. The ventral wings of both sexes of *E. b. orientis* have larger macules and narrower aurorae than do *E. b. baueri*. The larval food plant is *Eriogonum ovalifolium*. The distribution, given in the original description, is central and southeastern Nevada, southwestern Utah, and northwestern Arizona (Fig. 385).

***Euphilotes baueri* (Shields, 1975) (far N. Great Basin northward segregate)**
(Figs. 73-78, 264-266, 334-335)

Warren et al., 2016, Illustrated lists of American butterflies, Revised 21 Nov. 2017, Accessed 19 Feb., 2021, <http://www.butterfliesofamerica.com>.

Warren (2005) considered all populations of *Euphilotes* in Oregon that use *Eriogonum ovalifolium* var. *ovalifolium* as the larval food plant conspecific with *E. baueri*, mainly because of their food plant association. He discussed populations in two regions of Oregon, the Alvord Desert of Harney County and the Crook-Deschutes County line area east of Redmond. In Crook and Deschutes counties, adults of *E. baueri* closely resemble those of parapatric populations of *E. g. glaucon* associated with *Er. umbellatum*, but males average somewhat paler blue. In southeastern Oregon, most individuals of *E. baueri* generally resemble *E. b. orientis*, and further study may suggest that the name *E. b. orientis* applies to them.

Populations of the *E. battoides* complex occurring in the central Columbia Basin that fly in early May (vic. Richland, Benton Co., Washington; vic. Hermiston, Morrow Co., Oregon), might represent *E. baueri*, but food plant associations have not been verified, and these have not been mapped herein (Fig. 385). Additional unassociated *Euphilotes* populations in Washington are known to feed on *Eriogonum sphaerocephalum* Douglas ex Benth., as detailed by James & Nunnallee (2011). Whether or not these

populations should be aligned with *E. baueri*, or another member of the *E. battoides* complex in the region, remains unclear. For now, none of these populations have been included in our distribution map for *E. baueri* (Fig. 385).

Specimens Examined: USA: NEVADA: Humboldt County: Bloody Run Hills, SW facing slopes along Sand Pass Rd., 5100', 0.1-1.4 mi. W. of Sand Pass Summit, 4.7 mi. W. jct. Hwy. 95, N. of Winnemucca, 18 May 2016, assoc. *Er. ovalifolium*, R. L. Romeyn, 2♂ (SK); OREGON: Crook County: Hwy. 126, 0.5-1.5 mi. E. Deschutes Co. line, 3050', 8 June 2003, on *Er. ovalifolium*, A.D. Warren, 5♂ 8♀ (ADW); Deschutes County: Hwy. 126, 2 mi. E. Redmond at E, end Roberts AFB, 3050', 8 June 2003, on *Er. ovalifolium*, A.D. Warren, 3♂ 5♀ (ADW); Harney County: Alvord Desert Rd., 4 mi. NE Andrews, 4300', 8 May 1990, 3♂ 3♀ (OSAC); ca. 1 mi. E. Folly Farm Rd., 32 mi. S. jct. Hwy. 78, 4200', 16 May 2002, on *Er. ovalifolium*, A.D. Warren, 8♂ 7♀ (ADW); Carlson Creek, T36S R33E S8, 17 May 1997, V. Covlin, 1♂ (ADW); Home Creek, 22 May 1950, S. Jewett, 1♂ (OSAC); Mann Lake, 25 May 1950, S. Jewett, 1♂ (OSAC); nr. Andrews, 26 May 1979, Neyhart, 3♂ 2♀ (OSAC); nr. end of Whitehorse Rd., T35S R39E S28, 4287', 25 May 1999, V. Covlin, 1♀ (ADW); Rd. W. of Alvord Desert, T35S R34E S20, 5353' 17 May 1997, V. Covlin, 2♂ 5♀ (VC); same locality, 23 May 1998, V. Covlin, 1♂ (ADW), 2♂ (VC); 27 May 1999, V. Covlin, 1♂ 1♀ (VC); W. Alvord Desert, 2 mi. NE Andrews, 4200', Hinchliff, 1♂ (OSAC); Wildhorse Ck., Alvord Basin, 28 May 1960, J. Baker, 1♂ 1♀ (OSAC); same locality and date, S. Jewett, 2♂ 2♀ (OSAC); same locality, 28 May 1961, S. Jewett, 11♂ 6♀ (OSAC); 29 May 1965, S. Jewett, 2♂ 4♀ (OSAC); Alvord Desert, 3 mi. NE Andrews, ca. 4000', 8 May 1990, T. Stoddard, 1♀ (SK); Malheur County: Trout Creek, 23 May 1950, S. Jewett, 1♂ (OSAC); Trout Ck. Mts., 5500', 15 mi. WNW McDermit, 9 June 1980, M. Smith, 1♂ (OSAC)

Additional Probable Records: USA: NEVADA: Washoe County: Sheldon NWR, vic. Badger Creek cabin, 28 June 1999, D. Ross, 2♂ (DR); OREGON: Harney County: Burns, 13 June 1964, C. W. Nelson, 1♀ (OSAC); same locality, 30 May 1964, R. Crowe, 1♂ (OSAC).

Euphilotes baueri borealis Kohler – new subspecies (Figs. 79-94, 267-269, 336-338)

ZooBank registration: [urn:lsid:zoobank.org:act:6D9C6062-C226-46B1-B391-6E71AA8FC7B6](https://www.zoobank.org/act:6D9C6062-C226-46B1-B391-6E71AA8FC7B6)

As early as 2000, Kohler found what appeared to be two different species of *Euphilotes* in the *E. battoides* complex occurring at the same locality in Sanders County, Montana. The area has an extensive stand of *Eriogonum ovalifolium*, but also a considerable amount of *Er. heracleoides*. The first *Euphilotes* species, *E. baueri borealis*, begins to fly when the *Er. ovalifolium* is in the full pre-bloom stage, which typically occurs in early May. The *Er. heracleoides* in the same area blooms about one month later, in early to mid-June, and the second *E. battoides* complex species, *E. heracleoides*, (described above) is associated with it.

Definition: Like *E. b. orientis*, males of *E. b. borealis* are a darker shade of blue dorsally than those of *E. b. baueri*, but the black wing borders of *E. b. borealis* males average somewhat wider than those of *E. b. orientis*. Dorsally, females of *E. b. borealis* are dark brown with dark orange aurorae, and have no or at most a hint of blue coloration. Ventrally, both sexes of *E. b. borealis* are similar to the other described subspecies of *E. baueri*, having very large macules on the forewings, which appear smudged along the posterior margin and in the tornus. There is also considerable dark suffusion in the basal areas of both forewings and hindwings of *E. b. borealis*. The male genitalia of *E. b. borealis* are similar to other described subspecies of *E. baueri* and other members of the *E. battoides* complex, in having bifurcate valvae (Figs. 267-269). The female genitalia are typical of other described subspecies of *E. baueri* in having a lodix with a short antrum and surrounding lamella (Figs. 336-338).

Etymology: The name of this subspecies, *borealis* means “northern” or pertaining to the north wind”, and denotes the northern most known population of *Euphilotes baueri*.

Distribution and Phenology: To date, *E. baueri borealis* is known from only three localities in Montana (Fig. 385). A large population exists in the area of the type locality, the main portion of which is a full section of State of Montana-owned land leased for grazing purposes, between the town of Camas Prairie and Markle Pass, 2 miles to the north. An extensive stand of *Eriogonum ovalifolium* Nutt. var. *pansum* Reveal, the presumed larval food plant, covers a large portion of the section and is especially prevalent in the shallow rocky soil along the tops of several low ridges that cross the section (Fig. 376). The single brood of the adult butterflies begins to fly when the buckwheat is in the full pre-bloom stage, which

usually occurs the first part of May. Also occurring in the same area is *Eriogonum heracleoides* var. *heracleoides*, which blooms about one month later, in early to mid-June. *Euphilotes heracleoides* is associated with it. Even though *E. b. borealis* and *E. heracleoides* are present in the same area, *E. b. borealis* is basically finished flying before *E. heracleoides* start to emerge. Recently, a second population of *E. b. borealis* was discovered a few miles to the northeast of the type locality, but few adults have been obtained. In 2016, an additional population was discovered in the area of Twin Bridges, Madison County, east of the Continental Divide, about 180 miles southeast of the type locality. This site is higher in elevation, 5375', compared to 2960' at the type locality. At the Madison County locality, the adult flight occurred around mid-June in 2016 and 2017. The presumed food plant at this locality is *Eriogonum ovalifolium* var. *ovalifolium*, and was the only species of *Eriogonum* present. Despite being widely distributed in much of the western two-thirds of Montana, searches of *Er. ovalifolium* have not resulted in the discovery of any additional *E. baueri* populations. At one locality in Lewis and Clark County where stands of *Er. ovalifolium* occur at 7000' elevation, the *Euphilotes* that were associated with it turned out to be *E. ancilla* (discussed below).

Types: Holotype male: **MONTANA: Saunders County:** 4.5mi N of Camas Prairie, 5 May 2004, S. Kohler Collector (47.53086, -114.60782). Allotype female: **MONTANA: Sanders County:** 4.5 mi N of Camas Prairie, 6 May 2004, S. Kohler Collector. Paratypes: **MONTANA: Sanders County:** 5 mi. N. Camas Prairie, 20 May 1997, S. Kohler, 20♂ 33♀ (SK); 4.5 mi. N. Camas Prairie, 20 May 1997, S. Kohler, 40♂ 23♀ (SK); same locality, 5 May 1998, S. Kohler, 24♂ 15♀ (SK); same locality, 6 May 1998, S. Kohler, 77♂ 64♀ (SK); same locality, 7 May 1998, S. Kohler, 17♂ 7♀ (SK); same locality, 15 May 1998, S. Kohler, 1♂ 1♀ (SK); same locality, 5 May 2004, S. Kohler, 65♂ 46♀ (SK); same locality, 6 May 2004, S. Kohler, 109♂ 42♀ (SK); same locality, 17 May 2006, S. Kohler, 1♀ (SK); 4.5 mi. north Camas Prairie, west Hwy. 382, 2945', 4 May 2016, S. Kohler, 36♂ 18♀ (SK); same locality, 2950', 13 May 2016, S. Kohler, 3♂ 5♀ (SK); same locality, 15 May 2018, S. Kohler, 13♂ 5♀ (SK); 1 mi. S. of Markle Pass, 24 May 1999, S. Kohler, 3♂ 4♀ (SK). All associated with *Eriogonum ovalifolium* var. *pansum*.

Deposition of Types: The holotype male, allotype female and four male and four female paratypes will be deposited in the McGuire Center for Lepidoptera and Biodiversity, Florida Museum of Natural History, University of Florida, Gainesville, Florida. The remaining paratypes are in the Kohler Collection.

Type Locality: USA: Montana: Sanders County: west of Highway 382, 4.5 miles north of Camas Prairie, 2950' (Fig. 376, upper).

Additional Specimens Examined: USA: **MONTANA: Madison County:** Melrose Bench Rd., 5375', 6 mi. W. Twin Bridges, 22 June 2016, assoc. *Eriogonum ovalifolium* var. *ovalifolium*, S. Kohler, 5♂ 4♀ (SK); Melrose Bench Rd., 5400', 15 mi. SE of Melrose, 6 June 2017, assoc. *Er. ovalifolium* var. *ovalifolium*, S. Kohler, 21♂ 18♀ (SK); **Sanders County:** Wilks Gulch Road, 2790', SE of Hot Springs, 13 May 2016, assoc. *Er. ovalifolium* var. *pansum*, S. Kohler, 1♂ (SK).

Euphilotes baueri shoshone Kohler – new subspecies

(Figs. 95-106, 270-271, 339-340)

ZooBank registration: urn:lsid:zoobank.org:act:7E804961-6B1A-4B14-8066-5F3E7A833FD9

Prior to 2017, *Euphilotes baueri* had not yet been confirmed to fly in Idaho, despite appropriate environmental factors and the presence of *Eriogonum ovalifolium*. In 2017, we began a study with the goal of locating Idaho populations of *E. baueri* and assessing their characteristics. Richard L. Romeyn facilitated obtaining the required permit, coordinating with Todd C. Stefanic, Wildlife Biologist with Craters of the Moon National Monument. On May 30-June 2, 2017, Kohler was able to obtain a sufficient study series of *Euphilotes* from the area. It represents a population isolated from adjacent populations to the north, west and south.

Definition: *Euphilotes b. shoshone* males are the darkest of any of the described subspecies of *E. baueri*, being a more purplish-blue than the others, with wide black wing margins. The orange of the dorsal

hindwing aurora is variable, being absent, or at most, consisting of two or three lunules in the tornus area. Ventrally, the wing surfaces of both sexes are typical of other described subspecies of *E. baueri*, with the large forewing macules and the smudged appearance along the posterior margin and the tornus somewhat more noticeable. Male genitalia (Figs. 270-271) are typical for *E. baueri*, with bifurcate valvae. The female genitalia are also consistent with *E. baueri*, having a lodix with a short antrum and surrounding lamella (Figs. 339-340).

Etymology: Members of the Shoshone and Bannock tribes and their ancestors had the most contact among native inhabitants with the lava fields of Craters of the Moon. Extensive archaeological evidence suggests the Shoshone and Bannock frequently visited Craters of the Moon in the vicinity of today's loop drive and Highways 20, 26 and 93. The Shoshone were a branch of the Northern Shoshone that inhabited the upper Columbia River Basin, while the Bannock were a branch of the Northern Paiute. These two groups both occupied the Snake River Plain, intermingled, traveled and hunted together, and otherwise coexisted while speaking slightly different languages. The Shoshone and Bannock did not live in large, highly-structured tribes with identified chiefs. Instead they tended to spread out into small, semi-nomadic groups or bands of two or three families in summer, searching for food throughout the plain and into the mountain valleys (National Park Service, 2020).

Distribution and Phenology: This subspecies has been found only at Craters of the Moon National Monument, Butte County, Idaho (Fig. 385). The larval food plant, *Eriogonum ovalifolium* var. *focarium* Reveal & Mansfield (Craters-of-the-Moon wild buckwheat), is endemic to the Monument (Fig. 377), flowering from May-August in black volcanic cinder flats and slopes in sagebrush communities and conifer woodlands (Reveal & Mansfield, 2014). In our 2017 sampling, adults were flying from late May through early June.

Types: Holotype male: **IDAHO: Butte County:** NE jct. Craters Loop Rd. & Tree Molds Rd., 5875', Craters of the Moon Nat. Mon., 1 June 2017, S Kohler Collector (43.44107, -113.54249). Allotype female: same data as holotype. Paratypes: same data as holotype, 23 ♂ 10 ♀; **IDAHO: Butte County:** Crater Loop Drive, 2.5 mi. S. Visitor Center, 5975', Craters of the Moon Nat. Mon., 30-31 May 2017, S. Kohler, 22 ♂ 11 ♀; NE jct. Craters Loop Rd. & Tree Molds Rd., 5900', Craters of the Moon Nat. Mon., 2 June 2017, S. Kohler, 11 ♂ 17 ♀.

Deposition of Types: The holotype male, allotype female and the majority of the paratypes will be deposited in the McGuire Center for Lepidoptera and Biodiversity, Florida Museum of Natural History, University of Florida, Gainesville, Florida. The remaining paratypes are in the Kohler Collection.

Type Locality: USA: IDAHO: Butte County: vicinity of Crater Loop Road, 5875-5975', Craters of the Moon National Monument (Fig. 377, upper and lower).

THE *EUPHILOTES ENOPTES* COMPLEX

Pelham (2021) included the following species in the *Euphilotes enoptes* complex: *E. ancilla* (W. Barnes & McDunnough) (Figs. 292-302), *E. stanfordorum* Opler & A. Warren, *E. mojave* (F. Watson & W. Comstock), *E. enoptes* (Boisduval) (Figs. 303-307), *E. dammersi* (J. A. Comstock & Henne), and *E. columbiae* (Mattoni) (Figs. 308-309). In this species complex, the male genitalia have valvae that are, when viewed laterally, broad, simple and flat, curving upward distally, the broad distal margin being furnished with a row of small teeth ending ventrally in a single strong spine below which is a rather deep excavation (Fig. 303-306). In the female genitalia, the lodix is large and exposed, with the lamellae surrounding the ostium bursae and antrum cylindrical in shape, with the lamella postvaginalis extending well posterior of the ostium bursae. The lodix reaches its greatest development in *E. enoptes* (Figs. 366-367) and *E. columbiae* (Figs. 368-369).

***Euphilotes oakleyi* Kohler – new species**

(Figs. 107-140, 273-291, 341-351)

***Euphilotes oakleyi oakleyi* Kohler**

(Figs. 107-124, 273-282, 341-343)

ZooBank registration: [urn:lsid:zoobank.org:act:7884CBB3-3789-4491-8880-785488B6BF17](https://zoobank.org/act:7884CBB3-3789-4491-8880-785488B6BF17)

Shields (1975) stated, “a hybrid specimen of *battoides glaucon* X *enoptes ancilla* has come to my attention, a male from Pattee Canyon, 3500’, Missoula Co., Montana, VI-23-62 (J. Scott). Face on, the left valve is like *battoides* and the right valve (though somewhat shorter) is like *enoptes*! Also, two males from 8 mi. N. of Jarbidge, Elko Co., Nevada, VI-28-67 (J. Lane) appear to have somewhat intermediate genitalia between *battoides glaucon* and *enoptes ancilla* (i.e., both have bifurcate valvae but not as deeply as is usual in *battoides*, and one has prominent teeth in a row, as in *enoptes*, along the concave surface). Thus it would appear likely that these three specimens are hybrids between *b. glaucon* and *e. ancilla*, two subspecies that are nearly identical in adult facies and which utilize the same hosts, *Eriogonum umbellatum* and *Er. heracleoides*.” Shields (1977) also stated, “*Ssp. ancilla* approaches the range of *battoides glaucon* in western Nevada, at Pyramid Lake and Silver City. In Elko Co., Nevada, the two nearly overlap in range, *glaucon* occurring north of Jarbidge on the Nevada-Idaho border and *ancilla* flying in the Jarbidge Mts. at Pine Creek near Jarbidge, Jarbidge, 3 mi. S. Jarbidge and Bonanza Gulch. Based on genitalia, two specimens from 8 mi. N. of Jarbidge, appear to be hybrids between the two.” He also provided SEM photos of the valva of two of the three specimens, one from Montana and one from Nevada, as Figs. 32-35, pp. 62-65 (Shields, 1977).

In 2001, John Christenson, Megan Hansen and Will Kerling collected a male *Euphilotes* in the Rattlesnake Recreation Area (Spring Gulch) north of Missoula, Missoula Co., Montana. John Christensen performed a genitalic dissection and made a microscope slide of the valva, subsequently showing it to Kohler, and commenting that it could possibly be a new species, since it matched neither *the E. enoptes* nor *E. battoides* complex. Kohler recognized the similarity of the configuration of the valva to the figures of the supposed hybrids in Shields (1977), and the following year (2002), obtained a sufficient study series of males from the area. After performing multiple genitalia dissections, each resembling the Shields photos, it became obvious that we were indeed dealing with a distinct new species. Kerling was also able to document the food plant association further up the drainage (Stuart Peak Trail) in 2002 by collecting adults of both sexes on *Eriogonum umbellatum*. In 2003, Kohler collected a series of males and females on *Er. umbellatum* at the same locality. Since then, populations of this species have been found at several more localities, as detailed below.

Definition: Overall aspects of male and female genitalia seem to place this species in the *Euphilotes enoptes* complex, being nearer in appearance to that group, but clearly intermediate towards the *E. battoides* complex, with the extended upper prong of the valva, but not to the extent of the bifurcate valva of members of the *E. battoides* complex. The lodix of the female genitalia is moderately large and exposed. Adults of this species are much like western Montana populations of *Euphilotes ancilla* (discussed below) in appearance and phenology, and because both use *Er. umbellatum* as a food plant, the only reliable method of identification is by examination of the genitalia. In male *E. ancilla*, the terminal margin of the cucullus of the valva forms a rather straight line with many fine teeth (Figs. 292-297). In male *E. oakleyi*, the dorsal portion of the cucullus of the valva is elongated into a curved prong extending caudally, and when teeth are present along the terminal margin, they are fewer in number and larger (Figs. 273-282). In female *E. ancilla*, the shape of the lodix is typical of the *E. enoptes* complex, with the lamella postvaginalis being large and fully developed and extending caudally well beyond the ostium bursae (Figs. 352-354). In female *E. oakleyi*, the central portion of the lamella postvaginalis still extends caudally, but the peripheral portions on either side are somewhat reduced (Figs. 341-343).

Etymology: This species is named for Oakley Shields, a pioneer in the modern study of the genus *Euphilotes*, and the first to illustrate the distinctive valva of the male genitalia of *E. oakleyi*, though he

considered that the specimens he figured were hybrids, and did not recognize *E. oakleyi* as a distinct species.

Distribution and Phenology: To date, records indicate a rather limited distribution for *E. oakleyi*, primarily in western Montana (Fig. 386). Recent field work has expanded our knowledge of its distribution and underscores the importance of genitalic examination of all specimens encountered. The record for Elko Co., Nevada, leaves open the possibility that this species is much more widespread over a large geographic expanse between Montana and Nevada, but has thus far gone undetected in this intervening area. Most of the specimens from Montana were taken in association with *Er. umbellatum* (Fig. 378, upper right and lower). The flight period for the single brood is June and July, depending on seasonal development and elevation.

Types: Holotype male: **MONTANA: Missoula County:** Stuart Peak Trail, Rattlesnake Mtns., 18 June 2003, S. Kohler Collector (46.98790, -113.94785). Allotype female: same data as holotype. Paratypes: **MONTANA: Missoula County:** Stuart Peak Trail, Rattlesnake Mtns., 18 June 2003, S. Kohler, 13♂ 9♀; same locality, 4 July 2006, S. Kohler, 6♂ 4♀; same locality, 16 July 2002, W. Kerling, 2♂ 6♀; Spring Gulch, Rattlesnake Mountains, 25 June 2002, W. Kerling, 1♂; same locality, 6 July 2002, S. Kohler, 35♂; same locality, 9 July 2002, S. Kohler, 2♂; same locality, 16 July 2002, S. Kohler, 2♂; same locality, 28 June 2007, A.D. Warren, 12♂; same locality, 28 June 2007, S. Kohler, 3♂ 1♀; same locality, 5360', 28 June 2004, S. Kohler, 1♂.

Deposition of Types: The holotype male, allotype female and three male and three female paratypes will be deposited in the McGuire Center for Lepidoptera and Biodiversity, Florida Museum of Natural History, University of Florida, Gainesville, Florida. The remaining paratypes are in the Kohler Collection and in ADW research material.

Type Locality: USA: MONTANA: Missoula County: vicinity of Spring Gulch and Stuart Peak Trail, 4.5 miles up, Rattlesnake Mountains, north of Missoula (Fig. 378, lower).

Additional Specimens Examined: USA: MONTANA: **Deer Lodge County:** Dry Cottonwood Creek, 6 mi. E. of Galen, 19 June 2007, S. Kohler, 4♂ (SK); **Jefferson County:** Warm Springs Creek, east of Alhambra, 23 June 2005, S. Kohler, 4♂ (SK); **Missoula County:** Miller Cr., 1 July 1975, S. Kohler, 1♂ (SK); 6 mi. up Rattlesnake Cr., 12 July 1999, W. Kerling, 1♂ (SK); Rattlesnake Rec. Area, 7 July 2001, M. Hanson, 1♂ (SK); Mount Jumbo, 14 June 2003, W. Kerling, 2♂ (SK); N. end Mount Jumbo, NE of Missoula, 16 June 2004, W. Kerling, 1♂ (SK); same locality, 20 June 2004, W. Kerling, 1♂ (SK); Mt. Baldy #361, MPG Ranch, 10 June 2015, J. S. Pippen, 2♂ 1♀ (SK); Mount Baldy, MPG Ranch, 2 July 2014, assoc. *Er. umbellatum*, J. S. Pippen, 1♀ (SK); Whaley Pond, MPG Ranch, 22 May 2015, J. S. Pippen, 1♂ (SK); Whaley Draw, MPG Ranch, 4 June 2014, J. S. Pippen, 1♂ (SK); same locality, 15 June 2015, J. S. Pippen, 1♂ (SK); **Ravalli County:** Bass Cr., Florence, 3 July 1976, S. Kohler, 1♂ (SK); same locality, 17 June 1980, S. Kohler, 1♂ (SK); same locality, 21 July 1980, S. Kohler, 3♂ (SK); same locality, 13 June 1982, S. Kohler, 1♂ (SK); same locality, 8 July 1985, S. Kohler, 1♂ (SK); mouth 3-Mile Cr., 4000', SE of Florence, 4 June 2018, 7♂ (SK); 3-Mile Cr. Rd., 5 mi. up, 4850', SE of Florence, 4 June 2018, S. Kohler, 2♂ (SK); 8-Mile Creek, E. of Florence, 26 June 1982, S. Kohler, 1♂ (SK); **Silver Bow County:** Rocky Ridge Trailhead, Divide Cr., 3 mi. W. Feely, 18 June 2001, S. Kohler, 2♀ (SK); same locality, 22 June 2001, S. Kohler, 10♂ 8♀ (SK); same locality, 30 June 2007, S. Kohler, 1♀ (SK); Rocky Ridge Trailhead, W. of Feely, 30 June 2005, S. Kohler, 4♂ (SK); Rocky Ridge Trailhead, 2.5 mi. west Feely, Divide Cr., 16 June 2003, S. Kohler, 5♂ 1♀ (SK); same locality, 19 June 2003, S. Kohler, 26♂ 12♀ (SK); Rocky Ridge Trailhead, 5900', Divide Cr., 2.5 mi. west Feely exit I-15, 21 June 2007, S. Kohler, 18♂ 2♀ (SK); same locality, 14 June 2012, S. Kohler, 13♂ (SK).

Additional Records: The following records were given by Shields (1977) and treated as possible hybrids between *Shijimiaeoides enoptes ancilla* and *S. battoides glaucon*. USA: MONTANA: **Missoula County:** Pattee Canyon, 3500', 23 June 1962, J. A. Scott, 1♂; NEVADA: **Elko County:** 8 mi. N. of Jarbidge, 28 June 1967, J. Lane, 2♂. SEM photos of the male genitalia of two of these specimens were given by Shields (1977, Figs. 32-35). Though Shields considered these were possible hybrids, the figures clearly show the configuration of the valve as being consistent with what we now recognize as characteristic of *Euphilotes oakleyi*.

Euphilotes oakleyi madisonensis Kohler – new subspecies

(Figs. 125-140, 283-291, 344-351)

ZooBank registration: [urn:lsid:zoobank.org:act:5C9B18DF-9B4C-453F-AB0C-FBE381F0E3EC](https://zoobank.org/act:5C9B18DF-9B4C-453F-AB0C-FBE381F0E3EC)

A population of *Euphilotes* discovered in 2008, displaying the same general configuration of male and female genitalia as *E. oakleyi*, but isolated geographically from it, and utilizing a larval food plant different than *Eriogonum umbellatum*, warrants subspecific status.

Definition: The appearance of the wing surfaces of both sexes of *E. oakleyi madisonensis* is similar to those of *E. o. oakleyi*, except that males of *madisonensis* are a lighter shade of blue dorsally. However, the two subspecies differ considerably in details of the genitalia of both sexes. The curved prong of the dorsal cucullus of the valva of male *E. o. madisonensis* is more pronounced and elongated (Figs. 283-291) than in *E. o. oakleyi* (Figs. 273-282, in many individuals approaching in superficial appearance the shape of valvae of the *E. battoides* complex, except that the spine-like process on the inner surface of the valva at the junction of the upper prong with the lower portion of the valva of the *E. battoides* complex is not present on *E. o. madisonensis*. The conformation of the lodix of *E. o. madisonensis* also differs substantially from that of *E. o. oakleyi*. The lamella postvaginalis is much reduced on *E. o. madisonensis*, leaving only shoulder-like lateral projections with the central portion being narrow and much reduced (Figs. 344-351). These aspects of the genitalia of *E. o. madisonensis* place it even more intermediate between the *E. enoptes* and *E. battoides* complexes than *E. o. oakleyi*, at least in superficial appearance.

Etymology: This subspecies is named for the river valley and county in which the population was discovered, Madison River Valley, Madison County, Montana.

Distribution and Phenology: This subspecies has thus far been found at only a few localities in southwestern Montana (Fig 386). At the type locality, the associated food plant, *Eriogonum ovalifolium* var. *ovalifolium* grows in scattered patches over a large grassland area on the bench east of the Madison River (Fig. 379, upper left). Flight period of adults of the single brood is from mid-June through early July.

Types: Holotype male: **MONTANA: Madison County:** Varney Road, 4 mi NW of Cameron, 27 June 2013, 5345', S. Kohler Collector (45.22658, -111.72227). Allotype female: same data as holotype. Paratypes: **MONTANA: Madison County:** Varney Road, 4 mi. NW Cameron, 7 July 2008, S. Kohler, 1 ♂ 2 ♀; same locality, 30 June 2009, S. Kohler, 1 ♂ 9 ♀; same locality, 23 June 2010, S. Kohler, 20 ♂ 12 ♀; same locality, 24 June 2010, S. Kohler, 15 ♂ 7 ♀; Varney Road, 5315' 4 mi. NW Cameron, 1 July 2011, S. Kohler, 22 ♂ 44 ♀; Varney Road, 5345', 4 mi. NW Cameron, 21 June 2012, S. Kohler, 1 ♂ 13 ♀; same locality, 27 June 2013, S. Kohler, 25 ♂ 56 ♀; same locality, 28 June 2013, S. Kohler, 47 ♂ 61 ♀; Varney Road, 5300', 4 mi. NW Cameron, 17 June 2016, S. Kohler, 23 ♂ 28 ♀.

Deposition of Types: The holotype male, allotype female and four male and four female paratypes will be deposited in the McGuire Center for Lepidoptera and Biodiversity, Florida Museum of Natural History, University of Florida, Gainesville, Florida. The remaining paratypes are in the Kohler Collection.

Type Locality: USA: MONTANA: Madison County: state section, Varney Road, 5300-5345', 4 miles NW Cameron.

Additional Specimens Examined: Madison County: S. of Camp Creek Rd., 2 mi. E. of Melrose, 30 June 2007, S. Kohler, 1 ♂ (SK); Gravelly Range Rd., 7300', N. Nat. For. boundary, 30 June 2015, S. Kohler, 1 ♂ (SK); Tobacco Root Mountains, S. Willow Ck., ca. 8.0 rd. mi. SW jct. Norwegian Creek Rd., 6600', 30 June 2007, A.D. Warren (at mud but ID'd by genitalia), 3 ♂ (ADW); **Silver Bow County:** Soap Gulch, 6980', 7 mi. up, NE Melrose, 15 June 2015, S. Kohler, 3 ♂ (SK); Soap Gulch, 6850-7150', 7-8 mi. up, NE Melrose, 17 June 2015, S. Kohler, 30 ♂ (SK); Soap Gulch, 6900', 6 mi. up, NE Melrose, 23 June 2016, S. Kohler, 3 ♂ (SK); Soap Gulch, 6875-7300', 6-7 mi. up, NE Melrose, 24 June 2015, S. Kohler, 20 ♂ (SK); Soap Gulch, 6850-7300', 6-7 mi. up, NE Melrose, 25 June 2015, S. Kohler, 8 ♂ (SK); Soap Gulch, 7300', 7 mi. up, NE Melrose, 3 July 2020, S. Kohler, 6 ♂ (SK); Soap Gulch, NE of Melrose, 15 July 2011, S. Kohler, 9 ♂ (SK); Soap Gulch, 3-6 mi. up, NE of Melrose, 22 July 2010, S. Kohler, 30 ♂ (SK); Soap Gulch, 6-8 mi. up, NE of Melrose, 20 July 2010, S. Kohler, 10 ♂ 2 ♀ (SK); Soap Gulch, 6 mi. up, NE of Melrose, 24 July 2010, 9 ♂ 1 ♀ (SK); Soap Gulch, 3-6 mi. up, NE of Melrose, 3 August 2010, S. Kohler, 2 ♂ (SK).

Euphilotes ancilla ancilla (W. Barnes & McDunnough, 1918)
(Figs. 141-146, 292, 352)

[*Philotes enoptes*] *ancilla* W. Barnes & McDunnough, 1918, Contrib. Nat. Hist. Lepid. N. Am. 4(2):79.

Philotes enoptes ancilla B. & McD; McDunnough, 1938, Mem. S. Calif. Acad. Sci. 1: 28.

Philotes enoptes ancilla Barnes & McDunnough, 1918; dos Passos, 1964, Mem. Lepid. Soc. (1): 67; Langston, 1969, J. Lepid. Soc. 23(1): 51.

Shijimaoides enoptes ancilla (Barnes & McDunnough, 1918); Shields, 1977, J. Res. Lepid. 16(1):11.

Euphilotes enoptes ancilla (Barnes and McDunnough); Miller & Brown, 1981, Mem. Lepid. Soc. (2): 118.

Euphilotes ancilla ancilla (Barnes & McDunnough, 1918); Pratt & Emmel, 1998, Syst. W. N. Am. Butts. (16): 213; Pelham, 2008, J. Res. Lepid. 40: 250; Pelham, 2021, Cat. Butterflies U.S. Can. <http://www.butterfliesofamerica.com/US-Can-Cat.htm>.

Type Locality: Utah: [Juab County]; Eureka.

Pratt & Emmel (1998) and Warren (2005) treated *Euphilotes ancilla* as a species level taxon. Pratt & Emmel (1998) considered *Euphilotes a. ancilla* to occupy an extremely wide range (Fig. 387), although populations along Colorado's Front Range have since been described as a separate subspecies (see below). *E. a. ancilla* resembles *E. g. glaucon* in the appearance of the adults, differing mainly in the conformation of the genitalia. Throughout its range, *E. a. ancilla* is mainly associated with *Eriogonum umbellatum*, although it uses *Er. heracleoides* in parts of northern Nevada.

Further study of *E. a. ancilla* populations is needed to determine if additional subspecies-level taxa are represented within its broad distribution. For now, all material from western Colorado, as well as populations in southern Wyoming which utilize *Er. umbellatum* var. *majus* (Hook.) (= *Er. subalpinum* Greene) as a larval food plant are included within the concept of *E. a. ancilla*, although these populations may be somewhat intermediate between *E. a. ancilla* and *E. a. barnesi*. These southern Rocky Mountain populations will be treated in more detail by the authors in a subsequent publication, where data from western Colorado and southern Wyoming will be provided.

Specimens Examined: USA: **IDAHO: Caribou County:** Wood Canyon, 6533', 25 June 1995, V. Covlin, 1 ♂ (ADW); **Lemhi County:** (all ADW coll., all taken at mud); W. side Bitterroot Range, Cow Ck., 5520', off Lemhi Pass Rd., E. of Tendoy, 16 July 2005, T.W. Ortenburger, 4 ♂; same locality, 16 July 2006, T.W. Ortenburger, 1 ♂; same locality, 18 July 2006, T.W. Ortenburger, 1 ♂ 1 ♀; same locality, 22 July 2006, T.W. Ortenburger, 2 ♂ 1 ♀; W. side Bitterroot Range, upper Cow Creek Rd. fork, off Lemhi Pass Rd., E. of Tendoy, 6205', 18 July 2006, T.W. Ortenburger, 1 ♂; W. side Bitterroot Range, Lake Yearian Ck. Drainage ENE of Lemhi, 6327', 18 July 2006, T.W. Ortenburger, 11 ♂; same locality, 22 July 2006, T.W. Ortenburger, 2 ♂; W. side Bitterroot Range, Pallee Ck. Rd., NE of Tendoy, sandbar below 3-way-junction, 5141', 16 July 2006, T.W. Ortenburger, 2 ♂; **NEVADA: Elko County:** Spruce Mountain Road, 10.6 mi. E. Hwy. 93, 8600', 29 June 2014, R. L. Romeyn, 10 ♂ 1 ♀ (SK); **UTAH: Box Elder County:** Willard Peak, 17 July 1970, S. Kohler, 1 ♂ (SK); **Cache County:** Logan Canyon, 3 July 1980, S. Kohler, 28 ♂ (SK); Green Canyon, 1 July 1964, S. Kohler, 8 ♂ (SK); same locality, 11 July 1965, S. Kohler, 1 ♀ (SK); same locality, 2 July 1979, S. Kohler, 14 ♂ (SK); same locality, 14 July 1993, S. Kohler, 5 ♂ (SK); Green Canyon Rd., 3 mi. up, 1 July 2010, S. Kohler, 11 ♂ (SK); Green Canyon Rd., 4-5 mi. up, 2 July 2010, S. Kohler, 13 ♂ (SK); Hyde Park Canyon, 21 June 1965, S. Kohler, 1 ♀ (SK); **WYOMING: Fremont County:** vic. Dickinson Park Guard Station, 9300', Wind River Range, 26 July 2017, S. Kohler, 1 ♂ (SK); **Lincoln County:** Swift Creek, Afton, 2 July 1978, L. P. Grey, 2 ♂ (SK); Swift Cr., 2.5 mi. E. Afton, 7 July 1982, F. E. Holley, 1 ♂ (SK); **Park County:** Clarks Fork Overlook, Hwy. 212, 14 July 1982, S. Kohler, 1 ♂ (SK); **Teton County:** .5 mi. S. Togwotee Pass, 9660', 18 July 2005, S. Kohler, 1 ♂ (SK).

Euphilotes ancilla barnesi Opler & M. Fisher, 2009
(Figs. 147-150, 293-294)

Euphilotes ancilla barnesi Opler & M. Fisher, 2009, In Fisher, M. S. 2009, Butterflies Colo. 4: 126-128; Pelham, 2021, <http://www.butterfliesofamerica.com/US-Can-Cat.htm>.

Type Locality: Colorado: Jefferson County; Indian Gulch, 1 mile west of Golden.

Euphilotes a. barnesi differs from *E. a. ancilla* by its darker grayish-white appearance below (Opler & Fisher, 2009). We consider *E. a. barnesi* to be endemic to Colorado's Front Range, where it is associated with *Eriogonum umbellatum* var. *umbellatum*. Records exist (from north to south) from Larimer, Boulder, Gilpin, Clear Creek, Jefferson, Douglas, Elbert and Park counties (Stanford & Opler, 1993; ADW pers. obs. 1990-2020). For now, populations further north, along the Colorado-Wyoming border in Larimer County, and on Colorado's west slope, which utilize *Eriogonum umbellatum* var. *majus* (= *Er. subalpinum*), are considered to represent *E. a. ancilla* (Fig. 387), although as noted above, these may be somewhat intermediate towards *E. a. barnesi*. Populations of *E. ancilla* to the northeast of *E. a. barnesi*, in prairie habitats utilizing *Er. flavum* as a larval food plant, are described as a separate subspecies, below.

Euphilotes ancilla montosa Kohler – new subspecies
(Figs. 151-170, 296, 353-361)

ZooBank registration: <urn:lsid:zoobank.org:act:0945169D-7192-487B-8A4A-118EA9FB68E2>

Definition: *E. a. montosa* differs from *E. a. ancilla* in the blue color of the male dorsal wings, which are a darker shade of blue in *E. a. montosa*, and the greater frequency of at least a partial dorsal hindwing orange aurora in the males of *E. a. montosa*. The underside wing surfaces of both sexes of *E. a. montosa* also have larger black macules, particularly on the hindwing, and more basal suffusion of dark scales on both the forewing and hindwing. The macules of the underside wing surfaces of *E. a. ancilla* are smaller and there is less dark basal suffusion. The usual larval food plant of *E. a. montosa* is *Eriogonum umbellatum*, although some populations at the higher elevations utilize *Eriogonum ovalifolium* var. *depressum* Blank. (Fig. 379, upper right and lower). *Eriogonum flavum* var. *piperi* (Greene) M. E. Jones is also utilized at some sites (Fig. 380, upper and lower), as detailed below.

Etymology: The Latin word "montosa" means mountainous, which is descriptive of the type of habitat where this subspecies is found.

Distribution and Phenology: This subspecies occurs in mountainous regions of western Montana, mainly west of the Continental Divide (Fig. 387). The adult flight period of the single brood extends through June and July, depending on elevation and seasonal development.

Types: Holotype male: **MONTANA: Missoula County:** Ninemile Prairie, Greenough, 14 June 1979, S. Kohler Coll. (46.95443, -113.54590). Allotype female: **MONTANA: Missoula County:** Ninemile Prairie, 16 June 2001, S. Kohler Collector. Paratypes: **MONTANA: Missoula County:** Ninemile Prairie, nr. Greenough, 18 June 1977, S. Kohler, 1 ♂ 4 ♀; same locality, 7 June 1979, S. Kohler, 2 ♂ 3 ♀; 9-Mile Prairie, 29 June 1978, S. Kohler, 15 ♂ 10 ♀; Ninemile Prairie, Greenough, 9 June 1979, S. Kohler, 16 ♂ 22 ♀; same locality, 11 June 1979, S. Kohler, 18 ♂ 14 ♀; same locality, 12 June 1979, S. Kohler, 21 ♂ 14 ♀; Ninemile Prairie, 25 May 1992, S. Kohler, 20 ♂ 13 ♀; same locality, 16 June 2001, S. Kohler, 1 ♂ 1 ♀; same locality, 26 June 2004, S. Kohler, 1 ♀; same locality, 20 June 2005, S. Kohler, 2 ♀; N. Ninemile Prairie, 3900', 8 June 2001, S. Kohler, 25 ♂ 21 ♀.

Deposition of Types: The holotype male, allotype female and four male and four female paratypes will be deposited in the McGuire Center for Lepidoptera and Biodiversity, Florida Museum of Natural History, University of Florida, Gainesville, Florida. The remaining paratypes are in the Kohler Collection.

Type Locality: USA: MONTANA: Missoula County: Ninemile Prairie, northwest of Greenough.

Additional Specimens Examined: USA: MONTANA: **Beaverhead County:** Lacy Creek area, FR 73, south of Wise River, 25 June 2015, assoc. *Er. umbellatum*, S. Kohler, 2 ♂ (SK); May Creek area, 6340', Hwy. 43, west of Wisdom, 25 June 2015, assoc. *Er. umbellatum*, S. Kohler, 1 ♂ (SK); Gold Creek, 6600', FR 73, 15 mi. S. Wise River, 30 June 2017, assoc. *Er. umbellatum*, S. Kohler, 2 ♂ 1 ♀ (SK); **Broadwater County:** Avalanche Gulch, 16 July 2004, S. Kohler, 2 ♂ (SK); Avalanche Gulch, 4-8 mi. up, 30 June 2004, S. Kohler, 9 ♂ (SK); Avalanche Gulch, 6.5 mi. up, 8 July 2005, S. Kohler, 3 ♂ (SK); Avalanche Gulch, 6-8 mi. up, 12 June 2006, S. Kohler, 30 ♂ (SK); Avalanche Gulch, 8-9 mi. up, 20 June 2007, S. Kohler, 11 ♂ (SK); Avalanche Gulch, ca. mi. 4.0-4.8, 27 June 2007, A.D. Warren, 4 ♂ (at mud) (ADW); Avalanche Gulch, ca. mi. 7.8-8.1, 27 June 2007, A.D. Warren, 1 ♂ (at mud) (ADW); Avalanche Gulch, ca. mi. 9.0-10.0, 4 July 2007, A.D. Warren, 11 ♂ (at mud) (ADW); Confederate Gulch, 30 June 2004, S. Kohler, 4 ♂ 3 ♀ (SK); Confederate Gulch, 8.5 mi. up, 16 June 2004, S. Kohler, 2 ♂ (SK); **Carbon County:** nr. Red Lodge, 13 June 1978, S. Kohler, 1 ♂ (SK); East Rosebud Lake, 6200', 2 July 1989, B. Vogel, 1 ♂ 1 ♀ (SK); East Rosebud Lake, 6100', 30 June 1990, B. Vogel, 2 ♂ 3 ♀ (SK); ridge W. Cub Creek, 5-7 mi. SE of Belfry, 17 May 2007, S. Kohler 1 ♀ (SK); Hollenbeck Draw, 5 mi. SE of Belfry, 5 June 2007, S. Kohler, 3 ♀ (SK); Hell Roaring Plateau Rd., 22 July 2008, S. Kohler, 1 ♂ (SK); 2-3 mi. SW Belfry, 25 June 2008, S. Kohler, 1 ♂ 1 ♀ (SK); same locality, 19 June 2008, S. Kohler, 1 ♀ (SK); 2-3 mi. SW Belfry, 4125-4300', 11 June 2009, S. Kohler, 1 ♂ 1 ♀ (SK); 2-3 mi. SW Belfry, 4100-4325', 17 June 2009, S. Kohler, 6 ♂ (SK); 2-3 mi. SW Belfry, 4240-4350', 19 June 2009, S. Kohler, 3 ♂ 1 ♀ (SK); vic. MT-WY state line, Main Fork Rock Cr., 8100', SW of Red Lodge, 23 July 2019, S. Kohler, 7 ♂ (SK); same locality, 8 July 2020, S. Kohler, 1 ♂ (SK); **Deer Lodge County:** Forest Road 683, 2 mi. E. Silver Lake, 19 July 1993, S. Kohler, 4 ♂ (SK); same locality, 19 July 2004, S. Kohler, 1 ♂ (SK); E. Georgetown Lake, 6440', 5 July 2001, S. Kohler, 2 ♂ 3 ♀ (SK); nr. Storm Lake Pass, 9200', Anaconda Range, 15 July 2003, S. Kohler, 1 ♀ (SK); Dry Cottonwood Cr., 6 mi. E. of Galen, 19 June 2007, S. Kohler, 5 ♂ (SK); N. Fork Cottonwood Cr., 6150', 9 mi. east of Galen, 29 June 2013, S. Kohler, 6 ♂ 4 ♀ (SK); N. Fork Cottonwood Cr., 6475', 10 mi. E. of Galen, 29 June 2013, S. Kohler, 2 ♂ (SK); N. Fork Cottonwood Cr., 6525', 11 mi. E. Galen, 5 July 2013, S. Kohler, 1 ♂ 1 ♀ (SK); Cable Cr. bog, 6325', FR 683, 2 mi. E. Silver Lake, 18 June 2015, S. Kohler, 1 ♂ 1 ♀ (SK); Cable Cr. bog, 6330', FR 683, 2 mi. E. Silver Lake, 28 June 2016, assoc. *Er. umbellatum*, S. Kohler, 1 ♂ (SK); S. slope Mount Tiny, 9150', W. Storm Lake Pass, Anaconda Range, 16 July 2018, S. Kohler, 1 ♂ (SK); **Gallatin County:** Bridger Range, Bridger Ski Bowl Area, ca. 6100', 1 July 2007, A.D. Warren, 2 ♂ (at mud) (ADW); **Glacier County:** Mount Henry, near Two Medicine, 20 July 1990, S. Kohler, 1 ♂ (SK); same locality, 22 July 2005, S. Kohler, 8 ♂ 6 ♀ (SK); Spot Mountain, near Two Medicine, 3 July 2001, S. Kohler, 1 ♀ (SK); Apistoki Trail, nr. Two Medicine, 28 July 2004, S. Kohler, 1 ♀ (SK); Apistoki Trail to scenic overlook, above Two Medicine, 10 July 2017, S. Kohler, 1 ♂ 2 ♀ (SK); scenic overlook trail, above Two Medicine, 25 June 2018, S. Kohler, 1 ♂ (SK); **Granite County:** W. of Phillipsburg, 30 June 1981, S. Kohler, 5 ♂ 4 ♀ (SK); Black Pine Road, 3 July 1989, S. Kohler, 1 ♂ (SK); Black Pine Road, 5675', 6 mi. NW Phillipsburg, 20 June 2001, S. Kohler, 31 ♂ 7 ♀ (SK); **Jefferson County:** 4 mi. W. Jefferson City, 23 June 2005, S. Kohler, 2 ♂ (SK); Warm Springs Creek, west of Alhambra, 23 June 2005, S. Kohler, 1 ♂ 1 ♀ (SK); **Lewis & Clark County:** Skelly Gulch, 6500', 16 mi. NW of Helena, 21 June 1992, B. Vogel, 1 ♂ (SK); 5 mi. W. Rogers Pass, 10 July 2001, S. Kohler, 1 ♂ (SK); 0.5 mi. N. of Wolf Creek, 2 July 2002, S. Kohler, 1 ♂ (SK); Cottonwood Creek, Beartooth Game Range, 22 June 2005, S. Kohler, 5 ♂ (SK); mouth of Cottonwood Ck., 26 June 2007, A.D. Warren, 1 ♂ (at mud) (ADW); railroad tracks, S. of Wolf Creek, 21 June 2005, S. Kohler, 2 ♂ (SK); Elkhorn Creek, Beartooth Game Range, 13 June 2006, S. Kohler, 4 ♂ (SK); same locality, 10 July 2009, S. Kohler, 1 ♀ (SK); W. side Rogers Pass, 7200', 25 July 2008, B. Weber, 1 ♀ (SK); Crown Saddle, 7300', Scapegoat Wilderness, 17 July 2009, S. Kohler, 2 ♂ (SK); W. side Rogers Pass, 14 July 2010, S. Kohler, 4 ♂ (SK); Dead Man Coulee, north of Wolf Creek, 7 June 2012, S. Kohler, 1 ♂ (SK); Red Mountain, 10 mi. N. Lincoln, 29 July 2010, assoc. *Er. ovalifolium*, S. Kohler, 1 ♂ 1 ♀ (SK); Red Mountain, 7840', NE of Lincoln, 16 July 2013, assoc. *Er. ovalifolium*, S. Kohler, 3 ♂ (SK); trail above Copper Camp, 7800', NE Lincoln, 7 July 2014, assoc. *Er. ovalifolium*, S. Kohler, 5 ♂ 8 ♀ (SK); same locality, 26 July 2014, assoc. *Er. ovalifolium*, S. Kohler, 1 ♂ 2 ♀ (SK); Red Mountain Trail, 7400' NE Lincoln, 15 July 2015, assoc. *Er. ovalifolium*, S. Kohler, 1 ♀ (SK); Red Mountain trail above Copper Camp, 7500', NE Lincoln, 1 July 2016, assoc. *Er. ovalifolium*, S. Kohler, 58 ♂ 20 ♀ (SK); Red Mtn. trail above Copper Camp, 7000', N. Lincoln, 4 July 2017, assoc. *Er. ovalifolium*, S. Kohler, 10 ♂ 6 ♀ (SK); **Missoula County:** Miller Cr., 19 June 1971, S. Kohler, 1 ♂ (SK); same locality, 5 June 1972, S. Kohler, 1 ♂ (SK); Twin Creek, 24 July 1974, S. Kohler, 1 ♂ 2 ♀ (SK); Mt. Sentinel, 4 July 1975, S. Kohler, 4 ♂ (SK); Randolph Property, N. of Waterworks Hill, 1 July 2002, S. Kohler, 2 ♂ 8 ♀ (SK); Mount Jumbo, 14 June 2003, W. Kerling, 1 ♂ 2 ♀ (SK); Shoo Fly Meadows, 28 June 2003, W. Kerling, 3 ♂ 1 ♀ (SK); same locality, 3 July 2004, W. Kerling, 2 ♂ (SK); N. end Mount Jumbo, 16 June 2004, W. Kerling, 1 ♀ (SK); Trail 42, vic. Holland Lookout, Swan Range, 21 July 2004, S. Kohler, 1 ♂ 2 ♀ (SK); **Park County:** Eagle Creek Camp, near Jardine, 26 June 2004, W. Kerling, 4 ♂ (SK); L. Fork Bear Creek, near Jardine, 26 June 2004, W. Kerling, 2 ♂ (SK); **Powell County:** Boulder Mts., Priest Pass Rd., 1.5-1.8 mi. W. pass summit, ca. 5500', 5 July 2007, A.D. Warren, 3 ♂ 1 ♀ (ADW); Boulder Mts., Telegraph Ck. Rd., 4.3-5.3 mi. SSE Hwy. 12, ca. 4800', 5 July 2007, A.D. Warren, 2 ♂ (at mud) (ADW); near MacDonald Pass, 29 June 1981, S. Kohler, 2 ♂ (SK); same locality, 30 June 1981, S. Kohler, 1 ♂ (SK); NW of Deer Lodge, 30 June 1982, S. Kohler, 1 ♂ (SK); nr. Morrell Lookout, 11 July 1988, S. Kohler, 1 ♂ (SK); same locality, 16 July 1997, S. Kohler, 1 ♂ (SK); below Morrell Lookout, E. of Seeley Lake, 11 July 2000, S. Kohler, 26 ♂ 21 ♀ (SK); below Morrell Lookout, 7450', east of Seeley Lake, 17 July 2001, S. Kohler, 2 ♂ 2 ♀ (SK); near Browns Lake, 2 July 2002, S. Kohler, 1 ♂ (SK); vic. Morrell Lookout, 10 mi. E. Seeley Lake, 12 June 2004, assoc. *Er. flavum*, S. Kohler, 13 ♂

9 ♀ (SK); same locality, 6 July 2007, assoc. *Er. flavum*, A.D. Warren, 36 ♂ 40 ♀ (ADW); same locality, 3 July 2008, assoc. *Er. flavum*, S. Kohler, 34 ♂ 14 ♀ (SK); same locality, 9 July 2008, assoc. *Er. flavum*, S. Kohler, 53 ♂ 29 ♀ (SK); Swamp Creek, 4-5 mi. NE Seeley Lake, 16 July 2008, 1 ♂ (SK); vic. Morrell Lookout, 7300', 7 July 2009, assoc. *Er. flavum*, S. Kohler, 16 ♂ 3 ♀ (SK); vic. Morrell Lookout, 7600', 10 mi. E. Seeley Lake, 7 July 2009, assoc. *Er. flavum*, S. Kohler, 39 ♂ 5 ♀ (SK); same locality, 9 July 2009, assoc. *Er. flavum*, S. Kohler, 45 ♂ 18 ♀ (SK); vic. Morrell Lookout, 10 mi. E. Seeley Lake, 23 July 2011, assoc. *Er. flavum*, S. Kohler, 39 ♂ 2 ♀ (SK); Morrell Lookout Rd., 6985', 10 mi. E. Seeley Lake, 29 June 2016, S. Kohler, 8 ♂ (SK); vic. Morrell Lookout, 7400-7700', 10 mi. E. Seeley Lake, 29 June 2016, assoc. *Er. flavum*, S. Kohler, 43 ♂ 7 ♀ (SK); same locality, 3 July 2017, assoc. *Er. flavum*, S. Kohler, 1 ♂ 7 ♀ (SK); **Ravalli County**: 8-Mile Creek, E. of Florence, 26 June 1982, S. Kohler, 1 ♂ (SK); 3-Mile Creek, SE of Florence, 29 June 1990, S. Kohler, 1 ♂ (SK); same locality, 1 June 1992, S. Kohler, 1 ♂ (SK); same locality, 5 June 1992, S. Kohler, 1 ♂ (SK); Bass Creek, Florence, 14 June 1988, S. Kohler, 1 ♂ (SK); same locality, 4 July 1997, S. Kohler, 1 ♂ (SK); **Silver Bow County**: near Butte, 28 June 1994, S. Kohler, 1 ♀ (SK); head of Soap Gulch, 7530', NE Melrose, 2 July 2020, assoc. *Er. flavum*, S. Kohler, 4 ♂ (SK); Soap Gulch, NE of Melrose, 15 July 2011, S. Kohler, 10 ♂ (SK); Soap Gulch, 7725', NE Melrose, 6 July 2013, S. Kohler, 1 ♂ (SK); Soap Gulch, 3-6 mi. up, NE of Melrose, 22 July 2010, S. Kohler, 11 ♂ (SK); Soap Gulch, 6-8 mi. up, NE of Melrose, 20 July 2010, S. Kohler, 34 ♂ 1 ♀ (SK); Soap Gulch, 6 mi. up, NE of Melrose, 24 July 2010, S. Kohler, 9 ♂ (SK); **Stillwater County**: Benbow Mine Road, 9000', 17 mi. SW Fishtail, 18 July 1989, B. Vogel, 1 ♂ (SK); **Sweet Grass County**: Swamp Creek Rd., 12 July 1978, S. Kohler, 1 ♂ 1 ♀ (SK); Picket Pin Rd., 8500', W. Nye, 4 July 2013, S. Kohler, 2 ♂ (SK); **Teton County**: near jct. Mount Wright Trail & Trail 114, 5650', 5 July 2017, S. Kohler, 1 ♂ (SK).

Additional Records: USA: **MONTANA:** **Carbon County**: Beartooth Plateau, just N. of Wyoming border, 26 July 1994, C. E. Harp (Lep. Soc. Seas. Sum. as *Euphilotes* sp.); East Rosebud Lake, 6200', 5 July 1991, B. Vogel, 8 ♂ (BV Collection); **Gallatin County**: Swan Creek Trail, 23 July 1970, C. D. Ferris, 1 ♂ 1 ♀ (CDF Collection); Three Forks, June, 2 ♂ (CM) (Shields, 1977); **Glacier County**: 1km E. scenic point, 10km NW East Glacier, 2195m, 12 July 1978, A. Peters, 1 ♂ 3 ♀ (GNP Collection); **Granite County**: N. Hogback Cabin, Rock Cr. Rd., 25 mi. SE Clinton, 22 June 2012, G. Marangelo, 1 ♂ (BAMONA photo); **Judith Basin County**: Blacktail Hills, Dry Wolf Cr. Rd., S. of Stanford, 20 August 1994, C. E. Harp (Lep. Soc. Seas. Sum. as *Euphilotes* sp.); **Lewis & Clark County**: Skelly Gulch, 5000', 10 mi. WNW Helena, 17 June 1990, B. Vogel, 1 ♀ (BV Collection); 2.5 mi. W. of Austin, FR 1805, 1 July 2002, J. Christenson, 1 ♂ 1 ♀ (JC Collection); same locality, 2 July 2002, J. Christenson, 2 ♂ (JC Collection); same locality, 29 July 2002, J. Christenson, 1 ♂ 1 ♀ (JC Collection); 4 mi. S. of Rimmi, 7000', 8 July 1990, B. Vogel, 1 ♂ 1 ♀ (BV Collection); Flesher Pass, 13 July 2002, J. Christenson, 1 ♂ (JC Collection); N. Wolf Creek along tracks, 13 June 2003, J. Christenson, 1 ♂ (JC Collection); Priest Pass, 10 July 2002, T. Aneiros, 1 ♂ (TA Collection); same locality, 10 July 2002, J. Christenson, 1 ♂ (JC Collection); Rogers Pass, 16 July 1965, J. Oberfoell, 1 ♂ (JO Collection); Stemple Pass, 14 July 2004, J. Christenson, 3 ♂ (JC Collection); **Madison County**: Antelope Flats, Forest Road 556, 1 July 2003, J. Christenson, 1 ♂ (JC Collection); Rock Creek and Madison River, 1 ♂ 3 ♀ CM) (Shields, 1977); Teepee Creek and Madison River, 2 ♂ 2 ♀ (CM) (Shields, 1977); **Missoula County**: Missoula, 3 May 1934, D. Smith, 1 ♂ (MSU Collection); **Park County**: Big Creek, 2-4 mi. W. Hwy. 89, 6000-6500', 7 July 2009, M. S. Fisher; **Powell County**: Basin Cr. Rd., 19 June 2016, N. & D. Ewer (Lep. Soc. Seas. Sum.); **Silver Bow County**: Pipestone Pass, 6418', 22 July 1968, W. D. Patterson (Lep. Soc. Seas. Sum.); **Sweet Grass County**: E. side Crazy Mountains, 27 June 1966, J. A. Scott (Lep. Soc. Seas. Sum.); Half Moon Campground, 6500', Big Timber Canyon, 1 ♂ (AME) (Shields, 1977); Half Moon Park, 6500' Big Timber Canyon, Crazy Mts., 28 June 1966, D. C. Ferguson, 1 ♂ (YPM); Little Timber Creek, 5743', Crazy Mountains, 29 June 1966, D. C. Ferguson, 1 ♂ (YPM); near Big Timber Cr. 4400', 28 June 1966, J. A. Scott, 1 ♂ (JAS Collection) (Shields, 1977); Swamp Cr. Rd., 5500', nr. Big Timber, 29 June 1966, J. A. Scott (JAS Collection); same locality, 2 July 1966, J. A. Scott, (JAS Collection); **Teton County**: Pine Butte Ranch, 5100', 23 June 1998, R. E. Stanford (Lep. Soc. Seas. Sum.); Teton Canyon, W. of Choteau, 11 July 1989, J. Oberfoell, 1 ♂ (JO Collection).

***Euphilotes ancilla campestris* Kohler – new subspecies**
(Figs. 171-196, 297-301, 362-365)

ZooBank registration: [urn:lsid:zoobank.org:act:C7CAA9D-87F9-4AF2-9A7A-65413CEA8754](https://www.zoobank.org/act:C7CAA9D-87F9-4AF2-9A7A-65413CEA8754)

Definition: *Euphilotes a. campestris* adult males are a lighter blue dorsally than those of *E. a. montosa*, and very rarely have even a hint of orange aurora on the hindwing. They have narrow black borders dorsally, especially on the hindwing, where often the border is reduced to a series of spots. The adult female orange aurora of *E. a. campestris* is narrower than that of *E. a. montosa*. The black macules on the underside wing surfaces of both sexes of *E. a. campestris* are smaller than those of *E. a. montosa*, and there is less basal suffusion of dark scales on both the forewing and hindwing. The male and female genitalia of *E. a. campestris* are typical for *E. ancilla*. The larval food plant is *Eriogonum flavum* var. *flavum* (Fig. 381, lower).

Etymology: The word *campestris* means “level, even or flat ground” or “on open plain” or “Plains-dwelling”, which is descriptive of the type of habitat where this subspecies is found.

Distribution and Phenology: *Euphilotes a. campestris* is widely distributed in the prairie regions of eastern Montana (Fig. 387), and is found near dry prairie hilltops and on low ridges with shallow soils that are thinly vegetated, such as the type locality (Fig. 381, upper). An evaluation of existing records for *Euphilotes ancilla* from the prairie regions of eastern Wyoming (and possibly far northeastern Colorado, e.g., Weld County, as indicated by Stanford & Opler (1993)), western North Dakota, South Dakota and Nebraska, as well as the southern portions of the Canadian provinces of Alberta and Saskatchewan, strongly suggests that those records all represent *E. a. campestris*. Though not recorded for North Dakota (Royer, 2003), a more recent record for that state exists; Square Butte, Golden Valley County, North Dakota, 12 June 2004, B. Reynolds and R. Royer. Marrone (2002) reported records for Lawrence and Fall River counties, South Dakota. His figures (p. 174) are consistent with the appearance of *E. a. campestris*. The specimens figured by Ferris & Brown (1981) on page 216 as *E. enoptes ancilla* from E. Laramie, Albany County, Wyoming, 28 June 1972, are consistent with the appearance of *E. a. campestris*. Hooper (1973) reported one specimen of *E. ancilla* taken near Elkwater in the Cypress Hills of Alberta, Canada, 18 June 1963, one specimen at Val Marie, Saskatchewan, Canada, 25 June 1968, and one from Rosefield, Saskatchewan, Canada, 26 June 1968. Layberry et al. (1998) map the above Canadian records and also additional localities for Alberta and Saskatchewan on page 155. They state that these records represent *E. a. ancilla*, but their discussion of the probable food plant as *Eriogonum flavum*, and the appearance of the adults (Plate 11, Figs. 42, 43) confirm that all of these Canadian records most probably also represent *Euphilotes a. campestris*. The period of adult flight of the single brood is mainly May and June.

Types: Holotype male: **MONTANA: Powder River Co.:** .8 mi. W. Pumpkin Cr. Rd. 24 mi. W. Broadus, S. Hwy., 13 June 2007, S. Kohler Collector (45.54154, -105.83300). Allotype female: **MONTANA: Powder River Co.:** .8 mi. W. Pumpkin Cr. Rd., 24 mi. W. Broadus, S. Hwy., 15 June 2007, S. Kohler Collector. Paratypes: same locality, 13 July 2007, S. Kohler Coll., 36 ♂ 16 ♀ (SK); same locality, 15 June 2007, S. Kohler, 8 ♂ 11 ♀ (SK); hills S. Hwy 212, 24 mi. W. Broadus, 26 June 2008, S. Kohler, 26 ♂ 18 ♀ (SK); hills S. of Hwy. 212, 3650', 22 mi. W. Broadus, 10 June 2015, S. Kohler, 7 ♂ 5 ♀ (SK). All assoc. *Er. flavum*.

Deposition of Types: The holotype male, allotype female and three male and three female paratypes will be deposited in the McGuire Center for Lepidoptera and Biodiversity, Florida Museum of Natural History, University of Florida, Gainesville, Florida. The remaining paratypes are in the Kohler Collection.

Type Locality: USA: MONTANA: Powder River County: hills south of Highway 212, 0.8 miles west of Pumpkin Creek Road, 24 miles west of Broadus.

Additional Specimens Examined: USA: **MONTANA: Cascade County:** bluff 2.5 mi. N. Ft. Shaw, 3815', 8 June 2010, S. Kohler, 4 ♂ 4 ♀ (SK); 1 mi. NW Lowry Bridge, 5.5 mi. W. of Simms, 22 June 2009, S. Kohler, 1 ♂ 1 ♀ (SK); **Carter County:** FR 4035, Long Pines area, 36 mi. SE of Ekalaka, 14 June 2007, S. Kohler, 1 ♂ (SK); **Hill County:** badlands NW of Havre, 2550', 19 May 1998, G. Lawson, 1 ♂ (SK); same locality, 24 May 2001, G. Lawson, 2 ♂ (SK); same locality, 25 May 2001, G. Lawson, 1 ♂ (SK); Bears Paw Mountains, S. of Havre, 3 June 1986, S. Kohler, 1 ♂ (SK); **Pondera County:** hills 5 mi. W. Conrad, 3 July 2009, S. Kohler, 1 ♂ (SK); **Stillwater County:** Lone Tree Road, 1.5 mi. N. Columbus, 12 June 2007, S. Kohler, 13 ♂ 4 ♀ (SK); 8.5 mi. N. Columbus, 4600', 15 August 1989, B. Vogel, 1 ♂ 1 ♀ (BV Collection); **Teton County:** rim E. of Hwy. 287, 4500', 7 mi. S. of Choteau, 1 July 2009, S. Kohler, 2 ♀ (SK); W. Floweree Butte, 3815', 5 mi. NW Simms, 7 June 2010, S. Kohler, 2 ♂ 1 ♀ (SK); same locality, 8 June 2010, S. Kohler, 1 ♂ (SK); same locality, 26 June 2010, S. Kohler, 34 ♂ 34 ♀ (SK); same locality, 28 June 2010, S. Kohler, 19 ♂ 21 ♀ (SK); **Toole County:** N. of Cameron Lake, Middle Butte, Sweet Grass Hills, 11 July 2002, assoc. *Er. flavum*, S. Kohler, 8 ♂ 1 ♀ (SK); Pratt Canyon, 4600', W. Butte, Sweet Grass Hills, 24 June 2009, S. Kohler, 2 ♂ (SK); 0.8 mi. N. Cameron Lake, 4150', Middle Butte, Sweet Grass Hills, 25 June 2019, assoc. *Er. flavum*, S. Kohler, 1 ♂ (SK); vic. Cameron Lake, 4080', Middle Butte, Sweet Grass Hills, 22 June 2020, assoc. *Er. flavum*, S. Kohler, 1 ♂ (SK); same locality, 26 June 2020, assoc. *Er. flavum*, S. Kohler, 1 ♂ (SK); **Yellowstone County:** 2 mi. east of Waco, 23 May 1994, S. Kohler, 1 ♂ (SK); **WYOMING: Laramie County:** 1 mi. W. I-25 on Terry Ranch Rd., 4 mi. N. CO state line, 27 June 1993, prob. assoc. *Er. flavum*, A.D. Warren, 1 ♀ (ADW).

Additional Records: Although not examined by us, the following records most likely represent this subspecies: USA: **MONTANA: Fergus County:** 10 mi. N. Big Snowy Mts., 22 June 1989, R. A. Royer (Lep. Soc. Seas. Sum.); **Liberty**

County: Corral Cr., East Butte, Sweet Grass Hills, 14 June 2005, 1 ♂; south rim of Marias River, 3100', N. of Ft. Benton, 19 June 1994, C. E. Harp (CEH Collection); **Toole County:** 3 mi. W. of Sunburst, 23 May 1987, N. G. Kondla, 1 ♂ (NGK Collection).

Euphilotes ancilla (W. Barnes & McDunnough, 1918) (SE Oregon segregate)

Warren et al., 2016, Illustrated lists of American butterflies, Revised 21 Nov. 2017, Accessed 19 Feb., 2021. <http://www.butterfliesofamerica.com>.

Warren (2005) discussed populations of *Euphilotes ancilla* in northern Harney County, Oregon, found in association with *Eriogonum sphaerocephalum* var. *sphaerocephalum*. He stated that the adults are unique among members of the *E. enoptes* complex in Oregon, in that ventral wing spots are large and bold, and females have prominent, very well-developed hind wing aurorae. Before 2003, this segregate of *E. ancilla* was known from just a few specimens, all from Harney County. In 2003, Warren located large populations of *E. ancilla* in the Hines-Burns area. Hundreds of individuals were observed among dense stands of *Er. sphaerocephalum* var. *sphaerocephalum*. *Eriogonum strictum* was also present at the site in Burns, but was ignored by *Euphilotes* adults.

In addition to the population of this segregate in the Burns-Hines area, Richard Romeyn (pers. comm., 2021) has recently documented the occurrence of both *Er. sphaerocephalum* var. *sphaerocephalum* and the associated *E. ancilla* at multiple sites along the Highway 395 corridor south into Modoc County, California (not mapped on Fig. 387). He noted that adults at all sites sampled in the Warner Mountains, east of Alturus, California, were indistinguishable in phenotype from those flying at Burns-Hines, Oregon. Thus, the overall distribution of this segregate (Fig. 387) may well be far greater than originally thought. The use of the species name *Euphilotes ancilla* for these populations is tentative, however, as they may be more closely related to *E. columbiae*. Further details and a formal description of these populations will be provided by the authors in a subsequent publication.

Euphilotes ancilla giulianii Pratt & J. Emmel, 1998

Euphilotes ancilla giulianii Pratt & J. Emmel, 1998, Syst. W. N. Am. Butterflies (16): 214-215; Pelham, 2008, J. Res. Lepid. 40: 250; Pelham, 2021, <http://www.butterfliesofamerica.com/US-Can-Cat.htm>.

Type Locality: Nevada: Nye County; Grapevine Mountains, ridge 0.8km southeast of Wahguyhe Peak, 2300-2400m.

Pratt & Emmel (1998) stated that this subspecies is the most distinct of the *E. ancilla* group, looking superficially much like *E. baueri*. It is different from other *Eriogonum umbellatum*-feeding populations in the increased amount of blue in females, the narrow width of the black border in males, and its small size. The larval food plant is *Eriogonum umbellatum* var. *versicolor* S. Stokes. The range of *E. a. giulianii* is limited to the Grapevine Mountains and Last Chance Range of southeastern California and southwestern Nevada (Fig. 387).

Euphilotes ancilla gilvatunica Austin, 1998
(Fig. 302)

Euphilotes ancilla gilvatunica Austin, 1998, Syst. W. N. Am. Butterflies (45): 553-554; Pelham, 2008, J. Res. Lepid. 40: 251; Pelham, 2021, <http://www.butterfliesofamerica.com/US-Can-Cat.htm>.

Type Locality: Nevada:, Washoe County; Nevada State Route 341, 3.3 road miles east of US 395, 1525m, T18N R20E S5 on USGS Steamboat, Nev. 15' quadrangle.

Austin (1998) stated that *E. a. gilvatunica* differs from other *E. ancilla* taxa in its relatively large size, the black of the outer margins of males tending to be of individual spots in each cell (especially on the hindwing), its dark brown females, and its yellowish tinged ventral surface with relatively large macules. Males also have less submarginal orange on the dorsal hindwing than is usual among *E. a. ancilla*. This subspecies occurs in western Nevada from about the Reno, Washoe County area south into Mineral County and east into the mountains of central Nevada (Fig. 387). The single brood has been recorded from late May through early August (mostly in June). No food plant association was provided in the original description, but *E. a. gilvatunica* reportedly uses *Eriogonum umbellatum* var. *umbellatum* (Shields, 1977) and *Eriogonum lobbii* Torr. & Gray (Austin, pers. comm., 2003).

***Euphilotes ancilla shieldsi* Austin, 1998**

Euphilotes ancilla shieldsi Austin, 1998, Syst. W. N. Am. Butterflies (45): 553; Pelham, 2008, J. Res. Lepid. 40: 251; Pelham, 2021, <http://www.butterfliesofamerica.com/US-Can-Cat.htm>.

Type Locality: Nevada: Esmeralda County; White Mountains, Trail Canyon Road, 9.5 road miles west of Nevada state route 264, 2286m, T1S R34E S6 on USGS Davis Mountain, Nev.-Calif. 15' quadrangle.

Austin (1998) stated that *E. a. shieldsi* is most similar to *E. a. purpura* (see below), but is not as deeply colored, has narrower black margins and white wing fringes. The gray flush of the ventral forewing is not as extensive, and the macules of the submargin tend to be separate rather than fused, as on *E. a. purpura*. *Euphilotes a. shieldsi* differs from *E. a. ancilla* in its deeper purplish (less blue) color, broader black margins and larger ventral macules. This subspecies is known only from the White Mountains, Esmeralda County, Nevada, and the Quinn Canyon Range, Nye County, Nevada (Fig. 387). The known flight period extends from mid-June to late July. The larval food plant is *Eriogonum umbellatum*.

***Euphilotes ancilla purpura* Austin, 1998**
(Figs. 197-198)

Euphilotes ancilla purpura Austin 1998, Syst. W. N. Am. Butterflies (45): 552; Pelham, 2008, J. Res. Lepid. 40: 251; Pelham, 2021, <http://www.butterfliesofamerica.com/US-Can-Cat.htm>.

Type Locality: Nevada: Clark County; Spring Mountains, Willow Creek, 1829m, T18S R55E S2 on USGS Mt. Stirling quadrangle, 15' series.

Austin (1998) stated that males of *E. a. purpura* are readily recognizable from those of all other *Euphilotes* by their deep purple-blue color, very broad black margins, the black forewing fringe, and the strong gray flush on the ventral forewing. He noted the distribution of this subspecies as middle elevations of the Spring Mountains of Clark County and the road to Mt. Stirling in southern Nye County, Nevada (Fig. 387). Austin (1998) also stated that *E. a. purpura* is found locally near colonies of its probable larval food plant, *Eriogonum umbellatum* var. *subaridum* S. Stokes, and that the single brood flies from late May to mid-August. This information was discussed, clarified, and corrected in Austin et al. (2008), where the authors documented the existence of two cohorts of *E. ancilla* feeding on two different taxa of *Eriogonum* in the Spring Mountains. They determined that the early season cohort flying in May and June and utilizing *Eriogonum umbellatum* var. *juniporinum* Reveal is *E. a. purpura*, and that the late season cohort flying in July-August and utilizing *Er. umbellatum* var. *subaridum* is *E. a. cryptica* (see below).

***Euphilotes ancilla cryptica* Austin & Boyd, 2008**
(Figs. 199-200)

Euphilotes ancilla cryptica Austin & Boyd, 2008, In Austin et al., J. Lepid. Soc. 62(3): 157-158; Pelham, 2021, <http://www.butterfliesofamerica.com/US-Can-Cat.htm>.

Type Locality: Nevada: Clark County; Spring Mountains, Cold Creek, 1825m in elevation, towards the northern end of these mountains.

As discussed above, *E. a. cryptica* was described (Austin et al., 2008) as the late season cohort of *E. ancilla* in the Spring Mountains of Nevada, with larvae feeding on *Eriogonum umbellatum* var. *subaridum*. Austin et al. (2008) stated that *E. a. cryptica* is distinguished from *E. a. purpura* by several biological traits, including larval food plants, flight season and diapause intensity. They also stated that size, wing pattern and genital morphology of *E. a. cryptica* are apparently identical with *E. a. purpura*. This taxon is known from several sites on both slopes of the Spring Mountains in Nye and Clark counties, Nevada (Fig. 387).

***Euphilotes ancilla pseudointermedia* Pratt & J. Emmel, 1998**

Euphilotes ancilla pseudointermedia Pratt & J. Emmel, 1998, Syst. W. N. Am. Butterflies (16): 214; Pelham, 2008, J. Res. Lepid. 40: 251; Pelham, 2021, <http://www.butterfliesofamerica.com/US-Can-Cat.htm>.

Type Locality: California: Nevada County; Castle Peak near Donner Pass, 2700m.

Pratt & Emmel (1998) stated that this subspecies is probably closely related to *E. a. ancilla*. *Euphilotes a. pseudointermedia* is associated with *Eriogonum umbellatum* and its resemblance to *E. glaucon intermedia* is remarkable. Pratt & Emmel (1998) stated that the two cannot be distinguished by wing morphology. Males of *E. a. pseudointermedia* have a broad black border above and both sexes have a narrow orange aurora on the dorsal hindwing. The distribution of *E. a. pseudointermedia* includes the alpine region of the Sierra Nevada Mountains in Nevada and Mono counties, California (Fig. 387).

THE *EUPHILOTES RITA* COMPLEX

Pelham (2021) included the following species in the *Euphilotes rita* complex: *E. spaldingi* (W. Barnes & McDunnough) (Figs. 310, 370), *E. rita* (W. Barnes & McDunnough) (Figs. 311-314, 371-374) and *E. pallescens* (Tilden & Downey) (Figs. 315, 375). In this species complex, the valvae of the male genitalia have christae, and the valva is noticeably narrowed laterally in the mid-portion and widened distally to become paddle-shaped, with long bristle-like terminal teeth (Fig. 311). The falces are very short, compared to the *E. battoides* and *E. enoptes* species complexes. In the female genitalia, the lodix (genital plate) is much reduced and is elongated, narrow, and tube-shaped in *E. rita* and *E. pallescens* (Figs. 371, 375), but more shortened and somewhat broader in *E. spaldingi* (Fig. 370).

***Euphilotes rita rita* (W. Barnes & McDunnough, 1916)**
(Figs. 201-202)

Lycaena rita W. Barnes & McDunnough, 1916, Can. Entomol. 48(7): 223-224.

Philotes rita B. & McD., 1916; W. Barnes & McDunnough, 1916, Contrib. Nat. Hist. Lepid. N. Am. 3(2): Plate XI, Fig. 3; McDunnough, 1938, Mem. S. Calif. Acad. Sci. 1: 28.

Philotes rita rita (Barnes & McDunnough), 1916; dos Passos, 1964, Mem. Lepid. Soc. (1): 67; Langston, 1969, J. Lepid. Soc. 23(1): 52.

Shijimaoides rita rita (Barnes & McDunnough), 1916; Shields, 1975, Bull. Allyn Mus. (28): 16; Shields, 1977, J. Res. Lepid. 16(3): 164.

Euphilotes rita rita (Barnes and McDunnough); Miller & Brown, 1981, Mem. Lepid. Soc. (2): 119.

Euphilotes rita rita (W. Barnes & McDunnough, 1916); Pelham, 2008, J. Res. Lepid. 40: 251; Pelham, 2021, <http://www.butterfliesofamerica.com/US-Can-Cat.htm>.

Type Locality: Arizona: Cochise County; Huachuca Mountains, near Ramsey Canyon.

Euphilotes r. rita occurs from extreme southern Utah (although these may be closer to the Four Corners Area segregate discussed below), south through central Arizona, then east through southern New Mexico into western Texas (Fig. 388) (Stanford & Opler, 1993). Females have bright, broad aurorae on the dorsal hindwings, and both sexes have bold aurorae on the ventral hindwings. Males often have a poorly-developed aurora on the dorsal hindwing, as well. The larval food plant for *E. r. rita* was cited as “close to *Eriogonum wrightii*” by Mattoni [1966] and Langston (1969), and was confirmed as *Er. wrightii* Torr. Ex Benth. by Bailowitz & Brock (1991). Shields (1977) and Bailowitz & Brock (1991) described the flight period of *E. r. rita* as mid-August to late September.

Euphilotes rita coloradensis (Mattoni, [1966])
(Figs. 203-206, 311, 371)

Philotes rita coloradensis Mattoni, 1966, J. Res. Lepid. 4(2): 88-92; Langston, 1969, J. Lepid. Soc. 23(1): 52.

Shijimiaeoides rita coloradensis (Mattoni); Shields, 1977, J. Res. Lepid. 16(3): 164.

Euphilotes rita coloradensis (Mattoni); Miller & Brown, 1981, Mem. Lepid. Soc. (2): 119.

Euphilotes rita coloradensis (Mattoni, [1966]); Pelham, 2008, J. Res. Lepid. 40: 251; Pelham, 2021, <http://www.butterfliesofamerica.com/US-Can-Cat.htm>.

Type Locality: Colorado: Lincoln County; 7 miles south of Kendrick.

Mattoni [1966] noted that in general, *E. r. coloradensis* is similar to *E. r. rita*, but that *E. r. coloradensis* may be distinguished by the male having a purplish-blue overlay and wider terminal line (dark wing margins) dorsally. In both sexes, the darker greyish underside ground color and clear halos are diagnostic of *E. r. coloradensis*. Otherwise, the females were thought to be indistinguishable. Mattoni [1966] noted the larval food plant as *Eriogonum effusum*. Shields (1977) also reported *Er. effusum* var. *effusum* as a food plant for *E. rita coloradensis*, and stated that it and *E. r. rita* are distinguishable, but closely related subspecies that intergrade in north-central New Mexico. Cary (2021) recognized both *E. r. rita* and *E. r. coloradensis* as occurring in New Mexico; the former utilizing *Er. wrightii* in the southern part of the state, and the latter utilizing *Er. effusum* var. *effusum* and *Er. rotundifolium* Benth. in central and northeastern New Mexico.

At most locales, the single generation of *E. r. coloradensis* flies in mid-July through August. The currently understood distribution of *E. r. coloradensis* includes south-central and southeastern Wyoming, far southwestern Nebraska (e.g., Dundy Co., see Stanford & Opler, 1993), eastern Colorado (also far NW Colorado in Moffat Co.), and northern and central New Mexico (Fig. 388). However, subtle patterns of geographic variation have been detected within this region; e.g., females from the southern San Luis Valley in Colorado (Costilla Co.) have reduced aurorae on the hindwings. A review of Colorado populations of *E. rita*, in conjunction with study of populations discussed below, will be completed in a subsequent publication by the authors.

Euphilotes rita (W. Barnes & McDunnough, 1916) (Four Corners Area segregate)

Warren et al., 2016, Illustrated lists of American butterflies, Revised 21 Nov. 2017, Accessed 19 Feb., 2021, <http://www.butterfliesofamerica.com>.

Adults in populations of *E. rita* examined from far northwestern New Mexico, near Aztec, and adjacent parts of northeastern Arizona and southern Utah (Fig. 388) differ from those of *E. r. rita* or *E. r. coloradensis* in having generally narrower dorsal (on females) and ventral aurorae, as shown by Warren et al. (2016), and females are paler above compared to those of *E. r. rita* and *E. r. coloradensis*, with a generally faded appearance approaching that seen in females of *E. pallescens emmeli* (Shields). Adults fly in August. These populations are associated with *Eriogonum leptocladon* Torr. & A. Gray. Further study of these populations is required to determine if they are unique at the subspecies-level.

***Euphilotes rita montanensis* Kohler – new subspecies**

(Figs. 207-234, 312-314, 372-374)

ZooBank registration: urn:lsid:zoobank.org:act:BF83A4D8-77AC-4C27-B438-08B5584B2CD2

Werner et al. (2004), in *Amphibians and Reptiles of Montana*, divided the state into five ecological provinces, two in the prairie regions and three in the western mountains (Fig. 389). Ecological provinces are based on geographical features, such as mountains and plains, and on large plant communities, such as grasslands and forests. The Great Plains Dry Grassland Province is the largest of these five provinces. It includes everything east of the Rocky Mountains except for several island mountain ranges and the small portion of arid land comprising the Intermountain Semi-desert Province. This latter province is the small northward extension of a large arid region of Wyoming, the Bighorn Basin, and lies in the rain shadow of the Beartooth Mountains. This dry desert habitat near Belfry, Montana (Fig. 382, upper), has been fascinating to study and explore, as it is home to several species of butterflies of more arid, southerly distributions, including such species as *Cercyonis meadii* (W. H. Edwards), *C. sthenele* (Boisduval), *Chlosyne acastus* (W. H. Edwards), *Euphydryas anicia wecoeut* M. Fisher, Spomer & Scott, and the more recent discovery of *Hesperopsis alpheus* (W.H. Edwards). It was here that populations of *Euphilotes rita* were first discovered in 2007.

Definition: The dorsal wing color of male *E. r. montanensis* is similar to that of *E. r. coloradensis* but not quite as purplish, more intermediate in shade between *E. r. rita* and *E. r. coloradensis*. The black wing borders of *E. r. montanensis* are also not quite as wide as in *E. r. coloradensis*, but wider than in *E. r. rita*. The dorsal hindwing orange aurora of female *E. r. montanensis* is narrower than in *E. r. coloradensis*. The ground color of the underside wing surfaces of both sexes of *E. r. montanensis* is not as dark of gray as in *E. r. coloradensis*, but a shade darker than *E. r. rita*. The series of secondary submarginal macules on the ventral forewing of *E. r. coloradensis* is usually heavy and the spots more rounded, while this series of macules in *E. r. montanensis* is faint and the spots not rounded but more crescent-shaped, like *E. r. rita*. The shape of the valva of the male genitalia of *E. r. montanensis* also differs from both *E. r. rita* and *E. r. coloradensis*. In these two subspecies the anal angle of the ventral portion of the cucullus of the valva forms a fairly sharp right angle with small indentations along the terminal margin (Fig. 311). In *E. r. montanensis*, the anal angle has a more curved radius and the terminal margin is more entire, without the small indentations (Figs. 312-314). The adults of *E. r. montanensis* are closely associated with *Eriogonum pauciflorum* Pursh, the presumed larval food plant (Fig. 382, lower).

Etymology: The word *montanensis* means “from Montana”, and denotes the primary distribution of this subspecies. It is consistent with the nearest named subspecies, *E. r. coloradensis*.

Distribution and Phenology: Thus far, *E. r. montanensis* has been found only in a few localities near Belfry in Carbon County, Montana, and at an adjacent area in northern Park County, Wyoming (Fig. 388). The single brood flies from late May through June. *Euphilotes r. montanensis* is remarkable for having a

May-June period of adult flight as opposed to August-September for *E. r. rita* and July-August for *E. r. coloradensis*. Also remarkable is the food plant association of *Eriogonum pauciflorum*.

Types: Holotype male: **MONTANA: Carbon Co.:** Hollenbeck Draw, 5 mi. SE of Belfry, 23 May 2007, S. Kohler Collector (45.00569, -109.04955). Allotype female: **MONTANA: Carbon Co.:** Hollenbeck Draw, 5 mi SE of Belfry, 5 June 2007, S. Kohler Collector. Paratypes: **MONTANA: Carbon County:** Hollenbeck Draw, 5 mi. SE of Belfry, 5 June 2007, S. Kohler, 1 ♂ (SK); same locality, 23 May 2007, S. Kohler, 1 ♂ (SK); same locality, 9 June 2010, S. Kohler, 1 ♂ (SK); same locality, 22 June 2011, S. Kohler, 54♂ 23♀ (SK); same locality, 9 June 2015, S. Kohler, 4♂ 1♀ (SK); Hollenbeck Draw, 4125-4200', 5 mi. SE Belfry, 11 June 2009, S. Kohler, 4♂ 1♀ (SK); Hollenbeck Draw, 4050-4250', 5 mi. SE Belfry, 12 June 2009, S. Kohler, 1♂ 2♀ (SK); same locality, 16 June 2009, S. Kohler, 8♂ 2♀ (SK); Hollenbeck Draw, 4000-4320', 5 mi. SE Belfry, 19 June 2009, S. Kohler, 3♂ 4♀ (SK); same locality, 8 June 2015, S. Kohler, 3♂ 2♀ (SK).

Deposition of Types: The holotype male, allotype female, and three male and three female paratypes will be deposited in the McGuire Center for Lepidoptera and Biodiversity, Florida Museum of Natural History, University of Florida, Gainesville, Florida. The remaining paratypes are in the Kohler collection.

Type Locality: USA: Montana: Carbon County: Hollenbeck Draw, 4200', 5 miles southeast of Belfry.

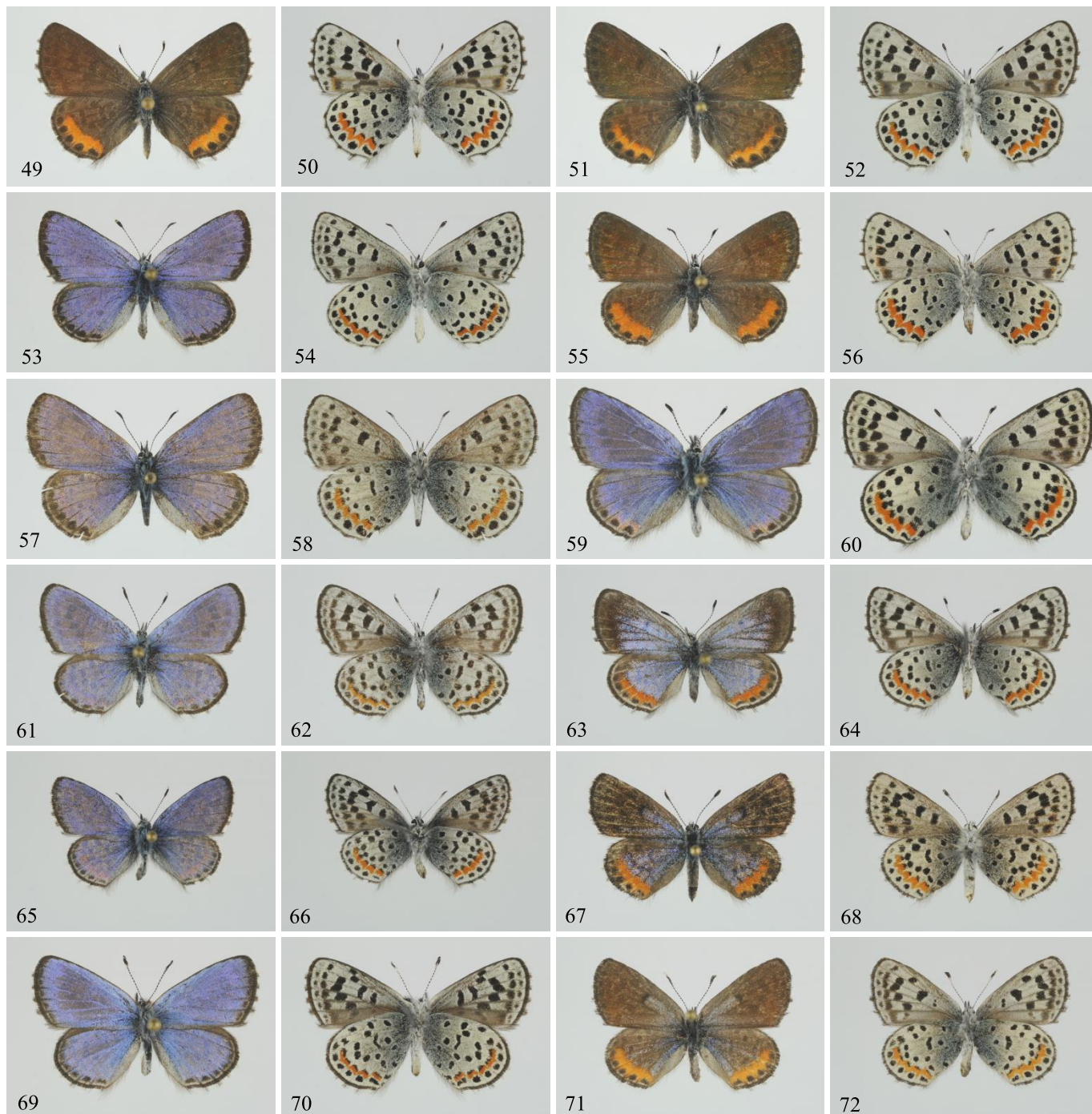
Additional Specimens Examined: USA: **MONTANA: Carbon County:** 2-3 mi. SW Belfry, 19 June 2008, S. Kohler, 1♂ 1♀ (SK); same locality, 25 June 2008, S. Kohler, 2♂ 1♀ (SK); same locality, 21 June 2011, S. Kohler, 12♂ 4♀ (SK); 2-3 mi. SW Belfry, 4125-4300', 11 June 2009, S. Kohler, 16♂ 14♀ (SK); 2-3 mi. SW Belfry, 4100-4325', 17 June 2009, S. Kohler, 44♂ 37♀ (SK); 2-3 mi. SW Belfry, 4240-4350', 19 June 2009, S. Kohler, 9♂ 20♀ (SK); 2-4 mi. SW Belfry, 25 June 2014, S. Kohler, 1♂ 2♀ (SK); draw E. Hwy. 72, 8.5 mi. S. Belfry, 21 June 2011, S. Kohler, 1♂ (SK); E. Wolf Cr. Rd., 2-4 mi. SW Belfry, 4200-4400', 8 June 2015, S. Kohler, 5♂ 6♀ (SK); ridge W. Cub Cr., 5-7 mi. SE Belfry, 16 May 2007, S. Kohler, 1♂ (SK); **WYOMING: Park County:** draw E. Hwy. 72, 11 mi. S. Belfry, 10 June 2009, S. Kohler, 1♀ (SK).



Figs. 1-24. *Euphilotes glaucon*. **Fig. 1.** *E. g. glaucon*, Nevada: Douglas Co.: Clear Creek Canyon, 2 mi. NW US 395, 29 May 1980, G.T. Austin ♂ (d). **Fig. 2.** Same (v). **Fig. 3.** Same ♀ (d). **Fig. 4.** Same (v). **Fig. 5.** *E. g. glaucon*, Montana: Silver Bow Co.: Soap Gulch, 6-8 mi. up, NE of Melrose, 20 July 2010, S. Kohler ♂ (d). **Fig. 6.** Same (v). **Fig. 7.** Same, 6-7 mi. up, 6850-7300', 25 June 2015, assoc. *Er. umbellatum*, S. Kohler ♀ (d). **Fig. 8.** Same (v). **Fig. 9.** Same, 6850-7150', 7-8 mi. up, NE Melrose, 17 June 2015, S. Kohler ♂ (d). **Fig. 10.** Same (v). **Fig. 11.** Same, 7300', 7 mi. up, NE Melrose, 3 July 2020, S. Kohler ♂ (d). **Fig. 12.** Same (v). **Fig. 13.** Same, 6900', 6 mi. up, NE Melrose, 23 June 2016, S. Kohler ♀ (d). **Fig. 14.** Same (v). **Fig. 15.** *E. g. glaucon*, Montana: Beaverhead Co.: near Lemhi Pass, 20 July 1982, S. Kohler ♂ (d). **Fig. 16.** Same (v). **Fig. 17.** Same, Gold Cr., 6000', FR 73, 15 mi. S. Wise River, 30 June 2017, S. Kohler ♂ (d). **Fig. 18.** Same (v). **Fig. 19.** *E. g. glaucon*, Montana: Ravalli Co.: Railroad Creek off Skalkaho-Rye Road, 25 June 2001, assoc. *Er. umbellatum*, S. Kohler ♂ (d). **Fig. 20.** Same (v). **Fig. 21.** Same ♀ (d). **Fig. 22.** Same (v). **Fig. 23.** *E. g. oregonensis*, Oregon: Klamath Co.: Hwy. 97 at mile 226.4, 27 June 2004, T. Stoddard ♂ (d). **Fig. 24.** Same (v). Figs. 1.6X life size and to scale. Photos by S. Kohler.



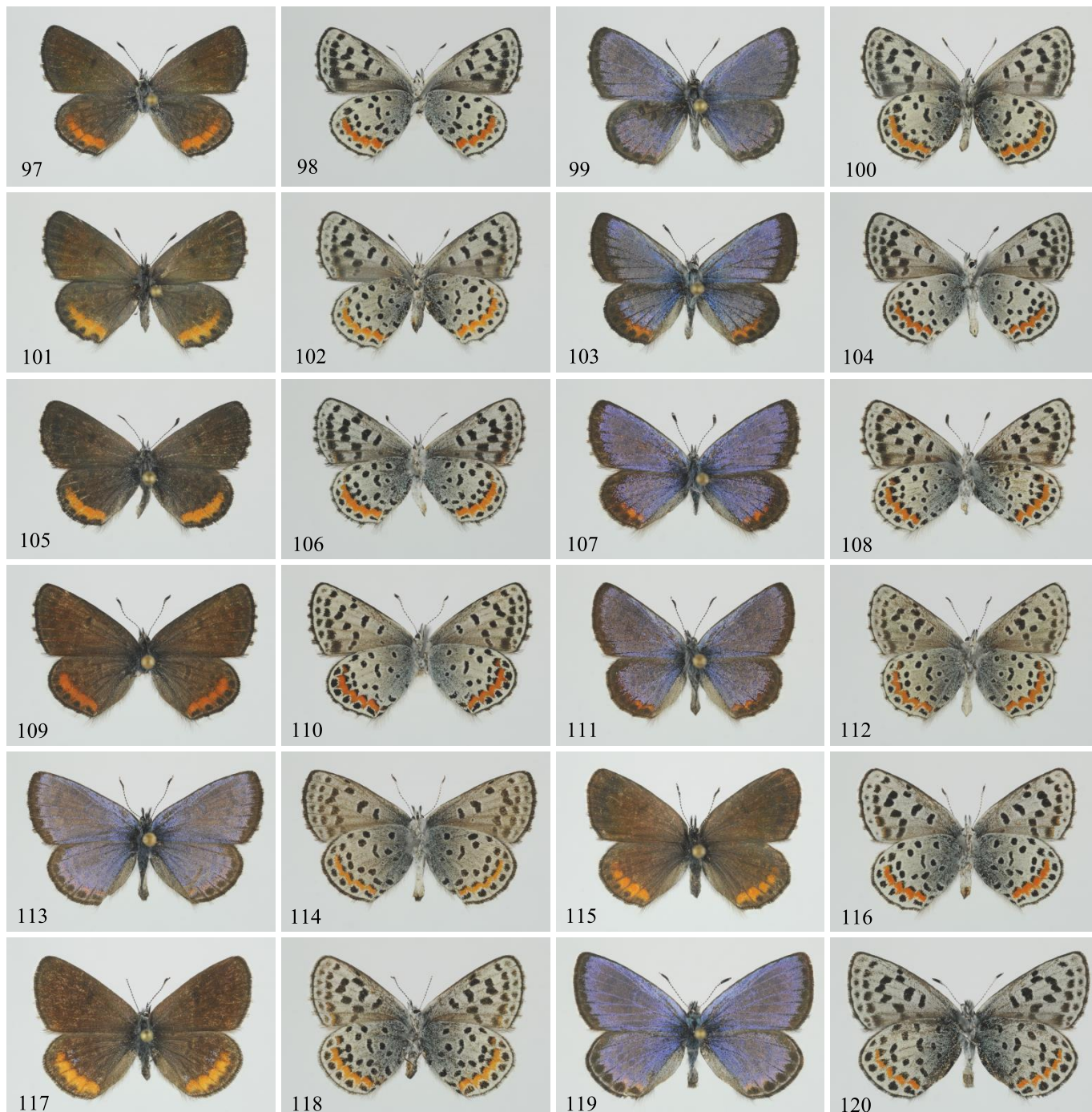
Figs. 25-38. *Euphilotes glaucon*. **Figs. 39-48.** *Euphilotes heracleoides*. **Fig. 25.** *E. g. oregonensis*, Antelope Desert, Sand Creek area, flats W. Hwy. 97 at mi. 226, 4557', 29 June 2017, R.L. Romeyn, ♀ (d). **Fig. 26.** Same (v). **Fig. 27.** *E. g. australoglaucum*, California: Inyo Co.: Sierra Nevada Mts., flats S. FR 7S01, 4.5 mi. W. Hwy. 168 via Buttermilk Rd., 6840', 23 May 2017, R.L. Romeyn, ♂ (d). **Fig. 28.** Same (v). **Fig. 29.** Same ♀ (d). **Fig. 30.** Same (v). **Fig. 31.** *E. g. intermedia*, California: Shasta Co.: Sacramento River bike path, between Rock Cr. and Gold Run Cr., 0.4-1.3 mi. E. Keswick trailhead, 10 May 2015, assoc. *Er. umbellatum*, R.L. Romeyn ♂ (d). **Fig. 32.** Same (v). **Fig. 33.** Same ♀ (d). **Fig. 34.** Same ♀ (v). **Fig. 35.** *E. glaucon* (N. Oregon-Washington Cascades segregate), Oregon: Clackamas/Hood River Cos.: Mt. Hood, NW Timberline Lodge, 5700-6000', 20 July 2003, on *Er. umbellatum* var. *haussknechtii*, A.D. Warren ♂ (d). **Fig. 36.** Same (v). **Fig. 37.** Same ♀ (d). **Fig. 38.** Same (v). **Fig. 39.** *E. heracleoides*, Montana: Sanders Co.: west of Niarada, 3 June 2004, assoc. *Er. heracleoides*, S. Kohler, Holotype ♂ (d). **Fig. 40.** Same (v). **Fig. 41.** *E. heracleoides*, Montana: Sanders Co.: 1.5 mi. N. of Niarada, 13 June 1996, S. Kohler, Allotype ♀ (d). **Fig. 42.** Same (v). **Fig. 43.** Same, west of Niarada, 3 June 2004, S. Kohler, Paratype ♂ (d). **Fig. 44.** Same (v). **Fig. 45.** Same, Paratype ♂ (d). **Fig. 46.** Same (v). **Fig. 47.** *E. heracleoides*, Montana: Sanders Co.: 2 mi. W. of Niarada, 3300', 14 June 1996, S. Kohler, Paratype ♀ (d). **Fig. 48.** Same (v). Figs. 1.6X life size and to scale. Photos by S. Kohler.



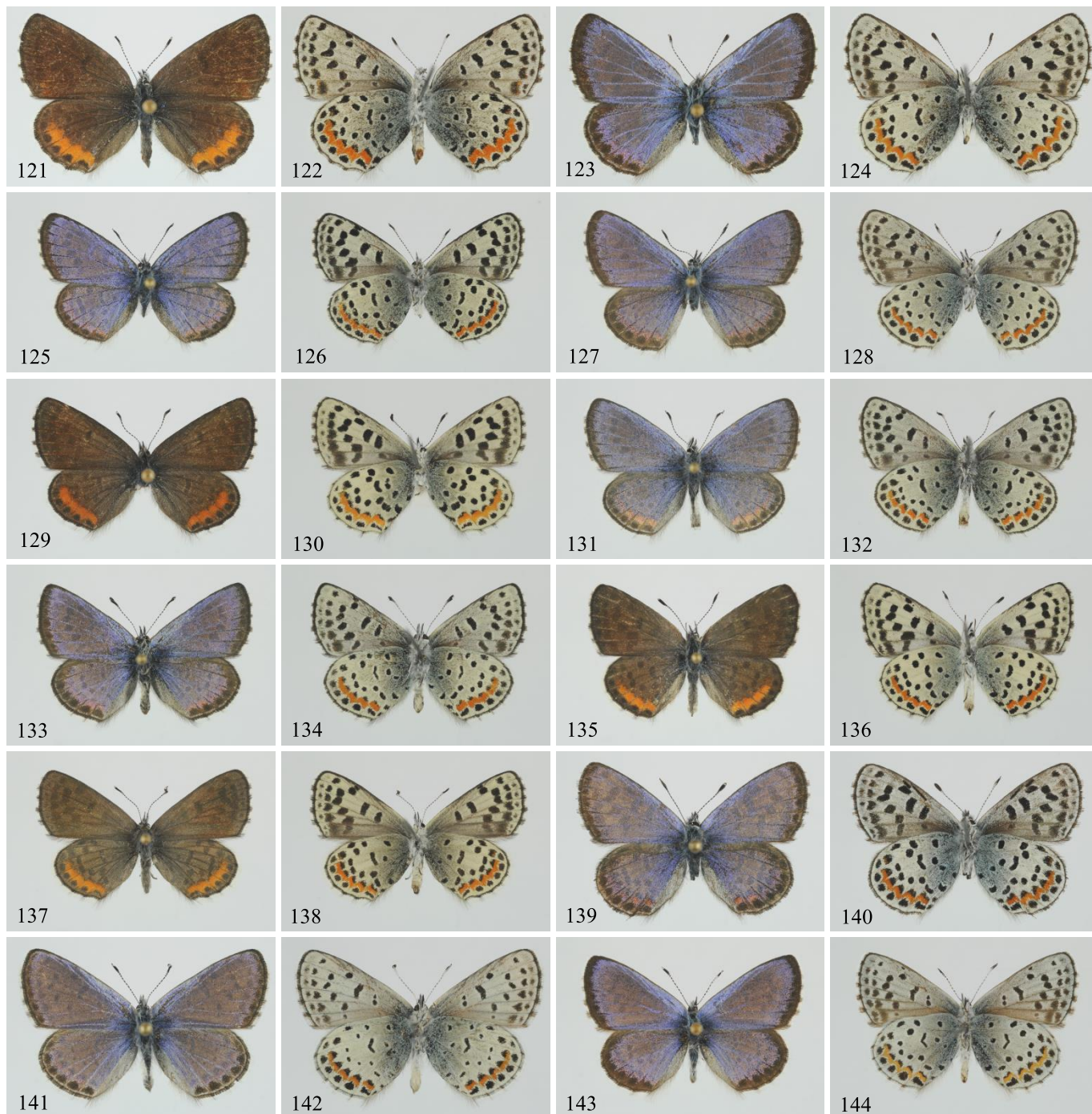
Figs. 49-60. *Euphilotes heracleoides*. **Figs. 61-72.** *Euphilotes baueri*. **Fig. 49.** *E. heracleoides*, Montana: Sanders Co.: 1.5 mi. W. of Niarada, 1 June 2000, S. Kohler, Paratype ♀ (d). **Fig. 50.** Same (v). **Fig. 51.** Same, 1 mi. W. of Perma, 11 June 2013, S. Kohler ♀ (d). **Fig. 52.** Same (v). **Fig. 53.** *E. heracleoides*, Montana: Lincoln Co.: Dancing Prairie, NW Eureka, 28 June 2011, S. Kohler ♂ (d). **Fig. 54.** Same (v). **Fig. 55.** Same, 6 July 2011, S. Kohler ♀ (d). **Fig. 56.** Same (v). **Fig. 57.** *E. heracleoides*, Oregon: Wallowa Co.: Blue Mts., Powwatka Ridge, ca. 11 mi. N. of Wallowa on Troy Rd., 4100', 23 June 2002, on *Er. heracleoides*, A.D. Warren ♂ (d). **Fig. 58.** Same (v). **Fig. 59.** *E. heracleoides*, Washington: Chelan Co.: Swakane Spring, Swakane Canyon Rd., 8 July 2010, S. Kohler ♂ (d). **Fig. 60.** Same (v). **Fig. 61.** *E. b. baueri*, California: Inyo Co.: W. side Gilbert Pass, 6 mi. NE Deep Springs, 19 May 2005, assoc. *Er. ovalifolium*, S. Kohler ♂ (d). **Fig. 62.** Same (v). **Fig. 63.** Same ♀ (d). **Fig. 64.** Same (v). **Fig. 65.** *E. b. vernalis*, California: San Bernardino Co.: Ord Mts., E. & W. slopes FR 3N14 Coxey Truck Trail, 0.3 mi. S. FR 4N16, 5785', 30 April 2017, assoc. *Er. kennedyi*, R.L. Romeyn ♂ (d). **Fig. 66.** Same (v). **Fig. 67.** Same ♀ (d). **Fig. 68.** Same (v). **Fig. 69.** *E. b. orientis*, Nevada: Lincoln Co.: Bristol Wells Road, 3.5 mi. W. Hwy. 93, 20 May 2005, assoc. *Er. ovalifolium*, S. Kohler ♂ (d). **Fig. 70.** Same (v). **Fig. 71.** Same ♀ (d). **Fig. 72.** Same (v). Figs. 1.6X life size and to scale. Photos by S. Kohler.



Figs. 73-96. *Euphilotes baueri*. **Fig. 73.** *E. baueri* (far N. Great Basin northward segregate), Nevada: Humboldt Co.: Bloody Run Hills, SW facing slopes along Sand Pass Rd., 5100', 0.1-1.4 mi. W. of Sand Pass Summit, 4.7 mi. W. jct. Hwy. 95, N. of Winnemucca, 18 May 2016, assoc. *Er. ovalifolium*, R.L. Romeyn ♂ (d). **Fig. 74.** Same (v). **Fig. 75.** Same, Oregon: Harney Co.: ca. 1 mi. E. Folly Farm Rd., 32 mi. S. jct. Hwy. 78, 4200', 16 May 2002, on *Er. ovalifolium*, A.D. Warren ♂ (d). **Fig. 76.** Same (v). **Fig. 77.** Same, Alvord Desert, 3 mi. NE Andrews, ca. 4000', 8 May 1990, T. Stoddard ♂ (d). **Fig. 78.** Same (v). **Fig. 79.** *E. b. borealis*, Montana: Sanders Co.: 4.5 mi. N. of Camas Prairie, 5 May 2004, S. Kohler, Holotype ♂ (d). **Fig. 80.** Same (v). **Fig. 81.** Same, 6 May 2004, S. Kohler, Allotype ♀ (d). **Fig. 82.** Same (v). **Fig. 83.** Same, west Hwy. 382, 2950', 15 May 2018, S. Kohler, Paratype ♂ (d). **Fig. 84.** Same (v). **Fig. 85.** Same, Paratype ♂ (d). **Fig. 86.** Same (v). **Fig. 87.** Same, 2945', 4 May 2016, S. Kohler, Paratype ♀ (d). **Fig. 88.** Same (v). **Fig. 89.** *E. b. borealis*, Montana: Sanders Co.: 4.5 mi. N. Camas Prairie, 5 May 2004, S. Kohler, Paratype ♀ (d). **Fig. 90.** Same (v). **Fig. 91.** *E. b. borealis*, Montana: Madison Co.: Melrose Bench Rd., 5400', 15 mi. SE of Melrose, 6 June 2017, assoc. *Er. ovalifolium* var. *ovalifolium*, S. Kohler ♂ (d). **Fig. 92.** Same (v). **Fig. 93.** Same ♀ (d). **Fig. 94.** Same (v). **Fig. 95.** *E. b. shoshone*, Idaho: Butte Co.: NE jct. Craters Loop Rd. & Tree Molds Rd., 5875', Craters of the Moon Nat. Mon., 1 June 2017, S. Kohler, Holotype ♂ (d). **Fig. 96.** Same (v). Figs. 1.6X life size and to scale. Photos by S. Kohler.



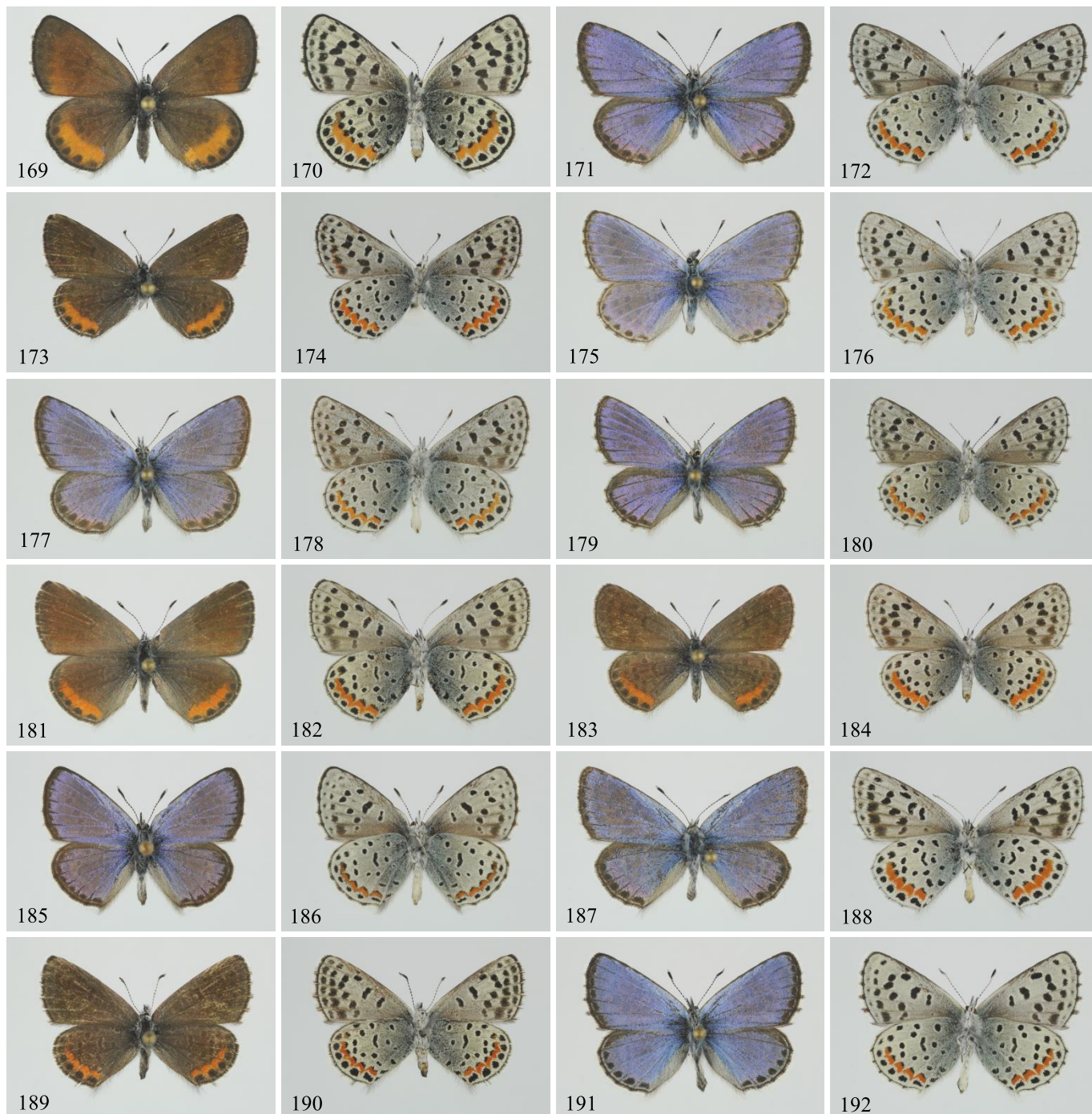
Figs. 97-106. *Euphilotes baueri*. **Figs. 107-120.** *Euphilotes oakleyi*. **Fig. 97.** *E. b. shoshone*, Idaho: Butte Co.: NE jct. Craters Loop Rd. & Tree Molds Rd., 5875', Craters of the Moon Nat. Mon., 1 June 2017, S. Kohler, Allotype ♀ (d). **Fig. 98.** Same (v). **Fig. 99.** Same, Paratype ♂ (d). **Fig. 100.** Same (v). **Fig. 101.** Same, Paratype ♀ (d). **Fig. 102.** Same (v). **Fig. 103.** Same, Crater Loop Drive, 5975', 2.5 mi. S. Visitor Center, Craters of the Moon Nat. Mon., 30-31 May 2017, S. Kohler, Paratype ♂ (d). **Fig. 104.** Same (v). **Fig. 105.** Same, Paratype ♀ (d). **Fig. 106.** Same (v). **Fig. 107.** *E. o. oakleyi*, Montana: Missoula Co.: Stuart Peak Trail, Rattlesnake Mts., 18 June 2003, S. Kohler, Holotype ♂ (d). **Fig. 108.** Same (v). **Fig. 109.** Same, Allotype ♀ (d). **Fig. 110.** Same (v). **Fig. 111.** Same, Paratype ♂ (d). **Fig. 112.** Same (v). **Fig. 113.** Same, Paratype ♂ (d). **Fig. 114.** Same (v). **Fig. 115.** Same, Paratype ♀ (d). **Fig. 116.** Same (v). **Fig. 117.** *E. o. oakleyi*, Montana: Missoula Co.: Stuart Peak Trail, Rattlesnake Mountains, 4 July 2006, S. Kohler, Paratype ♀ (d). **Fig. 118.** Same (v). **Fig. 119.** *E. o. oakleyi*, Montana: Silver Bow Co.: Rocky Ridge Trailhead, 5900', Divide Cr., 2.5 mi. west Feely exit I-15, 21 June 2017, S. Kohler ♂ (d). **Fig. 120.** Same (v). Figs. 1.6X life size and to scale. Photos by S. Kohler.



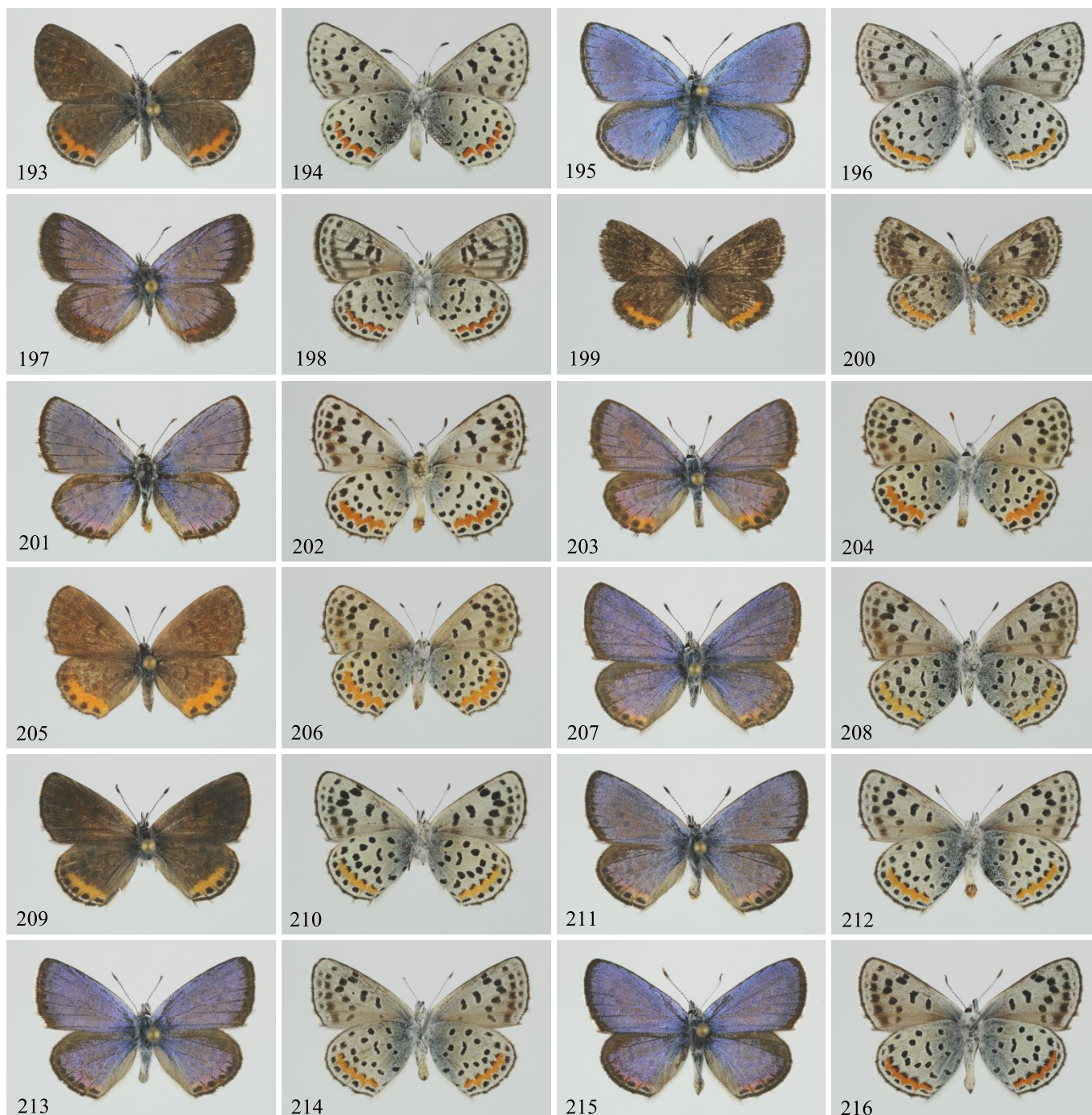
Figs. 121-140. *Euphilotes oakleyi*. **Figs. 141-144.** *Euphilotes ancilla*. **Fig. 121.** *E. o. oakleyi*, Montana: Silver Bow Co.: Rocky Ridge Trailhead, 2.5 mi. west of Feely, Divide Cr., 19 June 2003, S. Kohler ♀ (d). **Fig. 122.** Same (v). **Fig. 123.** Same, Montana: Ravalli Co.: Bass Creek, Florence, 13 June 1982, S. Kohler ♂ (d). **Fig. 124.** Same (v). **Fig. 125.** *E. o. madisonensis*, Montana: Madison Co.: Varney Road, 5345', 4 mi. NW of Cameron, 27 June 2013, S. Kohler, Holotype ♂ (d). **Fig. 126.** Same (v). **Fig. 127.** Same, Paratype ♂ (d). **Fig. 128.** Same (v). **Fig. 129.** Same, Allotype ♀ (d). **Fig. 130.** Same (v). **Fig. 131.** Same, Paratype ♂ (d). **Fig. 132.** Same (v). **Fig. 133.** Same, 28 June 2013, S. Kohler, Paratype ♂ (d). **Fig. 134.** Same (v). **Fig. 135.** Same, 27 June 2013, S. Kohler, Paratype ♀ (d). **Fig. 136.** Same (v). **Fig. 137.** Same, Paratype ♀ (d). **Fig. 138.** Same (v). **Fig. 139.** *E. o. madisonensis*, Montana: Madison Co.: Gravelly Range Rd., N. Nat. Forest boundary, 7300', 30 June 2015, S. Kohler ♂ (d). **Fig. 140.** Same (v). **Fig. 141.** *E. a. ancilla*, Utah: Cache Co.: Green Canyon Rd., 3 mi. up, 1 July 2010, S. Kohler ♂ (d). **Fig. 142.** Same (v). **Fig. 143.** *E. a. ancilla*, Utah: Cache Co.: Logan Canyon, 3 July 1980, S. Kohler ♂ (d). **Fig. 144.** Same (v). Figs. 1.6X life size and to scale. Photos by S. Kohler.



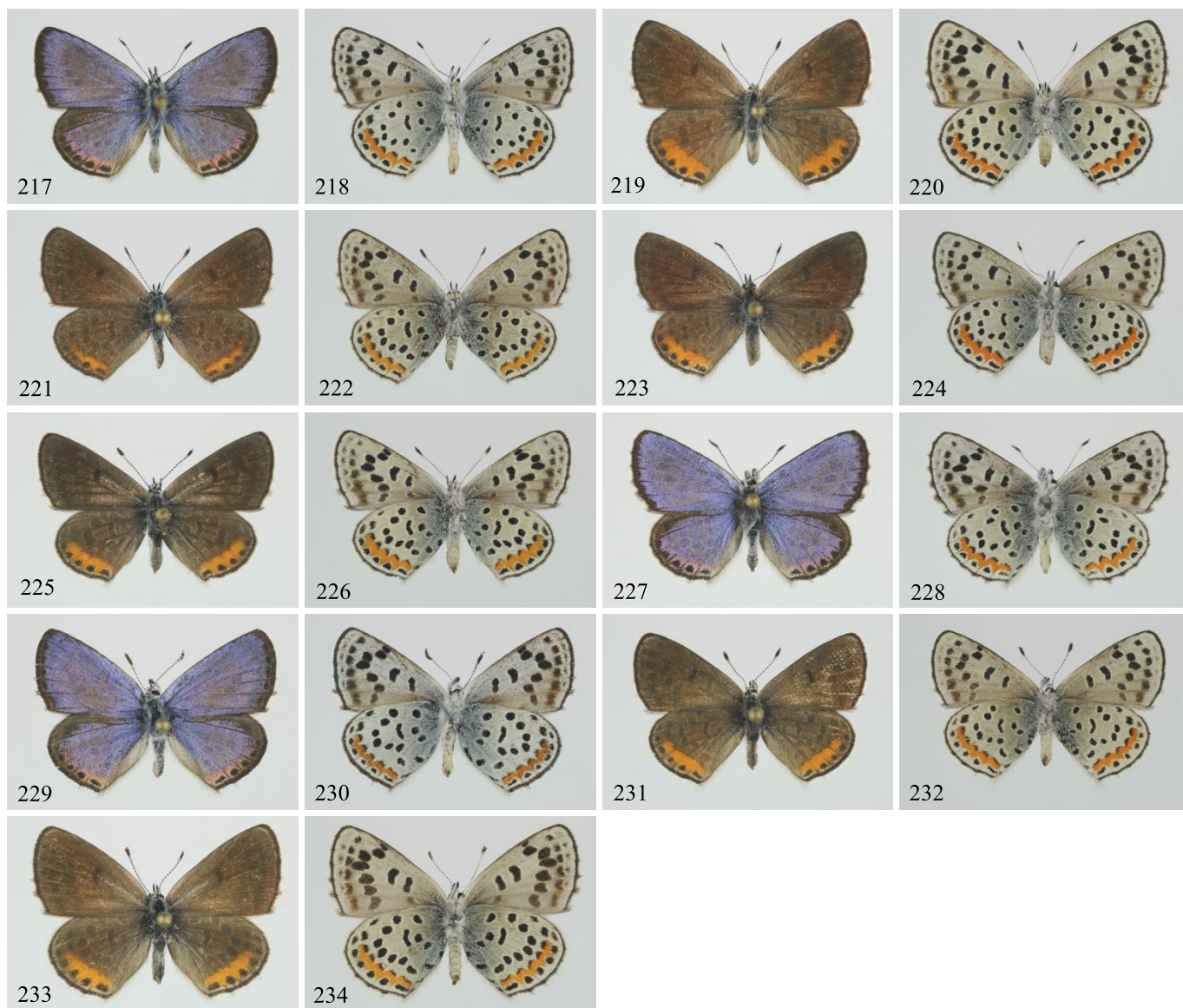
Figs. 145-168. *Euphilotes ancilla*. **Fig. 145.** *E. a. ancilla*, Utah: Cache Co.: Hyde Park Canyon, 21 June 1965, S. Kohler ♀ (d). **Fig. 146.** Same (v). **Fig. 147.** *E. a. barnesi*, Colorado: Jefferson Co.: Ralston Creek, 7500', GGCSP East Gate, 22 June 2005, C. Slater ♂ (d). **Fig. 148.** Same (v). **Fig. 149.** Same ♂ (d). **Fig. 150.** Same (v). **Fig. 151.** *E. a. montosa*, Montana: Missoula Co.: Ninemile Prairie, Greenough, 14 June 1979, S. Kohler, Holotype ♂ (d). **Fig. 152.** Same (v). **Fig. 153.** Same, 16 June 2001, S. Kohler, Allotype ♀ (d). **Fig. 154.** Same (v). **Fig. 155.** Same, 25 May 1992, S. Kohler, Paratype ♂ (d). **Fig. 156.** Same (v). **Fig. 157.** Same, Paratype ♂ (d). **Fig. 158.** Same (v). **Fig. 159.** Same, 12 June 1979, S. Kohler, Paratype ♀ (d). **Fig. 160.** Same (v). **Fig. 161.** Same, 9 June 1979, S. Kohler, Paratype ♀ (d). **Fig. 162.** Same (v). **Fig. 163.** *E. a. montosa*, Montana: Powell Co.: vic. Morrell Lookout, 10 mi. E. Seeley Lake, 12 June 2004, assoc. *Er. flavum*, S. Kohler ♂ (d). **Fig. 164.** Same (v). **Fig. 165.** Same ♀ (d). **Fig. 166.** Same (v). **Fig. 167.** *E. a. montosa*, Montana: Lewis & Clark Co.: Red Mtn. trail above Copper Camp, 7500', NE Lincoln, 1 July 2016, assoc. *Er. ovalifolium*, S. Kohler ♂ (d). **Fig. 168.** Same (v). Figs. 1.6X life size and to scale. Photos by S. Kohler.



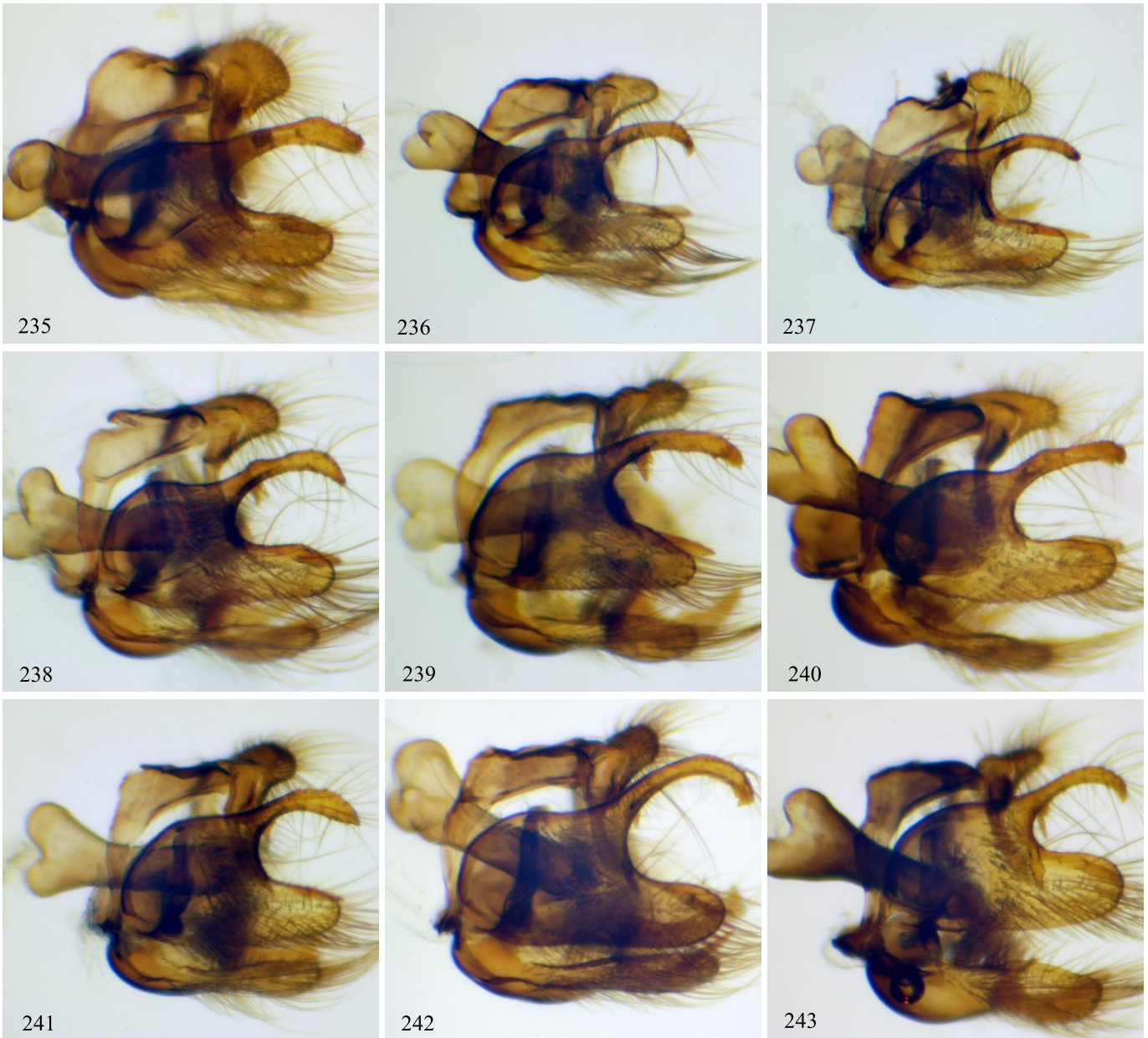
Figs. 169-192. *Euphilotes ancilla*. **Fig. 169.** *E. a. montosa*, Montana: Lewis & Clark Co.: Red Mtn. trail above Copper Camp, 7500', NE Lincoln, 1 July 2016, assoc. *Er. ovalifolium*, S. Kohler ♀ (d). **Fig. 170.** Same (v). **Fig. 171.** *E. a. campestris*, Montana: Powder River Co.: .8 mi. W. Pumpkin Cr. Rd., 24 mi. W. Broadus, S. Hwy., 13 June 2007, S. Kohler, Holotype ♂ (d). **Fig. 172.** Same (v). **Fig. 173.** Same, 15 June 2007, S. Kohler, Allotype ♀ (d). **Fig. 174.** Same (v). **Fig. 175.** Same, 13 June 2007, S. Kohler, Paratype ♂ (d). **Fig. 176.** Same (v). **Fig. 177.** Same, Paratype ♂ (d). **Fig. 178.** Same (v). **Fig. 179.** Same, Paratype ♂ (d). **Fig. 180.** Same (v). **Fig. 181.** Same, 15 June 2007, Paratype ♀ (d). **Fig. 182.** Same (v). **Fig. 183.** Same, 13 June 2007, S. Kohler, Paratype ♀ (d). **Fig. 184.** Same (v). **Fig. 185.** *E. a. campestris*, Montana: Hill Co.: badlands NW Havre, 2550', 24 May 2001, G. Lawson ♂ (d). **Fig. 186.** Same (v). **Fig. 187.** *E. a. campestris*, Montana: Stillwater Co.: Lone Tree Road, 15 mi. N. Columbus, 12 June 2007, S. Kohler ♂ (d). **Fig. 188.** Same (v). **Fig. 189.** Same ♀ (d). **Fig. 190.** Same (v). **Fig. 191.** *E. a. campestris*, Montana: Teton Co.: W. Floweree Butte, 3815', 5 mi. NW Simms, 26 June 2010, S. Kohler ♂ (d). **Fig. 192.** Same (v). Figs. 1.6X life size and to scale. Photos by S. Kohler.



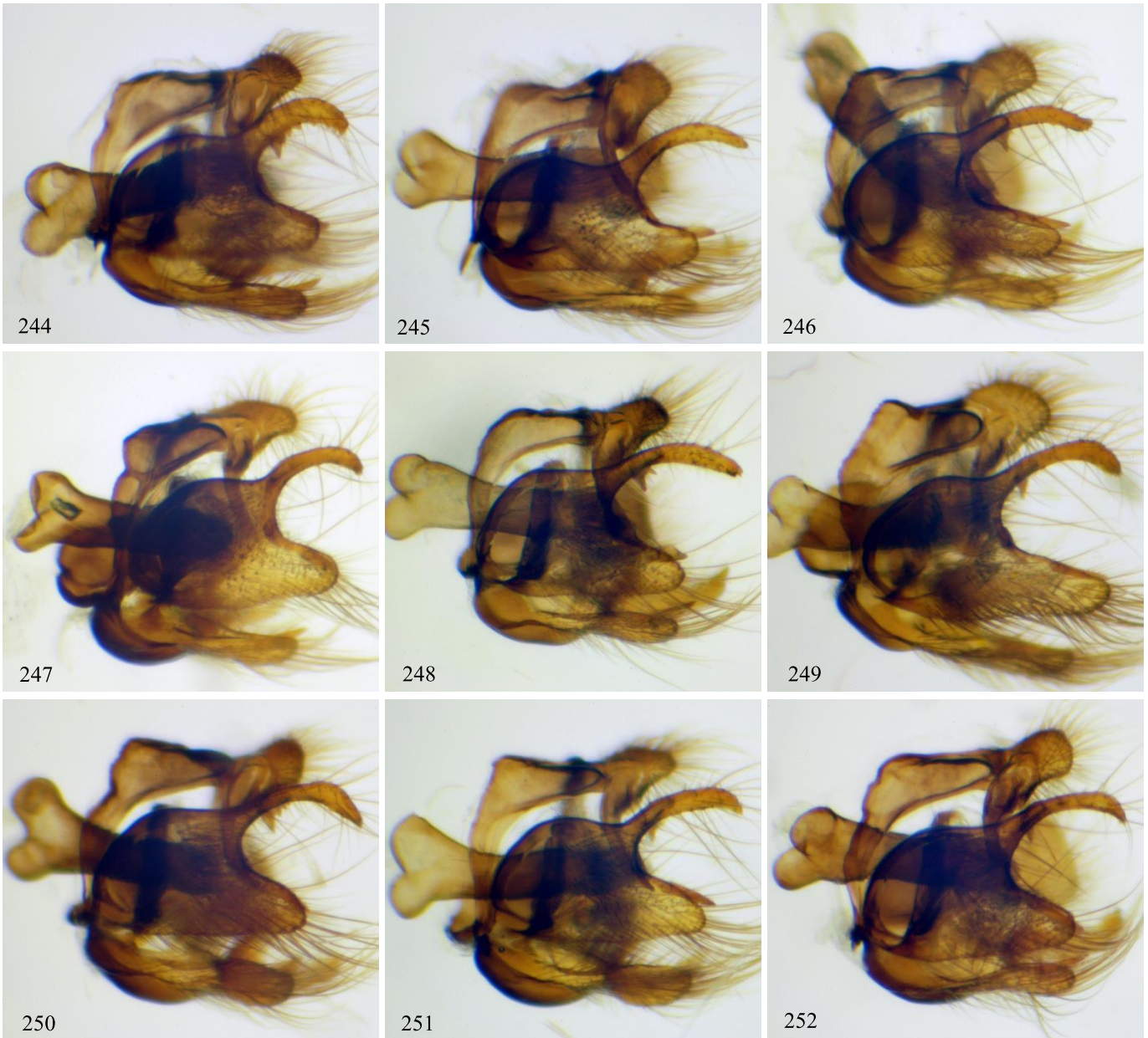
Figs. 193-200. *Euphilotes ancilla*. **Figs. 201-216.** *Euphilotes rita*. **Fig. 193.** *E. a. campestris*, Montana: Teton Co.: W. Floweree Butte, 3815', 5 mi. NW Simms, 26 June 2010, S. Kohler ♀ (d). **Fig. 194.** Same (v). **Fig. 195.** *E. a. campestris*, Montana: Toole Co.: vic. Cameron Lake, 4080', Middle Butte Sweet Grass Hills, 26 June 2020, S. Kohler ♂ (d). **Fig. 196.** Same (v). **Fig. 197.** *E. a. purpura*, Nevada: Clark Co.: Willow Creek, Spring Range, 5 June 1979, G.T. Austin ♂ (d). **Fig. 198.** Same (v). **Fig. 199.** *E. a. cryptica*, Nevada: Clark Co.: Spring Mts., Willow Cr., 6000', 20 July 2000, assoc. *Er. umbellatum* var. *subaridum*, B. Boyd ♀ (d). **Fig. 200.** Same (v). **Fig. 201.** *E. r. rita*, Arizona: Cochise Co.: Ramsey Canyon, Huachuca Mts., 3 September 1978 ♂ (d). **Fig. 202.** Same (v). **Fig. 203.** *E. r. coloradensis*, Colorado: El Paso Co.: Ramah Rd., Hwy. 94, 6100', 6 August 1973, M. Fisher ♂ (d). **Fig. 204.** Same (v). **Fig. 205.** Same ♀ (d). **Fig. 206.** Same (v). **Fig. 207.** *E. r. montanensis*, Montana: Carbon Co.: Hollenbeck Draw, 5 mi. SE of Belfry, 23 May 2007, S. Kohler, Holotype ♂ (d). **Fig. 208.** Same (v). **Fig. 209.** Same, Allotype ♀ (d). **Fig. 210.** Same (v). **Fig. 211.** Same, 4200', Paratype ♂ (d). **Fig. 212.** Same (v). **Fig. 213.** Same, 16 June 2009, Paratype ♂ (d). **Fig. 214.** Same (v). **Fig. 215.** *E. r. montanensis*, Montana: Carbon Co.: Hollenbeck Draw, 5 mi. S. of Belfry, 22 June 2011, S. Kohler, Paratype ♂ (d). **Fig. 216.** Same (v). Figs. 1.6X life size and to scale. Photos by S. Kohler.



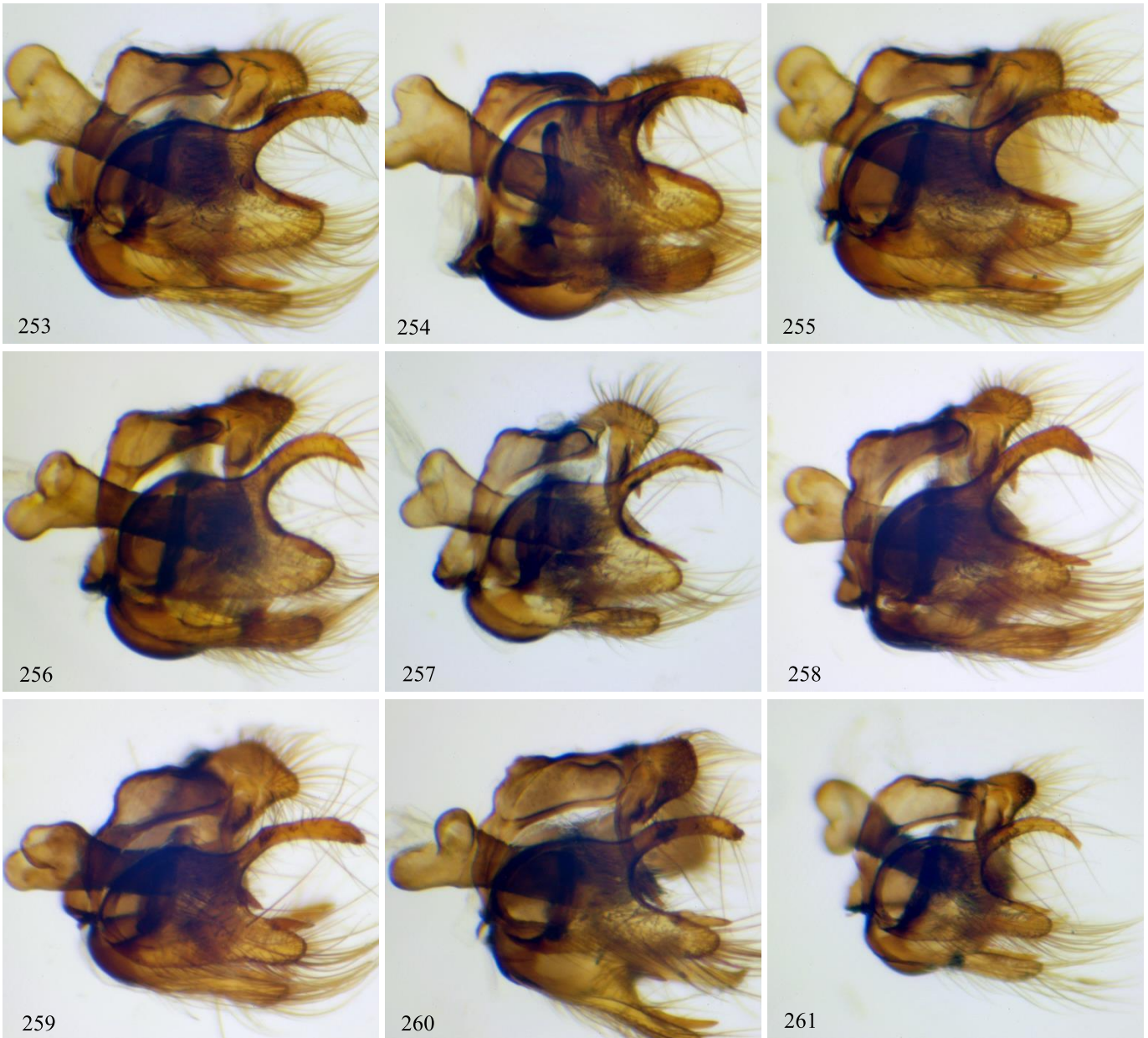
Figs. 217-234. *Euphilotes rita*. **Fig. 217.** *E. r. montanensis*, Montana: Carbon Co.: Hollenbeck Draw, 5 mi. S. of Belfry, 22 June 2011, S. Kohler, Paratype ♂ (d). **Fig. 218.** Same (v). **Fig. 219.** *E. r. montanensis*, Montana: Carbon Co.: Hollenbeck Draw, 4200', 5 mi. SE of Belfry, 11 June 2009, S. Kohler, Paratype ♀ (d). **Fig. 220.** Same (v). **Fig. 221.** Same, 19 June 2009, S. Kohler, Paratype ♀ (d). **Fig. 222.** Same (v). **Fig. 223.** *E. r. montanensis*, Montana: Carbon Co.: Hollenbeck Draw, 5 mi. S. of Belfry, 22 June 2011, S. Kohler, Paratype ♀ (d). **Fig. 224.** Same (v). **Fig. 225.** Same, Paratype ♀ (d). **Fig. 226.** Same (v). **Fig. 227.** *E. r. montanensis*, Montana: Carbon Co.: 2-3 mi. SW Belfry, 21 June 2011, S. Kohler ♂ (d). **Fig. 228.** Same (v). **Fig. 229.** *E. r. montanensis*, Montana: Carbon Co.: 2-3 mi. SW Belfry, 4199-4325', 17 June 2009, S. Kohler ♂ (d). **Fig. 230.** Same (v). **Fig. 231.** Same ♀ (d). **Fig. 232.** Same (v). **Fig. 233.** *E. r. montanensis*, Montana: Carbon Co.: 2-3 mi. SW Belfry, 4240-4350', 19 June 2009, S. Kohler ♀ (d). **Fig. 234.** Same (v). Figs. 1.6X life size and to scale. Photos by S. Kohler.



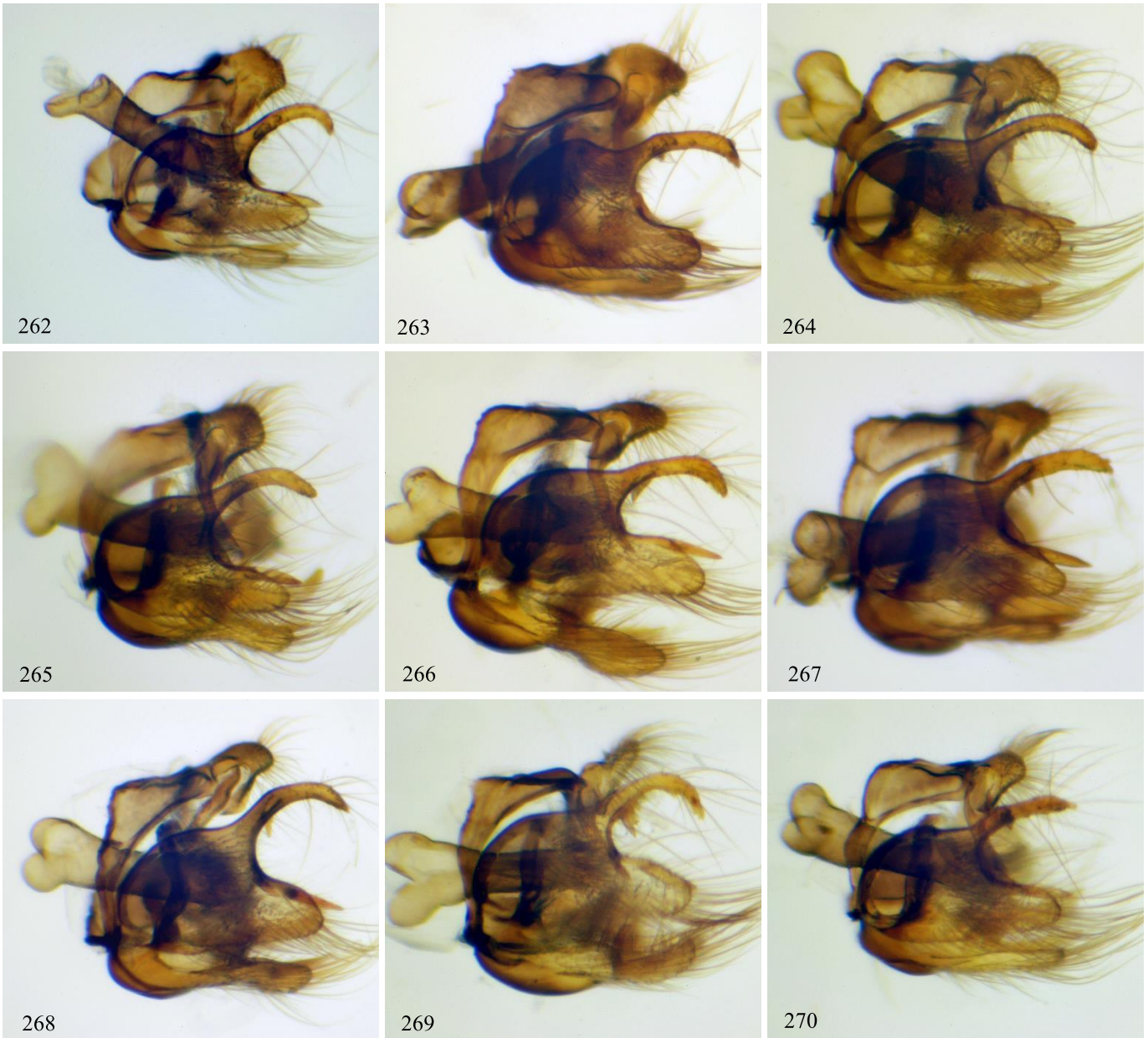
Figs. 235-243. Male genitalia of *Euphilotes* showing shape of left valva in left lateral view. **Fig. 235.** *E. battoides battoides*, California: Inyo Co.: Mono Pass Trail, Mosquito Flats to above Ruby Lake, 10300-12000', 11 July 1989, J. & F. Preston. **Fig. 236.** *E. bernardino bernardino*, California: Los Angeles Co.: CR N-4, 1 mi. E. Bob's Gap Rd., 27 June 1990, B. O'Hara. **Fig. 237.** *E. b. martini*, Nevada: Clark Co.: Newberry Mountains, Christmas Tree Pass, 22 April 1980, G.T. Austin. **Fig. 238.** *E. glaucon glaucon*, Nevada: Douglas Co.: US 395, 2.1 mi. S. Carson City line, 30 May 1980, G.T. Austin. **Fig. 239.** *E. g. glaucon*, Oregon: Deschutes Co.: Rd. 16, 1-2 mi. S. Sisters, 7 June 2003, A.D. Warren. **Fig. 240.** *E. g. glaucon*, Oregon: Klamath Co.: Hwy. 66, 1.5 mi. W. jct. Hwy. 97, SW edge Klamath Falls, 4300', 18 June 2003, A.D. Warren. **Fig. 241.** *E. g. glaucon*, Montana: Beaverhead Co.: near Lemhi Pass, 20 July 1982, S. Kohler. **Fig. 242.** *E. g. glaucon*, Montana: Ravalli Co.: Railroad Cr., off Skalkaho-Rye Rd., 25 June 2001, S. Kohler. **Fig. 243.** *E. g. glaucon*, Montana: Silver Bow Co.: Barrel Spring trail, 4-5 mi. NE of Melrose, 5 June 2006, S. Kohler. Figs. approximately 50X life size and to scale. Photos by S. Kohler.



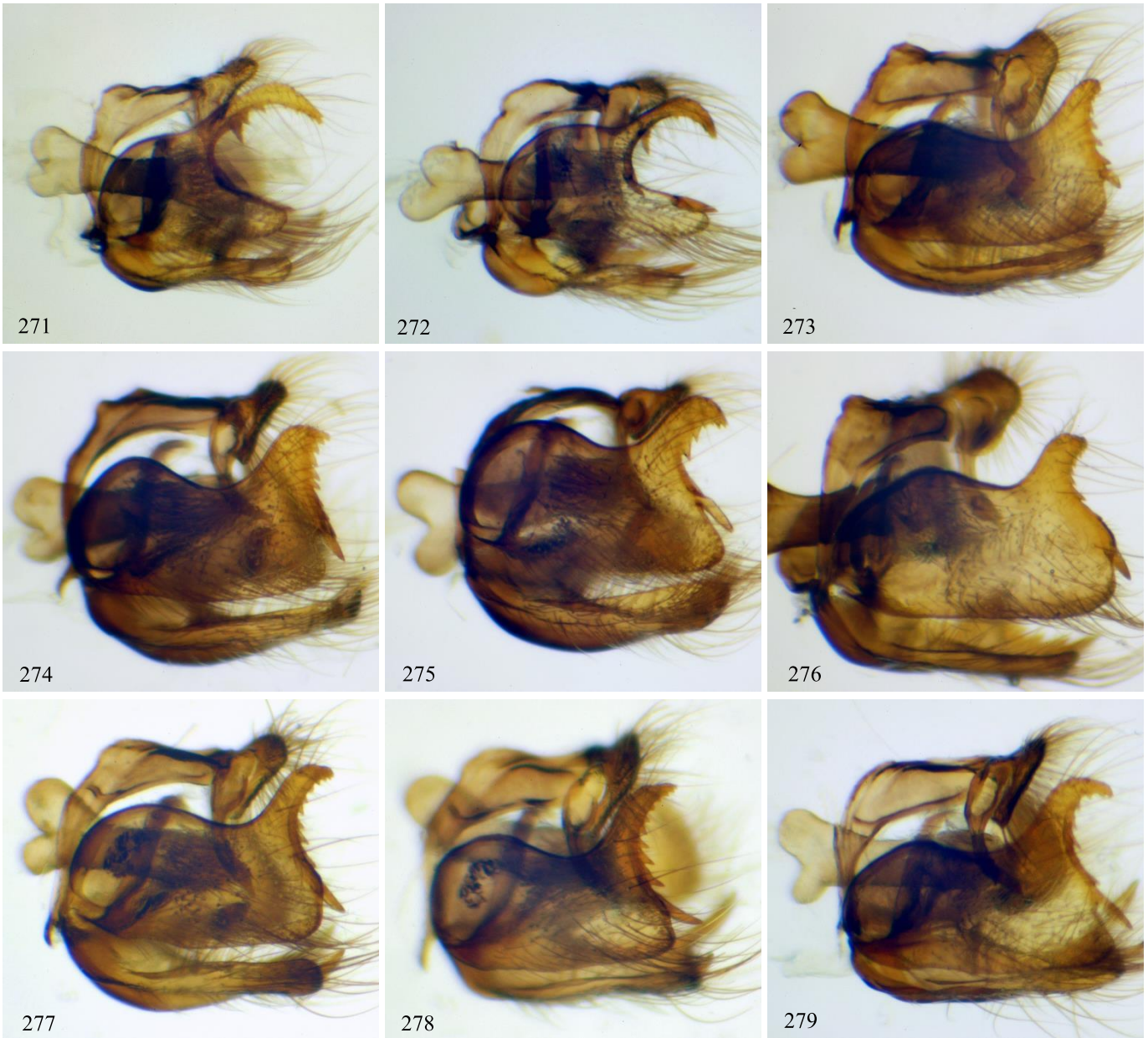
Figs. 244-252. Male genitalia of *Euphilotes* showing shape of left valva in left lateral view. **Fig. 244.** *E. glaucon glaucon*, Montana: Silver Bow Co.: Camp Creek Road, 4.5 mi. E. of Melrose, 4 June 2004, S. Kohler. **Fig. 245.** *E. g. glaucon*, Montana: Silver Bow Co.: Camp Creek Road, 4-8 mi. E. of Melrose, 14 June 2004, S. Kohler. **Fig. 246.** *E. g. oregonensis*, Oregon: Klamath Co.: Hwy. 97, vic. mile 224-226, ca. 4700', 21 June 2000, A.D. Warren. **Fig. 247.** *E. glaucon* (N. Oregon-Washington Cascades segregate), Oregon: Clackamas/Hood River Cos.: Mt. Hood, NW of Timberline Lodge, 5700-6000', 20 June 2003, A.D. Warren. **Fig. 248.** *E. glaucon* (N. Oregon-Washington Cascades segregate), Washington: Yakima Co.: Bethel Ridge, Microwave Tower Rd., 18 July 2009, D. Nunnallee. **Fig. 249.** *E. glaucon* near *intermedia*, Oregon: Josephine Co.: NFD 4609, at ridge E. of Little Gray Jack Peak, 4500', ca. 10 air miles E. Cave Junction, 11 July 2003, A.D. Warren. **Fig. 250.** *E. heracleoides*, Holotype, Montana: Sanders Co.: W. of Niarada, 3 June 2004, S. Kohler. **Fig. 251.** *E. heracleoides*, Paratype, same locality. **Fig. 252.** *E. heracleoides*, Paratype, Montana: Sanders Co.: 1.5 mi. W. of Niarada, 9 June 1997, S. Kohler. Figs. approximately 50X life size and to scale. Photos by S. Kohler.



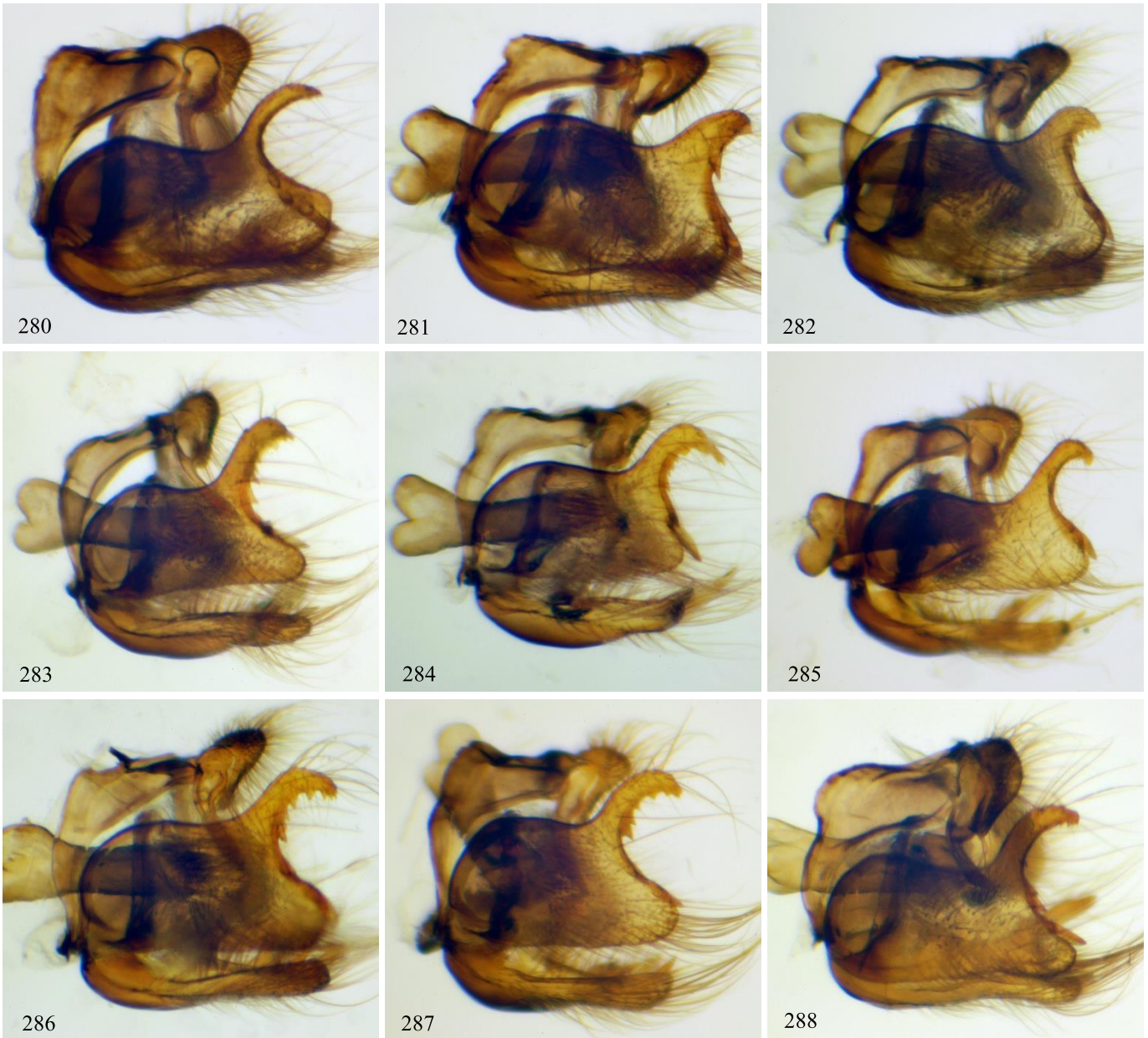
Figs. 253-261. Male genitalia of *Euphilotes* showing shape of left valva in left lateral view. **Fig. 253.** *E. heracleoides*, Montana: Flathead Co.: 1.5 mi. N. of Niarada, 13 June 1996, S. Kohler. **Fig. 254.** *E. heracleoides*, Montana: Lake Co.: 3 mi. E. Hot Springs, 3600', 20 June 1996, S. Kohler. **Fig. 255.** *E. heracleoides*, Montana: Lincoln Co.: Dancing Prairie, 5 mi. NW Eureka, 25 June 1997, S. Kohler. **Fig. 256.** *E. heracleoides*, Idaho: Boise Co.: FR 380, from summit of Mores Pass, 7110', 14 July 2005, T.W. Ortenburger. **Fig. 257.** *E. heracleoides*, Oregon: Wallowa Co.: Blue Mts., Powwatka Ridge, ca. 11 mi. N. of Wallowa on Troy Rd., 4100', 23 June 2002, A.D. Warren. **Fig. 258.** *E. heracleoides*, same locality. **Fig. 259.** *E. heracleoides*, same locality. **Fig. 260.** *E. heracleoides*, Oregon: Crook Co.: Ochoco Mts., creek N. of Hwy. 26, 2.7 mi. SW jct. Little Hay Cr. Rd. (NFD 2610), 4500', 10 June 2003, A.D. Warren. **Fig. 261.** *E. baueri baueri*, California: Inyo Co.: W. side Gilbert Pass, 6 mi. NE Deep Springs, 19 May 2005, S. Kohler. Figs. approximately 50X life size and to scale. Photos by S. Kohler.



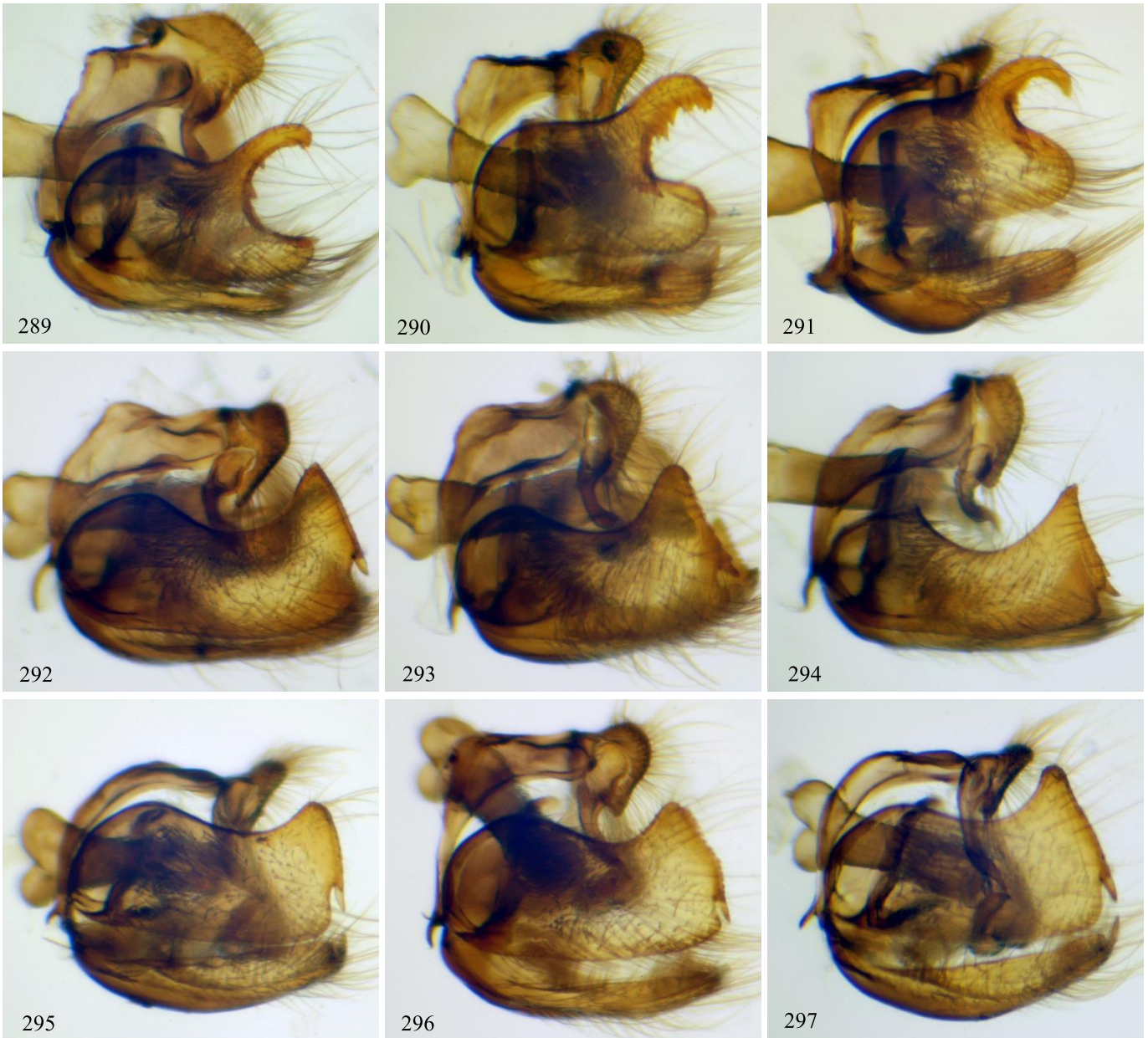
Figs. 262-270. Male genitalia of *Euphilotes* showing shape of left valva in left lateral view. **Fig. 262.** *E. baueri baueri*, California: Inyo Co.: W. side Gilbert Pass, 6 mi. NE Deep Springs, 19 May 2005, S. Kohler. **Fig. 263.** *E. baueri orientis*, Nevada: Lincoln Co.: Bristol Wells Road, 3.5 mi. W. Hwy. 93, 20 May 2005, S. Kohler. **Fig. 264.** *E. baueri* (far N. Great Basin northward segregate), Oregon: Crook Co.: Hwy. 126, 0.5-1.5 mi. E. Deschutes Co. line, 3050', 8 June 2003, A.D. Warren. **Fig. 265.** *E. baueri* (far N. Great Basin northward segregate), Oregon: Harney Co.: ca. 1 mi. E. Folly Farm Rd., 32 mi. S. jct. Hwy. 78, 4200', 16 May 2002, A.D. Warren. **Fig. 266.** *E. baueri* (far N. Great Basin northward segregate), same locality. **Fig. 267.** *E. baueri borealis*, Holotype, Montana: Sanders Co.: 4.5 mi. N. of Camas Prairie, 5 May 2004, S. Kohler. **Fig. 268.** *E. baueri borealis*, Paratype, Montana: Sanders Co.: 5 mi. N. Camas Prairie, 20 May 1997, S. Kohler. **Fig. 269.** *E. baueri borealis*, Montana: Madison Co.: Melrose Bench Road, 5400', 15 mi. SE of Melrose, 6 June 2017, S. Kohler. **Fig. 270.** *E. baueri shoshone*, Holotype, Idaho: Butte Co.: NE jct. Craters Loop Rd. & Tree Molds Rd., 5875', Craters of the Moon Nat. Mon., 1 June 2017, S. Kohler. Figs. approximately 50X life size and to scale. Photos by S. Kohler.



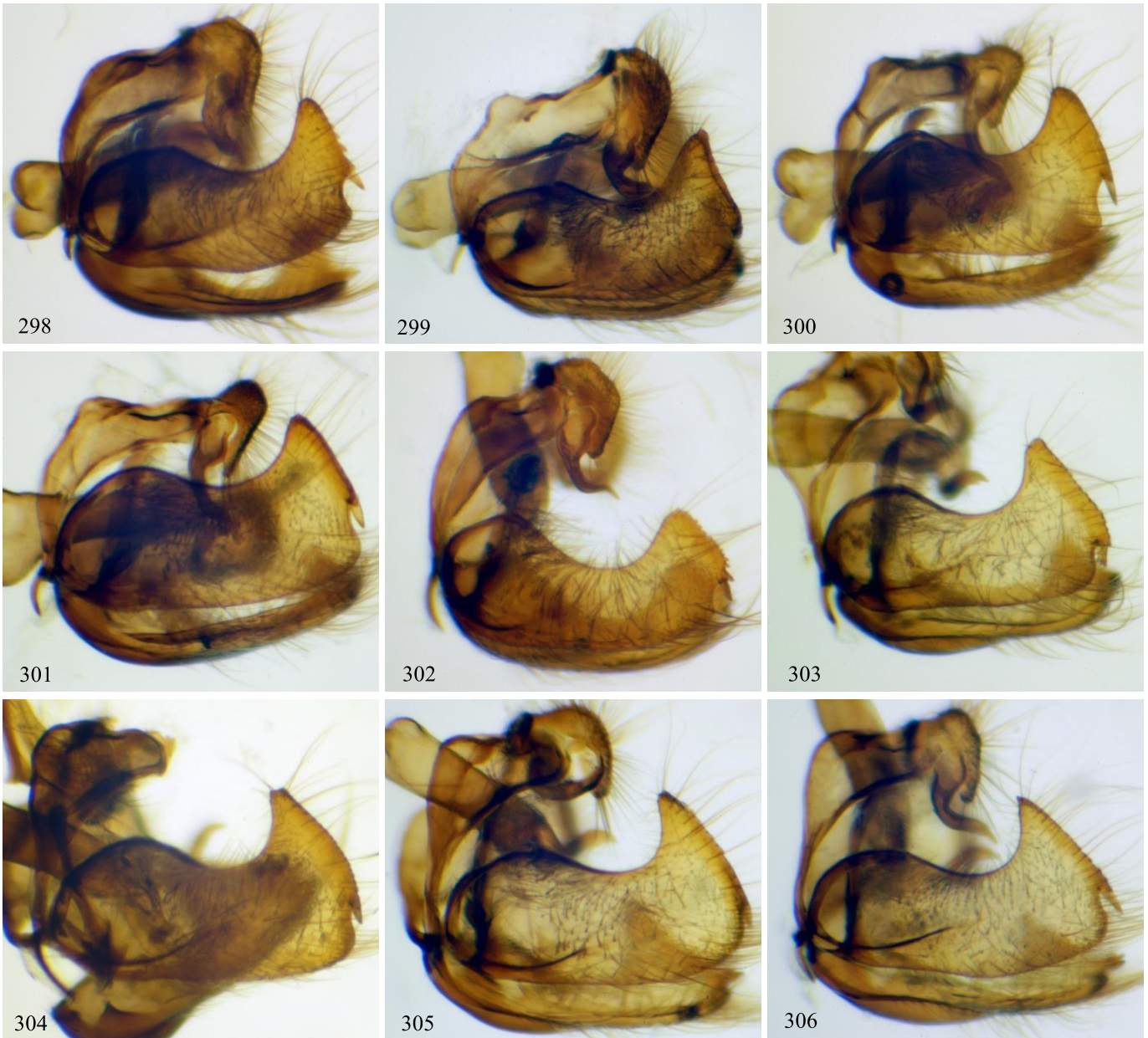
Figs. 271-279. Male genitalia of *Euphilotes* showing shape of left valva in left lateral view. **Fig. 271.** *E. baueri shoshone*, Paratype, Idaho: Butte Co.: NE jct. Craters Loop Rd. & Tree Molds Rd., 5875', Craters of the Moon Nat. Mon., 1 June 2017, S. Kohler. **Fig. 272.** *E. centralis centralis*, Colorado: El Paso Co.: 2 mi. N. exit for Hwy. 16 on I-25, 30 July 1990, A.D. Warren. **Fig. 273.** *E. oakleyi oakleyi*, Holotype, Montana: Missoula Co.: Spring Gulch, Rattlesnake Mountains, 18 June 2003, S. Kohler. **Fig. 274.** *E. o. oakleyi*, Paratype, Montana: Missoula Co.: Stuart Peak Trail, Rattlesnake Mountains, 18 June 2003, S. Kohler. **Fig. 275.** *E. o. oakleyi*, Paratype, Montana: Missoula Co.: Spring Gulch, Rattlesnake Mountains, 25 June 2002, W. Kerling. **Fig. 276.** *E. o. oakleyi*, Montana: Missoula Co.: Miller Creek, 1 July 1975, S. Kohler. **Fig. 277.** *E. o. oakleyi*, Montana: Ravalli Co.: Bass Cr., Florence, 13 June 1982, S. Kohler. **Fig. 278.** *E. o. oakleyi*, same locality. **Fig. 279.** *E. o. oakleyi*, Montana: Ravalli Co.: Bass Creek, Florence, 17 June 1980, S. Kohler. Figs. approximately 50X life size and to scale. Photos by S. Kohler.



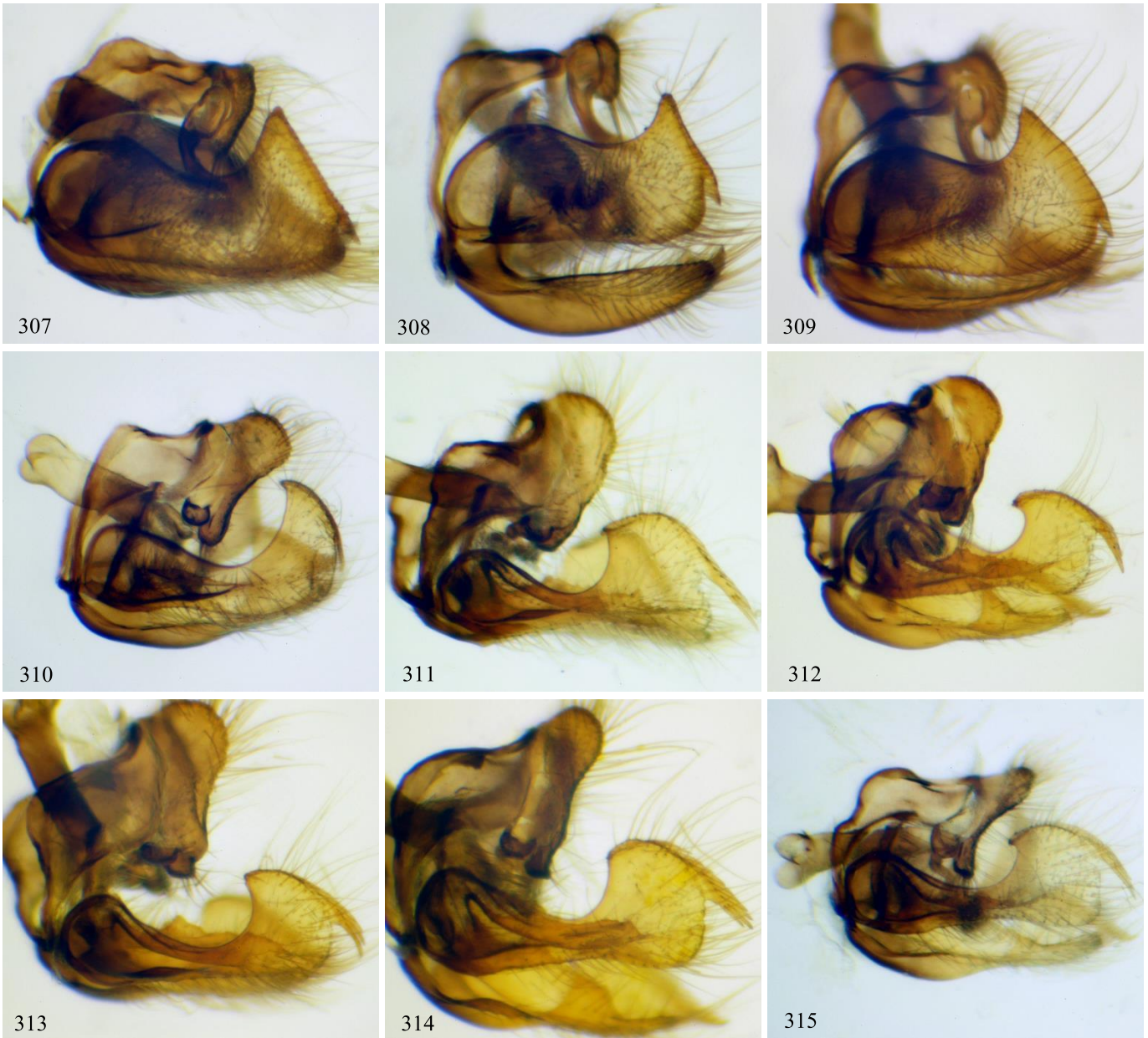
Figs. 280-288. Male genitalia of *Euphilotes* showing shape of left valva in left lateral view. **Fig. 280.** *E. oakley oakleyi*, Montana: Ravalli Co.: Bass Creek, Florence, 3 July 1976, S. Kohler. **Fig. 281.** *E. o. oakleyi*, Montana: Ravalli Co.: 8-Mile Creek, E. of Florence, 26 June 1982, S. Kohler. **Fig. 282.** *E. o. oakleyi*, Montana: Silver Bow Co.: Rocky Ridge Trailhead, Divide Cr., 3 mi. W. Feely, 22 June 2001, S. Kohler. **Fig. 283.** *E. oakleyi madisonensis*, Holotype, Montana: Madison Co.: Varney Road, 5345', 4 mi. NW of Cameron, 27 June 2013, S. Kohler. **Fig. 284.** *E. o. madisonensis*, Paratype, same locality. **Fig. 285.** *E. o. madisonensis*, Paratype, Montana: Madison Co.: Varney Road, 4 mi. NW of Cameron, 7 July 2008, S. Kohler. **Fig. 286.** *E. o. madisonensis*, Montana: Madison Co.: Gravelly Range Rd., N. Nat. Forest boundary, 7300', 30 June 2015, S. Kohler. **Fig. 287.** *E. o. madisonensis*, Montana: Silver Bow Co.: Soap Gulch, 6980', 7 mi. up, NE Melrose, 15 Jun 2015, S. Kohler. **Fig. 288.** *E. o. madisonensis*, Montana: Silver Bow Co.: Soap Gulch, 6850-7150', 7-8 mi. up, NE Melrose, 17 June 2015, S. Kohler. Figs. approximately 50X life size and to scale. Photos by S. Kohler.



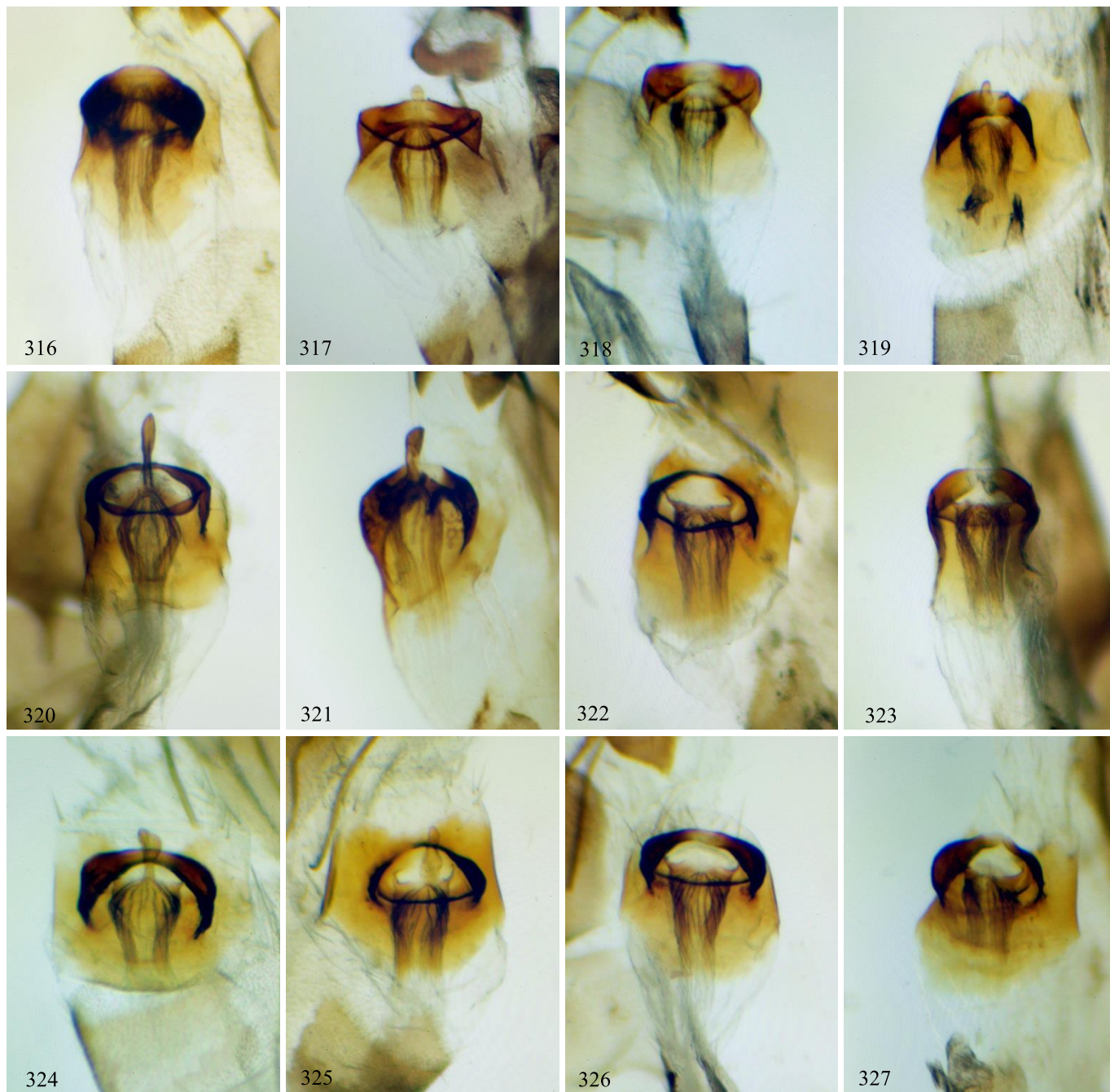
Figs. 289-297. Male genitalia of *Euphilotes* showing shape of left valva in left lateral view. **Fig. 289.** *E. oakleyi madisoni*, Montana: Silver Bow Co.: Soap Gulch, 6875-7300', 6-7 mi. up, NE Melrose, 24 June 2015, S. Kohler. **Fig. 290.** *E. o. madisonensis*, Montana: Silver Bow Co.: Soap Gulch, 6850-7300', 6-7 mi. up, NE Melrose, 25 June 2015, S. Kohler. **Fig. 291.** *E. o. madisonensis*, same locality. **Fig. 292.** *E. ancilla ancilla*, Utah: Cache Co.: Green Canyon, 14 July 1993, S. Kohler. **Fig. 293.** *E. ancilla barnesi*, Colorado: Jefferson Co.: Ralston Creek, 7500', GGCSP East Gate, 22 June 2005, C. Slater. **Fig. 294.** *E. a. barnesi*, Colorado: Gilpin Co.: Hwy. 7 at Smith Gulch, 29 June 1996, B.B. Brinkman. **Fig. 295.** *E. a. ancilla*, Colorado: Grand Co.: USFS Rd. 133 (Co. Rd. 50), 2-4 mi. E. jct. Hwy 40, 8 mi. W. Hot Sulphur Springs, 25 June 1989, A.D. Warren. **Fig. 296.** *E. ancilla montosa*, Holotype, Montana: Missoula Co.: Ninemile Prairie, near Greenough, 14 June 1979, S. Kohler. **Fig. 297.** *E. ancilla campestris*, Holotype, Montana: Powder River Co.: .8 mi. W. Pumpkin Cr. Rd., 24 mi. W. Broadus, S. Hwy. 212, 15 June 2007, S. Kohler. Figs. approximately 50X life size and to scale. Photos by S. Kohler.



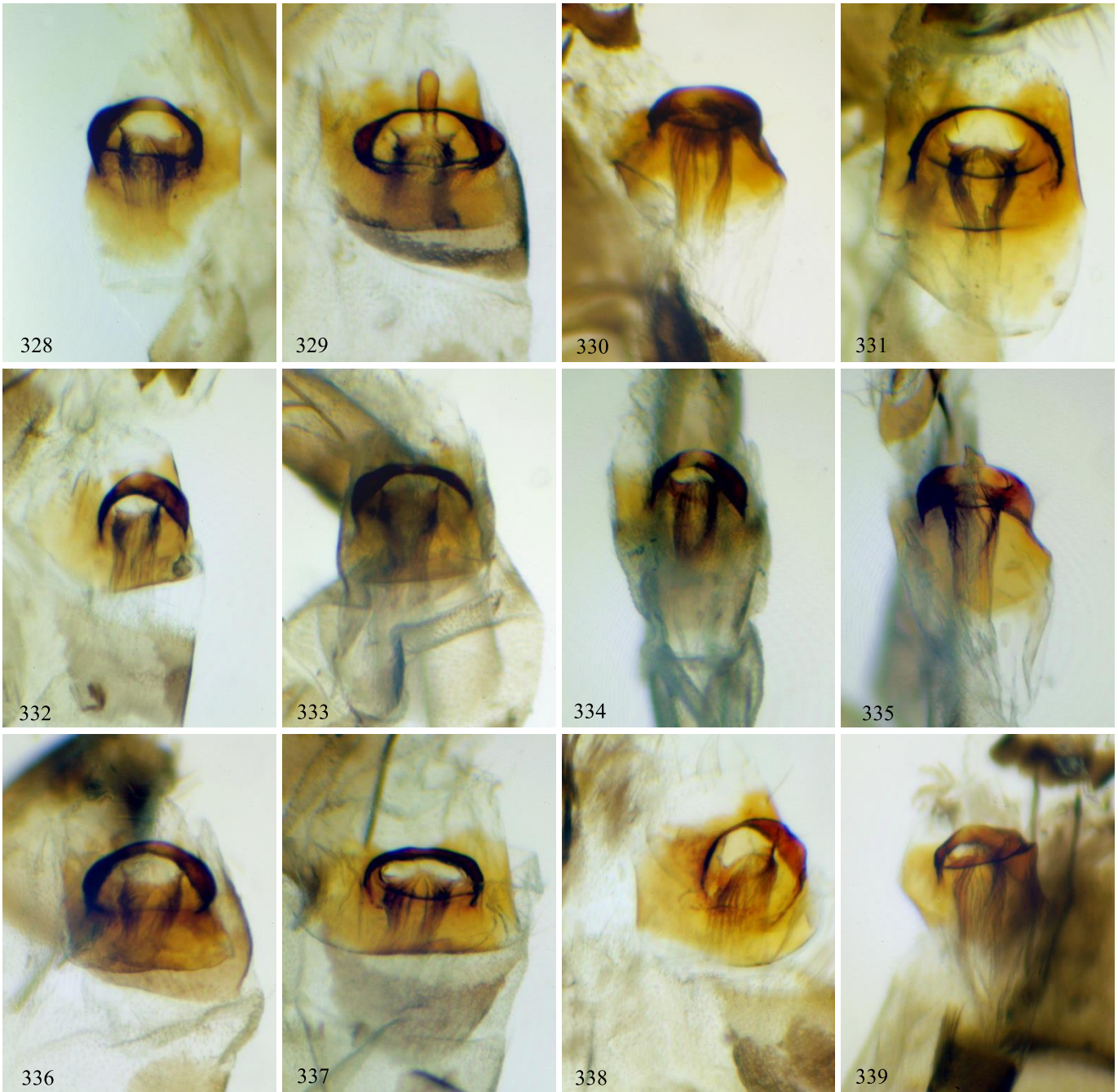
Figs. 298-306. Male genitalia of *Euphilotes* showing shape of left valva in left lateral view. **Fig. 298.** *E. ancilla campestris*, Paratype, Montana: Powder River Co.: .8 mi. W. Pumpkin Cr. Rd., 24 mi. W. Broadus, S. Hwy. 212, 15 June 2007, S. Kohler. **Fig. 299.** *E. a. campestris*, Montana: Hill Co.: Bears Paw Mountains, S. of Havre, 3 June 1986, S. Kohler. **Fig. 300.** *E. a. campestris*, Montana: Carter Co.: Forest Road 4035, Long Pines, 36 mi. SE Ekalaka, 14 June 2007, S. Kohler. **Fig. 301.** *E. a. campestris*, Montana: Stillwater Co.: Lone Tree Road, 15 mi. N. Columbus, 12 June 2007, S. Kohler. **Fig. 302.** *E. ancilla gilvatunica*, Nevada: Lander Co.: US 50 at Austin Summit, 7500', nr. Austin, 20 June 2002, J. & F. Preston. **Fig. 303.** *E. enoptes enoptes*, Oregon: Lake Co.: Warner Mts., Bullard Cyn. at E. end Lakeview, ca. 5100', 18 June 2003, A.D. Warren. **Fig. 304.** *E. enoptes enoptes*, same locality. **Fig. 305.** *E. enoptes aridorum*, Nevada: Douglas Co.: Montreal Canyon, 31 July 1983, J.B. Vernon. **Fig. 306.** *E. enoptes bayensis*, California: Marin Co.: Tiburon, 5 June 1983, J.B. Vernon. Figs. approximately 50X life size and to scale. Photos by S. Kohler.



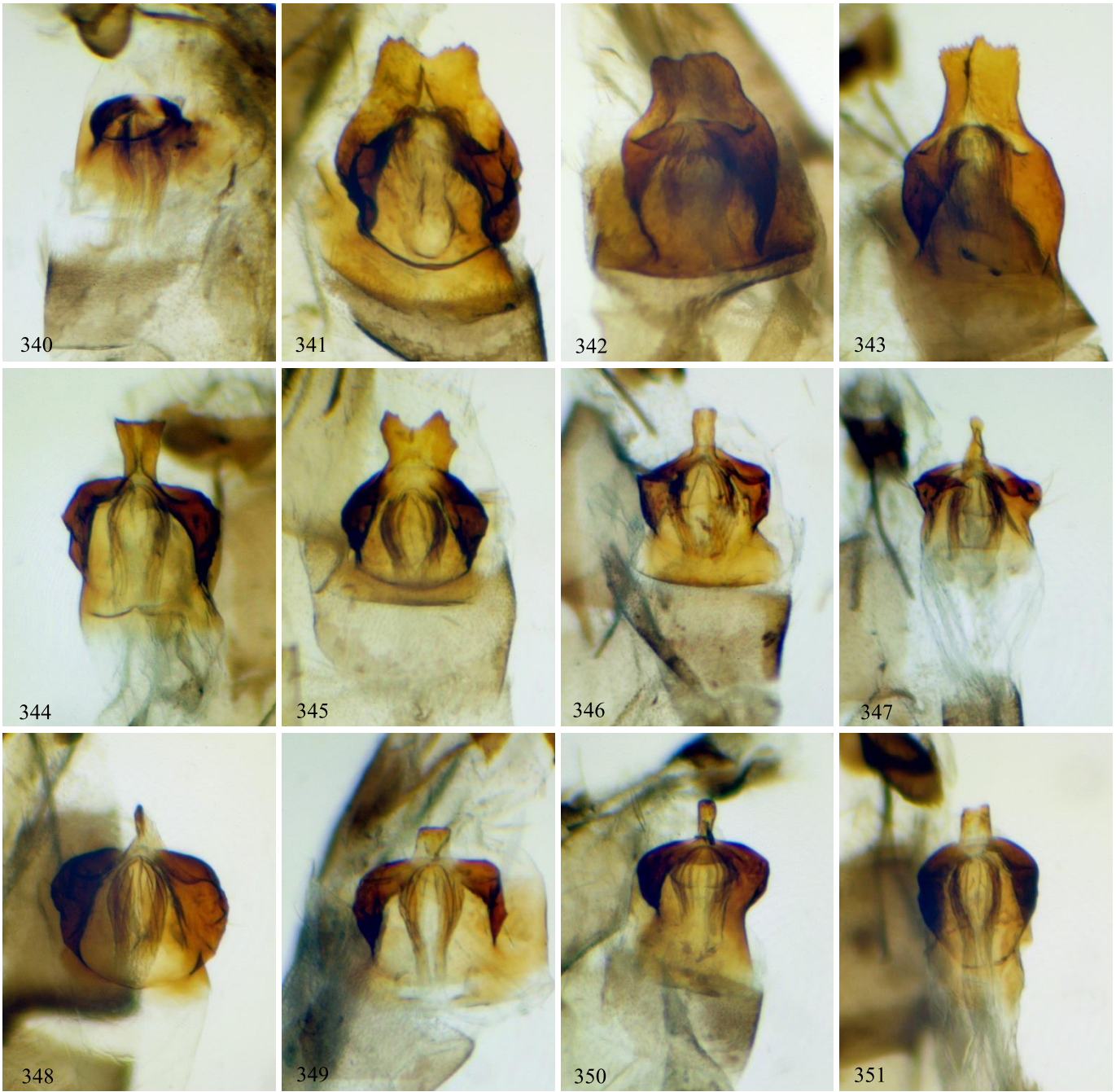
Figs. 307-315. Male genitalia of *Euphilotes* showing shape of left valva in left lateral view. **Fig. 307.** *E. enoptes tildeni*, California: Los Angeles Co.: Sawmill Ridge, 4000', 1 mi. W. Sawmill Camp, 9 September 1981, G.A. Gorelick. **Fig. 308.** *E. columbiae*, Oregon, Sherman Co.: Jones Cyn. off Deschutes Canyon, ca. 1000', 2 May 2003, A.D. Warren. **Fig. 309.** *E. columbiae*, Oregon: Jefferson Co.: W. end Lake Billy Chinook, vic. mouth of Spring Creek, 1700', 19 May 2003, A.D. Warren. **Fig. 310.** *E. spaldingi spaldingi*, Utah: Millard Co.: Scipio Pass, 6700', 1 mi. S. I-15, ex. ova, em. 1 June 2000, J. Wolfe. **Fig. 311.** *E. rita coloradensis*, Colorado: El Paso Co.: Ramah Rd., Hwy. 94, E. Colorado Springs, 6100', 6 August 1973, M.S. Fisher. **Fig. 312.** *E. rita montanensis*, Holotype, Montana: Carbon Co.: Hollenbeck Draw, 5 mi. SE of Belfry, 23 May 2007, S. Kohler. **Fig. 313.** *E. r. montanensis*, Paratype, Montana: Carbon Co.: Hollenbeck Draw, 5 mi. SE of Belfry, 5 June 2007, S. Kohler. **Fig. 314.** *E. r. montanensis*, Montana: Carbon Co.: ridge W. Cub Creek, 5-7 mi. SE of Belfry, 16 May 2007, S. Kohler. **Fig. 315.** *E. pallescens pallescens*, Utah: Juab Co.: Jerico Dunes, 1 mi. W. Hwy. 50, mile 14, 8 August 1984, J. Johnson. Figs. approximately 50X life size and to scale. Photos by S. Kohler.



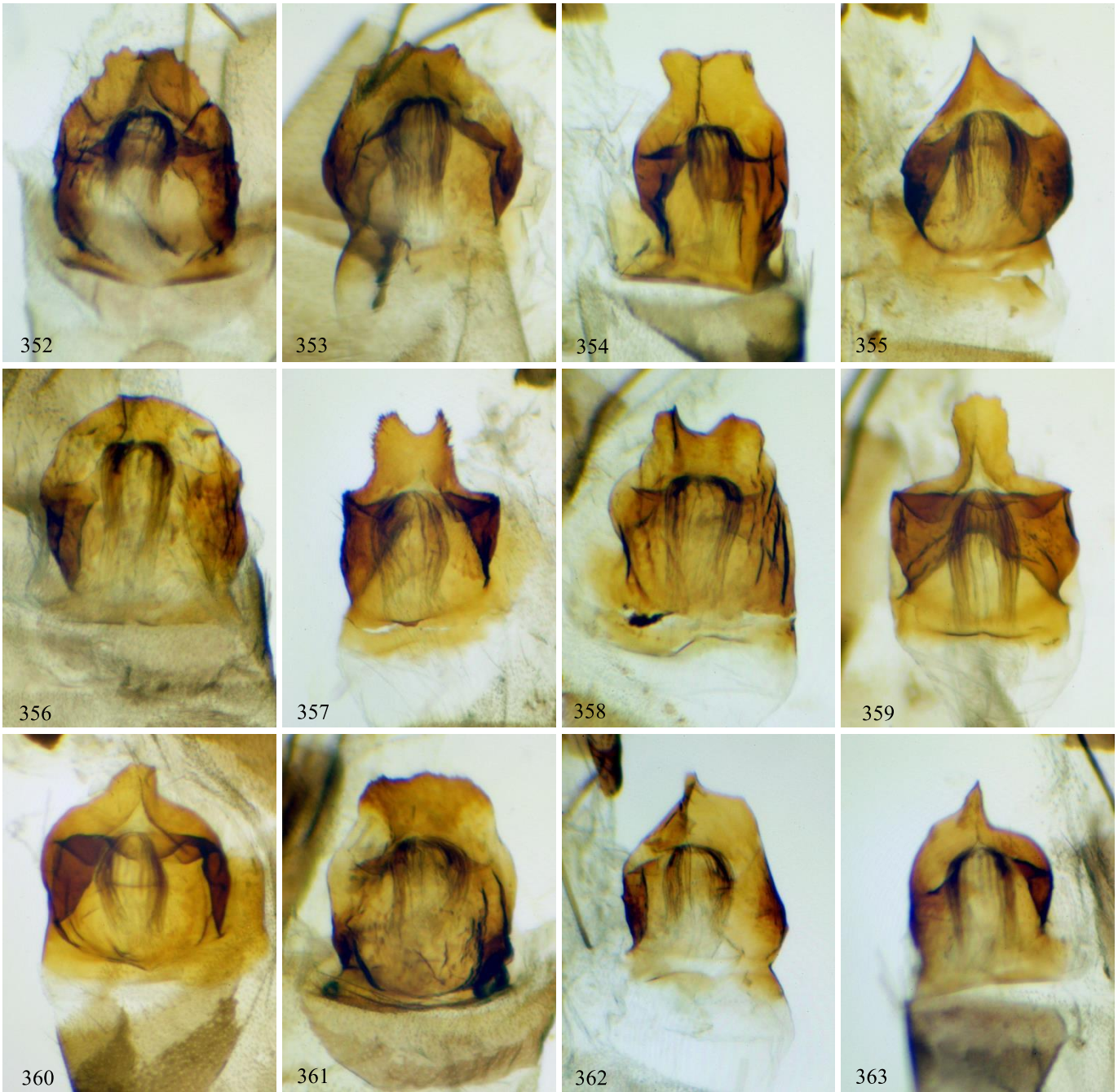
Figs. 316-327. Female genitalia of *Euphilotes*, ventral view showing shape of lodix. **Fig. 316.** *E. battoides battoides*, California: Inyo Co.: Mono Pass Trail, Mosquito Flats to above Ruby Lake, 10300-12000', 11 July 1989, J. & F. Preston. **Fig. 317.** *E. bernardino bernardino*, California: Los Angeles Co.: Los Angeles, 1 June 1966, S. Kohler. **Fig. 318.** *E. bernardino martini*, Nevada: Clark Co.: Newberry Mountains, Bridge Canyon at Nev. 163, 22 April 1980, G.T. Austin. **Fig. 319.** *E. glaucon glaucon*, Nevada: Washoe Co.: 3 mi. E. US 395 on Hwy. to Virginia City, 19 June 1980, J.B. Vernon. **Fig. 320.** *E. g. glaucon*, Montana: Ravalli Co.: Railroad Creek, off Skalkaho-Rye Road, 25 June 2001, S. Kohler. **Fig. 321.** *E. g. glaucon*, same locality. **Fig. 322.** *E. glaucon* (N. Oregon-Washington Cascades segregate), Oregon: Clackamas/Hood River Cos.: Mt. Hood, NW of Timberline Lodge, 5700-6000', 20 July 2003, A.D. Warren. **Fig. 323.** *E. glaucon* (N. Oregon-Washington Cascades segregate), Washington: Yakima Co.: Bethel Ridge, Microwave Tower Rd., 18 July 2009, R.M. Pyle. **Fig. 324.** *E. heracleoides*, Allotype, Montana: Sanders Co.: 1.5 mi. N. of Niarada, 13 June 1996, S. Kohler. **Fig. 325.** *E. heracleoides*, Paratype, Montana: Sanders Co.: 1.5 mi. W. of Niarada, 2 June 2000, S. Kohler. **Fig. 326.** *E. heracleoides*, Montana: Sanders Co.: 4.5 mi. N. Camas Prairie, 9 June 1998, S. Kohler. **Fig. 327.** *E. heracleoides*, Montana: Lake Co.: 3 mi. E. Hot Springs, 3600', 20 June 1996, S. Kohler. Figs. approximately 50X life size and to scale. Photos by S. Kohler.



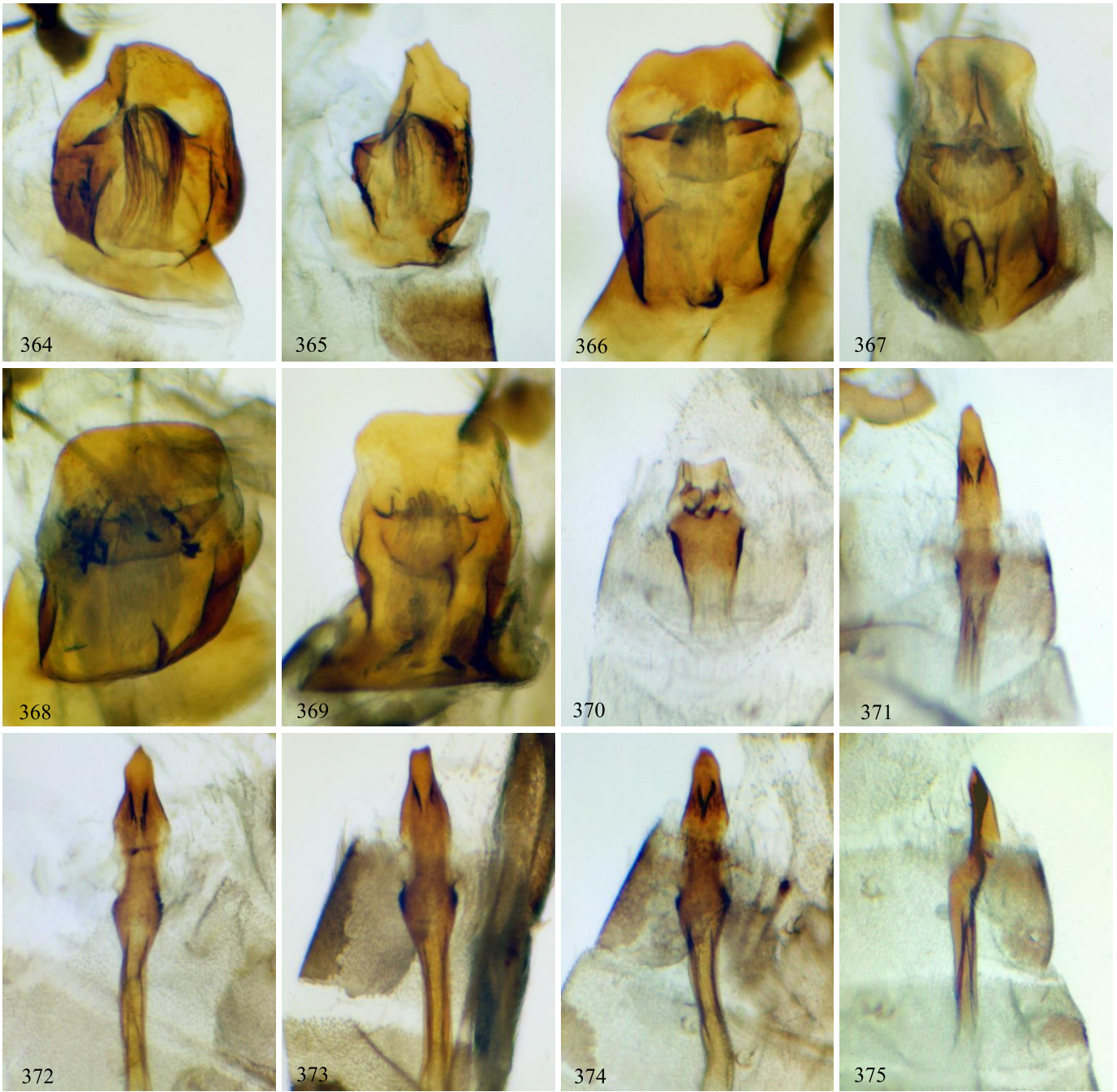
Figs. 328-339. Female genitalia of *Euphilotes*, ventral view showing shape of lodix. **Fig. 328.** *E. heracleoides*, Montana: Lincoln Co.: Dancing Prairie, 3350', NW of Eureka, 1 July 1996, S. Kohler. **Fig. 329.** *E. heracleoides* Oregon: Wallowa Co.: Blue Mts., Powwatka Ridge, ca. 1 mi. N of Wallowa on Troy Rd., 4100', 23 June 2002, A.D. Warren. **Fig. 330.** *E. heracleoides*, same locality. **Fig. 331.** *E. heracleoides*, Oregon: Union Co.: Phillips Cyn., ca. 2 mi. W. of Elgin, ca. 3000', 23 June 2002, A.D. Warren. **Fig. 332.** *E. baueri baueri*, California: Inyo Co.: W. side Gilbert Pass, 6 mi. NE Deep Springs, 19 May 2005, S. Kohler. **Fig. 333.** *E. baueri orientis*, Nevada, Lincoln Co.: Bristol Wells Road, 3.5 mi. W. Hwy. 93, 20 May 2005, S. Kohler. **Fig. 334.** *E. baueri* (far N. Great Basin northward segregate), Oregon: Crook Co.: Hwy. 126, 0.5-1.5 mi. E. Deschutes Co. line, 3050', 8 June 2003, A.D. Warren. **Fig. 335.** *E. baueri* (far N. Great Basin northward segregate), Oregon: Harney Co.: Alvord Desert, 3 mi. NE Andrews, ca. 4000', 8 May 1990, T. Stoddard. **Fig. 336.** *E. baueri borealis*, Allotype, Montana: Sanders Co.: 4.5 mi. N. Camas Prairie, 6 May 2004, S. Kohler. **Fig. 337.** *E. b. borealis*, Paratype, same locality. **Fig. 338.** *E. b. borealis*, Montana: Madison Co.: Melrose Bench Rd., 5400', 15 mi. SE of Melrose, 6 June 2017, assoc. *Er. ovalifolium* var. *ovalifolium*, S. Kohler. **Fig. 339.** *E. baueri shoshone*, Allotype, Idaho: Butte Co.: NE jct. Craters Loop Rd. & Tree Molds Rd., 5875', Craters of the Moon Nat. Mon., 1 June 2017, S. Kohler. Figs. approximately 50X life size and to scale. Photos by S. Kohler.



Figs. 340-351. Female genitalia of *Euphilotes*, ventral view showing shape of lodix. **Fig. 340.** *E. baueri shoshone*, Paratype, Idaho: Butte Co.: NE jct. Craters Loop Rd. & Tree Molds Rd., 5875', Craters of the Moon Nat. Mon., 1 June 2017, S. Kohler. **Fig. 341.** *E. oakleyi oakleyi*, Allotype, Montana: Missoula Co.: Stuart Peak Trail, Rattlesnake Mountains, 18 June 2003, S. Kohler. **Fig. 342.** *E. o. oakleyi*, Paratype, Montana: Missoula Co.: Stuart Peak Trail, Rattlesnake Mountains, 4 July 2006, S. Kohler. **Fig. 343.** *E. o. oakleyi*, Montana: Silver Bow Co.: Rocky Ridge Trailhead, 2.5 mi. W. of Feely, Divide Cr., 19 June 2003, S. Kohler. **Fig. 344.** *E. oakleyi madisonensis*, Allotype, Montana: Madison Co.: Varney Road, 4 mi. NW Cameron, 5345', 27 June 2009, S. Kohler. **Fig. 345.** *E. o. madisonensis*, Paratype, Montana: Madison Co.: Varney Road, 4 mi. NW of Cameron, 7 July 2008, S. Kohler. **Fig. 346.** *E. o. madisonensis*, Paratype, same locality. **Fig. 347.** *E. o. madisonensis*, Paratype, Montana: Madison Co.: Varney Road, 4 mi. NW Cameron, 30 June 2009, S. Kohler. **Fig. 348.** *E. o. madisonensis*, Paratype, same locality. **Fig. 349.** *E. o. madisonensis*, Paratype, same locality. **Fig. 350.** *E. o. madisonensis*, Paratype, same locality. **Fig. 351.** *E. o. madisonensis*, Paratype, same locality. Figs. approximately 50X life size and to scale. Photos by S. Kohler.



Figs. 352-363. Female genitalia of *Euphilotes*, ventral view showing shape of lodix. **Fig. 352.** *E. ancilla ancilla*, Utah: Cache Co.: Green Canyon, 11 July 1965, S. Kohler. **Fig. 353.** *E. ancilla montosa*, Paratype, Montana: Missoula Co.: Ninemile Prairie, nr. Greenough, 12 June 1979, S. Kohler. **Fig. 354.** *E. a. montosa*, Paratype, same locality. **Fig. 355.** *E. a. montosa*, Montana: Carbon Co.: Hollenbeck Draw, 5 mi. SE of Belfry, 5 June 2007, S. Kohler. **Fig. 356.** *E. a. montosa*, Montana: Carbon Co.: 2-3 mi. SW Belfry, 19 June 2008, S. Kohler. **Fig. 357.** *E. a. montosa*, Montana: Deer Lodge Co.: nr. Storm Lake Pass, Anaconda Range, 9200', 15 July 2003, S. Kohler. **Fig. 358.** *E. a. montosa*, Montana: Glacier Co.: Mount Henry, near Two Medicine, 22 July 2005, S. Kohler. **Fig. 359.** *E. a. montosa*, Montana: Granite Co.: Black Pine Road, 6 mi. NW Phillipsburg, 5675', 20 June 2001, S. Kohler. **Fig. 360.** *E. a. montosa*, Montana: Jefferson Co.: Warm Springs Creek, E. of Alhambra, 23 June 2005, S. Kohler. **Fig. 361.** *E. a. montosa*, Montana: Powell Co.: below Morrell Lookout, E. of Seeley Lake, 11 July 2000, S. Kohler. **Fig. 362.** *E. ancilla campestris*, Allotype, Montana: Powder River Co.: .8 mi. W. Pumpkin Cr. Rd., 24 mi. W. Broadus, S. Hwy 212, 15 June 2007, S. Kohler. **Fig. 363.** *E. a. campestris*, Paratype, same locality. Figs. approximately 50X life size and to scale. Photos by S. Kohler.



Figs. 364-375. Female genitalia of *Euphilotes*, ventral view showing shape of lodix. **Fig. 364.** *E. ancilla campestris*, Montana: Stillwater Co.: Lone Tree Road, 15 mi. N. Columbus, 12 June 2007, S. Kohler. **Fig. 365.** *E. ancilla campestris*, Montana: Toole Co.: N. of Cameron Lake, Middle Butte Sweet Grass Hills, 11 July 2002, S. Kohler (lateral view). **Fig. 366.** *E. enoptes enoptes*, Oregon: Lake Co.; Warner Mts., Bullard Cyn. at end of Lakeview, ca. 5100', 19 June 2003, A.D. Warren. **Fig. 367.** *E. enoptes tildeni*, California: Los Angeles Co.: Sawmill Ridge, 4000', 1 mi. W. Sawmill Camp, 9 September 1981, G.A. Gorelick. **Fig. 368.** *E. columbiae*, Washington: Skamania Co.: Hwy. 14 at SE base of Dog Mtn., 0.25 mi. W. Dog Creek Falls, ca. 100', 22 May 2003, A.D. Warren. **Fig. 369.** *E. columbiae*, same locality. **Fig. 370.** *E. spaldingi spaldingi*, Utah: Salt Lake Co.: E. Wasatch Blvd, SLC, 1 mi. N. Hwy. 190, ex. lar. 16 September 2006, em. 25 October 2006, J. Wolfe. **Fig. 371.** *E. rita coloradensis*, Colorado: Saguache Co.: 4 mi. S. of Villa Grove, 22 July 1969, J. Scott. **Fig. 372.** *E. rita montanensis*, Allotype, Montana: Carbon Co.: Hollenbeck Draw, 5 mi. SE of Belfry, 5 June 2007, S. Kohler. **Fig. 373.** *E. r. montanensis*, Montana: Carbon Co.: 2-3 mi. SW Belfry, 19 June 2008, S. Kohler. **Fig. 374.** *E. r. montanensis*, same locality. **Fig. 375.** *E. pallescens pallescens*, Utah: Tooele Co.: nr. Willow Springs, 14 August 1971, K. Tidwell (lateral view). Figs. approximately 50X life size and to scale. Photos by S. Kohler.



Figure 376. Upper. Habitat of *Euphilotes baueri borealis* at the type locality, 4.5 miles north of Camas Prairie, Sanders County, Montana. **Lower.** Larval food plant of *Euphilotes baueri borealis*, *Eriogonum ovalifolium* var. *pansum* Reveal. Photos by S. Kohler.



Figure. 377. Upper. Habitat of *Euphilotes baueri shoshone* at the type locality, vic. Crater Loop Road, Craters of the Moon National Monument, Butte County, Idaho. **Lower.** Larval food plant of *Euphilotes baueri shoshone*, *Eriogonum ovalifolium* var. *focarium* Reveal & Mansfield. Photos by S. Kohler.

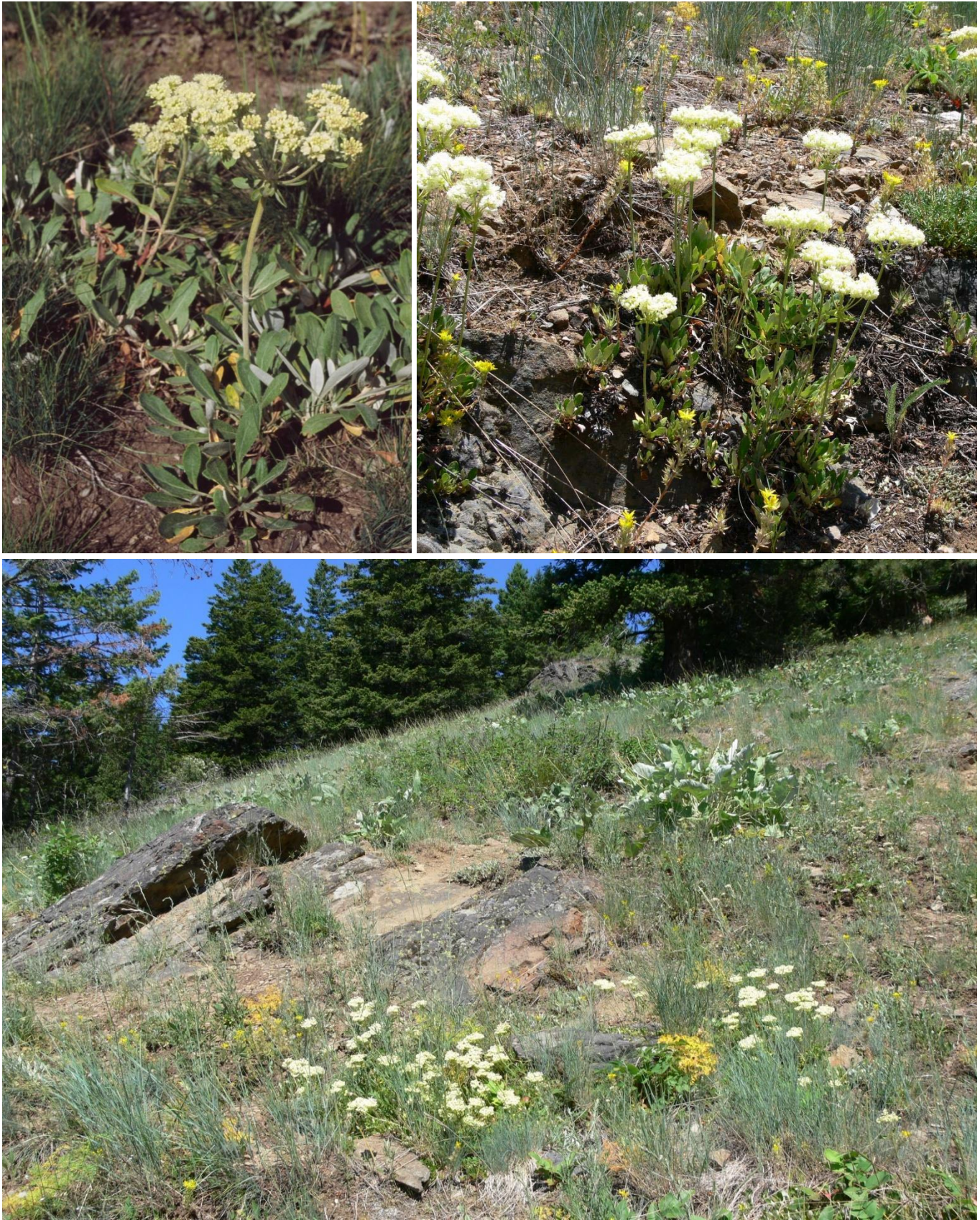


Figure 378. Upper Left. Larval food plant of *Euphilotes heracleoides*, *Eriogonum heracleoides* var. *heracleoides* Nutt., Sanders County, Montana. **Upper Right.** Larval food plant of *Euphilotes oakleyi oakleyi*, *Eriogonum umbellatum* var. *aureum* (Gand.) Reveal, at the type locality, Stuart Peak Trail, Rattlesnake Mountains, Missoula County, Montana. **Lower.** Habitat of *Euphilotes oakleyi oakleyi* at the same locality. Photos by S. Kohler.



Figure 379. Upper Left. Larval food plant of *Euphilotes oakleyi madisonensis*, *Eriogonum ovalifolium* var. *ovalifolium* Nutt., Varney Road, 4 miles west of Cameron, Madison County, Montana. **Upper Right.** Local larval food plant of *Euphilotes ancilla montosa*, *Eriogonum ovalifolium* var. *depressum* Blank, Red Mountain trail above Copper Camp, 7500', north of Lincoln, Lewis & Clark County, Montana. **Lower.** Habitat of *Euphilotes ancilla montosa*, at the same locality. Photos by S. Kohler.



Figure. 380. **Upper.** Habitat of *Euphilotes ancilla montosa*, vicinity of Morrell Lookout, 10 miles east of Seeley Lake, Powell County, Montana. **Lower.** Local larval food plant of *Euphilotes ancilla montosa*, *Eriogonum flavum* var. *piperi* (Greene) M.E. Jones, from the same locality. Photos by S. Kohler

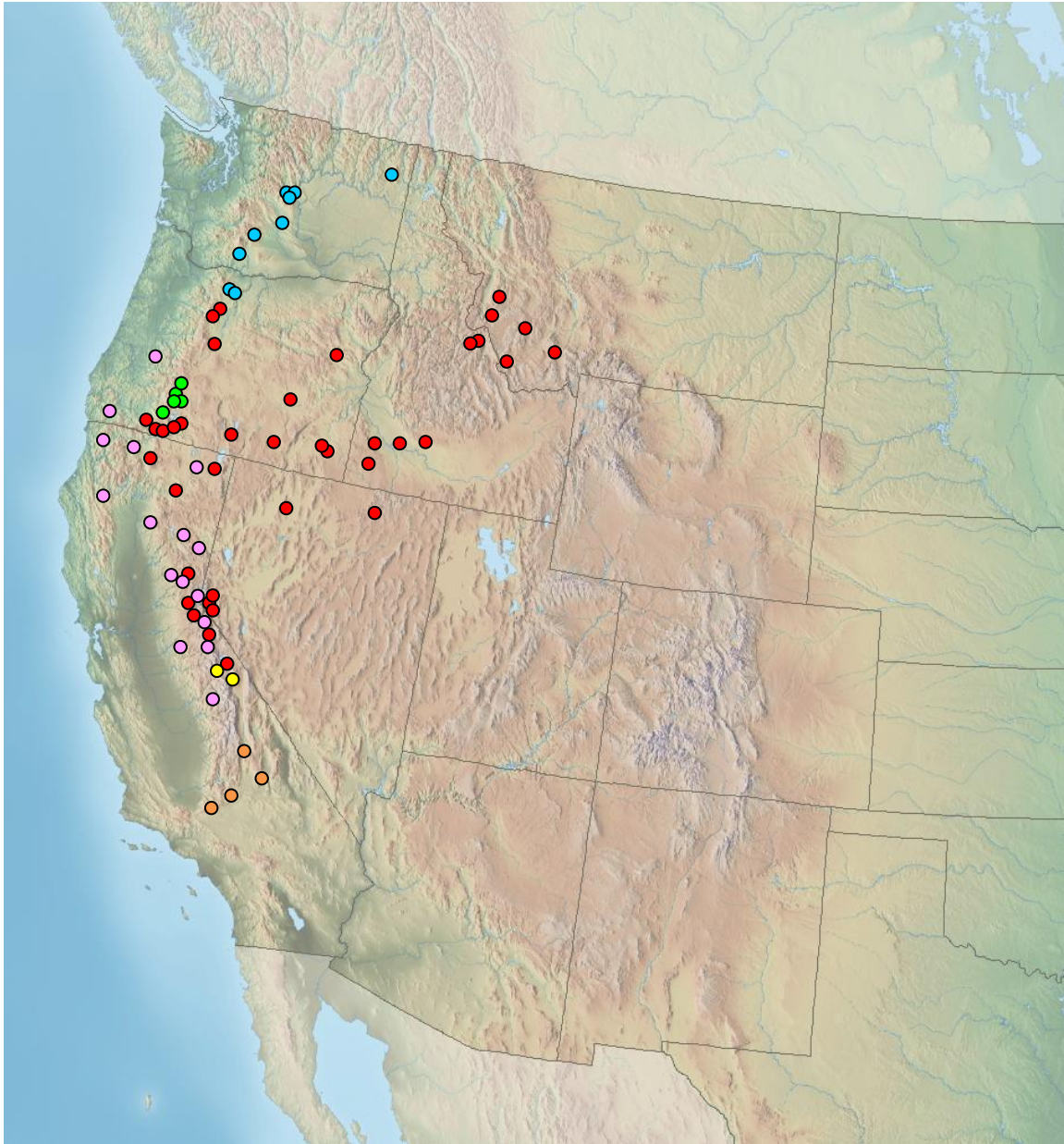


Figure. 381. Upper. Habitat of *Euphilotes ancilla campestris* at the type locality, 24 miles west of Broadus, Powder River County, Montana. Lower. Larval food plant of *Euphilotes ancilla campestris*, *Eriogonum flavum* var. *flavum* Nutt., from the same locality. Photos by S. Kohler.



Figure. 382. Upper. Habitat of *Euphilotes rita montanensis* at the type locality, Hollenbeck Draw, 5 miles SE of Belfry, Carbon County, Montana. **Lower.** Larval food plant of *Euphilotes rita montanensis*, *Eriogonum pauciflorum* Pursh., from the same locality. Photos by S. Kohler.

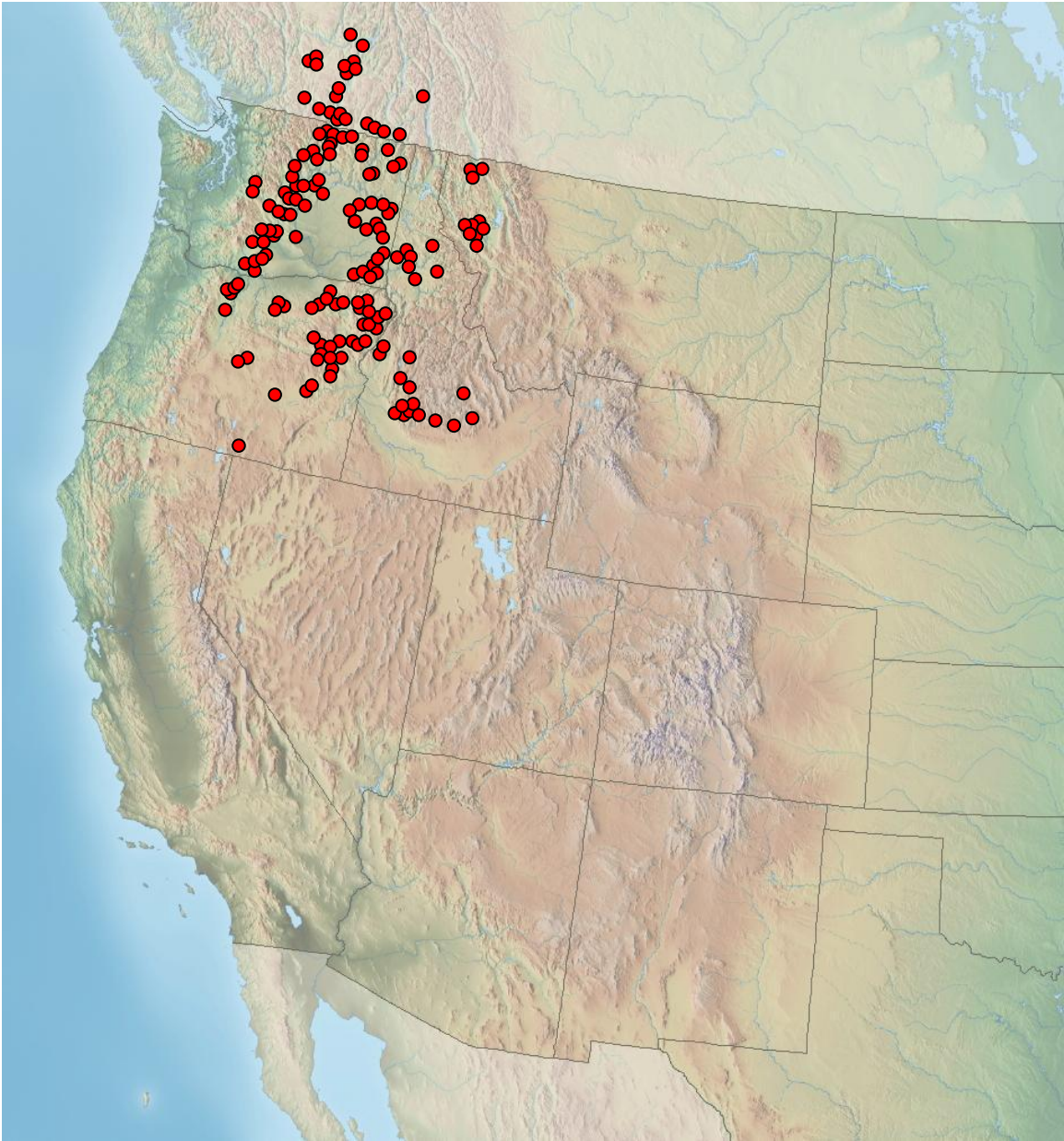
Figure 383. Distribution of *Euphilotes glaucon* (W. H. Edwards, 1871).



***Euphilotes glaucon* (W.H. Edwards)**

- *E. glaucon glaucon*
- *E. glaucon oregonensis*
- *E. glaucon* (N. Oregon-Washington Cascades segregate)
- *E. glaucon australoglaucan*
- *E. glaucon comstocki*
- *E. glaucon intermedia*

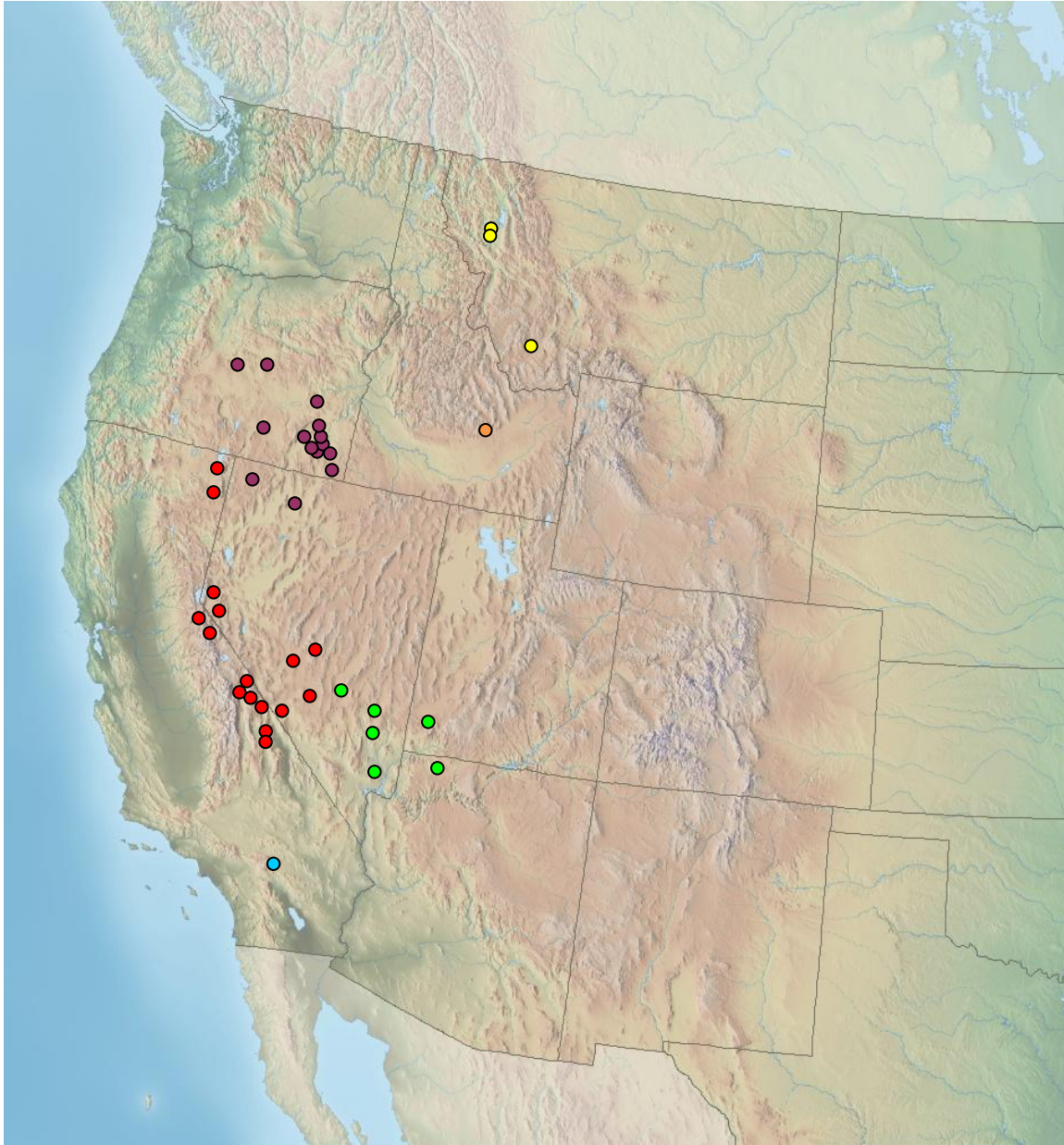
Figure 384. Distribution of *Euphilotes heracleoides* Kohler & A. Warren, 2021.



***Euphilotes heracleoides* Kohler & A. Warren**

● *E. heracleoides*

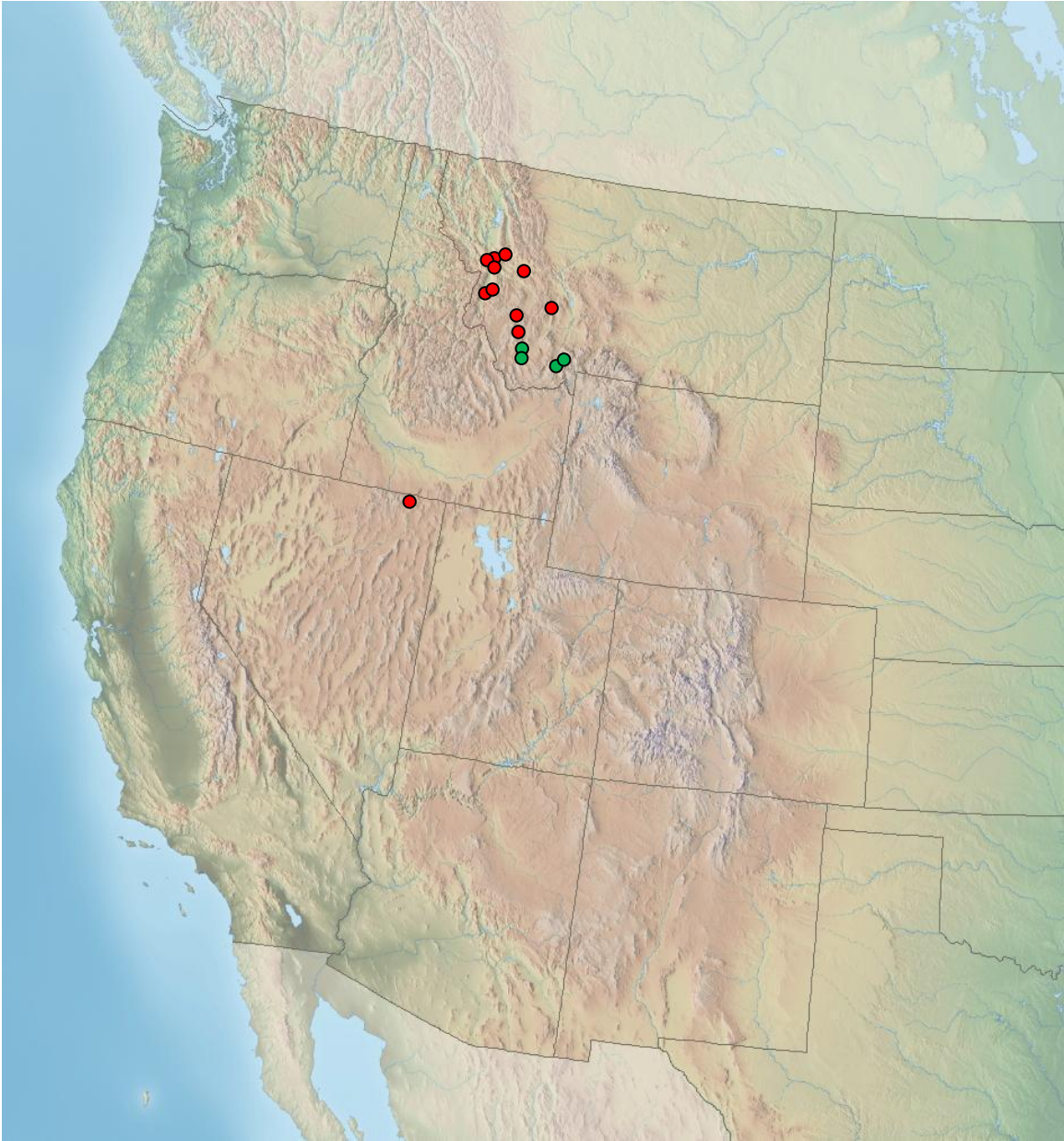
Figure 385. Distribution of *Euphilotes baueri* (Shields, 1975).



***Euphilotes baueri* (Shields)**

- *E. baueri baueri*
- *E. baueri orientis*
- *E. baueri vernalis*
- *E. baueri* (far N. Great Basin northward segregate)
- *E. baueri borealis*
- *E. baueri shoshone*

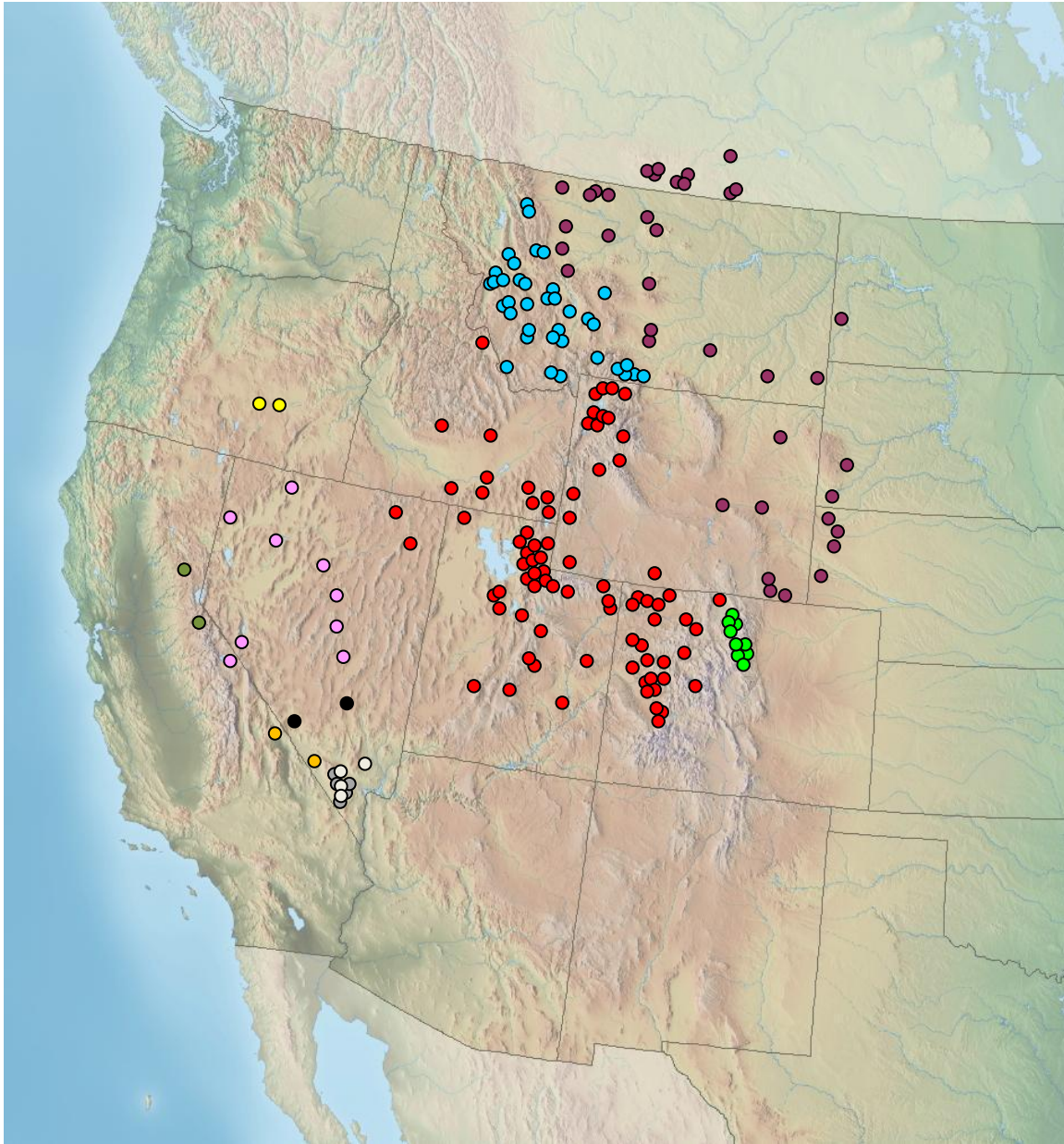
Figure 386. Distribution of *Euphilotes oakleyi* Kohler, 2021.



***Euphilotes oakleyi* Kohler**

- *E. oakleyi oakleyi*
- *E. oakleyi madisonensis*

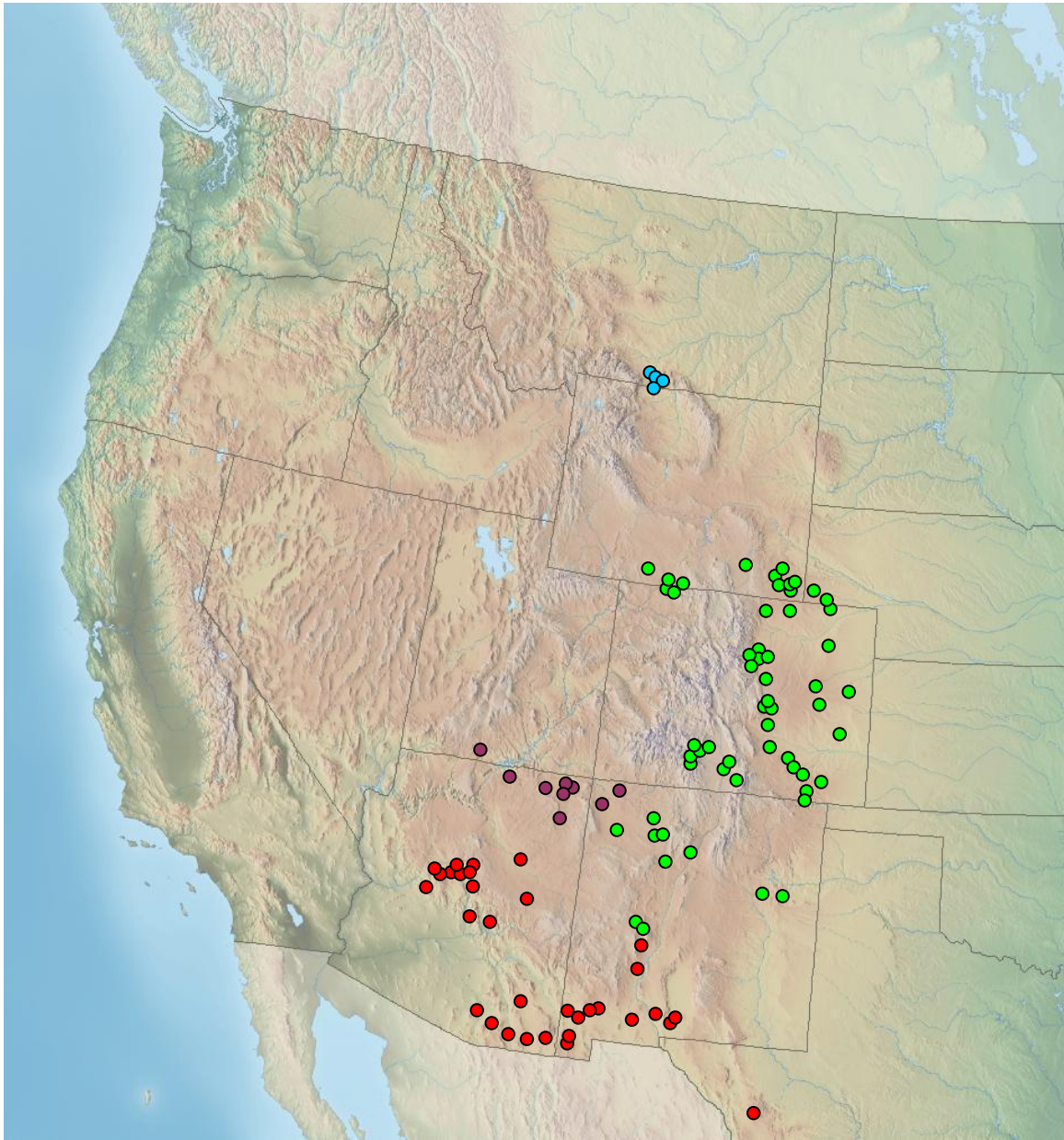
Figure 387. Distribution of *Euphilotes ancilla* (W. Barnes & McDunnough, 1918).



***Euphilotes ancilla* (W. Barnes & McDunnough)**

- *E. ancilla ancilla*
- *E. ancilla barnesi*
- *E. ancilla montosa*
- *E. ancilla campestris*
- *E. ancilla* (SE Oregon segregate)
- *E. ancilla giulianii*
- *E. ancilla gilvatunica*
- *E. ancilla shieldsi*
- *E. ancilla purpura*
- *E. ancilla cryptica*
- *E. ancilla pseudointermedia*

Figure 388. Distribution of *Euphilotes rita* (W. Barnes & McDunnough, 1916).



***Euphilotes rita* (W. Barnes & McDunnough)**

- *E. rita rita*
- *E. rita coloradensis*
- *E. rita montanensis*
- *E. rita* (Four Corners Area segregate)

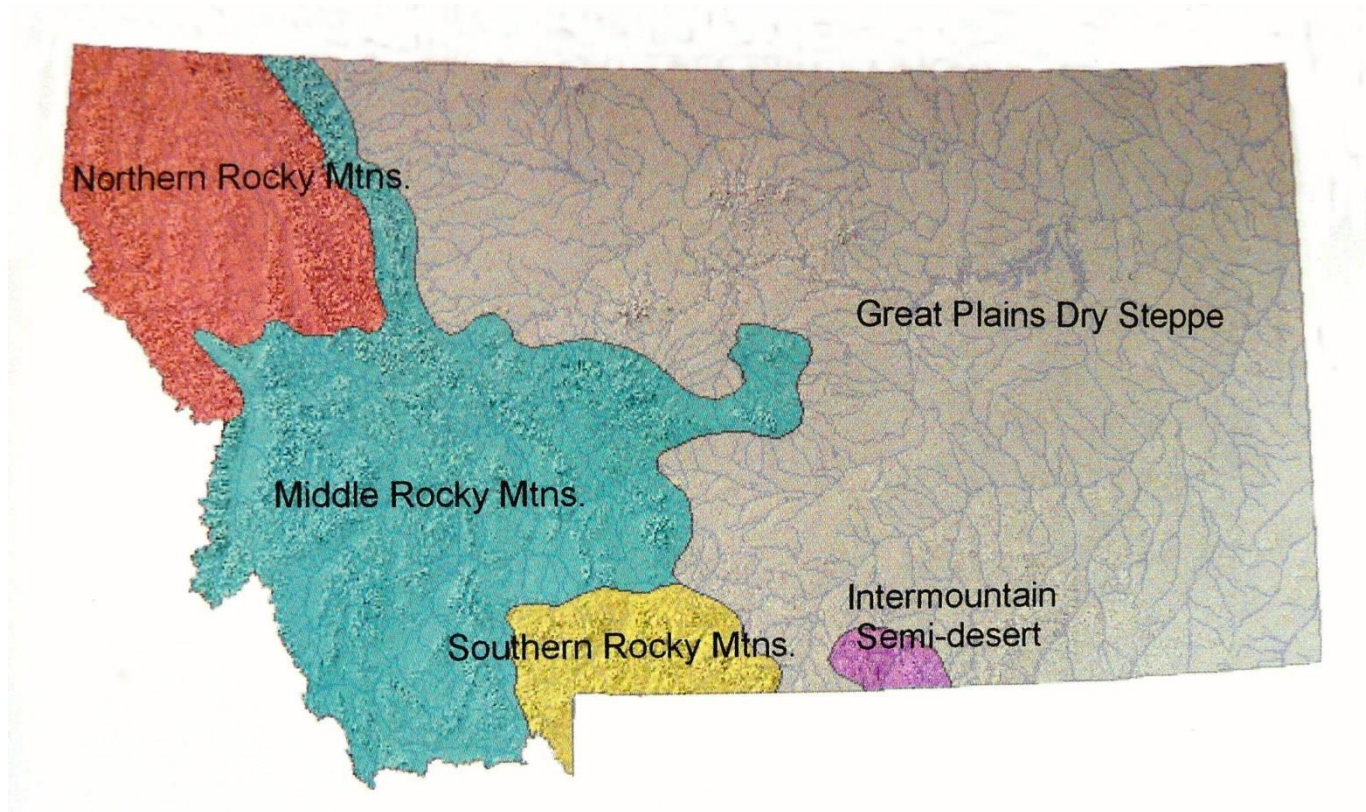


Figure 389. Ecological Provinces of Montana (after Werner et al., 2004).

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Appreciation is given to Jonathan P. Pelham and Richard L. Romeyn for their encouragement and review of this paper and for providing specimens and distribution records. Peter Lesica has identified many *Eriogonum* host plants over the years, and also reviewed this paper. Many people have provided specimens, collection records, information and other assistance. They include, among others: T. Aneiros, George T. Austin, B. Boyd, Barton B. Brinkman, John Christenson, Vernon Covlin, Chris Durden, John F. Emmel, David Ewer, Nancy Ewer, Clifford D. Ferris, Michael S. Fisher, G. A. Gorlick, Lionel P. Grey, Megan Hansen, Chuck E. Harp, Frank E. Holley, J. Johnson, Kim Kendall, Will Kerling, Norbert G. Kondla, John Lane, Gary Lawson, Glen Marangelo, David Nunnallee, Jo Nunnallee, James Oberfoell, B. A. O'Hara, Paul A. Opler, Tom W. Ortenburger, W. D. Patterson, Adam Peters, Jeffrey S. Pippen, Gordon F. Pratt, Floyd Preston, June Preston, Robert M. Pyle, Dana Ross, Ronald A. Royer, James A. Scott, L. M. Scott, Charles Slater, Ray E. Stanford, Terry Stoddard, Kenneth Tidwell, Dave Trochlell, John B. Vernon, Bea Vogel, Byron Weber and Jacque Wolfe.

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