

# Chasing Greater Fritillaries: The Rise of Atlantis

by James C. Dunford

Perhaps no other butterfly group is as perplexing as North America's greater fritillaries. Many lepidopterists have attempted to shed light on species relationships in this remarkably variable group. Why do we chase after a better understanding of *Speyeria*? Why do they continue to impress us with a profusion of forms across the land? Perhaps the sight of a Regal Fritillary visiting your favorite flower or an Atlantis Fritillary flickering along a forest edge will remind you, we live in *Speyeria* country!

For those butterflyers in need of greater fritillary basics, *Speyeria* are medium to large butterflies that are conspicuous North American brushfoots. Members of the genus have been examined in great detail in the past and continue to be a model group for studies of evolution, speciation, and conservation. Approximately 14 species and over 100 associated subspecies (or geographical variants)

comprise the genus *Speyeria*. Adults are more or less orange in color (with the exception of female Diana Fritillaries and some female Nokomis Fritillaries), with darker wing veins and spots. Silver, white, or cream hindwing spots are present on the underside of most species. Adult greater fritillaries frequent open fields, moist meadows, or open woodlands near streams. A number of species are restricted to coastal dunes, tallgrass prairies, or montane habitats. Adults are strong fliers and are rather long lived (several weeks to months from May-September); all members are univoltine (single brooded) each year. Females usually lay their eggs rather haphazardly near violets rather than carefully placing them on the host plant as most butterflies do; however in some cases females use their flexible abdomen to place eggs directly on the caterpillar foodplant. Caterpillars feed on several violet species (*Viola*) and under laboratory conditions will feed on every American species

tested. Caterpillars overwinter in the first instar and break diapause to complete development the following season. Caterpillars bear many branching spines, and like other members of the heliconians and fritillaries tribe of brushfoots, lack mid-dorsal spines. However, unlike others of their tribe, greater fritillary caterpillars lack spines on the head.

Greater fritillaries are restricted to North America and, although absent from the southeastern regions, are found throughout most of the United States and Canada. The greater fritillaries, along with very similar fritillaries that exist in other temperate parts of the world, may be considered the temperate-zone counterparts to tropical heliconians. Much of the speciation within the genus probably came about in the past ten thousand years as a consequence of the last glacial retreat and the climatic readjustments in its wake. Great Spangled, Aphrodite, Regal, and Atlantis Fritillaries occur in the eastern half of North

America (east of the Mississippi River), each with distributions or subspecies occurring in the west, while Diana Fritillaries are restricted to the eastern United States (in the Appalachian and Ozark Mountains). The remaining species, Nokomis, Edwards', Coronis, Zerene, Callippe, Great Basin Fritillary, Unsilvered, Hydaspe, and Mormon Fritillaries occur in the western portions of North America and it is the West where the majority of the described subspecies are found. Several species or subspecies have been listed as either federally/state endangered or threatened, i.e., Regal, Diana, Nokomis Fritillaries and subspecies of Zerene and Unsilvered Fritillaries. Greater fritillaries and the violets upon which their caterpillar feed are amongst the best indicator organisms of native, undisturbed ecological communities. They are also among the first organisms to be eliminated from such communities as a result of human-caused disturbances.

No other species group of greater fritillary is as tangled with different forms and

geographical variants as the Atlantis group. Treated as single species on the NABA Checklist, many believe that there are two (or more) species in the group which contains approximately 25 subspecies (see page 17 for complete list). Atlantis group populations are known from the east coast of the United States and Canada, west to California, as far north as Alaska and south into Arizona and New Mexico (see maps). W. H. Edwards originally described Atlantis from the northeast in 1862 (type locality now fixed in the Catskills Mountains, in Hunter, Greene Co., New York). Since that time, numerous additional Atlantis forms have been described — clear across the continent. Atlantis Fritillaries primarily inhabit cool, Canadian life zone habitats; their life history requirements include either the climatological elements of northern parts of North America or the numerous mountain ranges that occur in the West. The geographical variants tend to be isolated, and adaptations to local

environmental conditions have created distinct forms, especially noticeable in the coloration on the underside of the hindwings (see page 17; also see J. Glassberg's *Eyeing the Greater Fritillaries*, *American Butterflies* 2000 for eye color characteristics in the field. Note: HW ground color and silvering of spots is variable within some populations. In addition,



An Atlantis Fritillary caterpillar. Sept. 1994. Spruce Knob, WV.