NOTES ON THE CONVERGENT LADY BEETLE

(*Hippodamia convergens*)

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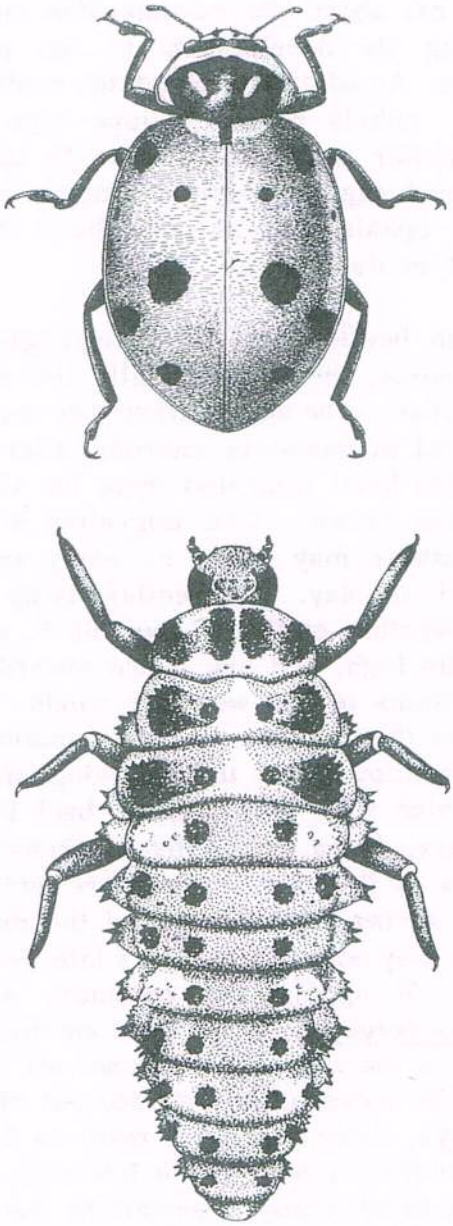
There are over 175 different species and subspecies of lady beetles in California. Many species feed upon aphids but others feed upon scale insects, mealybugs, and spider mites. A few feed upon mildews.

One of the most common and important aphid feeders is Hippodamia convergens Guerin, commonly called Convergent Lady Beetle. The adult is about 1/4 inch long, usually has 13 black spots on the reddish-orange wing covers, and two converging pale stripes on the thorax. The yellow eggs are laid on end in clusters of 10 to 50. The alligator-shaped larva is black with orange spots on some of the body segments. After the mature larva has completed its feeding on aphids, it generally pupates on the upper leaf surfaces.

Under California summer conditions, the life cycle of H. convergens from egg to adult requires about 3 to 4 weeks. During the cooler spring months, 6 weeks may be needed to complete the cycle. During late spring and early summer the developmental periods of the different stages are about as follows: the egg stage, 5 days; first larval stage, 4 days; second stage, $3\frac{1}{2}$ days; third larval stage, $2\frac{1}{2}$ days; fourth and last stage, 6 or 7 days; and the pupal stage, about a week. After the adult emerges from the pupa, 5 to 13 days are required before eggs are deposited.



Above—Convergent lady beetle adult. 8x.
Below—Convergent lady beetle larva. 10x.

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The time required for development of different stages depends on temperatures and amount of available food. The number of eggs laid per adult may range up to about 1500, depending on the availability and quality of food. One larva will eat about 400 medium-size aphids during its development to the pupal stage. An adult eats about 300 medium-size aphids before it lays eggs and thereafter needs to eat 3 to 10 aphids for each egg the beetle produces. Over 5000 aphids may be eaten by a single adult in its lifetime.

If the beetles are from aggregations (colonies), the adults usually live about one year. The aggregations are mainly formed in mountain canyons after the beetles have migrated from the valley feeding areas. The migration to the mountains may occur as early as the middle of May. The beetles fly up to a temperature ceiling of about 55 F, often a mile high, and are blown toward the mountains by the westerly winds. The adults then remain in the mountains in aggregations until the following spring, at which time they migrate back to the valleys, being blown by northeasterly winds at the 55 F temperature ceiling. This spring migration out of the mountains may occur as early as late February. If aphids are common, some H. convergens may be found any time of year in the valleys. Since not all individuals necessarily migrate out of the valleys, there may be as many as 5 to 6 generations a year in the lowlands, and some beetles may hibernate in the valley.

Releases of Beetles From Aggregations Are of Little Value

It is in the mountains that dealers collect the beetles they sell. The beetles aggregate in huge numbers in similar sites year after year. Some aggregations have been reported to contain as many as 500 gallons of beetles. A gallon contains from 72,000 to 80,000 adults.

While a number of growers purchase and release large quantities of H. convergens in various crops to control aphids and other soft-bodied insects, there is no official recommendation of such a practice. The releases made in the spring months usually involve H. convergens collected from the mountain aggregations in December, January, February, and perhaps as late as early March, before the normal beetle migration. These beetles can be cold stored into late March. When these winter collected H. convergens from the mountains are released in the valleys, the beetles are apt to disperse quickly and widely, especially when the temperature reaches 65 F and above. As a consequence, only a few beetles may remain in the field where liberated; the grower who bought the beetles cannot rely upon them to control a potentially growing aphid population.

The behavior of H. convergens collected from mountain aggregations after the month of May and then released in fields during the summer is quite different than the behavior of the beetles collected from aggregations during the winter and early spring months and released in the spring. The beetles liberated in fields in the summer do not disperse any great distance, but remain for the most part in the areas where released. However, their feeding activity is not normal. They will drink water, but have little appetite since they apparently are able to exist on their stored fat. Some feeding and reproduction occurs, but these activities are much slower than those occurring in natural field populations. So, these summer-collected H. convergens cannot be relied upon to control insect pests any more than those collected in winter.

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