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LARGE SUMMER POPULATION OF MULTICOLORED ASIAN LADY BEETLE IN NORTH DAKOTA -- The multicolored Asian lady beetle (*Harmonia axyridis*), hereafter MALB, is a Palearctic species that established relatively recently in eastern (Chapin and Brou 1991) and western North America (Dreistadt et al. 1995). Populations of MALB have expanded throughout eastern North America (McCorquodale 1998) and among western coastal states (LaMana and Miller 1996). MALB was discovered in North Dakota in September 2000 (Fauske et al. 2003). It currently is known from seven counties in eastern and northern North Dakota, based on one to two specimens per county (Fauske et al. 2003). MALB also has been found in South Dakota and Minnesota (Hesler et al. 2001, Fauske et al. 2003). Relatively large autumnal aggregations of MALB are known from South Dakota and Minnesota (Hesler et al. 2001), but previously only one to two MALB had been sampled in summer from various areas in North Dakota, South Dakota, and Minnesota (Hesler et al. 2001, Fauske et al. 2003).

I found a large population of MALB on American elm (*Ulmus americana*) in Valley City, Barnes County, North Dakota, on 14 July 2002. Adults, pupae, and larvae of MALB were present on American elms throughout the town. I surveyed roughly 20 leaves per tree within the lower 3 m of canopy of about 20 American elms, and observed MALB on virtually all leaves examined. All adult MALB observed had orange to orange-red elytra with varying degrees of black maculation ranging from maculae absent to large and slightly coalescent, which are typical color forms of MALB in eastern North America (Coderre et al. 1995, Hesler et al. 2001).

MALB accounted for the vast majority of lady beetles found on American elm. However, I also observed two adult *Adalia bipunctata* and two small larvae of an undetermined lady beetle species. American elms were infested heavily with the elm leaf aphid (*Tinocallis ulmifolii*) and these aphids were prey for the lady beetles. Voucher specimens of several elm leaf aphids and adult MALB and one adult *A. bipunctata* are deposited in the insect collection at the Northern Grain Insects Research Laboratory, USDA-ARS, Brookings, South Dakota.

I also examined various trees (besides American elm) and other vegetation in Valley City and, on July 13 and 14, at Lake Ashtabula (Barnes County) and on the grounds of a highway rest area in southern Richland County, but found no additional lady beetles. I did not find MALB on several American elms in Brookings, South Dakota, between July 15 and 21.

My observations represent a new record of MALB in Barnes County. The presence of MALB there was not surprising, given records of MALB in two adjacent counties (Fauske et al. 2003). However, I did not expect a large summer population of MALB because so few of the beetles had been recorded from North Dakota (Fauske et al. 2003).

MALB is principally arboreal and aphidophagous (Coderre et al. 1995), but I am unaware of any specific reference to it preying upon elm leaf aphids on American elms.

However, MALB appears capable of exploiting and building large populations on this native prey species. MALB has been observed on aphid-infested *Ulmus* sp. in California (Dreistadt et al. 1995), and on crape myrtle (*Lagerstroemia* sp.) infested with *T. kahawaluokalani* in Louisiana (Chapin and Brou 1991).

Adalia bipunctata is native to North America with a distribution that includes North Dakota (Gordon 1985). However, Elliott et al. (1996) noted its populations had declined in eastern South Dakota. Moreover, *A. bipunctata* has been absent from recent surveys of lady beetles in eastern and central South Dakota (Hesler et al. 2000, L.S. Hesler, unpublished data).

Despite its abundance, MALB did not appear to have prevented a large peak of elm leaf aphid on American elm. Consequently, understory vegetation, vehicles and sidewalks beneath the trees were covered with honeydew. Sidewalks were hazardous to walk upon because of the honeydew. Future studies are needed to determine the net effect of MALB on biological control of aphids on American elm.

Several researchers have emphasized the need to study the impact of exotic lady beetles on native lady beetles and other nontarget insects, and to evaluate the status of native lady beetles (Ehler 1990, Hoebeke and Wheeler 1996, Wheeler and Stoops 1996, Hesler et al. 2001). Further research is needed to determine the extent of populations of both MALB and *A. bipunctata* in North Dakota, and to determine the impact of MALB on native insects there.

Robert Gordon, Lauren Hesler, Robert Kieckhefer, and Gregory Zolnerowich reviewed earlier drafts of my manuscript. I greatly appreciate assistance from my family in surveying for and collecting lady beetles.--Louis S. Hesler, Northern Grain Insects Research Laboratory, USDA-ARS, 2923 Medary Ave., Brookings, SD 57006.

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