THE UNIVERSITY OF ARIZONA
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Soft-Bodied Collops *Likes Soft Bodies*

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Collops, members of the Soft-wing Flower Beetle family (Melyridae), differ from other beetles in that their bodies are not hard and shell-like. They are important predators that have a penchant for soft-bodied insects like whiteflies (eggs, nymphs, and adults), small *Lygus* nymphs, aphids, mites, and lepidopteran eggs and caterpillars. With so much Bt cotton around (94.5% in 2011), there aren't many leps to eat. So *Collops* concentrate on what we do have: whiteflies, *Lygus,* and a variety of immature insects. They graze on pollen and nectar resources, too.

Two *Collops* beetle species are found in cotton and other field crops during Arizona's summer season: *Collops vittatus* (Fig. 1) and *Collops quadrimaculatus* (Fig. 2A). *C. vittatus* tends to be more abundant and some cotton fields are loaded with them right now, though extreme hot weather will reduce their numbers by limiting reproduction and immature development. Larvae are predaceous in the soil litter, but are rarely seen. Adults are about ¼ inch long with very dark, iridescent blue and red stripes on their back. Their appearance is striking and in other parts of the country *Collops* are sometimes referred to as "red-cross" beetles (Fig. 2). Males and females can be distinguished by clearly visible structures present on the base of male's antennae (Fig. 1A, C). *Collops* beetles can be important early to mid-season predators that help suppress the development of economic populations of a wide array of insects.

Arizona research suggests that *Collops* can be very important in the natural control of whiteflies in cotton, especially in conjunction with selective insecticides. **The ratio of *Collops* to whitefly large nymphs is a good indicator of the biocontrol potential in a cotton system and can be used in whitefly management.** This ratio is formed by the number of *Collops* per 100 sweeps to whitefly large nymphs per leaf disc. When there is at least 1 *Collops* to 1 whitefly large nymph present in a field (1:1), a whitefly control spray may be deferred. Consult Vandervoet et al. (2014; see below) for more guidance on how to determine and interpret this and other predator to prey ratios.

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Ellsworth & Naranjo. IPM in Arizona Cotton: Successful adoption of selective controls for multiple key insect pests. Presented at 6th International IPM Symposium, Portland, OR. 3/26/09. http://ag.arizona.edu/crops/presentations/09IPMPortlandBiorationalvF7lo.pdf

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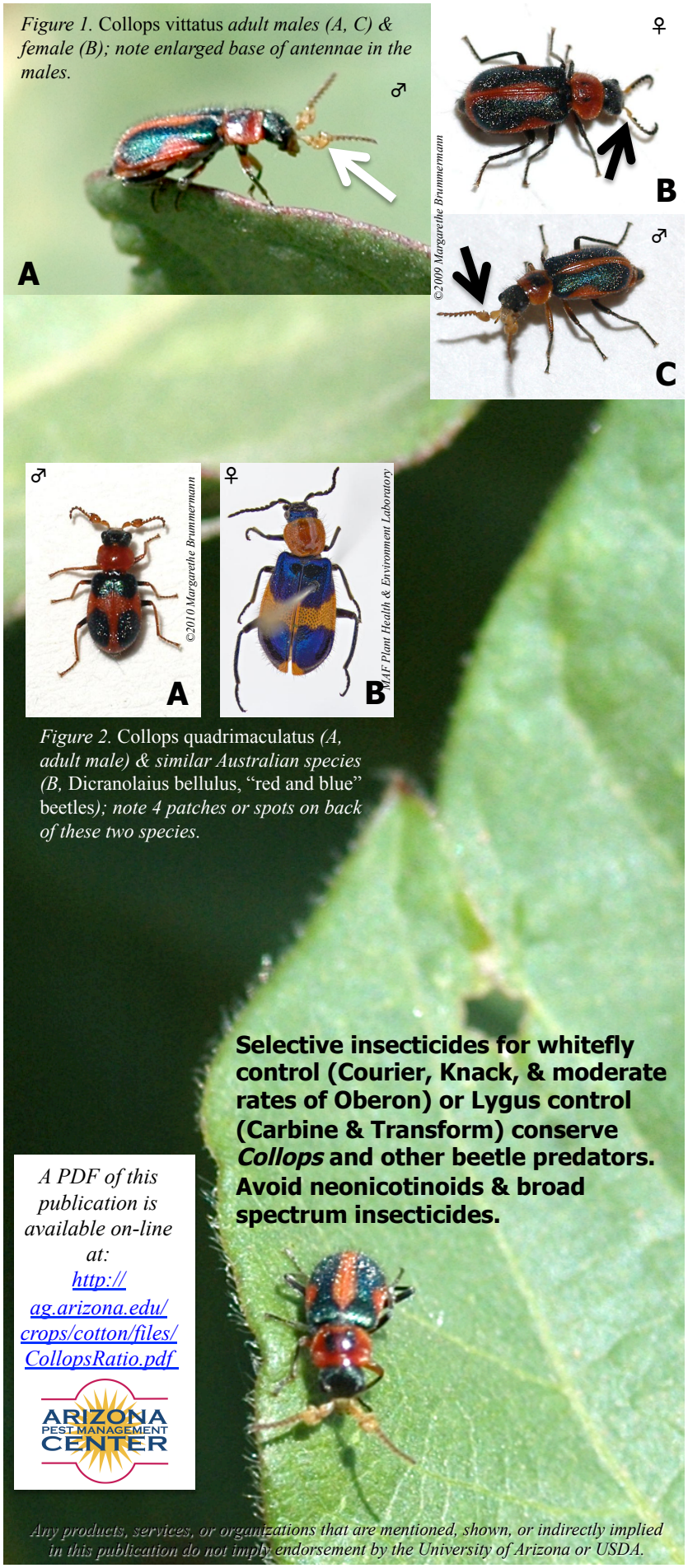

Figure 1. Collops vittatus *adult males (A, C) & female (B); note enlarged base of antennae in the males.*

Figure 2. Collops quadrimaculatus *(A, adult male) & similar Australian species (B,* Dicranolaius bellulus, "red and blue" beetles*); note 4 patches or spots on back of these two species.*

Selective insecticides for whitefly control (Courier, Knack, & moderate rates of Oberon) or Lygus control (Carbine & Transform) conserve *Collops* and other beetle predators. Avoid neonicotinoids & broad spectrum insecticides.

A PDF of this publication is available on-line at: http://ag.arizona.edu/crops/cotton/files/CollopsRatio.pdf

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