Oral presentation

Charismatic microfauna: using *Lilioceris cheni* to increase public perception and acceptance of the biological control of weeds

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The Intergovernmental Panel on Climate Change (IPCC) has expressed concern about the state of the environment (IPCC, 2014). Declining biodiversity and ecosystem productivity are particularly worrisome to scientists (Hooper et al., 2012; Isbell et al., 2013). Invasive species are one factor that has been shown to reduce biodiversity and that can negatively impact ecosystem services (Charles and Dukes, 2007; Pyšek et al., 2012). According to the United Nations Educational, Scientific and Cultural Organization (UNESCO) (1975), education is critical to developing a world population that has the knowledge, skills and attitudes to solve current and future environmental issues.

Florida's (USA) climate, tourism and growing population make it particularly at risk for invasion by exotic species. Biological control is one of the best tools to reduce the damage done by widespread invasive species, especially when compared to the high cost of application and potential non-target impacts of other management strategies (e.g., pesticides) (VanDriesche et al., 2008). However, neither the negative impacts of invasive species nor the safety and effectiveness of classical biological control are well known to the general public. Increasing public knowledge about these environmental topics is an important step in the fight against invasive species.

We designed an outreach and education program that is centered on the charismatic biological control agent *Lilioceris cheni* Gressitt & Kimoto (Coleoptera: Chrysomelidae) and its target, the invasive air potato (*Dioscorea bulbifera* L.), an easily recognizable, climbing vine in the southeastern USA. Many landowners struggle to control this invasive vine, and *L. cheni* can reduce vine cover and propagule production significantly (Rayamajhi et al., 2019). This education program was paired with a mass-rearing and release effort and was conducted at extension offices and community events throughout the state of Florida. The campaign provided *L. cheni* to interested stakeholders for release and provided educational activities for both adults and children. Educational activities included games for children, such as "pin the insect on the host plant" to demonstrate host specificity and biological control agent tic-tac-toe. Educational displays for adults included live invasive plants and their associated biological control agents, brochures, diagrams and photographs illustrating agent efficacy and host specificity.

The program has been highly successful with nearly 57,000 *L. cheni* beetles reared and provided to stakeholders for release on public and private lands in 2017 and 2018. The program also significantly increased the general knowledge (on a self-assessed 10-point scale) of invasive species of the people surveyed by an average of 227% and general knowledge about biological control by an average of 401%. Perception of the safety of biological control of those surveyed increased by an average of 434% and perceived effectiveness of biological control increased by 344%. The combination of a charismatic and effective natural enemy along with an educational program has significantly increased the knowledge about invasive plant species and the knowledge and acceptance of biological control as a safe and effective control method.

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