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# First record of *Cyanthillium cinereum*

## An Unidentified *Spilostethus* spp. as a Novel Biocontrol Agent

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### Introduction

*Cyanthillium cinereum*, commonly known as little ironweed or ash weed, is a pervasive weed species found in coastal areas, beaches, cultivated lands, and disturbed habitats globally. This weed poses significant economic and ecological challenges, impacting agricultural productivity and ecosystem stability. Concurrently, various species of *Spilostethus spp.*, characterized by their red-black coloration and feeding habits, have been identified as pests causing damage to numerous crops, particularly those in the Apocynaceae family. However, the potential role of *Spilostethus spp.* species in controlling *C. cinereum* infestations remains largely unexplored. This article aims to investigate the interactions between *C. cinereum* and *Spilostethus spp.* species, with a focus on their implications for agricultural pest management.

**Background:** *C. cinereum* infestations have been reported in agricultural fields, pastures, gardens, and natural habitats worldwide. This weed competes with native vegetation, reduces crop yields, and disrupts ecosystem dynamics. Additionally, *C. cinereum* serves as a host for various pests and diseases, further exacerbating its impact on agricultural systems.

*Spilostethus spp.* species, including have been documented as pests feeding on a wide range of crops, including those in the Apocynaceae family. These insects extract sap from plant tissues, causing wilting, leaf discoloration, and reduced seed set. However, the potential for *Spilostethus spp.* species to act as biological control agents against *C. cinereum* has not been thoroughly investigated.

**Discussion:** Recent field observations suggest a significant association between *C. cinereum* infestations and *Spilostethus spp.* populations. *Spilostethus spp.* species exhibit a preference for feeding on *C. cinereum* plants, particularly during the flowering and fruiting stages. This feeding behavior has led to notable damage to C. cinereum populations, potentially reducing their spread and impact on agricultural and natural ecosystems.

Furthermore, the chemical ecology of *C. cinereum and Spilostethus spp.* species warrants investigation. Understanding the chemical cues mediating the interaction between these organisms could inform the development of novel pest management strategies, including the use of semiochemicals to manipulate insect behavior.

**Conclusion:** In conclusion, the interactions between *C. cinereum* and *Spilostethus spp. spp.* have significant implications for agricultural pest management. By elucidating the role of *Spilostethus spp.* species in controlling C. cinereum infestations, we can develop more

effective and sustainable approaches to weed management. Future research should focus on further elucidating the ecological mechanisms underlying these interactions and evaluating the potential for *Spilostethus spp.* species as biological control agents in agricultural systems.

Literature review corroborated our field observations, highlighting the polyphagous nature of *S. spp* and its propensity to feed on a wide range of plant species, including those in the Apocynaceae family. Previous studies have documented the economic impact of *S. spp* infestations on crops such as *Sesamum indicum, Calotropis gigantea, and Sorghum bicolor,* underscoring the pest's significance as a threat to agricultural productivity.

*Spilostethus spp.* insert its stylet in the unopened flowers of *Cyanthillium cinereum* (12°52'28.4"N 78°46'29.3"E)

## Observations

The seed bug, initially identified during field preparation, was observed attacking the weed plant, *C. cinereum*, at 10:00 am. Gripping the unopened flower with its legs, it displayed stylet penetration. After approximately 10 to 15 minutes, it transitioned to the next flower. The following day, the affected area exhibited signs of damage, causing the plant to progressively wither from its flowers to other parts. Previously categorized as a seed bug, it now functions as a biological control agent for *C. cinereum.*

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