






GALLS CAN PROTECT GALLING WEEVILS FROM FIRE IN A FIRE-ADAPTED ECOSYSTEM

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Study Description

Galls represent extended phenotypes of gall-inducing insects that offer shelter, nourishment, and protection from natural predators during larval development. In the fire-adapted Brazilian Cerrado ecosystem, gall-inducing insects exhibit significant diversity in their host plants. This study presents the case of *Solanum lycocarpum* St. Hil. (Solanaceae) galls, which provide fire protection for the gall-inducing Boheman weevil, *Collabismus clitellae* Boheman (Coleoptera: Curculionidae). The survival rate of weevils in burnt galls was 66%, indicating that galling weevils exhibited fire tolerance. In addition, in the burned area, a thicker gall epidermis was associated with higher survival rates, suggesting thicker gall walls offer effective protection for weevils against fire damage.



Photo 1. A depiction of the study area prior to (A) and following (B) the fire, illustrating the unburned and burned sections of the Cerrado at Nova Monte Carmelo Farm, Minas Gerais, Brazil. Photo credit: Jean Carlos Santos.

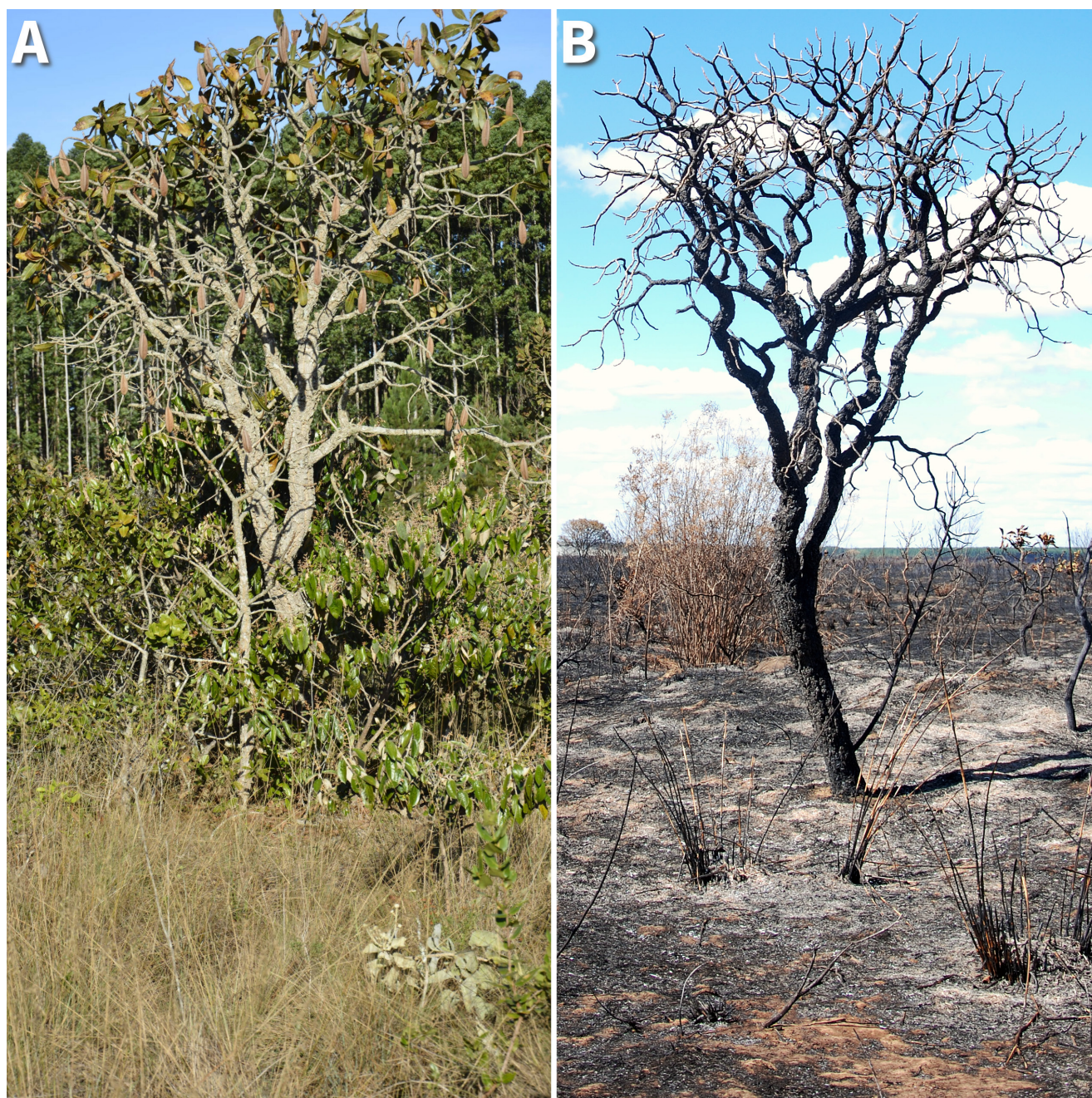


Photo 2. A close-up view of the study area is depicted before (A) and after (B) the fire, illustrating the unburned and burned trees of the Cerrado at Nova Monte Carmelo Farm in Minas Gerais, Brazil. Photo credit: Jean Carlos Santos.



Photo 3. An overview of the fire effects of fire on Cerrado vegetation at Nova Monte Carmelo Farm, Minas Gerais, Brazil. Photo credit: Jean Carlos Santos.



Photo 4. This image illustrates the impact of fire on herbivorous insects, specifically a hemipteran that was burned by the flames. Photo credit: Jean Carlos Santos.

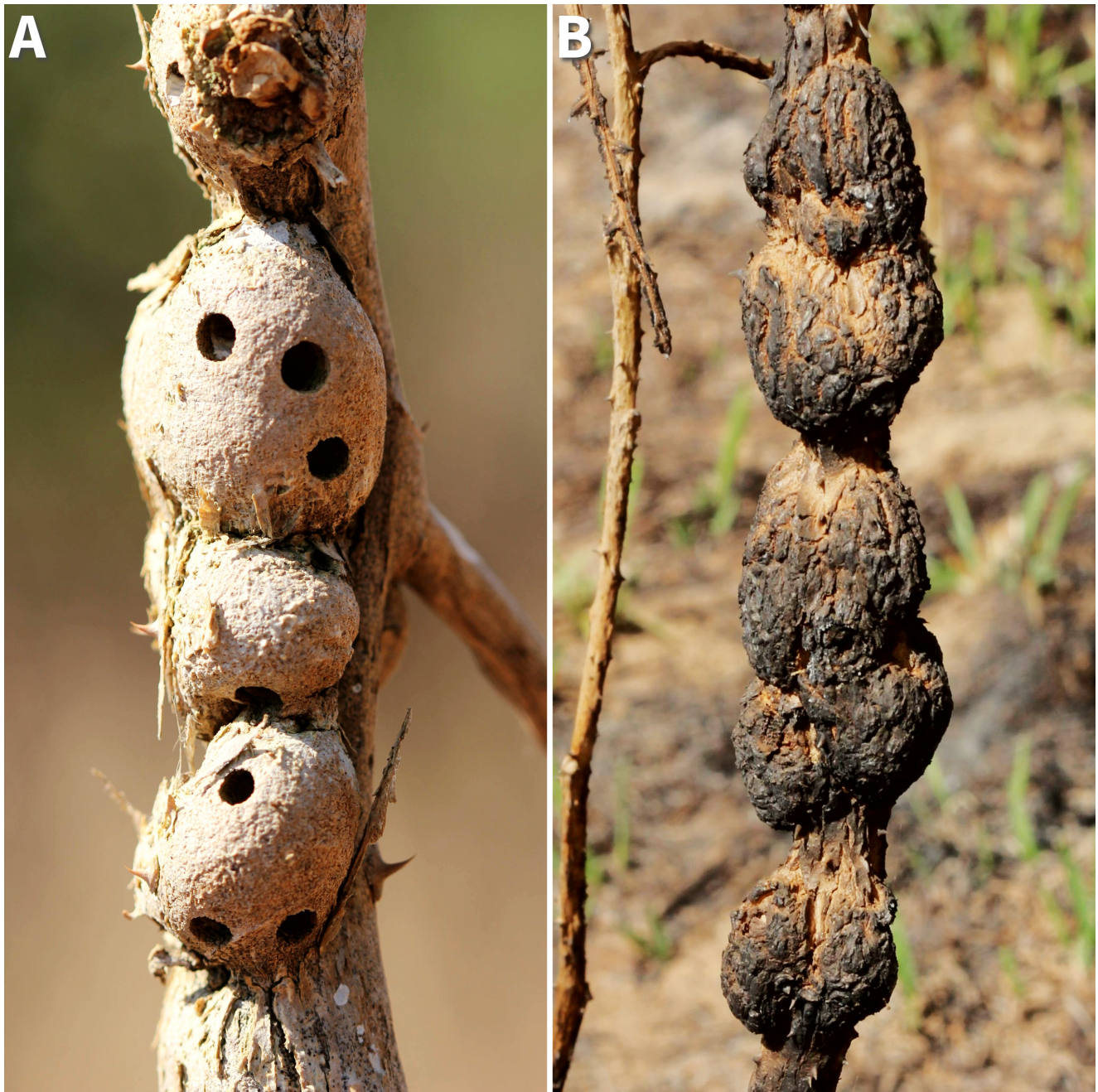


Photo 5. Illustrations of galls induced by the weevil *Collabismus clitellae* Boheman (Coleoptera: Curculionidae) on the host plant *Solanum lycocarpum* St. Hil. (Solanaceae), showing both unburned (A) and burned (B) conditions. Photo credit: Jean Carlos Santos.

These photographs illustrate the article “Set fire to the gall: Can the gall protect the gall-ing weevil from fire?” by Jean Carlos Santos, Henrique Venâncio, Guilherme Ramos Demetrio, Wanessa Rejane de Almeida, Walter Santos de Araújo, and Pablo Cuevas-Reyes published in *Ecology*. <https://doi.org/10.1002/ecs2.70020>.