

# Management, not eradication, could be the key to co-existing with fire ants

March 5 2013, by Miles O'brien

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In order to understand the evolution of complex societies, researchers are sequencing the genomes of social insects, including several species of ants. A team, led by Arizona State University organismal and systems biology professor Juergen Gadau, sequenced one of the genomes and set out to decipher which genes might be responsible for defining which ants work and which ants reproduce in a red harvester ant colony. Credit: Herbert A. 'Joe' Pase III, Texas Forest Service, Bugwood.org

Invasive animals are often most abundant in habitats impacted by humans, especially man-made habitats, such as roadsides, suburban and urban developments, and areas of intensive agricultural activity. Understanding why this is true may reveal important insights about the ecological mechanisms that help determine the success and impact of many invasive species. The invasive fire ant, *Solenopsis invicta*, is a notoriously pesky species that benefits when humans disturb natural areas. With support from the National Science Foundation (NSF), Joshua King at the University of Central Florida and Walter Tschinkel at Florida State University have been exploring the underlying causes and consequences of the association of fire ants with human-altered ecosystems.

[Fire ants](#) are [social insects](#) and the reproductive phase of their life cycle is perpetuated by queens leaving their parent colonies, mating on the wing, landing in an area away from their parent colonies, and starting new colonies. By tracking the dispersal, founding success and persistence of fire ant queens and other native U.S. ant queens in a variety of natural and modified ecosystems in Florida, King's and Tschinkel's experiments have revealed that fire ant queens strongly prefer to start new colonies in the most disturbed habitats, such as roadsides. This particular feature of fire ant life history—disturbed [habitat selection](#) during dispersal—may be one of the primary characteristics that enables fire ants and other invasive ants to adapt to man-modified habitats. In contrast, native species show less fidelity to founding colonies in disturbed habitats.



Yellow jackets are wasps, and though they seem eager to inflict pain, they do have some important redeeming qualities. They kill harmful garden pests and are among the most social insects on the planet, along with their stinging cousins, the ants and the social bees. Credit: Science Nation, National Science Foundation

These results will provide data necessary to craft [predictive models](#) of how fire ants spread, and may contribute to strategies for mitigating the negative effects of many invasive species.

Provided by National Science Foundation

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