

## South American beetle released by UF researchers benefits Florida ranchers

January 27 2011, by Robert H. Wells

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Over the past two decades, Florida cattle ranchers have spent as much as \$16 million a year doing battle with an invasive weed called tropical soda apple, known as TSA, that takes over pastures, elbowing out the forage grasses ranchers need for their cattle.

But a beetle released by the University of Florida's Institute of Food and Agricultural Sciences is taking a bite out of the problem by feeding on the weed and reducing its competitiveness. UF researchers describe the beetle's success as a [biological control](#) agent in the current issue of the journal Florida Entomologist.

*Gratiana boliviana*, as the beetle is known to scientists, is a native of South America and the first biological control agent in North America to be used against TSA. The [beetles](#) are highly specific feeders whose voracious appetite is focused only on TSA but not on related plants such as eggplant, peppers or potatoes.

Julio Medal, the UF entomologist who led the research team that released the beetle, said TSA has not only been a problem on cattle ranches but also in citrus groves and vegetable fields.

"It causes a lot of economic problems, and to prevent its spread, you can't move cattle from Florida to other states without holding them at least six days in a TSA-free area," he said. This is enough time to destroy the viability of any TSA seeds that may be in their digestive tracts.

Nearly 200,000 beetles have been released in the state since 2003, and the insect is now established throughout Central and South Florida. In the journal, Medal reported that the beetles caused the invasive weed to suffer significant defoliation as well as decreased fruit, and thus seed production, in Polk and Okeechobee counties.

TSA can grow taller than 3 feet and equally wide. Its leaves are covered in long spikes, and its immature fruits with pale and dark green stripes resemble small watermelons. It is an aggressive propagator, and cattle will not feed on its leaves.

TSA is native to South America and was discovered in the U.S. more than 20 years ago in Glades County. It now covers more than 1 million acres in Florida and has spread to other states including Georgia, Alabama, Mississippi and Texas.

Buzz Eaves, a cattle rancher in St. Lucie County, first encountered TSA in 2000 when it began overtaking his forage grasses. After four years of aggressive campaigning against the weed using herbicides, fire and mowing, Eaves allowed IFAS researchers to release the *Gratiana boliviana* beetles on his ranch. Eaves said for the first two years the beetles worked slowly on the TSA and steadily increased in number.

“And then the following year, we had pretty much reached a biological balance with the plants,” Eaves said. “The TSA plants would start growing in the springtime and be followed a month or two later by the beetles. And the beetles would work on them all summer long, and by the end of the summer, those plants would be skeletonized and away we go to another year.”

Eaves said the beetles have reduced his annual spending on TSA control from as much as \$25,000 to nothing.

Medal is working to gain approval from the U.S. Department of Agriculture for the North Florida release of two more TSA biological control insects. These insects are better adapted to colder climates than *Gratiana boliviana*, which has failed to establish north of Central Florida.

Provided by University of Florida

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