

## WATERHYACINTH

by

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### Introduction

Waterhyacinth (WH), *Eichhornia crassipes* (Mart.) Sol.-Laubach, is a free-floating aquatic plant from South America that is considered the world's worst aquatic weed. For further information on the weed see previous SABCL Annual Reports. The Delphacid (Hemiptera) *Megamelus scutellaris* was successfully reared in the laboratory, and passed every specificity trial. It was finally released in Florida in 2010, but its populations apparently did not survive the summer, probably because the original populations came from the temperate areas of the WH distribution in the lower Parana Delta, and may not have been adapted to the warmer Florida summers.

### Material and Methods

Samples of *M. scutellaris* were taken in several sites in northern Argentina which are better matched to Florida summers, and have even higher temperature peaks, to establish genetically diverse laboratory colonies that might be better adapted to the climate in southeast US. Temperature conditions in a WH patch at canopy height were taken with a data logger during the summer at Herradura (Formosa province, S 26° 29'; W 58° 17'). These data were compared to air temperatures collected on the same dates at an official weather station located close by ( $\approx$  30 km). These data have only become available online recently.

### Results

Comparisons of air and canopy temperatures in the area of Herradura show that the WH patch can have significant moderating effects, especially during high peaks. Figure 1 shows average, minimum average, and maximum average temperatures at the WH patch and regular air temperatures. While minimum and average temperatures appear to be similar in both sites, maximum temperatures were more than 15°C lower in the waterhyacinth patch. The two coincidental temperatures in the maximum average graph occurred on rainy days. These data suggest that regardless of the climatic adaptation tropical populations of *M. scutellaris* may have, they could still find moderate microclimatic situations in nature. This should in turn help determine suitable locations for *Megamelus* release. It is possible that this insect may not be able to establish unless it can find suitable microclimatic conditions.

We have established four colonies of *M. scutellaris* from different sites in the far north of Argentina and plan to conduct heat adaptation tests to confirm if they show different heat tolerance thresholds than the populations already released in Florida.

### *Taosa longula* Remes Lenicov

*Taxonomy.* After a revision by Dr. Remes Lenicov (La Plata Museum), the species of *Taosa* previously known as *T. inexacta* and *T. impictifrons* are now *Taosa longula*.

*Rearing method:* hundreds of eggs were collected in Pto. Vilelas, Chaco, and Herradura, Formosa, in a new attempt to obtain a culture; nymphs emerged (c.a. 500) were caged and reared on waterhyacinth plants. To solve the lack of mating under controlled conditions and to study if sex rate influences mating, different numbers of females (F) and males (M) were caged together on waterhyacinth in a greenhouse: 1F+1M (3 replicates); 2F+1M (6 rep.); c.a.100 adults all together and in a rearing chamber: 3F+1M (3 rep.); 4F+4M (3 rep.). *Results:* no mating was observed, and no eggs were laid.

**Significant accomplishment**

The discovery and description of the new species *Taosa longula*.

**Future Plans**

Provide more biocontrol agents (*Neochetina* spp. and *M. scutellaris*) for new field releases.

**Trips**

- October 26 to 30, 2010: Santa Fe, Chaco and Formosa. Cabrera.
- March 8 to 14, 2011: Santa Fe, Chaco, Corrientes and Misiones. Cabrera, Hill and Coetzee.
- May 1 to 5, 2011: Chaco and Formosa. Cabrera and Maestro.

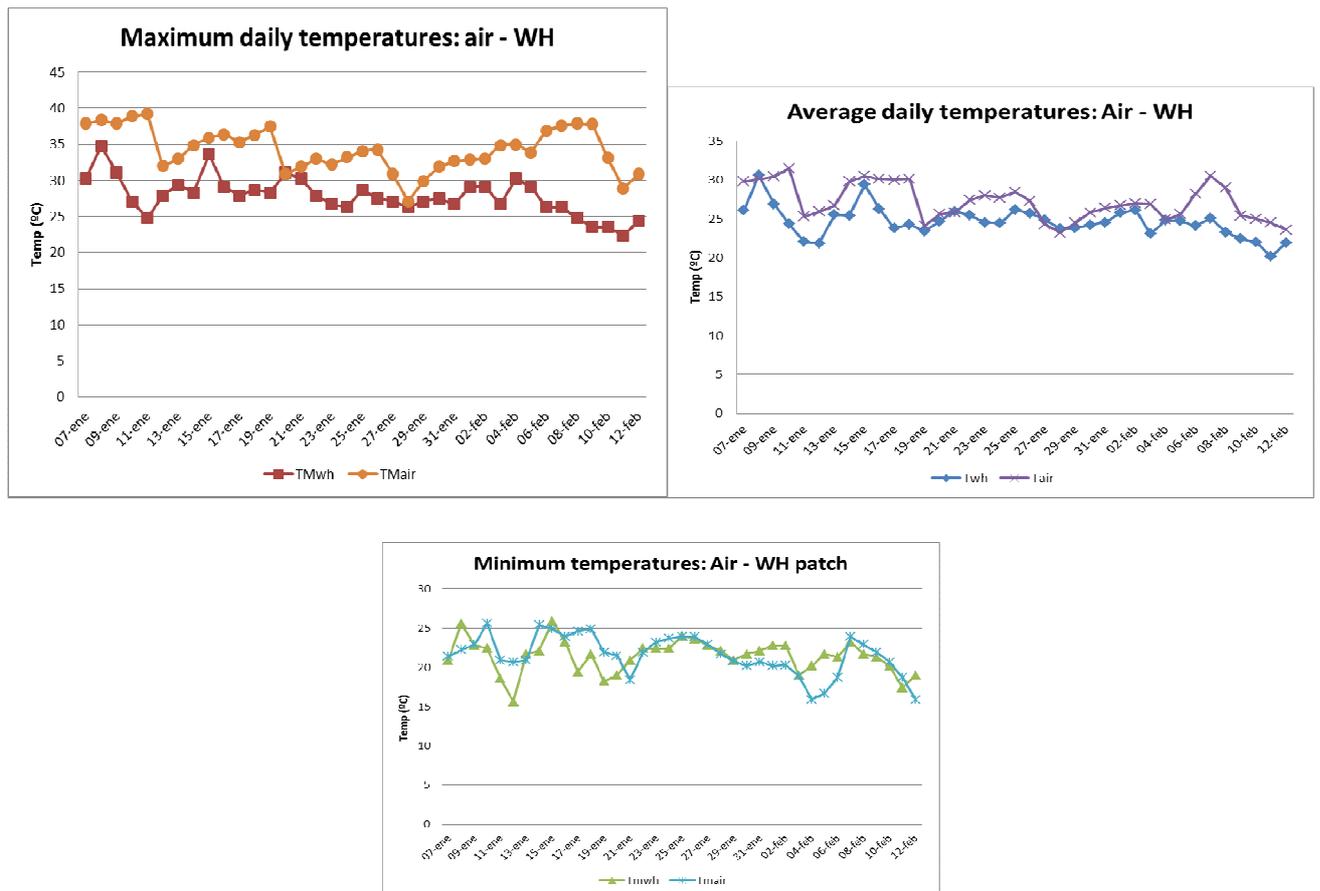


Figure 1. Average temperatures in waterhyacinth patch at canopy height and air temperatures for the same days in summer. Twh: temperature within waterhyacinth mats, Tair: air temperature.