

## Scientific name

*Duocrassana longula*

## Common name

“chicharrita oaxacana” [Spanish]

## Species type

Invertebrate (phytophagous insect, terrestrial life)

## Description

The “chicharrita oaxacana” was described in 2016, it is officially named as follows, *Duocrassana longula* Pinedo-Escatel, Zahniser & Dietrich, 2016: 586, under peer-reviewed journal Zootaxa (<http://www.mapress.com/j/zt/article/view/zootaxa.4196.4.7>).

Four specimens were caught during a field-trip in 2001, conducted by the expert worldwide of leafhoppers (C. H. Dietrich) with his team of other leafhopper specialists. The original site of collect is next to the freeway 190 in the state of Oaxaca, Mexico. The specimens were swept using a motorized vacuum.

## Conflict of identification

Since original collecting nobody was able to identify the species due to inconsistencies in the morphology of previously described species in the world because does not match with any currently published before. It was not until the summer of 2005 when I realize and took the decision to exposure to my colleagues "this is not only a new species to science, even is a new genus, nevertheless is closely similar in morphology to two South American genera but in fact, these Mexican specimens have strong differences in details and far biology by habitat-specific from original site of collect". Subsequently, together we prepared the manuscript and made the discovery public.

## Natural History

In the manuscript, we report only the “type locality” it means, site of the original collection of *Duocrassana longula*. Trying to understand or empathizing that other close places can be contain members of this species.

My team and I have visited Oaxaca on many occasions, in fact, twenty-four times or maybe more, doing a strong and wide fieldwork in the Low Land of Oaxaca (LLO), we covered all accessible zones of the LLO. Botanist people traveled with us to create a profile of vegetation in different gradients, during this huge work we stay 79 days as total, we collected everyday insects expecting to get in a big proportion all the representatives of the LLO in fauna and flora.

When we reviewed insects, especially leafhoppers, we get hundreds of specimens as in total 10, 000 individual count. But as a surprise for us, we did not get a single specimen of *Duocrassana longula*. At this time, we assume that the “chicharrita oaxacana” is not well

distributed as we thought in Oaxaca. However, we ask ourselves, how is possible that *Duocrassana longula* is not localized in the entirely LLO? In fact, we create some questions to examine. Is strongly limited in distribution? should be endemic? what is their habitat preference? What's the geographical unit for this species? Is it threatened? Is required a plan for conservation?

Low Lands of Oaxaca start with 0 meters above sea level (masl) reaching 800 masl, a meter up, in a major gradient is called High Mountains of Oaxaca (HMO) that comprises 1000 masl to 3400 masl as maximum point. We select move further collects to find specimens of *Duocrassana longula*. The vegetation in Oaxaca is extremely variable, vegetation in LLO is very contrasting from HMO, due topography, climate, soil measure, and vegetal-species (main difference). The HMO harbor many endemic plant species, this geographic area remains unexplored totally, and within the HMO is placed two of the most extant important ecosystems worldwide, the Tropical Dry Forest (TDF) the most productive forest, and the Cloud Mountain Forest (CMF) the first tropical endangered habitat in the world.

We visited the original place of collect, called "La Reforma" (very small village) because we want to know more about this particular species and their biology. In my first visit I realize that the original site-land was severely affected by changes in human activities such as deforestation, livestock, and agriculture. Originally the place where specimens were collected was an unperturbed forest (natural trees in perfect conditions). In that occasion I collected zero individuals. In posterior field-trips we collect two specimens, we covered 34 new sites of which in only one we located one specimen. In after visits we saw another male, also we observed that this species is restricted to inhabitat of TDF and MCF. Additional surveys made by us defined that this species is micro-endemic and obligated to use resources of TDF and MCF. During our preliminary investigation along 35 days we select two sites additional to the original place, and we located 2 individuals live (we did not collect them because we suspect their status remains unclear). I returned to HMO and I decided explore other places more inaccessible, during 22 days I entered the depths of HMO, and I resisted 4 additional individuals in live on the heart of the MCF.

Once I stay in laboratory we reviewed status of leafhoppers worldwide and none is considered endangered actually, but in this case, the scarce abundance, extremely limit habitat, human affectations to forest we keep in mind that this species is endangered an unfortunately is not evaluated yet. Villages and colonies within HMO, they use resources in an uncontrolled way and move towards very important areas of endemic vegetation and fauna, and every day are threatened by the rapid destruction of their habitats.

Aspects of biology, the status of populations, aspect of species in life, or host involved were data omitted because no evidence was taken in this field-trip. We want enter to the most difficult and inaccessible places of TDF and MCF to assess their conservation status of this micro-endemic species in a habitat in danger of extinction and thus mitigate in the future their protection together to the habitat.

Questions planned before were answered,

how is possible that *Duocrassana longula* is not localized in the entirely LLO? because is endemic to high altitudes of Oaxaca (denominated HMO).

Is strongly limited in distribution? very specific and limited to one kind of resource

should be endemic? yes, is consider micro endemic

what is their habitat preference? Is the Tropical Dry Forest in convergence with primary element of Mountain Cloud Forest

What's the geographical unit for this species? Uncertain

Is it threatened? yes by rapid human activities that destroy the natural habitat

Is required a plan for conservation? unquestionably a conservation plan is necessary to assess status

### Conditions of Oaxaca state, topology and niche of endemic fauna

The Oaxaca states is one of the biggest states of Mexico with 93 757 km<sup>2</sup>. It houses a rich multicultural composition where more than 16 ethnic groups coexist. It is the most biodiverse state in Mexico. There are known species of vertebrates, vascular plants, and insects, endemism range between 15% and 64%. Endemic insects ranging 50% and is the most threatened groups in Mountains of Oaxaca by reduction of habitats. Oaxaca is considered the most geologically complex area in Mexico. As part of the richness of this southern state, geology determines the existence of very diverse regions, with flora and fauna among the richest in Mexico.

### Major objectives of this big conservationist project

We really want generate new data on the conservation status of the *Duocrassana longula* in the endangered forest of the south of Mexico

- Determine status of conservation of *Duocrassana longula* by delimited habitat space and vegetation complexity in TDF and MCF
- The identification and evaluation of this species at risk due to loss of habitat or other disturbance and data on their specific habitat requirements.
- Description of new species related to *Duocrassana longula* sharing the same habitat conditions
- Identification of areas of high endemism that should be targeted for conservation
- Contributing to a plan for conservation and monitoring of biodiversity in HMO using *Duocrassana longula* as indicator of habitat quality.