

Project Update: March 2013



RESEARCH ACTIVITIES

Surveyed sites: Between January and April 2013 we performed two field trips in the frame of our project. During these trips we surveyed almost the whole area where nude bream occurs. We selected eight random sites (see Figure 1) in order to perform the next step of the research, which includes the estimation of occupancy and abundance through occupancy models. Data recorded until now were necessary to calculate the minimum number of revisits (following Mac-Kenzie et al., 2005¹) in order to build robust models. Because the detection probability of the individuals is very high at those sites where they are present (independently of the value of occupancy), three revisits per site and per season will be enough to build robust models of occupancy. We will perform revisit surveys in two seasons, 1) between June and August (cold season), and 2) between October and December (warm season).



Map of the Somuncura plateau showing the main sites related with our work.

¹ Mac-Kenzie, D. I.; J. D. Nichols; J. A. Royle; K. H. Pollock; L. L. Bailey & J. E. Hines. 2006. Occupancy Estimation and Modeling. Inferring Patterns and Dynamics of Species Occurrence. Elsevier Academic Press publications, California.

Microhabitat variables: We created a photographic database to save records of all of the sites where the nude-bream was detected and also with those sites where it was absent. These samples will be analysed in order to assess the main microhabitat requirements of nude bream. During the revisits framed in the occupancy models, we will record more microhabitat variables (i.e.: temperature, pH, threat signals, and others) in order to assess which variables affects the presence or absence of the nude bream.



Threat signals: We already knew about the existence of several threats at the area (i.e. presence of cows, canalisation of the thermal springs and others). Now we are mapping these threats in order to know the status of each site where nude bream is present. In the figure below, it can see how these threats are directly disturbing the habitats where nude-bream occur and, in the case of the canalisation of water for domestic use, the situation is worse than we thought. At several sites, dams were constructed in order to regulate the amount of water. This could be impeding the reproductive flow between individuals located at each side of the dam.

Trouts: Rainbow trout (*Oncorhynchus mykiss*) and stream trout (*Salvelinus fontinalis*) are strong predators in aquatic ecosystems and they can seriously affect native biota. These two exotic predatory fish species were introduced in the Valcheta stream 50 years ago. It is known that trout predate on nude bream at the colder sites of the stream (between 5 and 10 km far away from the thermal springs located at the beginning of the watercourse). However, at the "Management Plan Document for the Somuncura Plateau" it is proposed that the higher temperatures of the beginnings of the Valcheta stream are impeding the access of trout at those sites (which are the preferred sites for nude bream). The bad news is that we found a dead trout (see figure up and left) at the site 7 of the Figure 1. This site is located at the beginning of the stream (very close to one thermal spring where individuals of nude bream are abundant). This could be meaning that trout are changing their behaviour, reaching new

microhabitats, with bad consequences for nude bream. Although is still only an assumption, more work must be done in order to search for trout at the beginnings of the stream.

EDUCATION ACTIVITIES

We gave a talk in the school N° 76, (Chipauquil, Valcheta. Figure 1) about the ecology and conservation of the nude bream. We are elaborating educational material (i.e. pamphlets and posters) to distribute within local community and NGOs. We are in close relationship with Dr. Hugo Lopez from La Plata Museum. We are working together in order to create an exhibition window related with the problematic of the nude bream at the vertebrate section of La Plata Museum. This could be a great outcome regarding that La Plata Museum is one of the bigger museums in Argentina.

A NEW DISCOVERY

We discover a fish of the genus *Cheirodon* that was never found at Valcheta stream (we found it at site 6 of the Figure 1). At present moment we are working with Dr. Hugo Lopez in order to determine if this is a new species for the science, or if it is a geographic extension of a previously known species located 200km at North of this point.

