Preliminary information for a sustainable harvesting program of wild aromatic plants in the Sierras of Córdoba, Argentina.

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INTRODUCTION

Wild harvesting of plant resources plays a very important role because of its contribution to the income of inhabitants of rural areas (Hamilton, 2003), especially those considered marginal areas for other exploitations (Subdirección de Planificación Adminitrativa de Córdoba, 1999). These resources usually suffer high pressures owing to a non-sustainable harvesting (Cunningham, 2003), which poses a threat to some species (Bustos and Bonino, 2005) and therefore to the income rural people obtain in the area.

With the aim of orienting educational actions in the sustainable use of these resources, it is necessary to determine the characteristics of the target public, their environmental perceptions and their mass media preferences so that strategies to transmit the message can be selected.

METHODS

The study was conducted in the area surrounding Tala Cañada in the northwest of Córdoba Province, Argentina (Fig. 1). Wild harvesting of wild aromatics and medicinal plants (WAMP), specially "peperina" is an important activity in this area (Monntenegro, 1987).

A group of 63 secondary-school students from the Instituto Provincial de Educación Media N° 170 (Tala Cañada) was surveyed through semistructured individual questionnaires. Students were previously warned of the confidential character of the interview and of the aims pursed (Cárdenas Tabares, 1983; Davis Case, 1992).

The questions referred to: (1) perceived relative importance of local environmental problems (list obtained from a preliminary survey); (2) economic activities in the family and their relative importance;

(3) whether the family performs WAMP harvesting and its economical importance of for the family (and species collected); (4) use of extra-school time during the week; (5) use of the time during the week-end; and (6) music preferences. Questions 1 to 3 would be useful to characterize the family productive activities, to determine whether the importance of WAMP harvesting, justifying an environmental education plan aimed at sustainable harvesting and its adjustment. Questions 4 to 6 would be useful to identify the best means and instances for the program to be most effective in achieving the target public's attention.
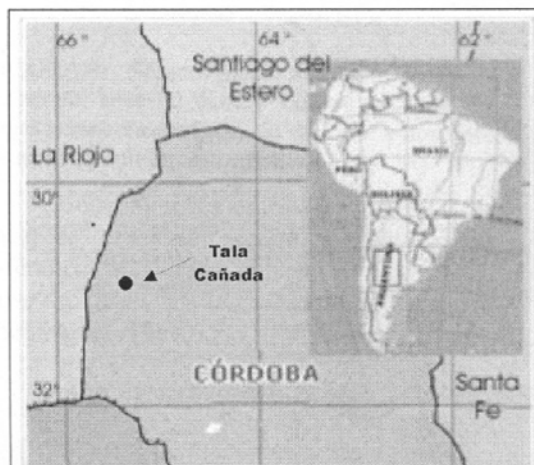

Fig. 1: study area

RESULTS AND DISCUSSION

Students' answers about their perceptions of the local environmental problems were incomplete, inconsistent or non-existent in a notably high proportion (46.15%). Concerning the rest, the problem classification in decreasing order of importance (Table 1) indicates that WAMP overharvesting is matched with other problems,

showing that an environmental education program should approach environment use problems caused by man in an integral manner.

Table 1. Perception of the relative importance of local environmental problems

Environmental problem / Importance (%)	
Deforestation	21.43
River pollution	20.07
Soil problems	16.33
WAMP overharvest	14.97
Overgrazing	14.63
Fires	12.59

Within the family productive activities, WAMP harvesting was mentioned without receiving additional importance, including it in the annual activities. Furthermore, a great number of answers were incoherent or absent (23.81%).

On the contrary, when they were directly asked whether their families harvested WAMP, more than half of the answers (Table 2) were positive, being the main activity for most families.

Table 2. Family WAMP harvesting and importance for their incomes

Realization / Importance	%
Yes (Very important)	30.16
Yes (Not very important)	25.40
No harvest	20.63
No answer / incomplete /incoherent	23.81

The WAMP species most frequently mentioned (50 % of the cases) was 'peperina' (alone or in combination with other species).

Consulted on their extracurricular activities, the students manifested a great division in the use of free time, both during the week and during the week-end. Most extra-school time during the week is used to collaborate with housework (in the case of young women) or productive activities (in the case of young men), and in a second place, to study, watch television or listen to the radio or to music. Social activities and sport practices were mentioned as activities performed during the weekend.

CONCLUSIONS
The school population studied perceives important

environmental problems, which makes them a susceptible public for receiving an environmental education program.

WAMP harvesting is considered very important for the family income. This fact, together with a tendency of the species populations to decrease (Bustos and Bonino, 2005), makes peperina inclusion a priority in environmental education programs.

The diversified use of extracurricular time by students (especially due to collaborating with their families) makes it necessary to concentrate sustainable use program actions within the school environment; at the same time, the students' contact with the family can be used to foster their capacity to transmit knowledge, which requires adaptation of materials to be used. The consumption of mass media by the students and its possible use for the transmission of knoledge require additional detailed studies.

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