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Seasonal Variation in the consumption of biomass fuel in a rural community of arid Patagonia, Argentina

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ABSTRACT

The use of biomass as an energy resource is key to the subsistence and development of diverse rural populations throughout the world. Particularly, the study of seasonal variation in firewood consumption contributes knowledge that can be used in detailed community management of this resource. In a rural community of the Patagonian steppe, seasonal variation in domestic consumption of fuel plants was studied. Possible socioeconomic conditioning factors (i.e., size of family unit, infrastructure of dwellings, number of combustion appliances used) were analysed, and seasonal variation in the richness of plant species used was determined. Average biomass consumption was found to be 12000 kg/year/home and 1479kg/year/per capita, with significantly higher values during winter (63 kg/day/home), than in summer (18.5 kg/day/home). The richness of fuel species used varied significantly during the year, and in line with biomass estimates, the highest use consensus for species was recorded during winter and autumn, with exotic species predominating. The maximum difference in species was registered in autumn, due to an increase in the stockpiling of wood bought for winter, when the preference is for high caloric value and accessible commercial price. During the year the main species used were *Salix* spp. and *Nothofagus antarctica* (G. Forst.) Oerst. The differential needs as seen from a local perspective, and their use strategies, require an integrated, multifaceted proposal, such as the progressive incorporation of high efficiency stoves and the implementation of local wooded areas for firewood.

Keywords: Energy; Subsistence; Scarcity; Resilience; Supply Strategies.

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INTRODUCTION

Firewood is the most ancient source of energy (Schobert 2002) and essential for numerous human populations, particularly for the poor and/or marginalised, and those inhabiting rural areas. Its popularity is probably due to its environmental availability, easy handling and combustion, and a lack of access to alternative energy sources (Kumar and Sharma 2009; Ektvedt 2011; Medeiros et al. 2011).

This resource is used for subsistence living, principally for domestic activities, and