

Exploring subjective well-being and ecosystem services perception along a rural–urban gradient in the high Andes of Ecuador



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ABSTRACT

Understanding sociocultural perceptions about human-nature relationships is essential to promote collective responses for sustainable ecosystem management. This study explores the sociocultural factors that influence subjective well-being (measured by life satisfaction) and how ecosystem services are perceived in an area inhabited by the Kichwa people, for whom the ancient notion of *Good Living* (*Sumak Kawsay*) is active. We carried out 482 surveys in five villages along a rural–urban gradient in the province of Imbabura (Ecuador). Rural and urban people differed in their subjective valuations of well-being components and the sociocultural factors that most influence life satisfaction. We also detected changes along the rural–urban gradient regarding how these sociocultural and subjective well-being factors explain the degree of importance that local people attribute to different ecosystem services provided by high Andean ecosystems. Formal education, the perception of local ecological knowledge, and the use of the Kichwa language were identified as important sociocultural factors that explain the observed differences. Finally, we discuss the risks of the ongoing expansion of urban lifestyles for the conservation of Andean social-ecological systems, highlighting the importance of maintaining traditional practices and beliefs associated with the Kichwa culture.

1. Introduction

The notion of well-being has been historically considered as a common and unifying goal for all people (Griffin, 1986; Huppert et al., 2005; McGillivray, 2007; Aguado et al., 2012). In recent decades, social concern about human well-being has transcended philosophical and academic arenas, becoming integrated in the political agendas of many countries (Helliwell et al., 2015). Thus, understanding which factors influence and predict human well-being has become a fundamental question for designing efficient public policies that help to improve people's quality of life (Hagerty et al., 2001; Costanza et al., 2007; Tay et al., 2015).

In a context of rapid environmental change, where the majority of political decisions are strongly subordinated to the growth of the economic sphere, it seems urgent to rethink our social and political priorities towards fostering a type of human well-being that is socially fair and ecologically sustainable (King et al., 2014; Smith et al., 2013). Within this concept, Ecuador represents a very interesting context, as the country has been making efforts to place human well-being at the center of the national policy debate over the last decade. Using the

ancient indigenous notion of *Good Living* (*Sumak Kawsay*), Ecuador has explicitly incorporated well-being in the Political Constitution of the State.

According to Gudynas (2011), the adoption of the Andean notion of *Good Living* in the Ecuadorian Constitution originated in a dissenting position about conventional development pathways, and in the search for alternatives to improve human well-being, while protecting nature and embracing the intrinsic value of ecosystems. This worldview allowed, for the first time in history, Andean-Amazonian Native Peoples and Nature (*Pacha Mama*) to be considered as legal subjects of rights. The step that Ecuador has taken in its Constitution represents a historical change in the way a modern sovereign country perceives its ecosystems and natural heritage, opening a door towards recognizing the biophysical limits of economic growth.

Yet, the notion of *Good Living* and nature's rights currently faces many limitations, political controversies, and threats, with one key difficulty being the biased appropriation of the term by certain ideological options (Radcliffe, 2012). Further, the notion of *Good Living* is also threatened by the inevitable expansion of urban-western lifestyles and the consequent loss of traditional knowledge and practices

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associated with sustainable ecosystem management (Gómez-Baggethun et al., 2013). The urban globalization that our planet is undergoing (Grimm et al., 2008) favors the advance of accelerated and materialistic lifestyles (Gleeson, 2012). Technological change, population increase, and urbanization tend to weaken the feedback between ecosystems and societies, potentially pushing social-ecological systems towards collapse (Cumming et al., 2014). In the case of Ecuador, this transformation could be fostering the propagation of certain patterns of consumption and behavior that pull rural societies away from their customary way of life, altering their ancient mindsets and threatening at last their own worldview of human-nature relationships.

The concept of human well-being is becoming increasingly central to research and policy on ecosystem services (i.e., the contributions of ecosystems that make human life both possible and worth living (Díaz et al., 2006)), and sustainability in general (Bizikova, 2011). However, we still have a poor understanding of how ecosystem services actually enhance multidimensional human well-being (Delgado and Marín, 2016), and how this is affected by ecosystem change (Daw et al., 2011). Different frameworks analyze the links between ecosystem services and human well-being (Agarwala et al., 2014; King et al., 2014). Among them, the framework proposed by the Millennium Ecosystem Assessment is one of the most commonly used in scientific literature (Cruz-García et al., 2017), based on five dimensions of human well-being: basic materials for a good life, health, good social relations, security, freedom of choice and action. Nevertheless, measures of well-being commonly used within the fields of psychology, economics, and international development, are not yet fully integrated into ecosystem services assessments (Villamagna and Giesecke, 2014).

Over the last decade, scholarly journal publications on ecosystem services have considerably increased, both globally (McDonough et al., 2017) and in Latin America (Balvanera et al., 2012). In a recent systematic literature review, Cruz-García et al. (2017) found that most of the investigations typically assume, as part of the study justification, that the relationships between ecosystem services and human well-being dimensions do exist, proposing hypotheses based on that assumption. Yet, studies that empirically quantify or evaluate those relationships from the perspective of stakeholders are particularly scarce (Cruz-García et al., 2017). This issue represents an important constraint for policy making, as sociocultural perceptions on human-nature relationships are fundamental for promoting collective responses that improve environmental management schemes under the current context of urban globalization (Arnaiz-Schmitz et al., 2018).

Here, we explore the factors that influence life satisfaction (used as a measure of subjective well-being) and the perception of ecosystem services in a region of the high Andes of Ecuador that comprises four rural villages and one medium-sized city. Our specific goals were: (a) to analyze the sociocultural and subjective factors that better predict life satisfaction in rural versus urban villages; and (b) to assess the potential existence of a rural–urban gradient related to how different sociocultural factors influence the subjective perception of the importance of ecosystem services for well-being.

2. Materials and methods

2.1. Study area

Our study area is located in the southeastern part of the Otavalo *cantón* (Province of Imbabura, Ecuador), and is part of the Lake San Pablo watershed that is surrounded by the Mojanda-Cusín volcanic range to the south, and the Imbabura volcanic group to the north. Mean annual precipitation ranges between 750 and 1000 mm, and the mean temperature ranges between nine and 18 °C along the altitudinal gradient (PDOT-San Pablo, 2011). The landscape is mostly composed of *paramos* (high Andean grasslands above the forest line), mountain forests, and agro-pastoral systems.

The study area holds great sociocultural value, as it is inhabited by

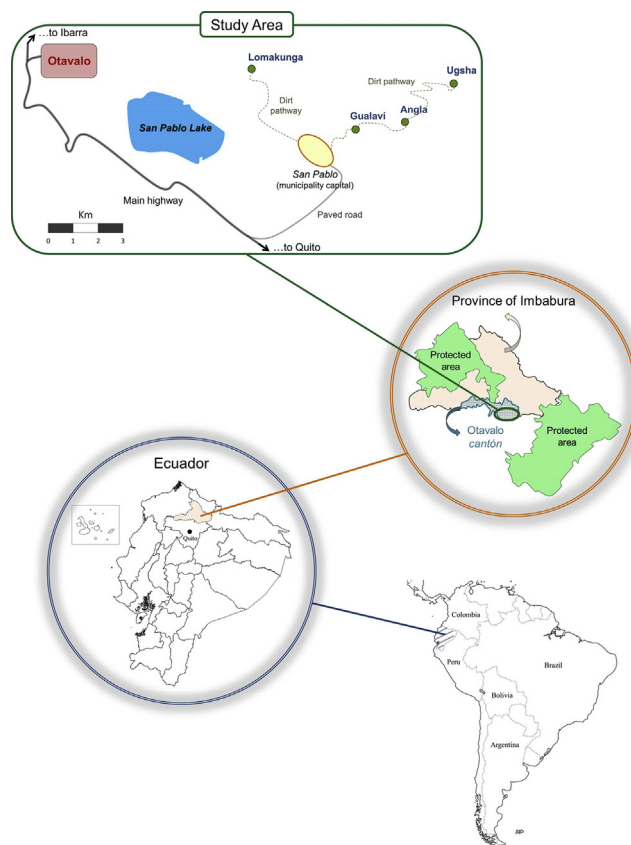


Fig. 1. Location of the study area at the local, provincial, national, and continental level, and sketch showing the position of the villages studied, all of them belonging to the Kichwa nationality: four indigenous villages (green dots) and the city of Otavalo.

the largest northern indigenous Kichwa population in the country. The Kichwa people of this area have a long tradition of being involved in processes of indigenous claims and also hold many customary practices that are deeply rooted in the philosophy of *Sumak Kawsay*. The study area is also important in ecological terms, with two adjacent natural protected areas that are important for preserving high Andean ecosystems and biodiversity (Fig. 1).

Four rural villages and one medium-sized city, all of them belonging to the indigenous Kichwa nationality, were selected within the study area according to geographical, ecological, and sociocultural criteria. The four rural villages (Gualaví, Angla, Lomakunga, and Ugsha) were located along the hillsides of Imbabura Volcano (situated between 2700 and 3200 m above sea level), at increasing distances from San Pablo, the capital of the municipality. The studied city was Otavalo, which is the most important urban area in the province with 39,000 inhabitants. This city is located 14 km northwest of San Pablo (Fig. 1; Table 1). Rural villages are connected with San Pablo via cobbled or dirt pathways, while the city of Otavalo is connected with Quito and major towns in the country via a paved highway.

Most of the households in rural villages are smallholdings (average size 1.5 ha). These small agro-pastoral exploitations represent the major socioeconomic activity in the area, and the mean form of subsistence for most local families. Agricultural and livestock production is mostly for self-subsistence, and occasionally for exchange or small internal trading. In contrast to the four studied rural villages, the city of Otavalo exhibits a significantly different economic pattern, which is based on manufacturing, marketing, and tourism. Otavalo has become, in recent years, one of the most important touristic destinations in Ecuador.

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