Evolutionary Anthropology Society

Mary K Shenk, Contributing Editor

The Tsimane' Life History Project

Prepared by Paul Hooper, with Michael Gurven and Hillard Kaplan

The Tsimane' Life History Project (the project) was initiated in 2002 as a joint health and anthropology project directed out of the University of New Mexico and UC Santa Barbara. It represents one of the first integrated studies of growth, development, senescence, subsistence, health, and social capital in a traditional society that has had relatively little involvement in market economies and modern health care systems. The project was the keystone of a well-received plenary address delivered by Michael Gurven at last June's HBES conference in Philadelphia, and has begun to produce a stream of publications in journals in anthropology, demography, and economics.

The Tsimane' are lowland forager-horticulturalists living in small villages composed of extended family clusters, located primarily in the Maniqui river system in the Beni region of Bolivia. The project currently covers twenty three Tsimane' communities containing over three thousand individuals.

The project's research program has a number of central objectives. The first is to test hypotheses about the roles of the brain and learning as determinants of the length of juvenile dependence and the transition to adulthood. The second is to advance theory in the biodemography of the human life course, with a specific focus on aging and lifespan. A fundamental insight derived from recent theoretical and empirical results is that the timing of development co-evolves with adult mortality patterns and senescence. Additionally, different domains of development and senescence such as physical condition, immune function, cognition and behavior are co-adapted and linked in time. These insights motivate the analysis of the life course in its entirety, which is made possible by the considerable size of the Tsimane' population. The third major objective is to investigate the relationship between these life history characteristics and the pattern of resource sharing within and among families. Finally, the project aims to offer thorough tests of the “grandmother hypothesis”, which argues that menopause and a long subsequent non-reproductive lifespan exists in humans because helping descendant kin provides greater “biological fitness” payoffs than having new kids later in life. Data currently being collected examines how older individuals spend their time, the material, intellectual, and other resources they invest in kin, and the decisions they make (e.g. residence patterns, adoption of orphaned grandchildren) which can ultimately influence family welfare.

The project incorporates community development as a necessary concomitant of research done in impoverished indigenous communities. The project's medical team rotates among the Tsimane' villages, providing both direct medical care and instruction on effective community health measures. The health-related information that is collected will, in consultation with the Bolivian Ministry of Health and medical schools in La Paz and Cochabamba, identify key sex-specific medical problems among different age-groups across the entire lifespan in remote Tsimane villages.

The Tsimane' project includes an important training component, giving undergraduate and graduate students from UCSB, UNM, and Texas A&M experience in field research methods, and has provided the setting for a number of individual research projects and doctoral dissertations. The core medical team consists of Bolivian physicians, biotechnicians, and Tsimane' translators. The project relies on the crucial

input of additional Tsimane' anthropologists and translators and a small office staff who manage data collection and entry and coordinate the team's activity in the field.

While findings from the project are only just beginning to come out, the study of Tsimane' demography has already produced unexpected results with implications for public health. Improvement in public health services in the town of San Borja has resulted in much reduced mortality of older people in remote villages, but has had little impact on the mortality of infants and young children. This pattern is quite different from the North American and European pattern, where improvement in public health in the late 19th and early 20th century greatly reduced infant and young child mortality, with much smaller impact on mortality at later ages. One likely cause of this difference is that infants and young children in remote villages often die before receiving medical care, whereas in North America and Europe the initial impact was due to improved water, sanitation and sewage facilities. Two implications of these findings are the need to train Tsimane' health promoters to give basic health services outside of town, and the need for greater emphasis on the extension of general public health services to remote communities.

Upcoming events presenting results of Tsimane' research include:

1. Stanford's Hunting and Gathering Colloquium on December 1, 2006.
2. UC Berkeley's Demography Colloquium on February 1, 2007.
3. Human Biology Association meeting in Philadelphia, March 28-29.
4. Population Association of America meeting in New York, March 29-31.

A currently open visiting professorship position at UCSB will likely have close involvement with Tsimane' research. Publications and further information about the project can be found at http://www.unm.edu/~tsimane.

Announcement: Call for Contributions to Encyclopedia of Earth

A coalition of experts on the environment are collaborating to produce a comprehensive, wiki-based, electronic Encyclopedia of Earth (EoE) which will rely on peer-reviewed contributions from the social, biological, and physical sciences, and the humanities. EoE is currently seeking qualified authors to develop articles in the areas of human ecology, adaptation, and evolution, as well as environmental and ecological anthropology. Anyone interested in learning more or contributing is invited to visit http://www.eoearth.org/eoe/.

Contributions to this column are welcomed and may be sent to mshenk@unc.edu. EAS columns are archived at www.evolutionaryanthopologysociety.org.