

LBA-ECO LC-24 Cadastral Property Map of Uruara, Para, Brazil: ca.1975

Revision date: October 21, 2011

Summary:

This data set contains a shapefile of a digitized map of the land parcel information of the original properties of the Uruara colonization site, Para, Brazil, acquired from the Instituto de Colonizacao e Reforma Agraria, or the Colonization and Agrarian Reform Institute (INCRA). The Uruara settlement geometry was initially designed by INCRA, and consists of mostly 100 hectare lots (400 x 2500 meters, and 500 x 2000 meters), running north and south of the Trans-Amazon Highway, as a fine network of small, narrow rectangles. The other parcels in the landscape are the so-called glebas that range up to 3,000 hectares.

The map was in the form of a paper map without a projection (a spherical geographic coordinate system) in the South American 1969 datum (SAD 1969). This paper map was digitized in Environmental Science Research Institute (ESRI) ArcInfo 8.1 using a digitizing table, and the digital cadastral data were geo-referenced and projected to match the Universal Transverse Mercator projection (Zone 22 South, World Geodetic System 1984 datum) of Landsat imagery (Landsat.org). There is one compressed (*.zip) file with this data set.

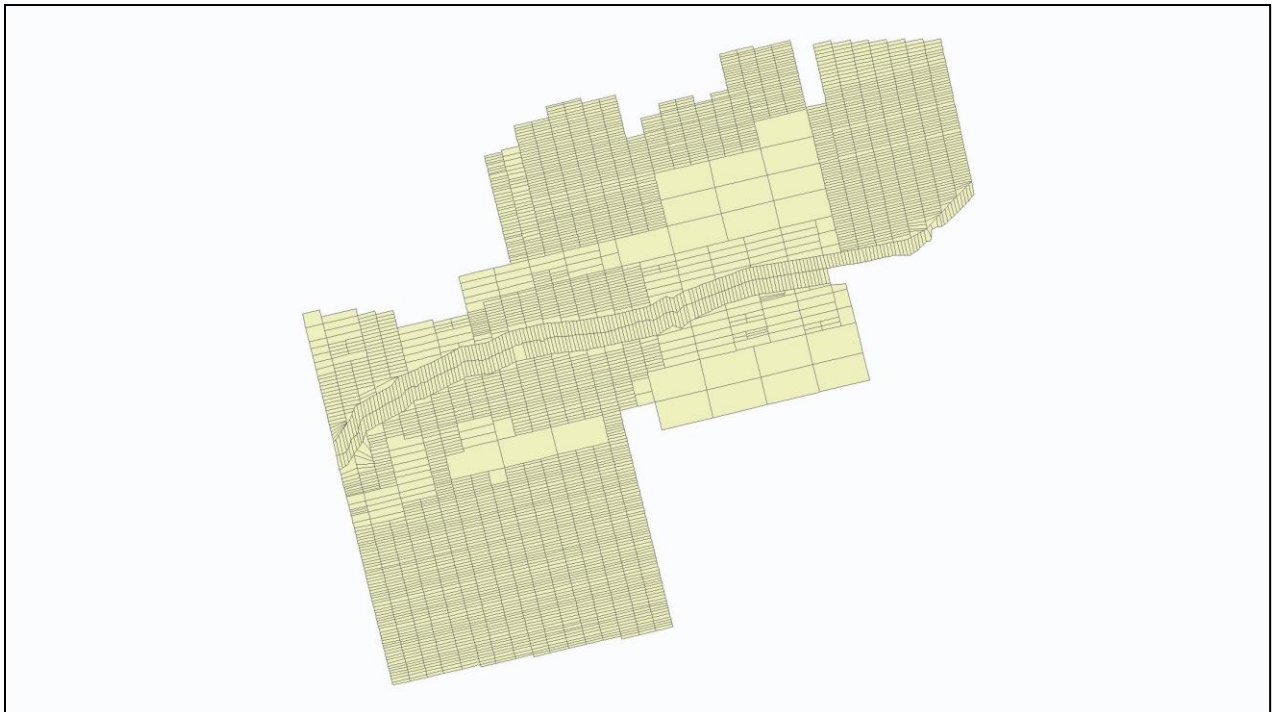


Figure 1: Image of cadastral property map

Data Citation:

Cite this data set as follows:

Walker, R.T. and M.M. Caldas. 2011. LBA-ECO LC-24 Cadastral Property Map of Uruara, Para, Brazil: ca.1975. Data set. Available on-line [<http://daac.ornl.gov>] from Oak Ridge National Laboratory Distributed Active Archive Center, Oak Ridge, Tennessee, U.S.A.
<http://dx.doi.org/10.3334/ORNLDAAC/1042>

Implementation of the LBA Data and Publication Policy by Data Users:

The LBA Data and Publication Policy [http://daac.ornl.gov/LBA/lba_data_policy.html] is in effect for a period of five (5) years from the date of archiving and should be followed by data users who have obtained LBA data sets from the ORNL DAAC. Users who download LBA data in the five years after data have been archived must contact the investigators who collected the data, per provisions 6 and 7 in the Policy.

This data set was archived in October of 2011. Users who download the data between October 2011 and September 2016 must comply with the LBA Data and Publication Policy.

Data users should use the Investigator contact information in this document to communicate with the data provider. Alternatively, the LBA Web Site [<http://lba.inpa.gov.br/lba/>] in Brazil will have current contact information.

Data users should use the Data Set Citation and other applicable references provided in this document to acknowledge use of the data.

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1. Data Set Overview:

Project: LBA (Large-Scale Biosphere-Atmosphere Experiment in the Amazon)

Activity: LBA-ECO

LBA Science Component: Human Dimensions

Team ID: LC-24 (Walker / Reis)

The investigators were Walker, Robert T.; Reis, Eustaquio J; Arima, Eugenio; Bohrer, Claudio Belmonte de Athayde; Caldas, Marcellus Marques; Perz, Stephen G; Pfaff, Alexander; Qi, Jiaguo and Souza Jr., Carlos Moreira de . You may contact Walker, Robert T. (rwalker@msu.edu).

LBA Data Set Inventory ID: LC24_Cadastral_Property_Map_Para

Land parcel information of the original properties of the Uruara colonization site, Para, Brazil, was acquired from INCRA in the form of a paper map without a projection (a spherical geographic coordinate system) in the South American 1969 datum (SAD1969). This paper map was digitized in Environmental Science Research Institute (ESRI) ArcInfo 8.1 using a digitizing table, and the digital cadastral data were geo-referenced and projected to match the Universal Transverse Mercator projection (Zone 22 South, World Geodetic System 1984 datum) of Landsat imagery (Landsat.org).

Related Data Set:

- LBA-ECO LC-24 Classified Landsat ETM+ Deforestation Mosaic of Uruara, Para: 1999 (Landsat ETM+ mosaic of the same area)

2. Data Characteristics:

There is one compressed (*.zip) file, **parcels.zip**, which contains an ESRI polygon shape file, **parcels.shp**. This shapefile displays the individual property boundaries.

Shape file name: parcels

Projection: Universal Transverse Mercator, Zone 22S

Horizontal Datum: D_WGS_1984

Ellipsoid: WGS_1984

Shapefile attributes:

FID: Automatically created and populated with a number

Shape: Automatically generated by ArcGIS software

LOT_NO: A unique value for each parcel lot

Site boundaries: (All latitude and longitude given in decimal degrees)

Site (Region)	Westernmost Longitude	Easternmost Longitude	Northernmost Latitude	Southernmost Latitude	Geodetic Datum
Para Western (Santarem) - Uruara (Para Western (Santarem))	-54.009225	-53.161113	-3.325225	-4.147607	World Geodetic System 1984 (WGS-1984)

Time period:

- The data set covers the period: 1970-1975
- Temporal Resolution: One time

Platform/Sensor/Parameters measured include:

- MAPS / DIGITIZER / DEFORESTATION /HABITAT CONVERSION/FRAGMENTATION
- MAPS / DIGITIZER / DEFORESTATION/ LAND RECORDS

3. Data Application and Derivation:

A GIS overlay function joined the digital cadastral map with the classified images, which enabled the generation of land cover magnitudes for the lots. These data were then output to files readable by statistical software, and the cover and survey data were combined for analysis.

4. Quality Assessment:

While a formal in-computer accuracy assessment has not been performed, using the Cadastral map in real-time GPS location on site has been highly successful across the entire spatial extent of the shapefile. This signifies that the shapefile is of reasonable spatial accuracy throughout. Overlaying the property map on a 1999 Landsat ETM+ image of the area resulted in +/- 60 meters horizontal accuracy and +/- 90 meters vertical accuracy.

5. Data Acquisition Materials and Methods:

The Uruara settlement geometry was initially designed by INCRA, and consists of mostly 100 hectare lots (400 x 2500 meters, and 500 x 2000 meters), running north and south of the Trans-Amazon Highway, as a fine network of small, narrow rectangles. The other parcels in the landscape are the so-called glebas that range up to 3,000 hectares.

Land parcel information of the Uruara area was acquired from INCRA in the form of a paper map without a projection (a spherical geographic coordinate system) in the South American 1969 datum (SAD1969). This paper map was digitized in Environmental Science Research Institute (ESRI) ArcInfo 8.1 using a digitizing table, and the digital cadastral data were geo-referenced and projected to match the Universal Transverse Mercator projection (Zone 22 South, World Geodetic System 1984 datum) of Landsat imagery (Landsat.org 2004).

6. Data Access:

This data is available through the Oak Ridge National Laboratory (ORNL) Distributed Active Archive Center (DAAC).

Data Archive Center:

Contact for Data Center Access Information:

E-mail: uso@daac.ornl.gov

Telephone: +1 (865) 241-3952

7. References:

Environmental Science Research Institute (ESRI).

Instituto de Colonizaco e Reforma Agraria (INCRA) (translated: Colonization and Agrarian Reform Institute).

Related Publications

- Walker, R., S.A. Drzyzga, Y.L. Li, J.G. Qi, M. Caldas, E. Arima, and D. Vergara. 2004. A behavioral model of landscape change in the Amazon Basin: The colonist case. *Ecological Applications* 14(4):S299.
- Caldas, M., R.T. Walker, R. Shirota, S. Perz, and D. Skole. 2003. The Family Life Cycle and Deforestation in Amazonia: Combining Remote Sensing and Primary Data (Ciclo de Vida da Famlia e Desmatamento na Amazonica: Combinando Informaces de Sensoriamento Remoto com Dados Primarios). *Revista Brasileira de Economia* 57(4):683-711.
- Pontius, R.G., Walker, R., Yao-Kumah, R., Arima, E.Y., Aldrich, S., Vergara D. 2007. Quantitative Assessment for a Model of Amazonian Deforestation. *Annals of the Association of American Geographers*.
- Caldas, M., R.T. Walker, S. Perz, E. Arima, S. Aldrich, and C. Simmons. 2007. Theorizing Land Cover and Land Use Change: The Peasant Economy of Colonization in the Amazon Basin.. *Annals of the Association of American Geographers* 97(1):86-110.
- Aldrich, S., R. Walker, E. Arima, M. Caldas, J. Browder, and S. Perz. 2006. Land-Cover and Land-Use Change in the Brazilian Amazon: Smallholders, Ranchers, and Frontier Stratification.. *Economic Geography* 82(3):265-288.
- Arima, E., R.T. Walker, S. Perz, and M. Caldas. 2005. Loggers and Forest Fragmentation: Behavioral Models of Road Building in the Amazon Basin. 95(3):525-541.