



Ground measurements acquisition report for the VALERI site **Turco**

sampled from 12/04/2003 to 18/04/2003

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People participating to the field experiment:

Firstname & Name	Organization
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Freddy Loza de la Cruz	ABTEMA, La Paz, Bolivia
Justina Mollo de Villca	Breeder, Turco, Bolivia
Rufián Villca Carex	Breeder, Turco, Bolivia

Site coordinates

	Lat/Lon PSAM56 (decimal degrees)		UTM 19 South, WGS-84		Other projection*	
	Lat.	Lon.	Easting	Northing	Easting	Northing
Upper left corner	-18.2224	-68.2055	583792	7984638	584000	7985000
Lower right corner	-18.2494	-68.1770	586792	7981638	587000	7982000
Center	-18.2359	-68.1913	585292	7983138	585500	7983500

*The other projection user is UTM19S-PSAM56. All the characteristics are provided in the following table (see <http://www.avignon.inra.fr/valeri/>, methodology page, GPS document for more information):

Geodesic Map Datum	
Associated Ellipsoid	international 1924
Semi-major axe	6378388
Semi-minor axe	6356911.9
1/flattening	297
Eccentricity	0.081991978

Ground control points

	Easting	Northing	Comments
Wp1	585725	7986837	cross road
Wp2	585896	7986574	cross road
Wp3	585556	7984265	cross road
Wp4	586110	7983707	cross road
Wp5	585476	7983303	cross road
Wp6	585309	7988802	cross road/river
Wp7	584741	7987407	cross road/river
Wp8	584602	7987064	cross road
Wp9	585236	7980980	cross road
Wp10	585775	7989973	middle north of football ground
Wp11	586294	7989614	Turco bridge

GPS system used: Garmin 12 yellow
Typical uncertainty of GPS position: 8 m

Description of the site and land cover

Category according to IGBP classification

Barren and sparsely vegetated.

Comments on the land cover

The land cover is composed only of:

Thola (Parastrephia) which forms a homogeneous population of shrub. The plant has one meter height maximum. The fraction of plant cover is ranging between 5 and 20 %. However there are few rare other plants like Chekhe (Tetraglochin crislatum), Paja Brava (Festuca orthophylla), Allpachu Janqui (Junelia minima).

Soil surface has a sandy texture and pale brown color 10YR6/3 (Munsell Soil Color Charts) and some brown gravel (10YR5/3). The soil is covered by a discontinuous moquet of short grass, Llapa llapa (Aciachne acicularis laegaard) and Kachu (Calamagrostis) which is green after the wet season.

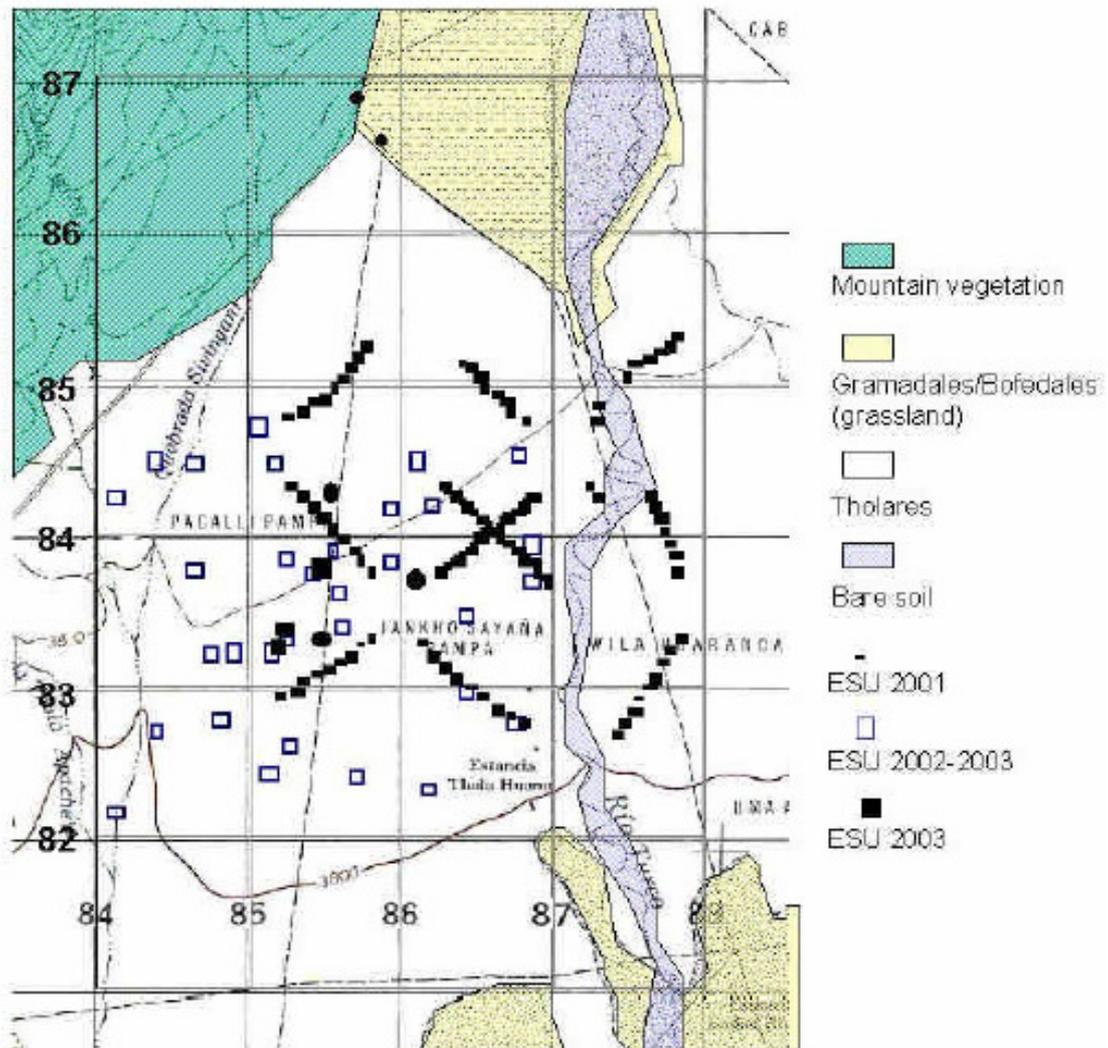
The SPOT image was acquired the 24/04/2003 one week after the ground measurements.

Topography

The site is at about 3800 m altitude. It is absolutely flat, with a very small slope of 0.5 % in the South East direction.

Land cover map

The land cover map included here is approximative and should be refined according to the SPOT image.

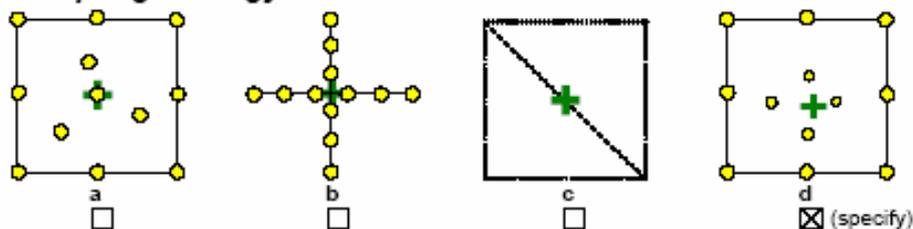


Spatial Sampling scheme

Sensors used for sampling the ESUs

	Method	Comments
<input checked="" type="checkbox"/>	Hemispherical photographs	NIKON Coolpix9000 instruments
<input type="checkbox"/>	LAI2000	
<input type="checkbox"/>	TRAC	
<input type="checkbox"/>	Ceptometer	
<input type="checkbox"/>	Direct measurements	
<input checked="" type="checkbox"/>	Other	fCOVER, Green biomass and LAI also was estimated by direct and destructive measurements.

Sampling strategy for the ESU

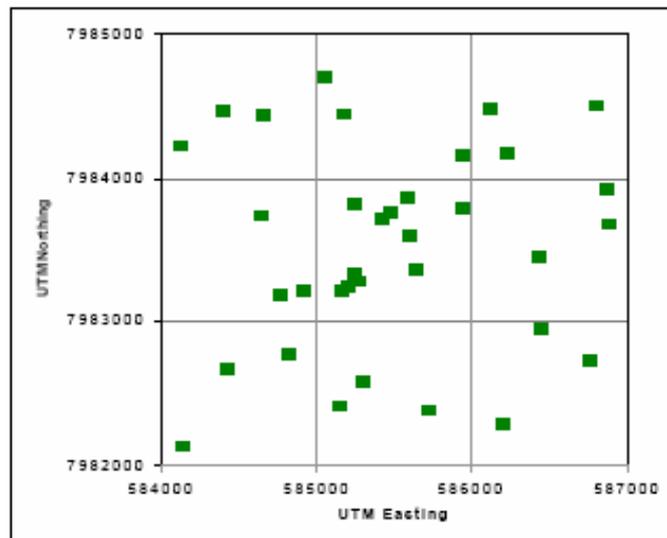


Distribution of the Elementary sampling units

The distribution of the ESUs was obtained by a random algorithm, because all part of site has a easy accessibiity and show only one kind of land cover.

Each ESUs was not too close to the borders of the one km pixel (at least 40 to 50m).

32 ESUs were sampled, 3 in each periferical pixels and 11 in the central pixel 3. (see figure below).



The high spatial resolution image

Satellite

Satellite used SPOT2 HRV2
Level of processing SpotView Basic
Projection type UTM19S

Airborne

No airborne data.

List of the ESUs

ESU	Month	Day	Hour	Minute	UTM-E	UTM-N	Team	Comments
101	4	13	9	30	584126	7984225	A	Tholar
102	4	13	10	20	584400	7984477	"	"
103	4	13	11	45	584653	7984442	"	"
201	4	13	14	5	585050	7984704	"	"
202	4	13	14	50	585175	7984449	"	"
203	4	13	15	40	585942	7984161	"	"
301	4	13	16	25	586124	7984485	"	"
302	4	14	9	0	586218	7984173	"	"
303	4	14	9	50	586802	7984505	"	"
401	4	15	13	45	584641	7983739	"	"
402	4	15	12	55	584766	7983188	"	"
403	4	15	11	35	584908	7983224	"	"
501	4	15	14	30	585251	7983828	"	"
502	4	15	15	20	585589	7983889	"	"
503	4	16	10	45	585941	7983790	"	"
504	4	16	9	55	585596	7983803	"	"
505	4	15	16	40	585426	7983717	"	"
506	4	16	11	30	585637	7983372	"	"
507	4	16	15	20	585271	7983281	"	"
508	4	16	14	20	585180	7983216	"	"
509	4	16	9	40	585476	7983767	"	ESU for krig
510	4	16	14	40	585210	7983250	"	ESU for krig
511	4	16	16	0	585235	7983337	"	ESU for krig
601	4	14	10	50	586436	7983456	"	"
602	4	14	13	15	586875	7983680	"	"
603	4	14	12	30	586872	7983928	"	"
701	4	15	8	40	584131	7982133	"	"
702	4	15	9	55	584432	7982677	"	"
703	4	15	10	40	584823	7982773	"	"
801	4	16	8	15	585148	7982417	"	"
802	4	15	16	0	585296	7982584	"	"
803	4	14	16	25	585723	7982391	"	"
901	4	14	14	10	586447	7982949	"	"
902	4	14	14	55	586764	7982728	"	"
903	4	14	15	35	586201	7982285	"	"

This is extracted from the Excel file GPSTurco2003.xls. Hour in local time (GMT – 4).

Acknowledgements

We would like to thank the town council of Turco, ABTEMA and the representation of the IRD in Bolivia for their welcome and for them sustain logistics.