

Andean Region

Tropical high Mountains,

Environment, Agriculture and Climate Change.

Mario E. Tapia

mariotapia@amauta.rcp.net.pe

UNALM-ANPE-Slow Food

Dresden, August, 2011

Andean Region

-Seven countries

-Extension: 200 million has.

-Population: 20 million

-Languages: Spanish,
Quechua, Aymara

-Cultures:

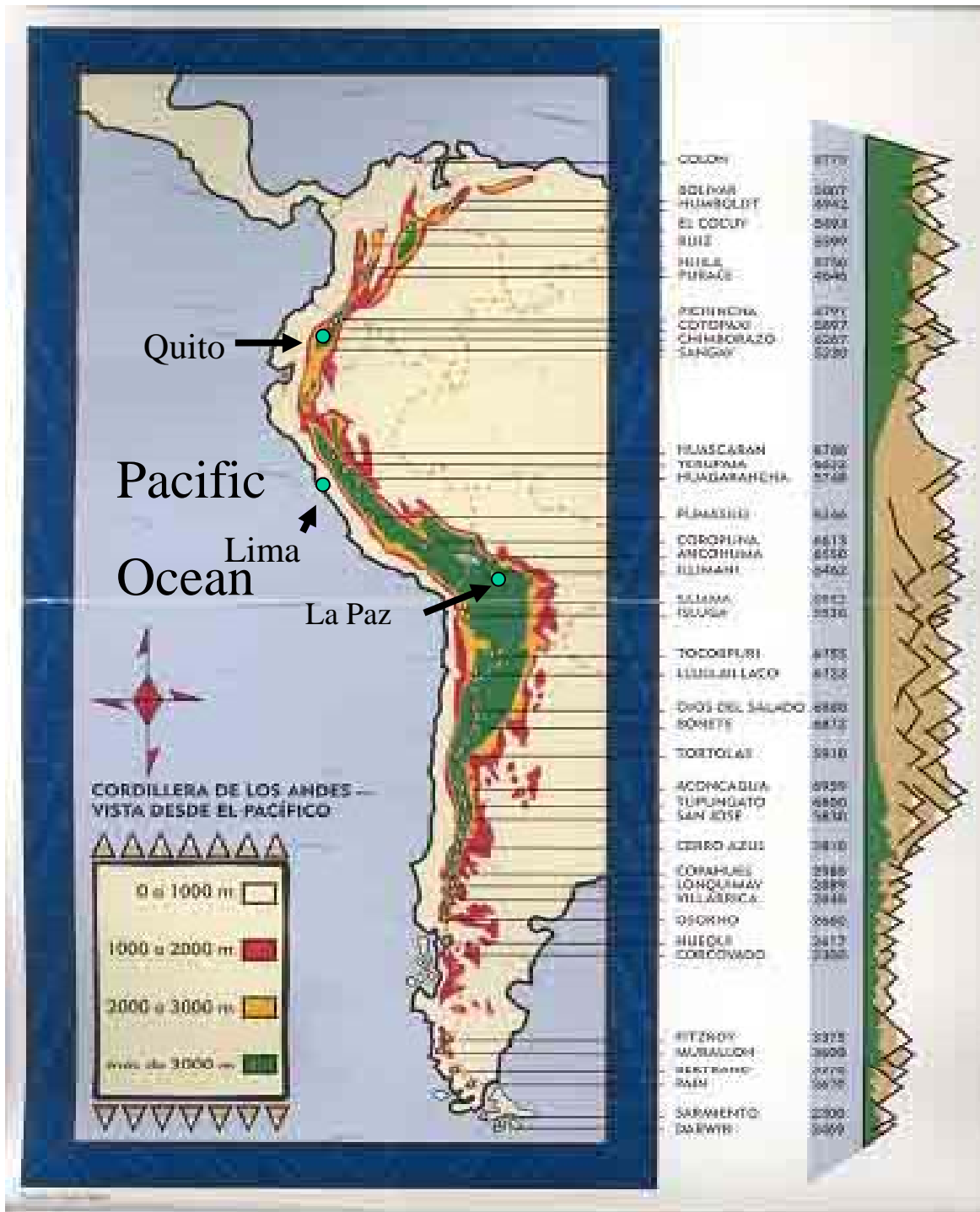
Chavin

Pucara

Tiahuanaco

Wari

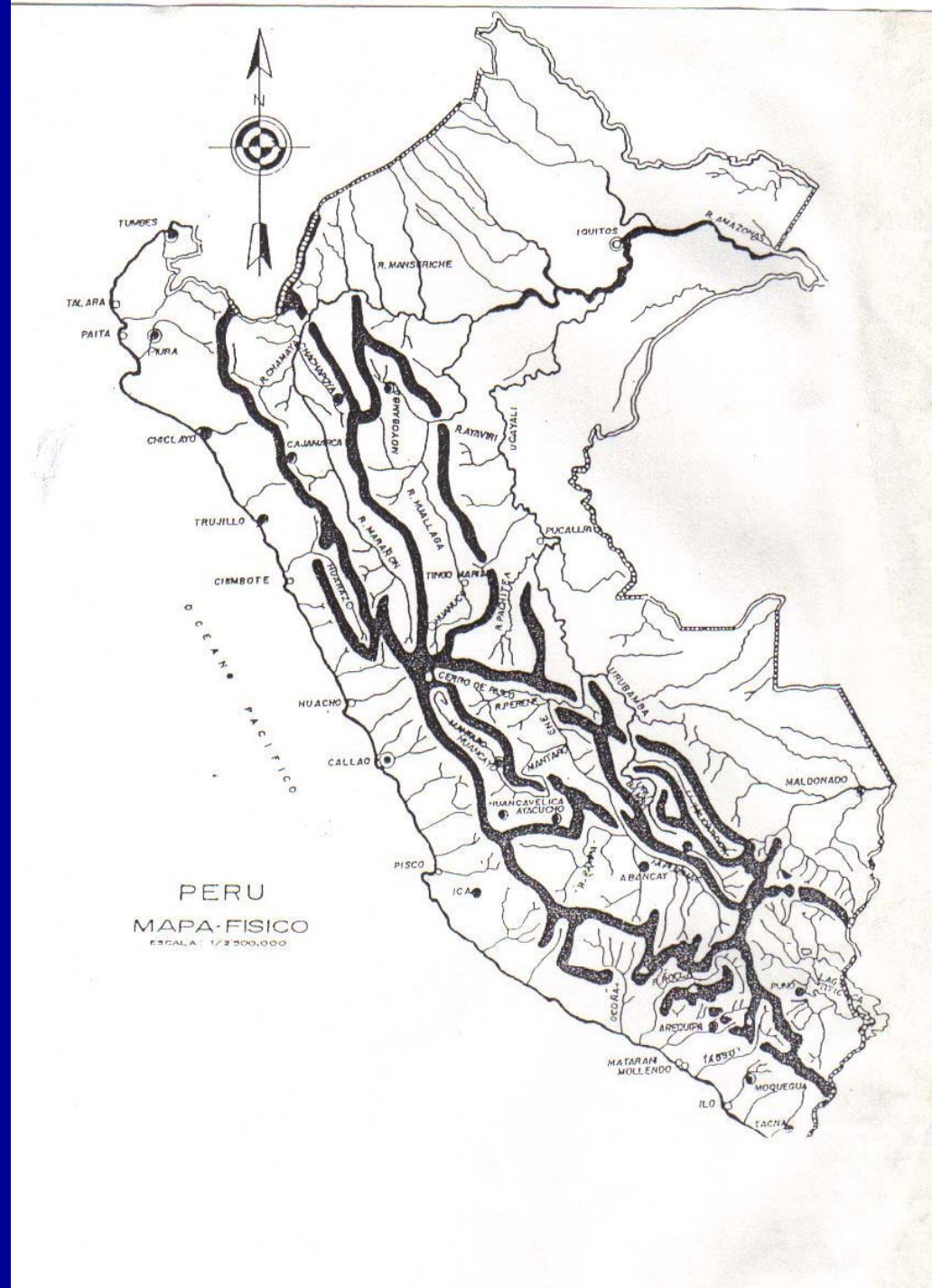
Inca

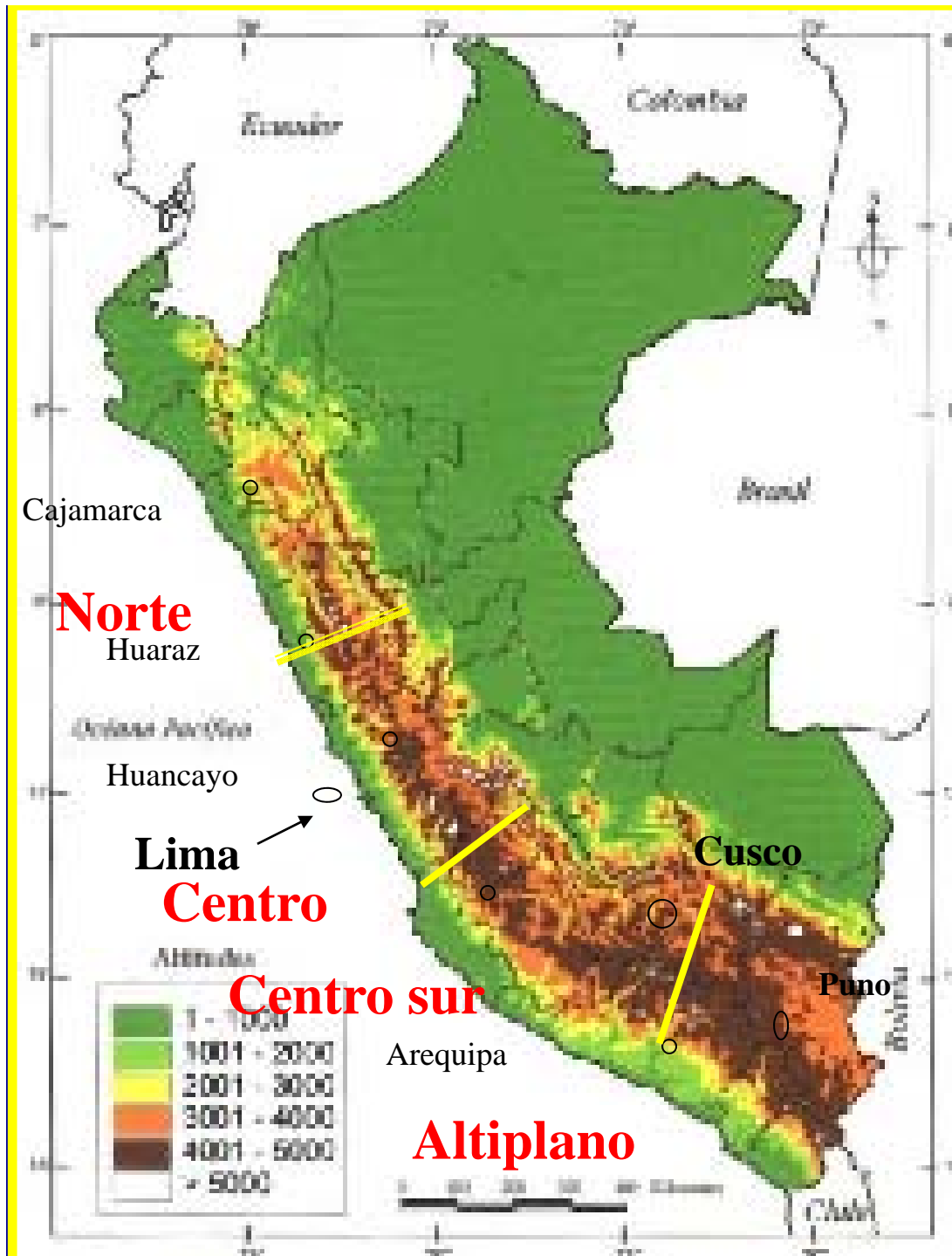


Orography

The Andes extends over 2,400 km. From north to south.

Including about three main watershed Pacific, Titicaca lake, and Amazonas with more than 170 micro watersheds





Peruvian Andes

Extension 30 million Has.

Altitud above 1,500 m.a.s.l.

Population 6-7 million

Native communities 5,000

Languages: Spanish, Quechua, Aymara

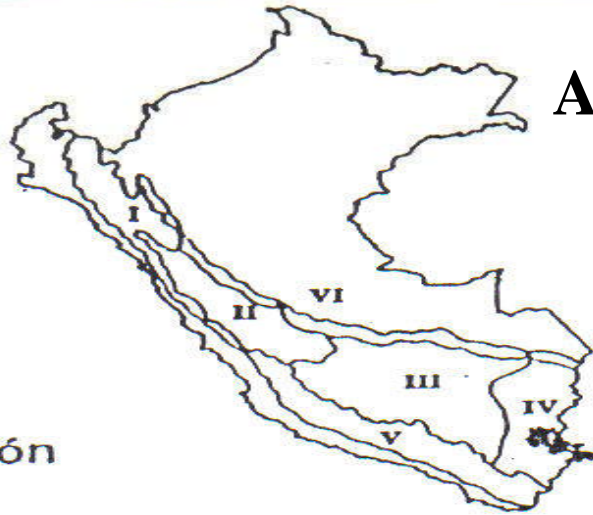
Traditional agriculture

Native crops

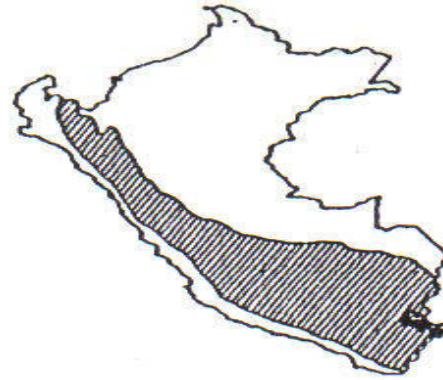
Native livestock

Agroecological Zonation

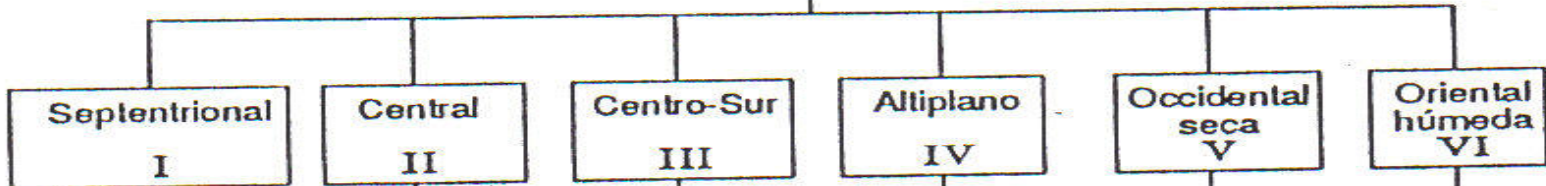
Región



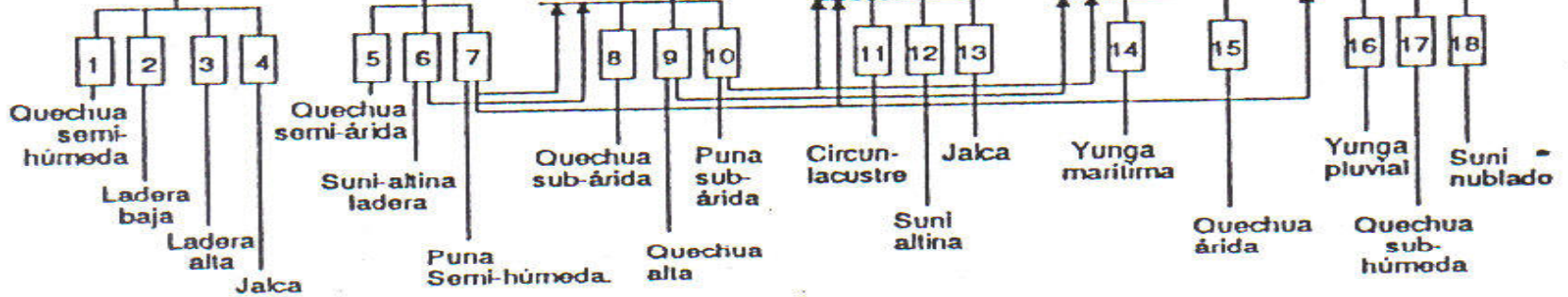
Sierra



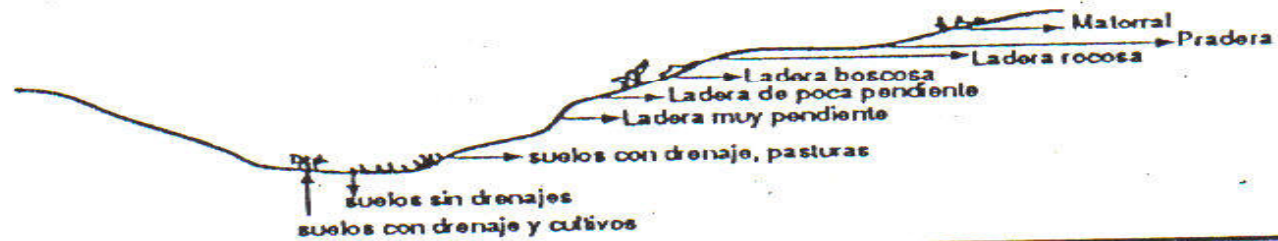
Sub-región



Zona agro-ecológica



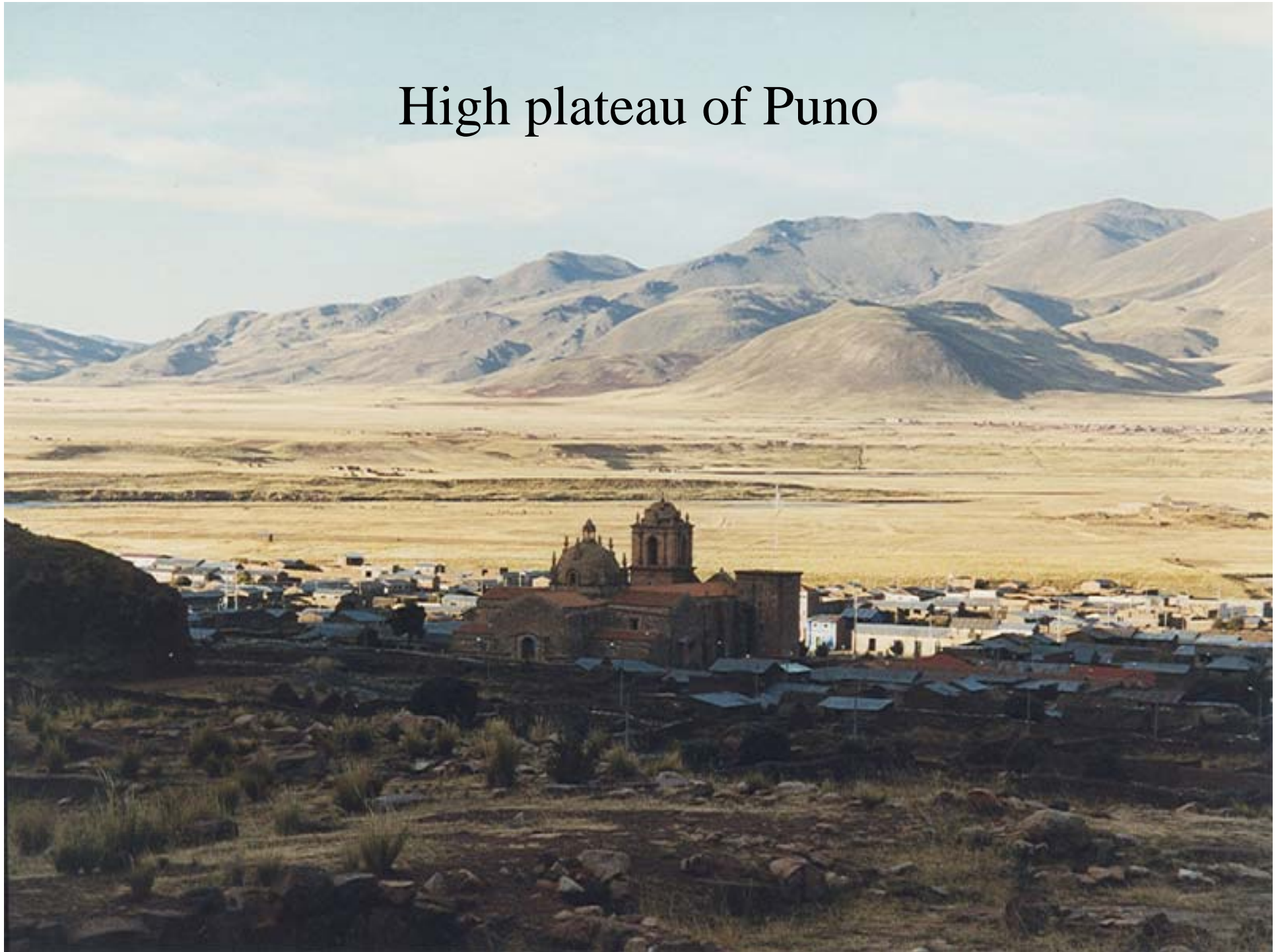
Zona homogénea de producción



Cusco, interandean valley



High plateau of Puno



Land use

Territory over 1500 m.a.s.l., Perú

Considered 30 % of the national area-
30'000,000 hectáreas, used as

Agriculture	2.8 Mha
Rangelands	14.0
Lakes and glaciers	0.8
Conservation land	12.2
Urban areas	0.2

Actual Situation

Population	youth's migration to cities
Income	low, \$ 400-600 / family / month
Nutrition	30 % children undernutrition
Illiteracy	30 % of rural women
Agrobiodiversity	partial genetic erosion
Soil	degradation, fertility decrease

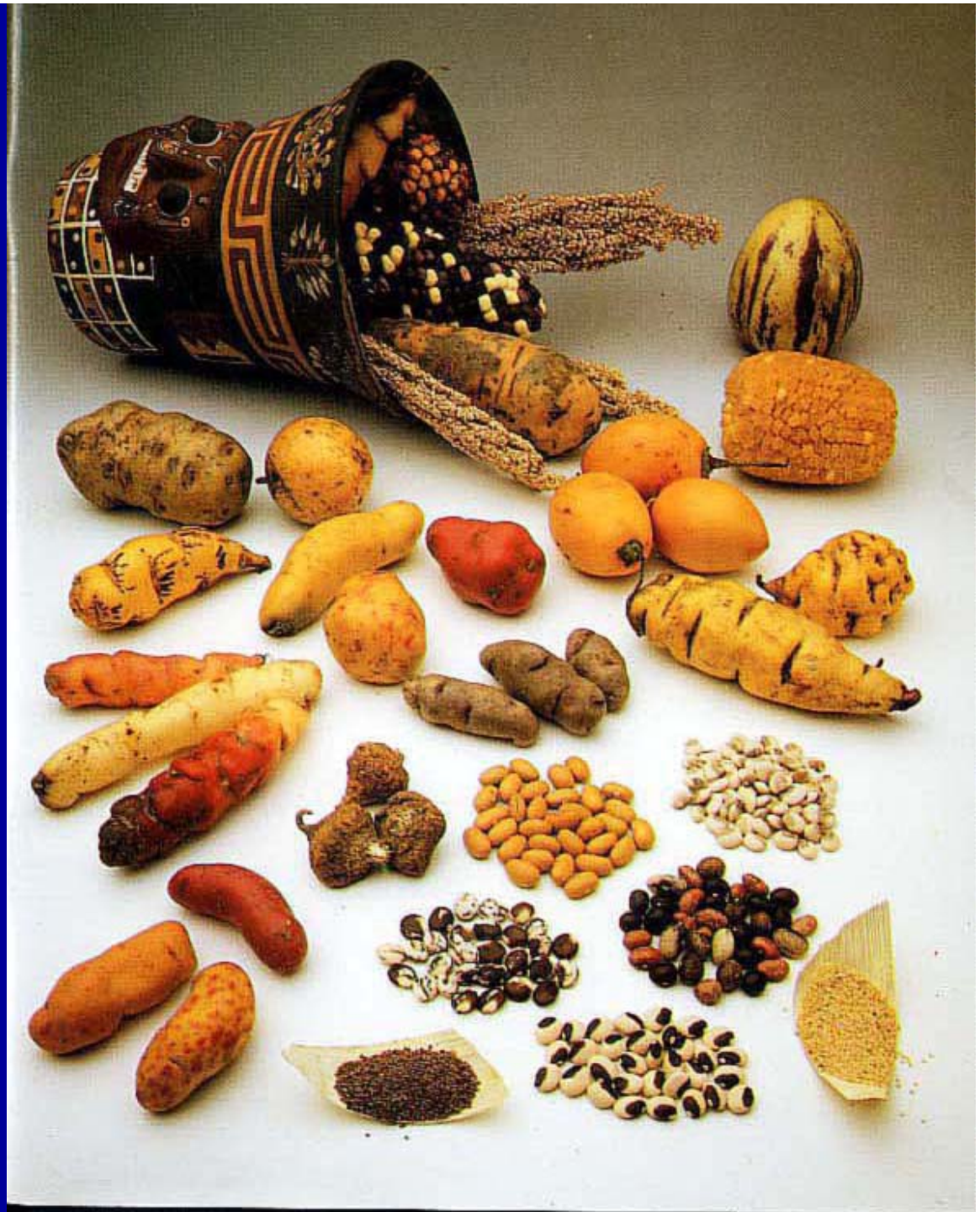
Ier Congreso de Cultivos Andinos



En 1977, Se realizo en Ayacucho, Peru.

Agrobiodiversity

More than
160 different
crops



Agrobiodiversity:

“The Central Andes are considered as a one of the eight center of plant and animal domestication in the world”.

Nicolai Vavilov, 1932.

1. Native Crops

Grains: quinua, kañiwa, amaranth

Tubers: potatoes, oca, olluco, mashua

Roots: arracacha, llacon, achira, maca, chagos,

Fruits: goldenberry, tree tomato, passionfruits, cherimoya,

Medicinal Plants: more than 50 species

2. Native livestock:

alpacas, llamas, vicuñas,

Peru, The land of potatoes

More than 2,000 landraces

8 different species

180 wild relatives



**Maize
varieties
with high
variability**

**32
different
races,
with
multiple
uses.**



Quinoa, *Chenopodium quinoa* Wild

An ancient grain, high nutritive value



Red quinoa



Field seed production, Ayaviri, 3,900 m.

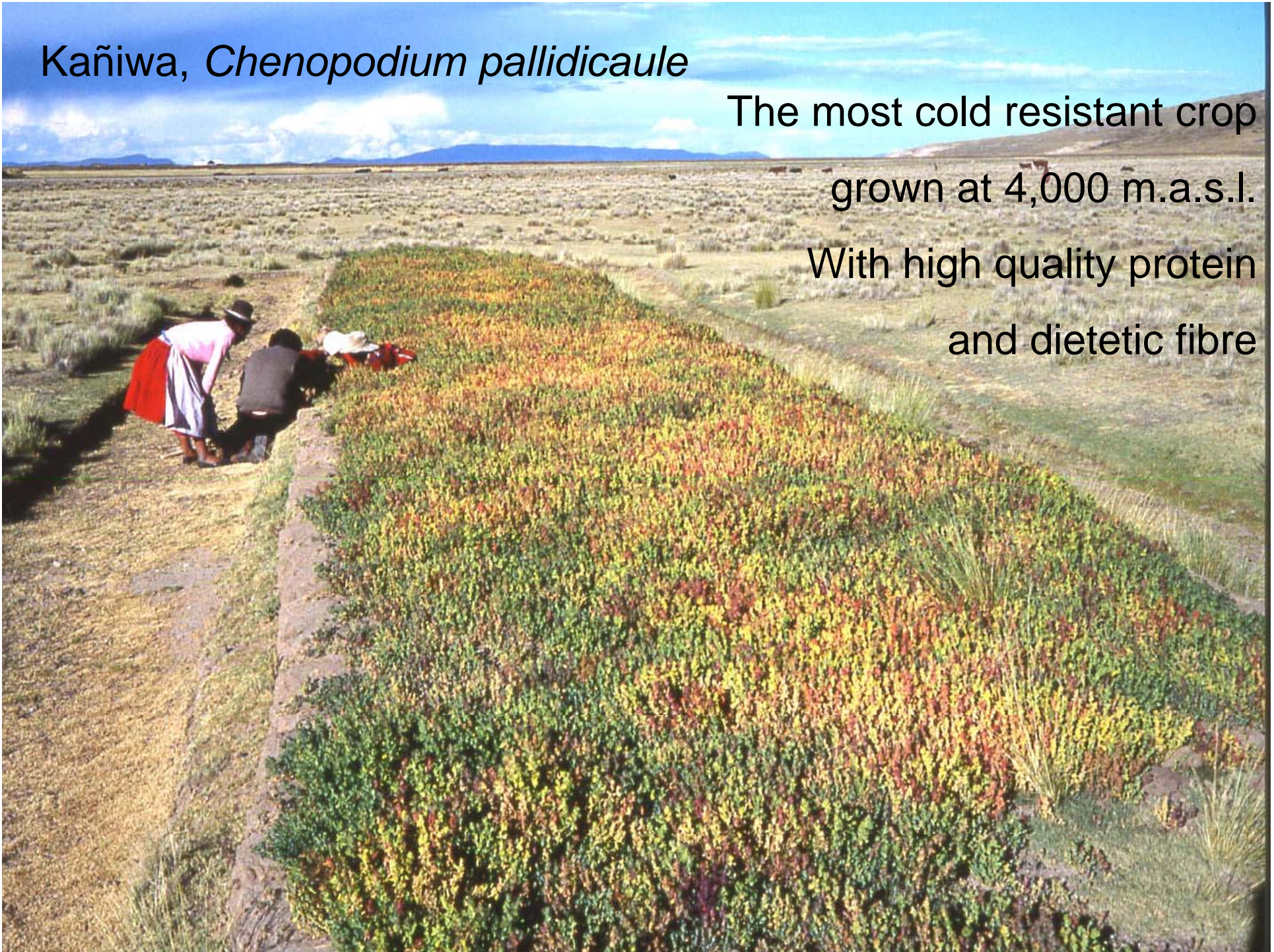
Black quinoa 20 % protein



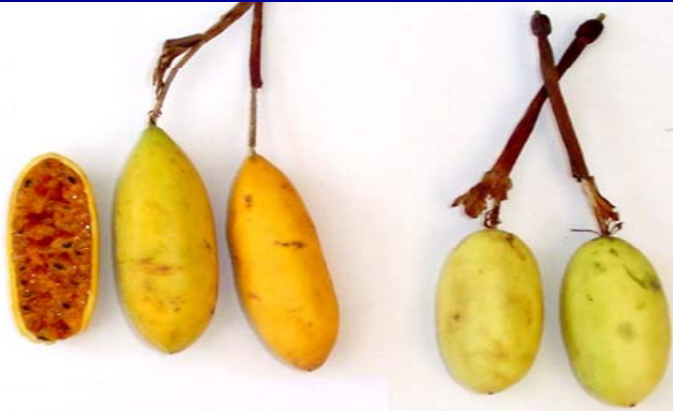
Kañiwa, *Chenopodium pallidicaule*

The most cold resistant crop
grown at 4,000 m.a.s.l.

With high quality protein
and dietetic fibre



Fruits:



PORO PORO
Variedad Castilla

PORO PORO
Variedad Khuchi



Sweet Pepino

Passionfruits



Sauco



In Italy, Slow Food Fair



Seed Fairs

Each year, after the harvest season (May to June), several seed fairs are being organized all over the andean region.

Native livestock

Alpacas 3,000,000

Vicuñas 120,000



Traditional technology

More than 500,000 has. with terraces, andenes, pata patas

In Cusco and Puno

Only 8 % in use

Reduce soil erosion

Better use of the rainfall

Weather stability

Terraces



Ritual terraces, Moray, Cusco.



Crops, varieties were tested.

Suka kollos

About 30,000 has. in the Altiplano, Perú.

Ridges, in Puno at 3,800 m.



Ritual water channel in Tapon, Cusco



Rivers were considered to be divinities

Peru: mountain agriculture

Philippines: rice terraces

Morocco: oasis systems

China: rice + fish farming

Chile: Island farming, Chiloe

Globally Important Agricultural Heritage Systems. GIAHS-FAO

Potato, quinoa, alpacas

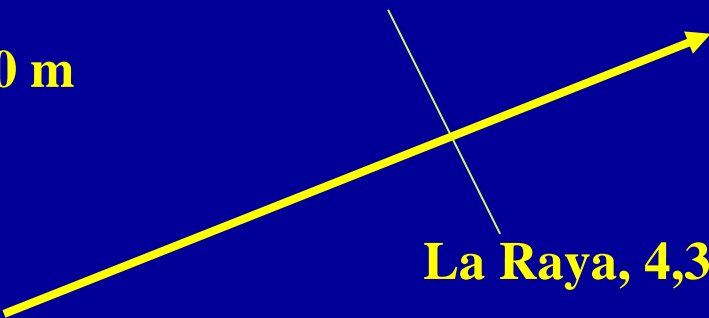
Lake Titicaca, 3,800 m

SIPAM

Dynamic conservation

Indigenous entrepreneurship

Machu Picchu, 1,900 m



La Raya, 4,300 m

Maize, amaranth, andean fruits

Together we can...

...thanks!

